THE POLITICS OF MINE CLOSURE AND SUSTAINABLE DEVELOPMENT
AT THE OK TEDI MINE, PAPUA NEW GUINEA

By
Phillipa Catherine Jenkins

August 2016

A thesis submitted for the degree of Doctor of Philosophy of The Australian National University.

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AUGUST 2016
Declaration

I, Phillipa Catherine Jenkins, declare that this thesis, submitted in fulfilment of the requirements for the award of Doctor of Philosophy, in the Resource, Environment and Development Program, Crawford School of Public Policy, ANU College of Asia and the Pacific, Australian National University, is wholly my own work unless otherwise referenced or acknowledged. This thesis has not been submitted for qualifications at any other academic institution.

Signed___________________________________________________ Date 26/08/2016

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Abstract

This thesis is about the Ok Tedi mine in Papua New Guinea. Throughout the literature on mining and communities, there is a split between the technical and the social. Technical mining – the engineering, environmental, planning and operations – do not ordinarily consider communities beyond the technical aspects of community relations – housing, employment, transport – rather approaching communities in a sanitised, corporate manner. There is plenty of discussion about environmental aspects of mine closure already, but it is important to have an extended discussion and create a space for debate about the roles of mining companies in developing sustainability plans that are for communities, not just the environments they exist in. The Ok Tedi mine has a unique institutional aspect that has grown with the mine – the Ok Tedi Mining Complex – which is inhabited by various governmental and non-governmental organisations. The mine closure and sustainability planning process under the OTMC is unique to Ok Tedi mine, as there is no other mine in PNG that is guided by the same legislation, norms, and cultural frameworks. The OTMC is dominated by the stakeholder relationships of the organisations under its auspices, and the outcomes of these relationships directly affect the outcomes of development planning. This thesis examines the development of the OTMC, and assesses the way it shaped the relationship between the main stakeholder organisations - Ok Tedi Mining Limited, PNG Sustainable Development Program Ltd., PNG national government, Ok Tedi Development Foundation, communities of the Community Mine Continuation Agreement regions, Fly River Provincial Government – has influenced the development of mine closure as a function of sustainability planning, the ongoing funding streams available for programs, and the development and implementation of programs aimed at encouraging sustainable livelihoods. This involves two case studies of livelihood promotion programs – Agriculture and Food Security, and Artisanal and Small Scale Mining. The dissertation is an original contribution to knowledge because there has been no systematic examination of the Ok Tedi Mining Complex as an institution, and there have been significant developments transforming the way that the stakeholder organisations relate to each other concerning mine closure and sustainability planning.
Abbreviations

10SA  Mining (Ok Tedi Tenth Supplemental Agreement) Act 2013
6SA  Mining (Ok Tedi Sixth Supplemental Agreement) Act 1986
9SA  Mining (Ok Tedi Ninth Supplemental Agreement) Act 2001
ARAMA  Alice River Alluvial Mining Association
ART  Alice River Trust
ASM  Artisanal and small-scale mining
BCL  Bougainville Copper Limited
BHP  Broken Hill Proprietary
CAP  Community Agriculture Program
CD  Census Division
CMCA  Community Mine Continuation Agreement
CMCC  Community Mine Continuation Consent process
CMCEA  Community Mine Continuation Extension Agreement
CSIP  Community and Social Investment Program
CSR  Corporate Social Responsibility
CuCON  Copper concentrate slurry
DAL  Department of Agriculture and Livestock
DEC  Department of Environment and Conservation
DMCP  Detailed Mine Closure Plan
DMPGM  Department of Mineral Policy and Geohazard Management
DNP  Department of National Planning
ECP  Evangelical Church of Papua
EITI  Extractive Industries Transparency Initiative
FAF  Financial Assurance Fund
<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
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<tbody>
<tr>
<td>FGF</td>
<td>Future Generations Fund</td>
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<tr>
<td>FRDT</td>
<td>Lower Ok Tedi Fly River Development Trust</td>
</tr>
<tr>
<td>FRPG</td>
<td>Fly River Provincial Government</td>
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<td>GRI</td>
<td>Global Reporting Initiative</td>
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<tr>
<td>HNI</td>
<td>Historical New Institutionalism</td>
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<td>ICMM</td>
<td>International Council on Mining and Minerals</td>
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<td>HVDP</td>
<td>Highway Village Development Program</td>
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<td>ITS</td>
<td>Interim Tailings Scheme</td>
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<tr>
<td>K</td>
<td>Papua New Guinean Kina</td>
</tr>
<tr>
<td>KLMDDA</td>
<td><em>Kiunga Lake Murray District Development Agreement</em></td>
</tr>
<tr>
<td>LLG</td>
<td>Local Level Government</td>
</tr>
<tr>
<td>LLGA</td>
<td>Local Level Government Area</td>
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<tr>
<td>LMP</td>
<td>Lease for Mining Purposes</td>
</tr>
<tr>
<td>LOT</td>
<td>Lower Ok Tedi</td>
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<tr>
<td>LOTA</td>
<td>Lower Ok Tedi Agreement</td>
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<tr>
<td>LOTIC</td>
<td>Lower Ok Tedi Investment Company</td>
</tr>
<tr>
<td>LORIT</td>
<td>Ok Tedi Royalty Investment Trust</td>
</tr>
<tr>
<td>LTDS</td>
<td>Tabubil Long Term Outlook Development Study</td>
</tr>
<tr>
<td>MAF</td>
<td>Mission Aviation Fellowship</td>
</tr>
<tr>
<td>MAGMA</td>
<td>Misima Alluvial Gold Mining Association</td>
</tr>
<tr>
<td>MAV</td>
<td>Mine Area Villages</td>
</tr>
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<td>MCDC</td>
<td><em>Ok Tedi Mine Closure and Decommissioning Code (Part of 9SA)</em></td>
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<tr>
<td>MCM</td>
<td>Montfort Catholic Mission</td>
</tr>
<tr>
<td>MLE</td>
<td>Mine Life Extension</td>
</tr>
<tr>
<td>MML</td>
<td>Misima Mines Limited</td>
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<td>Abbreviation</td>
<td>Description</td>
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<tr>
<td>MMSD</td>
<td>Mining Minerals and Sustainable Development Project</td>
</tr>
<tr>
<td>MOA</td>
<td>Memorandum of Agreement</td>
</tr>
<tr>
<td>MRA</td>
<td>Mineral Resources Authority</td>
</tr>
<tr>
<td>MRDC</td>
<td>Mineral Resource Development Company</td>
</tr>
<tr>
<td>MROT#2</td>
<td>Mineral Resources Ok Tedi No.2 Limited</td>
</tr>
<tr>
<td>MRSM</td>
<td>Mineral Resources Star Mountains Limited</td>
</tr>
<tr>
<td>MWMP</td>
<td>Mine Waste Management Project</td>
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<tr>
<td>MWTP</td>
<td>Mine Waste Tailings Project</td>
</tr>
<tr>
<td>NARI</td>
<td>National Agricultural Research Institute</td>
</tr>
<tr>
<td>NEC</td>
<td>National Executive Committee</td>
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<tr>
<td>NFRAP</td>
<td>North Fly Regional Action Plan</td>
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<tr>
<td>NGO</td>
<td>Nongovernmental Organisation</td>
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<tr>
<td>NOT</td>
<td>North Ok Tedi</td>
</tr>
<tr>
<td>NRRF</td>
<td>Non-Renewable Resources Fund</td>
</tr>
<tr>
<td>NSO</td>
<td>Papua New Guinea National Statistical Office</td>
</tr>
<tr>
<td>Ok Tedi</td>
<td>River also known as Wai Tri, Wai Deri, Alice River</td>
</tr>
<tr>
<td>OTDC</td>
<td>Ok Tedi Development Company</td>
</tr>
<tr>
<td>OTDF</td>
<td>Ok Tedi Development Foundation</td>
</tr>
<tr>
<td>OTFRDP</td>
<td>Ok Tedi Fly River Development Program – Trading entity of OTDF</td>
</tr>
<tr>
<td>OTMC</td>
<td>Ok Tedi Mining Complex</td>
</tr>
<tr>
<td>OTMIAA</td>
<td>Ok Tedi Mine Impact Area Association</td>
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<tr>
<td>OTML</td>
<td>Ok Tedi Mining Limited</td>
</tr>
<tr>
<td>PA</td>
<td><em>Mining (Ok Tedi Agreement) Act 1976 Chapter 363</em></td>
</tr>
<tr>
<td>PAD</td>
<td>Preferred Area Districts</td>
</tr>
<tr>
<td>Parish</td>
<td>Village land area</td>
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<tr>
<td>Acronym</td>
<td>Description</td>
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<tr>
<td>PCON</td>
<td>Pyrite concentrate (Tailings) slurry</td>
</tr>
<tr>
<td>PNGSDP</td>
<td>Papua New Guinea Sustainable Development Program Limited</td>
</tr>
<tr>
<td>RESA</td>
<td>Mining <em>(Ok Tedi Restated Eighth Supplemental Agreement) Act 1995</em></td>
</tr>
<tr>
<td>SMIT</td>
<td>Star Mountains Institute of Technology</td>
</tr>
<tr>
<td>SML</td>
<td>Special Mining Lease</td>
</tr>
<tr>
<td>SSG</td>
<td>Special Support Grant</td>
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<tr>
<td>TCS</td>
<td>Tax Credit Scheme</td>
</tr>
<tr>
<td>VDF</td>
<td>Village Development Funds</td>
</tr>
<tr>
<td>VPC</td>
<td>Village Planning Committee</td>
</tr>
<tr>
<td>WCED</td>
<td>United Nations World Council on Environment and Development</td>
</tr>
<tr>
<td>WDC</td>
<td>Ward Development Committee</td>
</tr>
<tr>
<td>WHT</td>
<td>Withholding Tax</td>
</tr>
<tr>
<td>WPA</td>
<td>Western Province Administration</td>
</tr>
<tr>
<td>WPPDTA</td>
<td>Western Province Peoples’ Dividend Trust Account</td>
</tr>
</tbody>
</table>
Exchange Rates

Yearly average exchange rates\(^1\)

1975 AUD 1 = PGK 0.998632
1981 AUD 1 = PGK 0.969020
1986 AUD 1 = PGK 0.589971
1991 AUD 1 = PGK 0.815779
1995 AUD 1 = PGK 0.892824
2001 AUD 1 = PGK 1.742193
2007 AUD 1 = PGK 2.429758
2012 AUD 1 = PGK 2.176344
2014 AUD 1 = PGK 2.400824

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Chapter One – Introduction

1.1 Introduction

The North Fly District in Western Province was one of the last places in Papua New Guinea to be colonised. This remote and mountainous region is home to a number of tribes, whose way of life relies on their social and physical environment for subsistence and ritual. The local name of ‘Ok Tedi’ holds significant import; principally as the name of the biggest river in the district apart from the Fly River itself, and subsequently as the name of the mining company, whose activities caused significant environmental destruction of the river. The Ok Tedi mine would become one of the longest operating, most politically, socially, and environmentally contentious mines in Papua New Guinea. Eventually the Ok Tedi mine will close, so planning for the political, social, economic and environmental future of the communities in its impact regions is of critical importance.

This thesis examines how the development of the Ok Tedi mine as an institution has shaped the development of sustainability and post mine closure planning. To achieve this, a suitable framework for analysis was followed. This framework, Historical New Institutionalism, was chosen as it argues that organisational actors are constrained by institutional factors in both in their objectives and outcomes. Sustainability planning by the Ok Tedi mine’s stakeholder organisations for community post-closure livelihood development faces institutional limits on both the scope and the outcome of planned projects. As this thesis is concerned with the impact of the Ok Tedi mine and its closure on the North Fly District, I will be restricting my analysis to this geographic area, with some reference to the rest of Western Province.

The literature engaged in this research is from two broad areas: the general sustainability and mine closure literature relating to the global trends in that research;
and political economy, anthropology, and sociology of mining in PNG, with discrete literature on the Ok Tedi mine. My research is placed within the PNG literature more than the sustainability literature.

The research objective of this thesis is to examine the Ok Tedi mine as an example of an institutional complex; specifically examining the development of stakeholder organisations, compensation and benefit streams, and particular community livelihood projects. The thesis intends to demonstrate that sustainability planning for post-closure community livelihood development has constraints that are shaped by all of the institutional factors, from legislation, to stakeholder organisations, to geography.

1.2 Theoretical Approach

The theoretical framework for analysis proposed by Historical New Institutionalism (HNI) is used in this thesis. According to HNI, institutions refer to ‘formal rules, compliance procedures, and standard operating practices that structure the relationship between individuals in various units of the polity and economy’ (Hall 1986: 19). HNI is primarily concerned with non-state networks of rules, laws, organisations, and relations between actors in political life. Steinmo (2001: 7554) argues that institutions are ‘in the broadest sense, simply rules’ and that they are foundation of all political behaviour, structuring politics because they define participation, shape actors’ strategies and influence their preferences. Thelen and Steinmo (1992:2) argue that HNI ‘work[s] with a definition that includes both formal organisations and informal rules and procedures that structure conduct’ DiMaggio and Powell (1991: 8) contend that HNI represents a…

…rejection of rational actor models, an interest in institutions as independent variables, a turn toward cognitive and cultural explanations, and an interest in properties of supraindividual units of analysis that cannot be reduced to aggregations of direct consequences of individual’s attributes or motives.
HNI can explain what the rational-actor or functionalist accounts of organisations cannot: why ‘administrators and politicians champion programs that are established but not implemented; managers gather information assiduously, but fail to analyse it; experts are hired not for advice but to signal legitimacy’ (DiMaggio and Powell 1991: 3). HNI does not see the individual actor or organisation in a vacuum, rather it is like an island, in an archipelago of other institutions, surrounded by an institutional sea.

The key to the HNI analysis is the ‘notion that institutional factors can shape both the objectives of political actors and the distribution of power among them in a given polity’ (Thelen and Steinmo 1992:6). Steinmo argues ‘rather than being neutral boxes in which political fights take place, institutions actually structure the political struggle itself’ (Steinmo 2001: 463). The approach analyses ‘the whole range of state and societal institutions that shape how political actors define their interests and that structure their relation of power to other groups’ (Thelen and Steinmo 1992: 2). Hall (1989:19) argues that

Institutional factors play two fundamental roles in this model. On the one hand, the organization of policymaking affects the degree of power any one set of actors has over the policy outcomes… On the other hand, organisational position also influences an actor’s definition of his own interests, by establishing his institutional responsibility and relationship to other actors. In this way, organisational factors affect both the degree of pressure an actor can bring to bear on policy and the likely direction of that pressure. Such analysis can be applied to both inside and outside the state.

Thelen and Steinmo (1992: 9–10) argue that the HNI accounts for both the input side and output side of political decisions and agency are influenced by institutions:

By shaping not just actor’s strategies … but also their goals as well, and by mediating their relations of cooperation and conflict, institutions structure political situations and leave their own imprint on political outcome. … The institutions at the center of
historical institutional analyses … Can shape and constrain political strategies in important ways, but they are themselves also the outcome (conscious or unintended) of deliberate political strategies, of political conflict, and of choice.

The HNI framework provides the most appropriate way to package the complex and often-contradictory aspects of the Ok Tedi mine and its stakeholder organisations. The research will answer essential questions about the role in mine closure and sustainability planning of the stakeholder organisations in what I call the ‘Ok Tedi Mining Complex’ (OTMC). OTMC is the name of the complex array of institutions (laws, agreements, policies, procedures, and so forth) that motivate and contain the behaviour of numerous organisational actors. The OTMC is an enduring embodiment of the rules, norms, established patterns of behaviour and ongoing corporate culture that is not entirely rooted in the individual actor or organisation. Discussion will centre on the future mine closure as an event that will remove the rationale for the existence of the institutional complex.

The OTMC’s stakeholder organisations and other political actors involved are guided by the formal and informal rules that have built up over the past 40 years (see Figure 1.1 in Appendix VI). The OTMC’s main stakeholder organisations are PNG Sustainable Development Program Ltd, Ok Tedi Development Foundation, the national government, and the impacted communities. The construction of sustainability as a culture within the stakeholder organisations of the OTMC is of primary concern of this thesis. The emergence of the OTMC through various political, regulatory and cultural channels means that the Ok Tedi mine is uniquely placed for ensuring an enduring focus on sustainable development post closure.

The HNI approach is important for examining the sustainability and mine closure planning. The basic premise of this thesis is that the institutions are not rational or functional, and influence particularly the government organisations. My argument is
that individual agency of the community members is constrained by the rules and norms of the Ok Tedi mine, as is the agency of organisations existing at village, regional, district, and provincial level. The development of rules, regulations, and cultures of the political and social institution of the Ok Tedi mine mediates the relationships and decision making of all political actors.

The growth and change of the Ok Tedi institution over time reflects the process of continual piecemeal, and occasionally more explicit, efforts to review and reorganise the variety of organisations within it (March and Olsen 1989: 69). These changes have been a result of administration changes within OTML from the inception of the mine as equity shareholders changed, to the large-scale transformations of the Mining (Ok Tedi (Ninth Supplemental) Agreement) Act 2001 (9SA). The institutional reforms in the early 2000s were the result of significant pressure from external organisations, although with good intentions, the follow-through of many of the initial ideas and motivations for the 9SA have been less than successful for the community.

OTML implicitly acknowledges there is an institutional complex that exists through their corporate slogan “More than a Mine:” James Assan, village leader from Konkonda confirmed a belief in the wider mine impact area community that

You see, the thing is the government has put in very little, very little in terms of the livelihoods of the people. And I think it is true to say that Ok Tedi is more than a mine and I think Ok Tedi has done that … In terms of services, infrastructure developments, where the government should have provided that infrastructure but there is nothing there. So Ok Tedi more or less played the role of the government here in the Western Province (Garret 2013).

The OTMC is an evolving institution, as even over the course of this research major changes occurred. The national government on 18/09/2013 appropriated the majority shareholding PNGSDP had in OTML, effectively cutting it off from its
income stream. PNGSDP was forced to stop funding existing community livelihood, healthcare, education, and regional development programs throughout PNG and has been significantly diminished in scope ever since.

1.3 Literature Review

This section addresses the placement of the research within the existing literature on mine closure and sustainability, and mining in PNG.

Mine Closure & Sustainability

Mining does not notionally fit into the scheme of sustainable development. Mining is capital intensive, environmentally destructive, and can be exploitative of labour. Mine closures throughout the world have been prime examples of the limitations of mining to bring sustainable development to communities that surround mining projects (Cochilco 2002). Mine closure is one of the most pressing issues to confront mining companies and governments in resource-based economies around the world. From the tin mines of Cornwall to Queenstown in Tasmania, to Panguna Mine in Bougainville (Spriggs and Denoon 1991), the closure of mines has led to significant economic downturns, environmental degradation, and social dislocation. Mine closure is traumatic for communities and local or provincial governments. It can cause a decline in whole regions unless managed in a sustainable way (Hegadoren and Day 1981; Conner 2003).

To understand how mine closure fits into sustainability, an investigation of what constitutes sustainability needs to be undertaken. The idea of sustainability came to the forefront of academic discourse in the 1980s. The United Nations World Commission on Environment and Development’s (WCED) Our Common Future\(^2\) report in 1987 popularised the idea that development and environment are not mutually

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\(^2\) The report is commonly referred to as the Bruntland Report after the chairman former Norwegian Prime Minister Gro Harlem Brundtland.
exclusive, and that they can be sustainable. The report (WCED 1987: 41) defined sustainable development as:

Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs. It contains within it two key concepts:

1. The concept of 'needs', in particular the essential needs of the world's poor, to which overriding priority should be given; and

2. The idea of limitations imposed by the state of technology and social organization on the environment's ability to meet present and future needs.

Creating a situation where an inherently destructive and environmentally damaging activity can lead to benefits for communities and the environment into the future seems incompatible. The focus of mine closure policy in advanced industrialised countries is on decommissioning and rehabilitation of physical assets, rather than policies for the conservation of communities and livelihoods (Laurence 2002; Limpitlaw and Hoadley 2006; Kemp et al. 2007). There is still a perception throughout the industry that social aspects of mine closure are not core to closure, rather they are supplementary. The Western Australian Government’s mine closure guidelines reflect this in the document’s approach sustainable development from only the ecological or environmental aspect, rather than the socio-cultural. The Australian and New Zealand Minerals and Energy Council and Minerals Council of Australia 2000 guidelines state in their stakeholder involvement section part 1.5 that ‘wherever practical, work with communities to manage the potential impacts of mine closure’ (emphasis added p. 4). This quote indicates that if it is not “practical” for the company to plan for impacted communities post-closure, then it is not expected. The idea that community sustainability planning could be perceived to be optional by the mining industry is not surprising. Communities that surround mines are often located in remote regions, far
from existing services and government infrastructure (O'Faircheallaigh. 1992, Madebwe 2004). The shifting away from mine towns to fly-in fly-out operations signals a desire for mining companies to mitigate their obligations and responsibilities to the surrounding communities by never providing them services or infrastructure in the first place that would create a dependency and subsequent negative impact at closure.

Over the past decade, there has been increasing integration of social considerations in mine closure planning into mines throughout the world. The International Institute for Environment and Development’s Mining Minerals and Sustainable Development (MMSD) project influenced the resources industry in a significant way. The report *Breaking New Ground* brought to the forefront the importance of sustainable development in the mining sector. Richard Jackson (2002) contributed a report on capacity building for community development leading up to mine closure in PNG which concluded that mine closure planning in PNG was not very good, but at the time there was ‘very little evidence that mine closure [was] being approached in any better way anywhere else in the world’ (2002: 35). The main mine closure-related outcomes of the MMSD project were that social aspects of sustainability had to be integrated into a whole-of-life mine closure conception. Outlined in the report was the “good practice” of mine closure planning centred around five sustainable aspects (MMSD 2002: 243–244):

- Future public health and safety are not compromised,
- Environmental resources are not subject to physical and chemical deterioration,
- The after-use of the site is beneficial and sustainable in the long term
- Any adverse socio-economic impacts are minimized, and
- All socio-economic benefits are maximized.
In the World Bank and International Finance Corporations 2002 report, *It’s Not Over When It’s Over: Mine Closure Around the World* highlight the areas of greatest importance for mining companies, governments, and communities in the process of mine closure. This report encourages triparty dialogue and early preparation for the best closure outcomes, but it also recognises the need for legal frameworks (Sheldon et. al 2002: 10)

Without a good legal framework for mine closure, mining companies do not know their obligations and potential future liabilities, and mining communities do not know their rights or responsibilities. The absence of a comprehensive legal framework for mine closure can also lead to inefficiencies and confusion among government units at the central regional and local levels. Unless they know they know the lines of authority and responsibility, they will not be able to ensure that mine closure takes place properly and that adequate monitoring occurs after closure.

In the early 2000s, the World Bank’s agenda for sustainability emerged as a desire to modernise PNG’s mining industry and reform the bureaucratic and legislative frameworks that governed the resource sector. The lack of a mine closure policy meant that Misima Mines planned closure without any PNG specific legal framework. This absence of a national framework lead to the first technical assistance (TA) loan and World Bank advisors working alongside PNG counterparts to develop a range of new policies. The outcome of this process was a draft Mine Closure Policy (2005), which to this day has not become legislation. At the conclusion of the TA package was the splitting of the Department of Mining into the Mineral Resources Authority (MRA), responsible for regulation of the sector through managing mineral licences and inspections, and the Department of Mineral Policy and Geohazard Management (DMPGM) responsible for legislation and policy.
Sustainable mine closure is one of the most important social issues facing resource-rich areas of the world. The social impacts of mine closure on communities have been examined extensively by academics (Veiga et al. 2001; Byford 2008; Halvaksz 2008); The main focus of the mine closure literature that is of relevance to this thesis is sustainable community development and the relationship between mining companies and the communities they exist within. Understanding essential tension that lies at the heart of relations between the mine and the community means examining the rights of people and the obligations of companies. Since OTML started operations, there has been a paradigm shift in the obligations companies have to the communities around them.

Corporate Social Responsibility (CSR) has become a core tenet of good business practice, and by extension corporate citizenship has meant that companies are seen as being part of the community rather than setting themselves apart (Chaloping-March 2006; Kemp 2009). In the last 20 years, CSR has become a salient issue for mining companies around the world. CSR has been defined as ‘...a concept whereby companies decide voluntarily to contribute to a better society and a cleaner environment’ (CEC 2001: 5), or ‘[t]he responsibility of enterprises for their impacts on society’ (EC 2011: 6). CSR goes beyond legal obligations or society expectation of corporate behaviour towards communities (Falck and Heblich 2007:247); it implies a moral obligation to ensure that communities are not negatively affected by the practices and activities of the company during its everyday business. The ethics of resource development in the context of indigenous cultural lands provides a significant challenge to CSR. Where communities are relocated (Connell and Howitt 1991) or their environment is significantly impacted by mining operations (as at Ok Tedi mine, Freeport’s Grasberg mine (Leith 2008)), companies face increased challenges to designing post-closure corporate-community development livelihood projects that
adequately address the key aspects of sustainable development. Lertzman and Vredenberg (2005:244) argue ‘…it is unethical to sacrifice the viability of Indigenous (or other) cultures for industrial resource extraction. It is ethical to engage with Indigenous peoples in a manner consistent with their wishes, their cultures and means for material survival’. It is necessary to involve communities in developing plans for sustainability (Veiga et al. 2001; Butler et. al. 2012; Gilberthorpe and Banks (2012). The traditional communities impacted by resource development are not static, however, so the strategies of the company and other stakeholders in their CSR plans must be dynamic. Rivers (1999:4) states

At the beginning of the mine project, the host landowner community may be viewed as traditional. Before ten years have elapsed this community will have been transformed by the process of economic differentiation, migration in and out, employment and unemployment, the rise of new forms of politics, new kinds of households, all the factors that accompany development and when combined create a sharp sense of difference between people where none existed before.

CSR encourages companies to think sustainably about their operations, rather than just about profit. The CSR programs at Ok Tedi mine are extensive, but they did not come from beneficence, they were part of a negotiated compensation package to the communities for environmental impacts resulting from the mine. For many other mines, they come out of significant pressure to improve the mine operators’ image (Imbun 2007). CSR is about making sound sustainable policy for both employees of the company or immediate contractors and local people., Stakeholder involved closure planning is a core part of the sustainable policy for any mine.

**Mining in PNG**

This section will address the significant aspects of the debates around non-renewable resource developments in Melanesia through discussing the main academics involved,
and the main locus of discussion. In the literature about mining in Melanesia, and PNG in particular, there are a number of academics and commentators who are frequently engaged in debates. Mining in PNG has a turbulent history. All the major open-cut mines in the country have had complications predominantly with the indigenous local and non-local people who live in the areas surrounding the mines.

The responses of people to the impacts and effects of mining, from the Bougainville Crisis in the late 1980s (Filer 1990) to the continuing social problems around Porgera mine (Human Rights Watch 2011) contribute to a sense that the PNG resource sector is continually in conflict with surrounding communities. Mines are responsible for the change in the lifestyle of many local and downstream communities because of the environmental and economic impacts of their existence on the indigenous people’s lands. Large-scale mining projects can agitate and inflame a range of conditions that previously exist in the locations where they are developed. Introduction of a monetary economy, conflict over landowner royalty payments, health care, education, guns and drugs all contribute in differing ways to affect the local communities and create the varied responses they have to the mining companies.

When discussing resource development in Melanesia, the most contested is the discussion over the resource-based conflicts. The most enduring debates surround the role of Panguna mine’s operator Bougainville Copper Limited (BCL) in the Bougainville conflict. There are a number of positions within the debate, and these have wider implications than just to Panguna. Colin Filer (1990, 1991) situated the conflict in the disintegration of social structures, and that conflict was inevitable because of the specific location, and a pre-determined timeline. Filer generally argues that the root of conflict and the responses to mining are from within the landowning community or communities. If the Bougainville conflict has demonstrated anything, it is that landowning communities are far from homogeneous, in character or action.
Despite the fact that his assertion of the possibilities of hostility from the Ok Tedi communities not materializing in violent conflict, but rather sustained complaint and litigation, his analysis contributes an important message about the inevitability of conflict in Melanesian mining contexts. Inequitable distribution of compensation in societies with limited capacity to mobilise cash payments into meaningful development outcomes, or at least outcomes which would satisfy all in the community rather than elites or older landowners, causes an essential tension intra-community and extra-community.

Banks (2005; 2008) and Banks and Ballard (2003) have linked the Melanesian resource conflicts with a broader discussion of the “Resource Curse”, most notably pushed theoretically by Collier (2010), Bannon and Collier (2003) and Auty (1993; 2001; 2007). The general arguments about the resource curse do not bear weight under the particular context of PNG. Banks (2008) argues that the presence of a mine or other resource development in a community does not fundamentally alter the causes of tension within a community: ‘Social relationship, identities and land are the things that matter in Melanesia, and to believe that conflicts of any kind, even “resource” conflicts, can be primarily about anything else is an illusion’. This sentiment is in line with the notion that conflict in the Highlands of PNG is centres around three things: pigs, women, and land (Weiner et al., McLeod and Yala 2002; Goldman 2011; Lewis 2011). By rejecting the proposition that PNG conflicts are the same as other resource conflicts, there is a greater scope for intensive discussion of the source of conflict and how to avoid it.

The Ok Tedi mine’s communities have a special case here: they historically were not interested in accumulation of pigs for ritual slaughter, bride price, or big-man competitive leadership. Rather their leadership was based on passage through a long initiatory cult, where possession of esoteric knowledge and seniority was the source of
authority (Hyndman 1994b; Jorgensen 1981). It has been speculated that this was because of the absence, or at least significantly reduced significance, of sweet potato swidden agriculture in favour of taro cultivation (Watson 1977). There have only been rare occasions when large-scale violence has occurred around the Ok Tedi mine, but at most times it has involved the “other” – expat workers and accusations of “petty apartheid” leading to the razing of the Tabubil Golf Club (Brunton 1988),

The economic/environment debate, which arises particularly around Ok Tedi, is a central. The argument between the economic side and environment side is that Filer (1990; 1997c; 1998, 1999), Banks (2002, 2004), Filer and MacIntyre (2006), King (1997) Ballard and Banks (2003) that the conflicts at Ok Tedi mine are rooted in economic imperatives – that the environment is viewed as an economic resource, that the conflict’s spatial aspects reflect that economic opportunities are unequal. Kirsch (1993, 1996a), Hyndman (1994a; 1994b) and O’Faircheallaigh (1992a) argue that it is environmental, that the connection to land and the special aspects of culture that relate to environmental things are why people were so upset. My attitude towards this issue is to position somewhere between. It aligns with the argument Jackson (2003:4) states, that ‘Economic issues in such a society are environmental issues and vice versa. It is virtually impossible to disentangle which is which, or to extract cultural and value systems from the ‘natural’ system in which they have evolved’. However, this thesis weights economic concerns higher than the environmental concerns and the reason for this position is that this thesis takes the notion that the economic consequences of the mine shed more light on the essential political issues of the Ok Tedi mine than the environmental. The mine has been polluting the Ok-Fly River system for almost 30 years, but the community response has changed significantly over the life of the mine. It is the basic assertion of this thesis that this is due entirely to community perceptions of economic disparities between those closest to the mine and those further away. My
experience has been that people are not as concerned about the environmental aspects of Ok Tedi mine if they can extract economic benefit – e.g. access to town or alluvial gold. The communities are much more upset if there are environmental impacts without accompanying economic benefits, but they are willing to forfeit the environment for economic benefits even knowing what the impacts can be depending on how old they are. The younger generation seem to prioritise environment over economy. Explaining why there has been a shift with younger people less willing to sacrifice access to water, fisheries, plants could be because of increased access to economic opportunities.

The main writers on the Ok Tedi mine over the mine life have come from diverse backgrounds, from people engaged directly in the feasibility and development of the mine (Jackson (1982, 1993, 2002), Pintz (1984)), academics engaged with the communities (Kirsch (1995, 2002, 2007, 2014), Hyndman (1984, 1994a), Crook (2007a)), and academics engaged to do consultancies directly or indirectly (King, (1995), Burton (1992, 1993a, 1993b), Filer (1984, 1991), Banks (2013)). The positions I find most interesting are the company-side perspectives, about the development of the Ok Tedi mine as an institution; therefore, Pintz (1984) and Jackson (1982a, 1993, 2003) provide rich background for this thesis. Jackson’s work is interesting because of his focus on OTML in the period before there was substantial international focus on the Ok Tedi mine as a result of the mid 1990s court case.

The recent writing about the Ok Tedi mine has centred on the Community Mine Continuation Agreement processes in 2001 and 2006/7 (Adler, Brewer and McGee 2007; Sharpe and Offor 2008; Kalinoe 2008; Menzies and Harley 2012; Offor and Sharpe 2012) to the Mine Life Extension process of 2009–2012 (Popotai and Ofosu-Amaah 2013). There have been fewer academic publications on the politics and economics of the mine, due to the diminished interest in Ok Tedi mine since the exit of BHP in 2001 (but see Jorgensen 2006; Tönnies 2008; Banks and Gilberthorpe 2012,
The Ok Tedi mine is still an important topic of discussion in the PNG news media and blogosphere (for example the Namarong Report (Martyn Namarong), PNG Attitude (Keith Jackson), PNG Mine Watch, and the Masalai (Emmanuel Narokobi)). The Ok Tedi mine is still a large contributor to the PNG economy and PNGSDP was one of the largest non-governmental funding sources for PNG community development projects\(^3\).

OTML’s involvement in community development is an emerging topic of interest for academics. Between the OFSMP and the works of Banks and Gilberthorpe (2012), little academic attention had been paid to the programs; rather it was internal OTML, OTDF and PNGSDP reports that kept a record of the successes and failures of community development projects. The Ok Tedi mine has been the subject of numerous grey matter reports over the past 13 years. The vast array of published and unpublished reports by OTML (2003a, 2003b, 2005, 2008c, 2008d, 2009c, 2009j), PNGSDP (2010), OTDF (2005, 2006b), and the National Government on the Ok Tedi mine, its surrounds, population, community development and other topics are quite abundant.

The Ok Tedi mine has sustained a lot of criticism from various academics and the public over the years, both within PNG and elsewhere. Most of the criticism surrounds the downstream environmental impacts of the mine. While this is an important aspect of the critical response to the Ok Tedi mine, it is only peripheral to my argument. Therefore, I acknowledge the significance but choose not to write about it extensively, as other writers have worked with communities immediately facing issues in the lower Ok Tedi (Kirsch 2002, 2007, 2014).

\(^3\) Until September 2013
1.4 Research Objectives

There is a significant gap in knowledge about the practical application of sustainability and community development policies in the Ok Tedi mine impact community, and this thesis seeks to redress this through the analysis of the sources of funding and exploring two case studies of sustainable livelihood programs at the Ok Tedi mine.

My analysis discusses the development and exercise of the institution that constitutes the OTMC, and is primarily focused on the various community, company, and development organisations that inhabit the OTMC’s sphere of influence. The analysis provides a way to understand the complex network of relationships between the organisations, provide an approach to understand the development of the policies, plans, and projects focused on post-closure social sustainability. There are particular aspects of the Ok Tedi mine, that when compared to other mines in the country and the world, make it an interesting study in sustainability. This dissertation is original as there is little exploration of mines as institutions (Leith 2008), and how they can affect the policy preferences and political agency of organisations.

Examine the development of the Ok Tedi Mining Complex as an institution

Chapter 2 engages the theoretical basis of this thesis. The chapter examines the institutional development of the OTMC. It is an extended discussion of the selected history of the Ok Tedi mine that relates most to sustainability and mine closure. It surveys the history from the initial Kennecott Copper Corporation exploration era, through the feasibility and operations, up until the end of 2012. It tracks the progression of OTMC-specific legislation, legal action, stakeholder organisations and policies. The chapter essentially sets the chronology of the institution, and delineates between some of the key political actors under the institution’s influence. It identifies critical shifts in the institutional development of the Ok Tedi mine in reference to community relations and engagement.
Investigate the expansion of the recognised mine impact area, and assess its influence on mine-community relations

Chapter 3 examines the growth and expansion of the communities recognised by the OkTedi mine over the different stages of its life. This involves identifying the size and extent of the impacted community and an exploration of the varying membership of communities and the idea that there is no homogeneous “landowner” voice. The communities as political actors, not just a single political actor, is established and analysed. The chapter presents the communities of the Ok Tedi mine’s impact area as actors in the mine closure and sustainability planning process. It executes an examination of the physical geography of Western Province and its contribution to the impact on communities. The chapter progresses through an analysis of the communities (demographics, culture, specific impacts, specific concerns voiced), then analyses what the effects of distance from the mine and demographics contribute for mine closure and sustainability policy at the Ok Tedi mine. The focus in this chapter is primarily on the North Fly District, as my primary field research was carried out in that district. The chapter will give a general overview of concerns for the Middle and South Fly regions.

Analyse the political relations between the main stakeholder organisations and actors at Ok Tedi to evaluate the influence on sustainability in post-mine closure community development policy

Chapter 4 is about the politics of planning for Western Province, in particular the North Fly District. This chapter debates the details of the stakeholder organisations, the substance of available plans, and the influence that the OTMC has on determining the scope outcome of the planning process. The chapter will investigate the way planning is conducted through relations between the major stakeholder organisations of the Ok Tedi mine for the communities in the mine impact region. The chapter, through
this examination, illuminates the fundamental issues of sustainable development in Western Province.

Chapter 4 illuminates the complex web of political actors involved in Ok Tedi mine’s operation. The legislative framework that the Ok Tedi mine exists in, as well as the agreements made between various organisations, contributes to the unique set of challenges and obligations. The organisational histories and relations also add to the way the Ok Tedi mine’s closure planning process proceeds. It details the historical basis for post-mine closure livelihood planning at the Ok Tedi mine and contextualises it as part of an overarching sustainability planning process. The nature of mine closure as a subset of sustainability rather than a method is examined. This includes investigation of the pre-closure planning process at Ok Tedi mine. The additional contextualising section on the Misima mine’s closure is included to give a wider context to the Ok Tedi mine’s closure planning process. The chapter is about the political and power relations centred on the Ok Tedi mine. Analysis of the mine closure and sustainability planning process are informed by the historical discussion of the relationship between stakeholders. The chapter has a brief historical analysis of the relationship between the stakeholders and then talks about the configurations of power and influence that the actors, both internal and external, exercise on the Ok Tedi mine institutions. How the actors relate in the myriad of ways is important to understanding why the Ok Tedi mine’s sustainability and mine closure planning process occurs in the way it does. It also informs the ongoing development of policies and projects for implementation in the mine impact areas. This chapter primarily deals with the power relations up to the end of 2012, with an addendum section on the developments (nationalisation) of 2013.
To illuminate the financial basis for the Ok Tedi mine post-closure community livelihood policies, and examine the practical application of livelihood strategies in the mine impact area

The stakeholders in the Ok Tedi mine are putting in place programs in order to build capacity to sustain local livelihoods, which are intended to ameliorate the negative effects of the closure on the local people. The two case studies will show how proper management of community programs can create a basis for positive relationships between locals and mining companies. Lessons for other mines to implement appropriate technology policies, agricultural practices, and persistence concerning locals are made apparent. This thesis seeks to understand the process of mine closure at Ok Tedi with specific reference to planning and funding of service provision and livelihood programs in the post-closure period for local landowners and non-landowning groups living in close proximity to the mine town of Tabubil. It leads to a dialogue about the importance of community and livelihood to development in remote areas and their experience of structural changes in the local economy. Communities and livelihood are important to sustain, and thus should be central to mine closure planning but in many mines this is not the case. Exploring why it has become a central point for the Ok Tedi mine’s planning process is the main aim of this thesis.

OTML’s involvement in community development is an emerging topic of interest for academics. Between the OFSMP and the works of Banks and Gilberthorpe (2012), little academic attention had been paid to the programs; rather it was internal OTML, OTDF and PNGSDP reports that kept a record of the successes and failures of community development projects. The Ok Tedi mine has been the subject of numerous grey matter reports over the past 13 years. The vast array of published and unpublished reports by OTML (2003a, 2003b, 2005, 2008c, 2008d, 2009c, 2009j), PNGSDP (2010), 20
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The Ok Tedi mine has sustained a lot of criticism from various academics and
the public over the years, both within PNG and elsewhere. Most of the criticism
surrounds the downstream environmental impacts of the mine. While this is an
important aspect of the critical response to the Ok Tedi mine, it is only peripheral to my
argument. Therefore, I acknowledge the significance but choose not to write about it
extensively, as other writers have worked with communities immediately facing issues

Chapter 5 integrates and assesses the multiple sources of benefit sharing and
compensation funds available and going to the communities. The cash flows and trust
funds all contribute to the ability to fund programs to support communities, but the
proof of expenditure in improving lives is unequal across the funded regions. The role
of the provincial government in this inequity contributes to the analysis.

Chapter 6 includes a historical case study of the food security programs and
comments on the problematic areas of planning sustainability around agriculture and
livestock. The chapter aims to give an update to the food security issues brought up in
the Papua New Guinea Food and Nutrition 2000 Conference papers by David Wissink.
Since that conference, there has not been a large amount written on Ok Tedi’s food
security situation in the intervening 13-year period. This chapter is about the evolving
relationship between the organisations of the Ok Tedi Mine Complex around food
security programs and projects. It covers four short case studies of agricultural,
livestock and fishery development projects to illustrate the challenges of food security
and livelihood promotion in the North Fly.

Chapter 7 presents a case study of artisanal mining as a livelihood and the
involvement of stakeholders in provisioning assistance to communities. The chapter
deals primarily with artisanal alluvial gold mining along the Ok Tedi. It discusses the context and exercise of artisanal and small scale mining and the post-closure development strategy for the Ok Tedi mine. It seeks to answer questions about whether formalising the process and encouraging increased productivity effect the practise and participation in artisanal and small-scale mining along the Ok Tedi. How can a locally and independently developed sustainable livelihood strategy be improved through stakeholder policy development? The chapter situates the ASM activities and projects within the landscape of post-closure livelihood development policy that is promoted by the Ok Tedi organisations.

Chapter 8 concludes the research and provides recommendations for future research.

1.5 Research approach and methodology

I was drawn to study mine closure and sustainability policy at the Ok Tedi mine after completing an honours thesis on Melanesian responses to mining, which compared Freeport McMoran’s Grasberg mine to the Ok Tedi mine. I thoroughly enjoyed researching about Tabubil and the communities surrounding the mine, so proposed a study to the Resource Management in Asia Pacific Program, and found out that an intended research project on the Ok Tedi mine’s closure had been abandoned in the late planning stage the previous year due to management changes at OTML. My research filled an already identified gap in knowledge about OTML’s planning for closure. I commenced my doctoral candidature in January 2009.

I had no existing relationship with OTML, OTDF, or PNGSDP, but was given introductions to OTML by my supervisor Colin Filer and PNGSDP by my honours supervisor Ted Wolfers. I subsequently established beneficial working relationships with the stakeholder organisations. I was afforded unexpected access to the
organisations, particularly OTML. Initially the mining company rejected my application for research, however this decision was later revised and my application accepted. Without OTML's support, this research would have been impossible to conduct, as it required them to be transparent and open to criticism. Although an Australian Postgraduate Award and fieldwork funding from the then Resource Management in Asia Pacific Program supported my doctoral candidacy, OTML supported my research with accommodation, transport, and food. OTML provided accommodation in P Donga and other mine dongas within Camp 3 in Tabubil for a total of six months over the fieldwork period 2009–2012. OTML arranged some of my internal and international air travel on their business charter aeroplanes. I attended the company safety induction process and was given a contractor pass to access buildings, intranet, and facilities, and was given office space to work in within the Community Relations department. I was allowed to attend meetings and invited to accompany OTML and OTDF officers, who were more than accommodating and encouraging of my research, on their daily trips interacting with the impacted communities between Kiungo and Tabubil. These trips included helicopter flights to the west bank of the Ok Tedi to village meetings for the Mine Life Extension community consultations. I was not privy to the full scope of activities of OTML or OTDF, however I was able to observe many everyday processes of the organisations and their interactions with the impacted communities. When requested, they also incorporated my research activities into their schedules, taking me on fieldtrips across the North Fly district. Despite my partial dependence on OTML and OTDF in Tabubil, I was under no pressure to come to specific conclusions from either organisation. I was transparent with OTML from the very beginning about my motivation for the research and my disinterest in particular historically controversial aspects of Ok Tedi mine – for example I made it clear that I
was not going to get involved in landowner claim issues\textsuperscript{4}, and I was not an environmentalist so would only tangentially address environmental aspects of the Ok Tedi mine where they related to artisanal mining. As I was involved with the three main stakeholder organisations I gained a variety of perspectives on their projects and plans, so I was not solely adhering to OTML’s agenda.

While conducting research, I kept field notes of my observations of OTML, PNGSDP, and OTDF’s community relations activities. Data collection included semi structured interviews conducted in English, and qualitative surveys of community activities\textsuperscript{5} and evaluation of the stakeholder organisations’ community livelihood programs. Some of the interviews were with focus groups mainly as part of the qualitative surveys conducted, but the majority were informal interviews with individuals and small groups in meetings and other informal settings. In addition, I collected documentary sources including OTML and OTDF raw data on community development and relations from the shared server drive, including confidential and unpublished reports, complaint letters, compensation and benefit stream payment data, CMCA population census data (and much more).

As I was most often accompanied by either OTML or OTDF officers during surveying and community interactions (as at times they served as translators from \textit{tok ples}), this relationship raised ethical questions as to the perceived independence of my research. I mitigated against that by informing the informants that I was from the Australian National University and it was personal, not company, research. Human ethics protocols oblige that confidentiality of informants is maintained, so I have not attributed quotes to informants unless they were interviewed in a formal setting. I chose to do semi-formal discussions and meetings with relevant people because conducting

\textsuperscript{4} For example the Sissimakam village claim on Mt Fubilan, and the Kimka Sepiyan Sub Tribe vs Biul Kirokim court action.

\textsuperscript{5} See chapter 7 and Appendix V
formal, recorded interviews with OTML would not have provided me with the candid and far ranging discussions that occurred. As a result of forming personal friendships and working relationships with workers from OTML, OTDF, and PNGSDP, I was very conscious to not exploit those relationships for the collection of highly privileged and sensitive information.

1.6 Conclusion

The next chapter of this dissertation examines the history of the OTMC in detail, ranging from the early 1960s to 2012.
Chapter Two – History of Ok Tedi Mining Complex

2.1 Introduction

This chapter is concerned with setting out the chronology of Ok Tedi Mining Complex (OTMC) in order to understand the mine closure and sustainability planning. The historical eras of the Ok Tedi mine’s development neatly sets out the progression of mine closure and sustainability planning, as throughout the progression of the project, at critical junctures there have been shifts to ensure the project delivers on a social level not just an economic level. The historical context of the OTMC gives a framework to the rest of the discussion throughout the dissertation. This framework is important because of the complex character of the different periods of the OTMC so far. Gathering the basic history of the most important episodes of the Ok Tedi mine’s project life informs the challenges of today.

Since the late 1960s, when initial gold prospecting by Kennecott in the rugged, mountainous lands of the Faiwolmin and Wopkaimin, the Ok Tedi mine has provided hope for development as well as tangible benefits to the immediate area. Tabubil has far better services than the rest of Western Province, as they are largely subsidised by OTML. OTML has over the last 30 years has taken the role of de-facto government in the North Fly District (Jackson 1992; OTML 2006c), controlling all the economic aspects of the town and surrounding areas, creating a total dependency of the local populace on its services. The mine will not be around forever so the main stakeholders in the closure are putting in place plans and projects to attempt to create sustainable livelihoods.

The history of The Ok Tedi mine is inextricably linked to the State of PNG. Demonstrated throughout this chapter at every critical juncture in the history of The Ok Tedi mine, the governments of PNG have been there assisting or thwarting OTML and its stakeholders. From the early Kennecott exploration, the national government has
fluctuated significantly in its relationship with the mine operators. Government intervention has been a constant problem for the smooth workings of The Ok Tedi mine. As is shown by the Kennecott era, the negotiating tactics of the government almost sunk the project before it started. The 1980s saw manoeuvring by the national government to assume what should have been provincial government control of aspects of socioeconomic development in the project area, and give permission to go ahead without a tailings mitigation scheme. The 1990s saw the national government supportive of The Ok Tedi mine to the point of alleged collusion against detractors in regards to the downstream impacts from tailings and the court case brought by Slater and Gordon on behalf of communities for compensation, and the provincial government demands for closure. The 2000s saw the Morauta Government negotiating withdrawal of the majority shareholder BHP and set up of a new development company, PNGSDP, to distribute benefits to communities within Western Province and throughout the country. In addition, the growing provincial government demands to take over PNGSDP and criticism of OTML disrupted relations. The 2010s have seen a shift towards a more hostile national government, especially since September 2012.

This chapter will only briefly address the aspects of OTMC history that are relevant to the argument of this thesis. There are numerous other aspects of Ok Tedi history that are interesting but they are not directly relevant to this thesis.

### 2.2 1968 – 1975 Kennecott Period

The Kennecott period of The Ok Tedi mine’s history starts in 1968. Kennecott was involved in exploration activities across New Guinea. An exploration boom was occurring across PNG, with Kennecott beating out Placer Exploration Pty Ltd for the prospecting license for the Star Mountains by a mere five days (Pintz 1984: 32). In June and July 1968 Kennecott Copper Corporation (Kennecott) exploration geologists,
Doug Fishburn and John Felderoff, two field assistants, and three PNG assistants discovered in a tributary of the Ok Tedi large sulphide crystals, indicating a rich ore body was nearby. The source of the stream was the patchily vegetated Mount Fubilan, which became the focus of Kennecott's attention. During the 1960s and early 1970s, the area around Kiunga developed marginally, with rubber plantations and the construction of the Kiunga to Rumginae Road facilitating movement of goods and people around the area. Many villages moved closer to the road alignment and away from traditional sago swamps and hunting grounds in order to be part of the cash economy (Jackson 1979).

In the northern end of the district, there was little in the way of activity, beyond the exploration camp at Tabubil. Kennecott engaged with the local community, in building and funding education and health facilities, funding agricultural programs and hiring local workers (Jackson 1983:138). By October 1972, exploration core samples showed indications of a large copper ore body, gold enriched cap, and skarn. Exploration halted because of an extended drought in 1972. The significance of the El Nino weather events in the upper reaches of the Fly River presented another layer of challenge to the already difficult logistical location of the mine. Kennecott did not renew the exploration work when the drought broke, as they wanted to work out an agreement with the government (Jackson 1982a: 53). Kennecott’s role as a corporate citizen meant that their withdrawal met with great disappointment by the communities in the Tabubil hinterland, as the mine was perceived as the community’s ticket to development, as they felt ignored by the colonial government (Jackson 1982a).

PNG achieved self-government from Australia in 1973 on its pathway to independence, with Michael Somare leading the government. Kennecott and the newly formed transitional government entered into extended development negotiations until March 1975. The government did not agree with Kennecott’s assessment of the Ok Tedi ore body as marginal. After the successful renegotiation of the Bougainville
Copper Agreement in 1974, the government was in a position to demand favourable outcomes. The result of the negotiations was an impasse, with Kennecott withdrawing after the prospecting license lapsed on March 13 1975. Pintz argues that the main reasons for Kennecott withdrawing were outside influences: the company’s risk averse policy after the Chilean Government nationalised its El Teniente mine; having to sell off Peabody Coal; the financial problems facing the US copper industry; and Richard Nixon’s copper policy (Pintz 1984: 45). Ok Tedi was a bridge too far for a company in financial difficulties.

Additionally, after its losses with the Chilean Government, Kennecott pushed for outside arbitration in negotiations, which the PNG government took as a slight on its sovereignty (Pintz 1984). Jackson argues it was the superior and shrewd negotiation tactics by the government and their advisers that warded off unfavourable investment terms. The most significant aspects that Jackson attributes to the breakdown of negotiation are BCL’s profit announcement, Bougainville Copper Agreement renegotiation, the self-governance of PNG and the naivety of Kennecott in thinking the government were not as sophisticated as they were. Overall Jackson maintains ‘…Kennecott’s venture in Ok Tedi was subject to an unusual set of circumstances external to the company’s normal experience. Bad luck, however, was compounded by a considerable degree of bad management’ (Jackson 1982a: 69). Kennecott never fully explored Ok Tedi after suspending exploration in 1972, so did not have a full picture of the extent of the resource. This resulted in hesitation that ultimately made Kennecott less willing to accept the terms the government was proposing despite there being a small gap between the two positions. Kennecott believed they were indispensable to the government. Pintz and Jackson argue Kennecott believed that the government had no

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6 As part of the campaign to crush the socialist Allende government in Chile, US President Richard Nixon’s position is stated in National Security Decision Memorandum 93 (1970), whereby his “explicit order [was that] the United States would sell off part of its copper holdings, flooding the market and depressing worldwide prices” so as to damage Chile’s copper export based economy (Muñoz 2008: 86).
alternative developer interested in Ok Tedi and that the mine would not be developed without them. Kennecott made advances to many companies in Australia, including Broken Hill Proprietary Ltd (BHP), and in the United States about joining the Ok Tedi project but, other than Newmont, the ‘negative reaction of these companies may have led Kennecott to assume that if the government did not come to terms there would be no one else to continue the project’ (Pintz 1984: 45). Jackson states ‘…Kennecott really did believe that no other reputable mining company would agree to operate the Ok Tedi project on the terms the government was expecting them to accept. It was Kennecott or no one, they believed, and they told the government so’ (Jackson 1982a: 66). They were wrong.

2.3 1975 – 1981 Feasibility and first supplemental agreements
The main elements of this period were the development of a consortium, led by BHP, to develop the ore body, the negotiation of the mining agreement, the feasibility process and the first two supplemental agreements. The importance of this era to the overall mine closure and sustainability planning is that it established The Ok Tedi mine as unique within the mineral framework of PNG, subject to its own legislation and special relationship with the national government. Globally, 1975 was a bad year for commodities. Copper and gold had shed much of their value in the preceding year. Copper dropped from highs of US$1.45/lb to 61c/lb. Under these conditions, the government still felt that Ok Tedi was a deposit worth developing. In 1975, the government set up Ok Tedi Development Company (OTDC) and started negotiating with BHP and others as consortium partners. By the end of the 1970s, gold prices had tripled, topping out at US$850/oz.\(^7\) making the leached gold capping on the peak of Mt Fubilan an attractive bonus and reducing the marginality of the project. The increased

\(^7\) Silver Thursday - 27 March 1980
projected profitability of the project meant both company and national government could afford more benefits to communities surrounding the project (Jackson 1983: 139).

**Principal Agreement.**

The Ok Tedi mine agreement stood to be the first major policy undertaking for the newly independent state to implement its vision for a national mineral policy regime. This came in the form of the *Mining (Ok Tedi Agreement) Act 1976 Chapter 363*, known generally as the Principal Agreement. The Principal Agreement was made between the State of Papua New Guinea and Dampier Mining Company Ltd (Damco), a wholly owned subsidiary of BHP (Jackson 1982a). The Principal Agreement is a state agreement ratified by the parliament of PNG consisting of two elements – the agreement between the State and Damco, and the legislation that gives it legal force.

The Principal Agreement afforded protections and flexibility that the then current Mining Act did not allow for, including environmental or regulatory functions (Kawi and Golman 2001: 145). Jackson (1982) and Pintz (1984) explain in detail the history of how the national government and OTDC reached this agreement. The unique legislative framework for The Ok Tedi mine was the start of its development as an institution, as all relations by other institutions and organisations with the mine are mediated by this agreement and the subsequent additions to it.

The most significant clause that would contribute to The Ok Tedi mine’s unique status within PNG’s mineral framework was Clause 3.1:

This Agreement is to have the force of law and apply notwithstanding anything to the contrary in any other law in force in Papua New Guinea made after the commencement of this Agreement and shall affect this Agreement –

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8 Other smaller mining projects were under the *Mining Ordinance Act 1937* until the *Mining Act 1977* was passed

9 Panguna Mine in Bougainville was also under a state agreement: the (Renegotiated) Bougainville Copper Agreement.
(a) unless the contrary intention appears, either expressly or by implication in that law; or

(b) except as provided by this Agreement

This clause has meant that ever since, Ok Tedi has not been required to follow the subsequent Mining Act of 1977 or 1992, or the Environmental Planning Act of 1978 or the Environment Act of 2000. This has allowed the mine to create its own environmental regime in conjunction with the national government that sees environmental pollutants at levels that are above the levels allowed in the environmental legislation.

Clause 42 provides the conditions under which the Principal Agreement may be subject to change or supplementation.

42.1 The Parties may from time to time by agreement in writing add to, substitute for, cancel or vary all or any of the provisions of this Agreement, the Special Mining Lease, any Lease for Mining Purposes, or any lease, license, right or grant granted hereunder or pursuant hereto or to any programme, proposal or plan approved hereunder for the purpose of more efficiently or satisfactorily implementing or facilitating any of the objects of this Agreement.

This has meant that, where a problem arises, it can be rectified by a supplemental agreement rather than having to be dealt with under other mining or environmental legislation. This legislative flexibility has worked in OTML’s favour at times, but at other times has not been in its interests. The flexibility to change the Agreement at will rather than a time bound renegotiation, such as existed with the Bougainville Copper Agreement, was a specific advantage. This would prove to be a critical feature of The Ok Tedi mine’s continued operations, but also make it subject to continuing government intervention much more than mines developed under the later Mining Act of 1992.
Critical amongst the clauses, not at the time of original agreement but into the future, was the clause relating to compensation for environmental damages. Clause 29.12 states:

Notwithstanding that a plan or proposal has been approved by the State, the Company shall compensate for any loss suffered by any person or persons as a result of the Company’s operations resulting from any damage (whether to land, anything on land, water or otherwise), or interference with any right to use land or water existing prior to the date hereof caused by disposal by the Company of the overburden, tailings or other waste.

The intended physical and environmental impacts of the mine were supposed to be minimal and quarantined to the mining leases. Pintz clarifies ‘Although, superficially, this clause appears quite formidable, in view of the Ok Tedi project’s physical setting ... proof of liability (e.g. “result of companies [sic] operations”) would be hard to demonstrate’ (Pintz 1984: 63–64). However, this clause is the basis for the claims of compensation for garden damage, overbank flooding, and undrinkable water the downstream communities have brought against OTML since 1987. These claims were all legitimate considering this broad and seemingly unlimited clause for environmental compensation. The Ok Tedi agreement is ‘silent about ongoing obligations for maintenance of environmental facilities and structures, such as tailings dams and waste dumps, once actual mine operations have ceased’ (Pintz 1984: 64). Globally, at this time, mine closure planning or regulation was still in its infancy, so the lack of mine closure regulations or framework within the Principal Agreement should not be harshly criticised, but rather noted as evidence of a lack of mine life cycle planning by both mining companies and national government regulators that was common practise at the time.
Subsequent to the Principal Agreement, a number of other consortium partners joined BHP (30 percent) and the State of PNG (20 percent) in OTDC:

- Mt. Fubilan Development Company Propriety Limited, a wholly owned subsidiary of AMOCO Minerals Company (30 percent)
- Kupferexplorations-Gesellschaft (Trans: Copper Exploration Company) (20 percent):
  - Metallgesellschaft AG (trans: Metal Company)
  - Degussa AG
  - Deutsche Gesellschaft Fuer Wirtschaftliche Zusammenarbeit (Entwicklungs-Gesellschaft) mbH (Trans: German Society for Economic Co-operation (Development Company)) (Source: ISA, 2SA)

The feasibility of The Ok Tedi mine required extensive research and drilling. The original ore grade and deposit size assumptions based on Kennecott’s exploration to 1972 were much more conservative than the subsequent Behre Dolbear explorations (Pintz 1984: 52). With expanding proven and probable resources, the project became a more attractive investment to all stakeholders. The process of feasibility studies, negotiation, and government approvals is examined at length in Jackson (1982) and Pintz (1984), but there are important aspects to note. The feasibility process took 31 months. There were a number of studies conducted by OTDC and OTML, including the primary feasibility study, the environmental study (by Maunsell and Partners), and the socio-economic impact study (Jackson, Emerson and Welsch 1980). The feasibility, environmental, and impact reports all worked off the assumption that the impacted communities were confined to the immediate area around Tabubil, the mine site, and
the Ok Ma tailings dam. The downstream impact of eroded waste dumps and tailings overspill were thought to have the most impact on the Ok Tedi above Ningerum, with the areas above the Ok Ma tailings dam, and the main creeks of Ok Mabiong, Ok Ningi, and Ok Gilor proposed to suffer 100 percent destruction of existing vertebrate aquatic life (Jackson, Emerson and Welsch 1980: 164–165).

2.4 1982 – 1990 Construction, operations, and provincial issues.

**Kiunga and Lake Murray District Development Agreement**

Since the establishment of the Western (later Fly River) Provincial Government in 1977 economic development opportunities had changed little for the people of the Kiunga (North Fly) District, resulting in a growing movement for a separate Min Province (Jorgensen 1996). The Kiunga and Lake Murray District Development Agreement (KLMDDA) in was established in 1981 as a response to the lack of capacity in the provincial government to bring services to North Fly District. This agreement was an acknowledgement that the devolution of power and decentralisation of political and economic functions to the province had ‘not evolved to the point of accommodating the implementation of a major project in a remote region’ (Pintz 1984: 126). This agreement ceded administration of the North Fly District to the national government in exchange for K500,000 for housing projects and K1 million per annum on development projects (Little and Regan 1987). By wrestling administration of the North Fly District from the FRPG and Western Provincial Administration (WPA), the national government was able to exercise clearer control of the project region. An advisory board was set up to oversee the implementation of the projects, the Kiunga-

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10 Subsequently there were cultural impact study (Barth and Wikan 1982) and the progress and impact study reports (Jackson and Ilave 1983; Filer, Ilave, Jackson and Townsend 1984).

11 Warren Dutton, then Member for North Fly, advocated for Min Province. The proposed province would unite the two Mountain Ok/Min districts of Western Province and West Sepik (North Fly (Kiunga Sub-Province) and Telefomin)

12 From 1983, Telefomin District was under the Telefomin District Development Agreement, with K2 million for construction of a high school at Telefomin and K500,000 for development. See Jorgensen 1996 for discussion.
Lake Murray Districts Planning and Development Committee (Later renamed the Kiunga-Lake Murray Political Advisory Committee) headed by Yonggom man Isidore Kaseng, deputy premier of Western Province (Jackson 1993: 60).

When the KLMDDA was renewed in 1986, it required that a trust fund be set up sequestering the North Fly’s share of mine royalties to be put in trust to use them for maintenance of development projects (Little and Regan 1987: 6). The KLMDDA was in effect until 1991 when the North Fly came back under the administration of the WPA and FRPG. The net result of the agreement was a legacy of the North Fly being under an OTML focussed governance structure and administered (in effect) by the mining company. The application of this agreement effectively stalled the development of the provincial government institutional structures in their infancy, leading to a dysfunctional government culture in the province during the 1980s and 1990s. The lack of capacity in the provincial government to carry out its own strategic and infrastructural plans to 2013 is testament to the wide reaching affects the KLMDDA had on the development of Western Province. However, it is hard to prove that the absence of the KLMDDA would have resulted in Western Province having more accountable or efficient public organisations.

**Construction and Operations**

Mine construction proved to be extremely challenging and problematic for OTML. Over the course of the 1980s, numerous catastrophes (natural and manufactured) caused a series of temporary closures and interruptions to operations. Unruly politicians, cost overruns, confrontational relationship with construction giant joint venture BechtelMKI, labour disputes, an unhelpful El Nino causing the Fly River to be impassable and a landslide prone topography – everything that could go wrong, did. However, by the end of the decade The Ok Tedi mine was the biggest contributor to
national government revenues in PNG after the abandonment and closure of the BCL Panguna mine in 1989. The local people’s hopes for development were firmly pinned on the development of the mine.

A number of unfortunate and unavoidable events had the potential to make the mine completely unviable. The project’s construction began in June 1981, but immediately there were problems. The road contractor employed for the extension of the Kiunga-Ningerum road to Tabubil, Pivot (PNG) Pty Ltd, went into liquidation on 27 June which meant delays as the road plant equipment was part of their assets (Jackson 1993: 9). The government had concerns about Pivot’s bid because it ‘reflected ignorance of the area’ (Pintz 1984: 137) considering they had quoted at K16,000 per kilometre but in reality the actual cost was double that figure (Jackson 1993: 170). This was the first in a long line of construction headaches that plagued the Ok Tedi mine’s construction. The Ok Menga Hydro project, which was to supply power for the overall project, ran into serious problems due to the structural issues with managing overburden and flooding, leading to it being dropped from the Stage I construction programme. This meant that until the hydro construction was re-started 1987, the project was reliant entirely on a diesel power plant and the Yuk Creek Mini Hydro, rather than the 53MW peak Ok Menga (Jackson 1993).

Rainfall around the Ok Tedi mine site is approximately 10,000mm/year. In early July 1982, it was the absence of adequate rainfall that proved problematic for the construction of the mine. A strong El Niño event meant shipping was unable to proceed to Kiunga, due to low water levels especially at the Kawok Rock Bar. Without supplies of diesel, cement and other construction materials, the project was halted. The Kiunga-Tabubil road benefitted from the dried out conditions enabling the first convoy to reach Tabubil mid-July.
The abandonment of the Ok Ma tailings site was the most serious and consequential decision. On January 7, 1984, a landslide of approximately 35 million cubic metres (Fookes and Dale 1992) affected the Ok Ma tailings dam foundations, burying them and the other equipment associated with it. This failure was the last straw in a long line of feasibility, cost, and capacity problems for the dam. The national government was not keen on the idea of changing or modifying the project to proceed without a tailings dam, as environmental impacts on the Ok Tedi and Fly River were at the centre of the concerns about the project from the start (Pintz 1984: 91–94). The project approval was contingent on many factors in the feasibility stage, but the tailings dam was non-negotiable (Jackson 1993: 25). Considering the environmental impasse after the landslide, the government had two options – stick to their guns about the tailings dam and delay the project or cancel it entirely (costing millions of kina in lost revenue), or proceed without a tailings dam (untold environmental impacts) – either way they would be blamed for the outcomes (Jackson 1993: 29). A catastrophic failure of the tailings dam in the future was an unacceptable risk for OTML and the national government. In the end, the national government, despite lengthy and loud disagreement, decided to permit OTML to proceed with the Interim Tailings Scheme (ITS). This scheme was to put tailings into the Ok Mani, which flows into the Ok Tedi. At the time, it was allowed because the impact of gold processing for Stage 1 was predicted to be minimal, but OTML was prepared to close the mine after this rich capping was exhausted. The national government, wanting to extract a promise to progress to Stage 2 copper processing used the tailings dam as leverage, allowing the ITS to become the permanent tailings solution. This was formalised in the Mining (Ok Tedi Sixth Supplemental Agreement) Act (6SA) passed on the 28th February 1986. Cause 29 of the Principal Agreement was amended to add:
29.14 (a) Except for the Company’s obligations (i) with respect to the Chemical and Metal Levels referred to in paragraph (b) below, (ii) to pay the cost of the Environmental Study described below and referred to in Change Notice No. 32/4.3; 14/29.2 delivered by the Company to the State on the 28 February 1986, and (iii) with respect to the disposition of tailings, with obligations are set forth in the Approved Proposals, including the maintenance of the existing interim tailings system or the application of any other appropriate manner of treating such tailings in compliance with the Approved Proposals, every capital spending obligation of the Company in respect of facilities to mitigate the impact of the Company’s operations on the Fly River below the confluence of the Ok Tedi and Fly River down to and including the delta of the Fly River (the “River System”, including without limitation, in respect of a permanent tailings facility and the northern waste dumps, a stable dump in accordance with the intent of the Approved Proposals as was in effect on 28 February 1986 (herein referred to as the “Northern Waste Dumps”) shall be suspended until 1 January 1990, provided the that the foregoing shall not limit the Company’s obligation to comply with Clause 29.15 [emphasis added]

Throughout the modification to Clause 29, there is the establishment of the environmental regime that was supposed to enable the government and company to mitigate damaging downstream impacts of the lack of tailings and waste dumps. Clause 29.15 enabled OTML to dump waste rock into the Harvey Creek and Taranaki waste dumps as long as the company ‘reasonably expects’ that there will not be more than 100 million tonnes of eroded waste rock flowing into the Fly River from the Ok Tedi within a month.13 It was not just the tailings scheme that failed, the most important contributing factor to the environmental impacts between the mine site and the Ok Menga was the failed waste dumps. The Ok Mani valley is testament to the sheer volume of waste rock that the mine site has put into eroded waste dumps. As seen in

13 This was an increase from the previously agreed and negotiated limit of 60 million tonnes in Clause 3.1 of the Approval of Proposal 1980.
Plate 2.1 in the Appendix I the Ok Mani valley does not look like a conventional highland river valley anymore. The Ok Mani was always identified as a tributary that would receive significant amounts of waste rock, with Jackson indicating that the Ok Mani might take on the appearance of the Jaba River in Bougainville (Jackson 1982a:130).

The changes to the facilities to manage tailings and waste rock in the 6SA are the most serious and far reaching of the Ok Tedi mine institution’s influence on decision-making and outcomes. All the decisions of the stakeholders involved in the legislation were enabled by the nature of the mine. The same tailings regime would never be given to any other mine subsequently\(^\text{14}\), but for The Ok Tedi mine it was within the scope of their special legislative state that they could do it. It did not make it the right thing to do for the mining company, the state, or the downstream communities. All would suffer the consequences and fallout of the fateful legislative changes in the 6SA.

The first indication that the downstream effects of the mine would be more significant than initially intended came when the Vancouver Ridge collapsed on August 22, 1989, undermining the toe of the Taranaki waste dump. This sent 170m tonnes of rock, equivalent to 85% of the waste rock dumped between 1985 and 2000, into the Ok Tedi headwaters, significantly increasing the already felt impacts mine wastes were having on downstream communities (Kirsch 1991 Pickup and Marshall 2009). In notes from OTML, a tailings lease to cover the whole of the Ok Tedi was considered before the commencement of garden compensation and legal proceedings (Ransley 2006b) but was never progressed.

\(^{14}\) BCL was allowed to operate without an adequate tailing solution. It has been speculated by that the tailings and waste rock situation at Panguna was a contributing factor to the communities discontent with BCL and subsequent hostilities leading to mine abandonment (Solomon 2011). Satellite photos reveal delta shaped land-growth created in Emperor Augustus Bay on the western side of Bougainville, and it is the result of residual tailings and waste rock deposition over the last 30 years (Banks et al 2005).
The Lower Ok Tedi Fly River Development Trust

The Lower Ok Tedi Fly River Development Trust (FRDT) was initiated in January 1990, with K2.5million in funds, indexed annually to a maximum of 5 percent, for community development projects to address development challenges facing people in the Ok-Fly River system. The FRDT was the first of the development organisations of the Ok Tedi Mining Complex and provided a testing ground for projects. Although the FRDT was established under an agreement between the national government after the passing of the *Mining (Ok Tedi Seventh Supplemental Agreement) Act 1986*, it was entirely run by OTML, who provided less than adequate follow up for projects, The FRDT covered 103 villages along the river system (see Table 2.1 in Appendix III), which contained about 30,000 people at the time (Filer 1997a:70–3). The FRDT was an important step in recognising the social impacts of the mine on the locals and addressing them with development projects.

In terms of sustainable development, many of the community projects required ongoing support and maintenance, but there was not the post-implementation follow up required. Projects identified by OTML for implementation were often water and sanitation projects like water tanks and wells, village development projects such as community halls, and other small-scale development projects mentioned in the Ok Fly Social Monitoring Project Reports (Burton 1993a; 1993b). Many of these projects were deemed by the communities to be not well implemented, inappropriate, and unsolicited (Burton 1991, Burton 1993a, Lawrence 1995). When on fieldwork in the villages of Wogam, Bumbin, and Wurimkanatgo, I observed old FRDT projects. They were in a state of disrepair. The lack of follow up and maintenance on existing projects over the life of the FRDT meant that the majority of funds did not produce sustainable development for the people they were designed to service. The FRDT was formally
ended when the Ninth Supplemental Agreement was passed in 2001 (Banks 2002; Michael Namalok pers. comm. 2010).

**Signing of MOA – landowner equity and royalties**

Resulting from the 1988 National Premiers Council and subsequent Namaliu government mineral policy reform debates, the Development Forum process became part of the national government’s policies for community involvement in 1988 (McGavin 1993; Filer and Imbun 2009). Ok Tedi in 1990 went through the process of negotiating a Memorandum of Agreement for the distribution of royalties between the FRPG and the SML landowners from Atemkit, Bultem, Finalbin, Kavorabip, as well as the LMP landowners from Wangbin and Migalsim. This established the codified relationship between the institution of the landowners and the national and provincial governments through the split of royalties. The issues raised by academics have surrounded the legitimacy of development forum agreements that are selectively enforced, as ‘signing of the agreement is done by clan or tribal leaders who are illiterate elderly men who do not even speak English, let alone other official Papua New Guinean languages, Pidgin and Hiri Motu’ who sign by using ‘a thumb imprint or the making of the “X” on the paper using a pen’ without consideration or understanding of the obligations and responsibilities of the agreement (Kawi and Golman 2001: 144). This argument does not give sufficient credit to the sophisticated negotiation tactics and conceptual understanding that the Ok Tedi mine area landowners have, as at the point of the 1991 MOA the landowners had ten years of experience engaging with OTML. The landowners were just as likely not to fulfil the undertakings of the MOA as the national government, as there were other factors that hampered the expeditious implementation of agreed plans and promises. The funding arrangement will be more fully explored in Chapter 5, but it is worth noting the importance of it historically as the
first acknowledgement of the rights of the communities in the mine’s province to a larger share of the benefit streams of Ok Tedi mine into the future.

2.5 1991 – 1995 Downstream Impacts

One of the main aspects of The Ok Tedi mine is its impact on the communities downstream. The failed waste dumps and tailings increased the amount of sediment in the river significantly, increasing overbank flooding and causing dieback in sago swamps, especially in the lower Ok Tedi and Middle Fly. A growing body of research (Kreye and Castell 1991; Kirsch 1991; Rosenbaum and Krockenberger 1993) argued there were significant downstream impacts. The impacted communities and environmental NGOs stated the case against OTML at the International Water Tribunal (1992) and the United Nations Conference on Environment and Development in Rio de Janeiro (1992) to highlight the environmental and social impacts of the mine.

OTML took many years to recognise and compensate the communities for the downstream impacts. A significant contributor to this change in OTML was the 1990s court case in the Victorian Supreme Court in Australia. The campaign against BHP over environmental damages and compensation was fronted by two Yonggom men from the Lower Ok Tedi area Alex Maun of Ieran village, Rex Dagi of Iogi village, and a man from the South Fly Gabia Gagarimabu of Severimabu village. In the court of public opinion, the Ok Tedi litigants won hands down, recasting BHP from ‘The Big Australian’ to ‘The Big Polluter’. The substance of that litigation is better covered in the literature from Stuart Kirsch (1996; 1999; 2000; 2002; 2007a, 2007b, 2014), Low and Gleeson (1998), Kalinoe and Kuwimb (1997), Banks and Ballard (1997), Gordon (1995), and Imhof (1996). A critical difference between the perception of the motivation behind the litigation between Kirsch and others (King 1997; Banks 2002a), Jackson (2003), highlights the economically peripheral place that the Yonggom people of the
Lower Ok Tedi hold in terms of development in the North Fly. Jackson (2003: 5) states:

The problems for the Yonggom, in this respect, were two-fold: First that OTML activities did not increase the potential for the Yonggom to participate in the new economy using their own land; and second that OTML did do damage to that land and thus its potential for subsistence production. While OTML’s presence could be taken advantage of through migration by those who had skills and labour to sell, those who remained in the villages were disadvantaged by their distance from markets compared to others in the region. Well before any sedimentation occurred, it was evident that the Yonggom on the west bank of the Ok Tedi would have difficulty participating in the new economy. But then their position was made all the more unbearable by sedimentation and die back.

The communities were justified in seeking compensation for environmental damage, but the essential basis of their claim was that the environment is economic – as there are no other resources for the people to draw on for livelihood. Approaching the court case in this way, it becomes apparent that communities believed it important that they were involved in the economic and social development that the other communities closer to the mine participate in. The FRDT was clearly not bringing enough development opportunities.

The impact of the litigation on the OTMC was that it changed the corporate community nexus. OTML CR manager Yaru Pohei acknowledged there was a significant change in the way OTML interacted with communities after the court case, from the basic environmental and community relations officer level up to management (pers. comm. 2010). The impact on OTML and the national government can be seen in their attempt to have the Eighth Supplemental Agreement (8SA) passed, for which they
were found in contempt of court. The alleged unconstitutional collusion (Kirsch 2014:97–98) between BHP and the national government in drafting the Eighth Supplemental Agreement, comes down to the role of the national government in the OTMC. It is a three role relationship as regulator, tax beneficiary, and equity participant (Pintz 1984) and the source of many of the conflicts of interest.

2.6 1995 – 2001 RESA and LOTA

Restated Eighth Supplemental Agreement
The Mining (Ok Tedi Restated Eighth Supplemental Agreement) Act 1995 (RESA) was the result of the backlash against the original 8SA. The 8SA contained provisions that would have made it illegal and subject to prosecution to pursue or assist in the litigation in foreign courts of compensation, but this was removed from the RESA and passed as the Compensation (Prohibition of Foreign Legal Proceedings) Act of 1995. The RESA provided a K110m package to the downstream communities on the proviso that they withdraw from the litigation. The communities covered by RESA are 120 villages along the Ok-Fly River system (see Table 2.2 in Appendix III), and have a population over 60,000. The communities opted into the RESA compensation package because there was no guarantee that they would win the legal action, Kirsch asserts this was ‘deceptive… because the agreement stipulated that compensation payments could be reduced or eliminated altogether to pay for any additional expenditure on tailings containment…’ (Kirsch 2007:30). The reality was that the company paid out compensation according to their undertakings in the RESA, without any sequestering.

In 1997, OTML’s shareholder structure was 20 percent Inmet, BHP 60 percent and State of PNG 20 percent.

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15 Subsequently overturned.
16 Amoco had left the consortium and the RESA removed any enduring liabilities.
In 1998, pursuant to Clause 5 of the RESA modification to Clause 11, Inmet Mining and BHP gave the State 2 percent and 8 percent respectively to contribute to community ownership. This was to be held by the Mineral Resources Development Company (MRDC) on behalf of the people of Western Province through its subsidiary Mineral Resources Ok Tedi No.2 Ltd (MROT#2).

Lower Ok Tedi Agreement

The out of court settlement would come on the 7 June 1996 with the signing of the Heads of Agreement between a number of complainants (Maun, Dagi etc.) and the companies (OTML, BHP). The LOTA was enacted on the 9th May 1997 between OTML and 15 lower Ok Tedi communities. The communities involved in the LOTA were: Ambaga, Atkamba, Bige, Bongobun, Demasuke, Dome, Ieran, Iogi, Kawok, Komopkin, Konkonda, Kwiape, Miamrae, Sarae, Senamrae. The substance of this agreement is K40m extra compensation for the communities of the lower Ok Tedi, and that a trust was being set up to manage the development funds that were part of the settlement. In return for the extra compensation and trust mechanism: ‘The

17 Kirsch (2007) incorrectly attributes the equity requirement to the out of court settlement agreement.
Communities generally shall not disrupt, interrupt or obstruct the operations of the Ok Tedi mine, including without limitation, the tailings and waste mitigation scheme in the area of the Lower Ok Tedi, at any time during the life of the mine’ (Clause 7.3). This commitment was in addition to agreeing to pursue consultation with company, provincial and national governments ‘should any issue arise between the Communities and the Company’ (Clause 7.2) and recognising ‘the benefit of the mine to local communities, Western Province and Papua New Guinea’ (Clause 7.1). Although this bound the communities legally, it did not stop them from being in conflict with OTML.

The LOTA can be seen as a basis for the CMCA trusts that would come subsequently. The Alice River Trust (ART) was the first of the community engaged trust mechanisms. The FRDT was always a ‘top down’ development tool, whereas the ART was intended to have significant input from the communities it covered.

OTML committed to investigating a Mine Waste Management Project, despite the comments from community members in the lower Ok Tedi against dredging and pipelines (Kirsch 2007). The dredge project started in 1998. A sediment storage facility was established at Bige and Dome, with stored sediments stabilised and revegetated (Butler et al 2012). The dredge removed a significant amount of sediment from the Lower Ok Tedi, reducing riverbed aggradation and suspended sediments further south in the Middle Fly. Butler et al (2012: 624) report that ‘Dredging has improved physical aspects in the Lower Ok Tedi and the Fly River, and has resulted in dieback recovery in the Lower Ok Tedi and fish habitat recovery in the vicinity of D’Albertis Junction’.

BHP changed significantly its stance on The Ok Tedi mine. It went from being a core part of its international portfolio, to being a millstone around the company’s neck. In 1999 the World Bank produced an environmental risk assessment of the Mine Waste Management Project, which produced a less than favourable assessment of the downstream impacts regardless of which option was chosen (ranging from doing
nothing to immediate mine closure) (Klaus to Morauta 2000). BHP managing director and chief executive officer Paul Anderson stated in 1999 "With the benefit of these reports\textsuperscript{18} and 20/20 hindsight, the mine is not compatible with our environmental values and the company should never have become involved" (Burton 1999).

\textbf{2.7 2001 – 2006/7 Ninth Supplemental Agreement}

When BHP decided it was to withdraw from the majority shareholding in OTML, the government and OTML were faced with the possibility of closure. The period 2001 to 2007 is a period of increasingly consultative approaches for the OTMC, when some of the most interesting recent developments contributing to the mine closure and sustainability planning of the Ok Tedi mine occurred. The single most important aspect of the period is the \textit{Mining (Ok Tedi Mine Continuation (Ninth Supplemental) Agreement) Act 2001} (9SA). The agreement has four key components:

\begin{itemize}
  \item Community Mine Continuation Agreements
  \item PNG Sustainable Development Program Ltd.
  \item Ok Tedi Development Foundation
  \item Mine Closure and Decommissioning Code
\end{itemize}

\textit{Community Mine Continuation Agreements}

The Community Mine Continuation Agreements (CMCA) were established in 2001 in the 9SA. The CMCAs are legally binding under two schedules of the 9SA. The first schedule of the 9SA is the Mine Continuation Agreement (MCA) and the second schedule is the CMCA. The CMCA is a social licence to mine, as it is based upon the premise that the communities impacted by the Ok Tedi mine should have a say in whether it should continue to operate. Social licence to mine is a relatively new approach, with ‘stakeholders demanding that companies align themselves more closely

\textsuperscript{18} Human Health and Ecological Risk Assessment and World Bank Tailings Reports.
with the tenets of sustainable development, of which increased community participation in decision-making is a central goal’ (Prno and Slocombe 2012). OTMC was an early adopter of the social licence to mine, as it was part of the exit strategy of BHP Billiton. This process essentially was about the communities agreeing that mine closure would not be in their best interests. By engaging the communities and leaders in a process where they were informed of the options and then given the opportunity to sign on to continue the mining project, it became one of the first mines in the world to facilitate community involvement in the decision making process.

The CMCA constitutes agreement from eight regions: Nupmo, Tutuwe, Wai Tri, Middle Fly, Suki Fly Gogo, Dudi, Manawete and Kiwaba, and the six mine villages Atemkit, Bultem, Finalbin, Kavorabip, Migalsim and Wangbin. Originally, the four South Fly regions signed the CMCA as one group. These communities cover 156 villages and over 100,000 people in Western Province (see chapter 3 for extended discussion of the CMCA trust regions). The MCA and CMCA afforded indemnity against future environmental litigation, as the CMCAs were meant to be the final word on environmental compensation. Clause 4.4 states ‘The Community Mine Continuation Agreements represent the final and binding agreement between the parties thereto on compensation and benefits payable to such of them as are affected by the Project’ and Section 5 states:

1. Subject to subsection (3) neither the State nor any Government Agency may take, pursue, or in any way support Proceedings against a BHP Billiton Party in respect of an Environmental Claim relating to the operation of the Project.

2. This section may be pleaded by a BHP Billiton Party as an absolute bar and defence to any Proceedings taken by the State or a Government Agency in breach of its terms.
This meant that the communities had to negotiate based on the fact this was the only compensation they were going to get for downstream effects (in addition to the RESA funds already given).

The CMCA process started in July 1999 with the first round of community consultation awareness conducted by OTML from the Mine Area to the Middle Fly (Kalinoe 2008). This consultation was informed by the Human Health and Ecological Risk Assessment studies carried out between 1997 and 1999 on the downstream impacts of the mine. There were numerous rounds of community consultation about the mine continuation, with emphasis on the environment, community development, and negotiation process. Patrols were conducted at different times for different things in different regions. At the time when the compensation negotiations with the Nupmo and Tutuwe regions, the South Fly regions were still being consulted about signing the Heads of Agreement, which the Nupmo and Tutuwe regions had signed 5 months prior (OTML n.d.: 2). This ad hoc approach is attributed to the reality that the CMCA was an innovative exercise in informed consent, on a much larger scale than any mining company in PNG had conducted before. Managing community patrols, consultation and negotiation in the 146 villages and 6 regions was challenging for the company, the government, and OTML had no guide as to how to organise the process.

Kalinoe (2008) and Kirsch (2007) raised concerns about the actual legitimacy of OTML’s claim of informed consent. The community members canvassed stated that there was not enough time to discuss the content of the CMCAs, nor did they feel that the national government or OTML adequately listened to the communities. None of the regions except the Middle Fly were given the draft CMCA for lawyers to see, and when the lawyers proposed changes to the CMCA they were told it was not possible and the only part for negotiation was the schedule about compensation packages (Kalinoe 2008: 34). This constitutes a lack of full disclosure, meaning that the
communities went into the CMCA negotiations blind, and with little ability to exercise informed consent. This lack of transparency was coupled with the CMCAs recognising anyone who purported to represent their community:

Section 8 (1) The signature or other execution of a Community Mine Continuation Agreement by a person representing or purporting to represent a Community or clan, or that person’s delegate, binds all of the members of that Community or clan to that Community Mine Continuation Agreement notwithstanding –

a) That there is no express authority for that person to sign or execute the Community Mine Continuation Agreement on behalf of the members of the Community or clan; or

b) That not all representatives of the relevant Community or clan have signed or otherwise executed the Community Mine Continuation Agreement;

c) That not all members of the Community are parties to the Community Mine Continuation Agreement; or

d) Any requirement of the Underlying Law

Kirsch (2014) claims that the majority of communities were divided about the CMCA, and that many of the people who claimed to be representatives and signed the CMCAs became persona non grata in their communities. There were no proper elections of representatives, so this is possible, and the fact that community members did not see the substantive CMCAs before negotiating rendered 8.1(a) redundant, as no person purporting to represent a community would upon seeing this clause withdraw from signing. The problematic CMCA clauses continue with the next clause (8.2) stating that the signature

…binds each person on behalf of whom that person purports to be acting, and where a person purports to be acting on behalf of the whole of that person’s Community or clan, that person’s acts and deeds bind each existing and future member of that
person’s Community or clan, including, without limitation, children and persons who are subsequently born into, or who subsequently join, that Community or clan.

Binding communities in perpetuity to agreements that are signed by people who were potentially not elected or supported as representatives of the communities they purported to represent was a considerable downside for the CMCAs. There was not enough transparency and accountability in this regard.

The CMCA was not just about gaining consent, it was also about compensation. The communities and OTML negotiated compensation packages at the commencement of the process, with the standard operating procedure for communities being to ask for tens or hundreds of millions of kina, and OTML stating that was not within their budget and offering a vastly lower sum. An example of this was the Tutuwe (Highway) community negotiating their package. OTML started with an offer of K7.5m and Highway communities responded asking for K50m on 18th May 2001, with the final agreed compensation being K15.3m after five rounds of negotiation on 5th October 2001 (OTML n.d.) The total compensation package in the 2001 CMCAs across all CMCA regions was K176m (OTML 2005d). The scale of the compensation agreement was larger than the previous RESA compensation, but complemented rather than replaced it. At the same time as the CMCA was conducted, Slater and Gordon19 brought a class action on behalf of the communities in the Lower Ok Tedi and Middle Fly charging that BHP had not fulfilled its commitments from the 1996 settlement, and that the CMCA was not legitimate. The documentary Colour Change, released in 2012 by Amanda King and Fabio Cavadini of the Australian based Frontyard Films, details some of the complaints community members had, and demonstrates how communities were even through the CMCA process convinced that BHP and OTML were short changing them by tricking them into signing onto the CMCA when Slater and Gordon

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19 Rex Dagi registered a writ on 11th April 2000 in the Victorian Supreme Court.
said it was not in their interests. The documentary shows evocative scenes of people shouting about wanting the court case to go ahead, but never actually engages with the other side of the story – never talks to any senior representatives of OTML or BHP about the content of their compensation package – merely allowing the communities’ claims that it is inadequate to be the unchallenged truth. The harm that the tailings had done to the river is undeniable; however, the method of cherry-picking environmental facts and framing OTML as a universally bad organisation with no care for the communities is not constructive criticism. Colour Change also fails to mention the Bige dredge site, the Mine Waste Tailings Project, the CMCA Review, or the two development organisations that the 9SA established. The court case eventually was withdrawn because of a lack of plaintiffs, as the vast majority of villages in the impact regions signed onto the CMCA.

While there were many things about the CMCA process that were less than fair or transparent, OTML conducted wide consultation and awareness, involving and listening to the communities in a new way. Improvements to the methods of consultation were needed, and the reviews by independent observers involved in the process informed OTML’s future consultation practises for the CMCA Review. The CMCA process signalled a change in OTMC to include the communities, however marginally, in decision-making, rather than exclude them completely.

**PNG Sustainable Development Program Limited**

BHP-Billiton’s desire to exit The Ok Tedi mine necessitated that it divest itself of its 52% stake in OTML. This was facilitated by the establishment of a development company to take BHP’s 52 percent equity in OTML to use for the current development of Western Province and PNG and the future financing and support of Western
Province post-mine closure. Figure 3.3 shows the equity participation in OTML that resulted from the 9SA.

Figure 3.3 – OTML ownership 2002 (OTML 2013)

PNG Sustainable Development Program Limited (PNGSDP) was formed to indemnify BHP Billiton from any further litigation over environmental concerns, so the 52 percent shareholding was transferred in 2002. PNGSDP featured a technocratic workforce, made up of former government bureaucrats and international advisors. BHP retained rights to appoint the chairperson and the members of the board. Australian Ross Garnaut was appointed chairman from 2002 till he resigned in 2012. PNGSDP, up to September 2013, allocated funds based on: a one-third development fund, of which one-third is used for the development of Western Province, with the remaining two thirds for development projects in the rest of PNG; and the two-thirds Long Term Fund which is invested and to be spent after The Ok Tedi mine closure (PNGSDP 2011). As of 2010, the Long Term Fund had USD1 billion of funds. This is projected to grow substantially by 2024 (if closure is then). PNGSDP funded a myriad of development projects throughout Western Province, much of the time in Non-CMCA areas, such as the Morehead region, as the projects in the CMCA regions are usually funded through the CMCA trust system. PNGSDP and OTML have a common Board Chairman, Professor Ross Garnaut until 2012. Sir Mekere Morauta took over as chairman in 2012.
Ok Tedi Development Foundation

Ok Tedi Development Foundation was established through Schedule 1 Clause 6 of the 9SA. The idea for a development vehicle to continue delivering OTML’s socioeconomic programs beyond closure to the mine impact areas was originally proposed in July 1999 (OTML 2007: 5). The organisation was originally a part of the OTML Community and Business Support – Regional Development Department and managed by David Wissink. OTDF was seen by some within PNGSDP and OTML as more of a public relations arm of OTML than a development organisation. Its role was to oversee the use of CMCA trust funds and encourage economic development in the trust regions. OTDF was responsible for administering the CMCA trust development projects that are nominated by the Village Planning Committees. It seeks counter funding and support from PNGSDP and other international development agencies such as Japan International Cooperation Agency and Australian International Centre for Agricultural Research. By becoming independent of OTML, OTDF became more community development oriented than when it was a department of OTML. By handing over the responsibilities for agricultural and other community development to OTDF, OTML’s focus on core community relations responsibilities, such as negotiations, meetings, and payments was enabled.

Mine Closure and Decommissioning Code

The Ok Tedi Mine Closure and Decommissioning Code 2001 (MCDC) set up the regulatory framework for the mine closure planning. This will be explained fully in Chapter Six.

2.8 2006/7 – 2012 CMCA review, ‘New Era’.

The developments of the Post-CMCA review and New Era focussed heavily on developing a better mine closure strategy for The Ok Tedi mine. The relationship
between PNGSDP and OTML strengthened, and the spin out of OTDF as a separate zero tax entity enabled it to exercise autonomy. The exit of Inmet as a shareholder in 2011 due to concerns about mine life extension (MLE) was a significant change to the ownership of OTML and the post Inmet time is referred to by OTML as the ‘New Era’.

**CMCA Review**

By 2005 it was recognised that there had been significantly more environmental impact than originally stated under the CMCA. In particular, the emergence of acid rock drainage as an environmental issue meant the downstream communities’ expectations of environmental impacts were exceeded (Adler, Brewer and McGee 2007:5). The CMCA states in Clause 27 ‘To the extent that the environmental effects of the continuing operation of the mine exceed the Environmental predictions, the parties shall meet to discuss revision of the payments under Clauses (17) and (18), taking into account the environmental effects in excess of those contemplated in the environmental predictions’ The CMCA Clause 21 relating to the review of the agreement states that ‘Subject to this Agreement, the parties may after the expiration of five years from the Termination Date, meet to review the operation of this agreement’. The way that the CMCA review was conducted was very different to the original CMCA. OTML removed itself from the centre of the consultations – instead, they hired independent facilitators Tanorama and The Keystone Centre. This was dubbed ‘A New Way Forward’, and had as its symbol a set of steps, illustrating the process the stakeholders and communities would go through to achieve informed consensus.

The core of this change was the shift from a ‘divide and rule’ strategy, whereby OTML previously had engaged with select few villages and leaders, as seen by the low figure of 50 meetings for the 2001 CMCA (Lagisa 2007). The CMCA Review had at its core the CMCA Working Group, a democratically-elected forum for
dialogue, negotiation and decision-making made up representatives from the 8 regions and 6 mine villages, OTML, PNGSDP, FRPG, WPA, women and youth, church and environmental non-government organisations (Sharp and Offor 2008). Each village selected representatives, who in turn voted for regional representatives. The system led to a three-tier engagement – village-regional-working group. This was intended to be a feedback whereby discussions at the Working Group level were transmitted down to villages, and villager concerns were transmitted up by village and regional leaders. The inclusion of women was notable as they had not been included in the original CMCA process. The process was guided by principles of ‘integrity, respect, transparency, responsiveness, equity, adequacy of information, fairness, timeliness, and participation’ (OTML 2005c: 12). The process was also subject to accountability, as there were procedures set up in order to faithfully record the complaints, comments, and other details of each meeting for review (OTML 2005c).

The process took from February 2006 to June 2007. The CMCA review brought up many different problems the communities believed were essential to better implement the promises of the CMCA. During the 2006/7 CMCA review the package was increased to K1.1bn to be distributed to the different trusts. Women were included more in the CMCA negotiation process, and the outcome was a 10 percent Women and Children’s fund included in the CMCA updated package (Offor and Sharp 2008).

One of the significant parts of the CMCA review was the mine impacted community’s desire for OTDF to be made independent from OTML. The process of creating the independent OTDF and devolving responsibilities to the new trading entity, Ok Tedi Fly River Development Program (OTFRDP), was a process that took three years from the CMCA review to final implementation in June 2010. OTDF has four shares, and is managed by CEO Ian Middleton. OTDF manages the CMCA trusts on behalf of the CMCA communities, and OTFRDP is the operations side, dealing
directly with communities and contractors to implement sustainable development projects. OTFRDP took over OTML functions that were not core business and that OTML did not want to be involved in directly anymore, such as Tax Credit Scheme project implementation (which will be explained further in chapter 5). The changed status to a zero tax entity with an independent operational structure from OTML has facilitated a different corporate culture within OTDF and OTFRDP. OTML and OTDF work in concert, but there are significant differences in the way that OTML and OTDF relate to the communities. OTML is seen by some within OTFRDP as just ‘coming to the communities once or twice a year and handing out money’ (OTFRDP officer pers. comm. 2010), whereas OTFRDP spends extensive amounts of time doing development extension work and facilitating the basic desires of communities.

The Mine Waste Tailings Project was started in 2007 as a result of the increasing level of acid rock drainage forming pyrite in the skarns of Mt Fubilan, which exceeded the environmental predictions of the original CMCAs. The project involved removing pyrite from tailings and piping it down to Bige to manage and store to prevent acidification of the Ok Tedi. (Butler et al 2012).

**Inmet Withdrawal, ‘New Era’**

The Inmet Mining Corporation was a Canadian mining corporation that produced copper, zinc and gold. It was originally the Metall Mining Group, part of the German Consortium. The company was known for (until 2011) holding an 18 percent stake in the Ok Tedi mine. Due to its opposition to OTML’s plans to extend the life of the mine due to pressure from Canadian anti-mining advocacy groups (Carrère and Holtby 2011), Inmet decided to divest from OTML. Initially, Inmet traded its shareholding for a 5 percent net smelter return royalty in 2009, but in 2010 decided to sell back the royalty to OTML for US$335m in January 2011, OTML then cancelled Inmet’s block of shares according to the Notice of Redemption and Acquisition of Shares by
Company on 28 January 2011 (Registrar Companies PNG 2011). This made PNGSDP a 63.4 percent shareholder with the State of PNG holding 36.6 percent, of which MROT#2 held 12.2 percent (PNGSDP 2012).

![Diagram](image)

* In Jan 2011, Inmet shares was bought back for USD335m and cancelled.

Figure 3.4 – OTML equity participants in 2011 (OTML 2013)

**Mine Life Extension**

In 2009, OTML decided to pursue *Plan D*, a program to examine the feasibility of extending the mine life. *Plan D* was essentially the pre-feasibility for extending the mine life. This process meant engaging with stakeholders in the mine and gauging support for continued operation beyond the 2013 closure. As cited earlier, Inmet was not interested in mining beyond 2013 and opted out. The other shareholders, State of PNG and PNGSDP, saw the benefits that extending the life of the mine could bring – from staged closure to more minerals. The economic conditions were extremely favourable for copper and gold, so a program of Mine Life Extension (MLE) feasibility was undertaken. This involved a significant amount of engineering, environmental and community consultation in order to extend the working life of the mine by up to 12 years. The basis for OTML’s MLE proposal was:

- Smaller mine
• Less revenue (60%)
• High cost
• Stable waste dump is technically possible
• Low environmental impacts with stable waste dump compared to closure in 2013

The initial community consultation started in February–March 2009 with village patrols to 156 villages in the CMCA. The communities were updated about the mine closure planning, and it was reported that:

…an overwhelming majority (90 percent) of the villages did not want the mine to close. Their reaction was that ‘it was too late for the mine to close and it should keep going. There was too much impact already and they need the compensation to survive and there was not too many other alternatives’ It could be seen as communities wanting to enjoy the improved package for a longer period (OTML 2009g: 3).

The initial Plan D patrols were conducted in June–July 2009. In Nupmo Trust region, for example, there was generally positive reaction to the prospect of extending the mine life, but people wanted it to be a new agreement, not an extension of the existing CMCA (OTML 2009h: 14). The reception of the communities in the Plan D consultations meant that OTML was confident it could move towards a more formal consultation process, called the Community Mine Continuation Consent Process (CMCC). The process was guided by principles in order to assure that OTML’s charter\(^{20}\) was respected. These principles were the same as the CMCA review: ‘integrity, respect, transparency, responsiveness, equity, adequacy of information, fairness, timeliness, and participation’ (OTML 2009g).

\(^{20}\) OTML’s charter was “Shared Purpose, Shared Goals, Shared Values and Shared Success” (OTML 2006: i)
The MLE process was subtitled ‘A Genuine Opportunity’. The process involved a different method of community engagement to the previous CMCA negotiations. The communities were asked to elect representatives, alternates, and women’s representatives for the three-tier community consultation process. The election of representatives and their alternates was in August 2009 via a formal process at village meetings and were confirmed by OTML. The use of newly elected representatives rather than relying on the already elected Village Planning or Ward Development committee members reflected a belief within OTML that they could not rely on existing political structures to effectively disseminate information about MLE. However, in many cases, the existing elected committee officials were put forward as MLE representatives (especially in the Mine Area Villages). The negotiations and decisions were made at the regional level rather than the delegate level, a change from the previous CMCA Review. This ensured that every village had representation in the negotiation.

The communities were briefed on the most up to date information through delegates, regional and village meetings. The delegates meetings had three regional representatives, plus women’s’ representatives, from each CMCA trust region. The delegates meetings generally were held over two days in Tabubil, with stakeholder representatives from OTML, PNGSDP, OTDF, FRPG, WPA, national government departments of Treasury, Finance, National Planning, Mineral Resources Authority, and Mineral Policy and Geohazard Management. I attended the delegates’ meeting in March 30/31 2011. The meeting list of who attended can be seen in Appendix IV. The village meetings were conducted across all of the CMCA villages. The first round of official MLE village meetings were conducted in May 2010, and the final round, prior to negotiations, in February–March 2012. The villages were informed of the MLE feasibility progress through *Komuniti Nius* newsletters from OTML that were handed
out and explained, presentations by OTML CR officers and other stakeholders, such as PNGSDP or OTDF. The village meetings were conducted in Tok Pisin, English, Hiri Motu and *tok ples* where there were available translators. The village meetings took between two and three hours to conduct. The first 30 minutes were where the facilitator ran through the previous meetings, the rules of the MLE meetings, and future plans for meetings, then the OTML CR officers talked about the content of the *Komuniti Nius* newsletter and any other relevant developments since the last contact with communities. This could take anywhere up to an hour. This was followed by a question and answer session whereby community members stood up and asked OTML, PNGSDP, or the facilitators for clarification, pointed questions about development, or made comment about the process. This was followed by the facilitator reading out the minutes taken paraphrasing the questions and comments community members made for the record for everyone to agree on.

External observers were engaged to assess the MLE community consultation process. The external observers changed over the course of the MLE consultation process. John Kawi, Dr Beno Boeha, and Ila Geno were all at times external observers, who through their respective distinguished careers were well placed to give reports on the transparency and procedures of the community mine continuation consultation process. Some comments and recommendations for the CMCC process were that the communities should be given access to information so they can come to the meetings well prepared (Boeha and Geno 2011: 31), however the logistical challenge of delivering materials to every single village before the respective meetings was immense. External facilitators were engaged to enable the process to go smoothly and adhere to the CMCC’s principles, with every person’s opinion given adequate time to

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21 For the VM3 meetings in Nupmo Trust area Lalaman Gaegae, the Walawam village representative, accompanied the OTML officers to translate to Ningerum. Joe Boikoun, OTML CR officer from Ningerum Station assisted with translation to Awin at Ningerum Tamaro.
be expressed and responses formulated by stakeholders. Tanorama, the organisation that had supported during the 2006/7 CMCA review, facilitated the CMCC process with experienced and well respected facilitators Martin Brash and Kori Maraga leading sessions.

At the conclusion of the consultation process, negotiations were made at the regional meetings in Tabubil as Community Mine Continuation Extension Agreements (CMCEA) between OTML and each of the eight CMCA regional trusts and the six mine villages. This negotiation was finalised in December 2012. The representatives from six trust regions decided on expanding the Women and Children’s component of the CMCEA regional benefit package up from the existing CMCA amount of 10 percent, but varied in total amount between trusts up to a maximum of 18.24 percent of the total benefit package (Popotai and Ofasu-Amaah 2013: 19). In 2014, the CMCEA and MLE was formalised as a supplemental agreement, the Mining (Ok Tedi Mine Extension (Eleventh Supplemental) Agreement) Act 2014.

One criticism of the process is that the independent environmental advisor, Dr Jerry Tamate, used the same terms of reference to assess OTML’s environmental study as the environmental study itself used. There were a number of complaints from the delegates that there was ‘no difference’ between the independent advisor’s report and the report given by OTML’s environment manager Michael Ridd. Some delegates indicated they did not believe that the independent advisor’s report was rigorous and scientific to the standard they expected, and thus it was hard to trust. The independent environmental advisor had a session without any other stakeholders during DM3. At times, the advisor did not address the questions of the delegates adequately. A Middle Fly delegate (Richard Zumoi) said to the advisor that the wells that he and his community had dug near to the Fly River had become contaminated with overbank

22 The external observers, myself and a Project Coordinator, Department of Mining, Autonomous Bougainville Government Simon Jaintong were present for this session.
flooding, and the advisor responded that they should dig their wells further from the river – obviously not appreciating that the Middle Fly is flat and prone to flooding.

Another instance was when a Lower Ok Tedi delegate drew a metaphor about how the Fukushima Daichi Nuclear Plant’s radiation would stay around for a long time and whether the chemicals in the Ok Tedi would make people sick for generations in a similar fashion. The independent advisor completely misinterpreted the question and talked about acid rain clouds coming from the nuclear plant probably not affecting PNG23.

Overall, however, the process was inclusive and thorough. The community members and MLE representatives I spoke to all stated that they felt privileged to have a genuine opportunity to voice their concerns about MLE, and that OTML treated most of their comments with the appropriate amount of respect. Their chief complaint was not aimed at OTML directly, but rather at the development agencies PNGSDP and OTDF, as many people stated that development was not happening, and that accessing funding for development was too hard, too opaque, and that the VPCs were not transparent in their dealings with project proposals. The process of a three-tiered system of meetings meant that OTML avoided any accusations of coercion or trickery that they had encountered from Slater and Gordon during the 2001 CMCA process. They also fully addressed the informed consent criticism of Kalinoe (2008) by giving the communities as much information about the process, and refusing to move on to negotiations before everything was on the table to review by the communities. The evolution of the CMCC process from the initial meetings in July 1999 to the present was created by the unique environment of the OTMC, and has made OTML one of the most community engaged mining companies in the world.

23 Despite the fact that there were no reported acid clouds or rain from the Fukushima Daichi Nuclear Plant.
2.9 Post 2012

On September 18th 2013, the National Parliament passed an amended 9SA and the Mining (Ok Tedi Tenth Supplemental Agreement) Act 2013 (10SA). The substantive change to the 9SA was to change Section 4 of the Principal Agreement to say ‘(a) anything to the contrary in any other law in force in the country, other than the Mining (Ok Tedi Tenth Supplemental Agreement) Act 2013’. The second part of the amended 9SA refers to the repeal of Section 5. This was the section indemnifying BHP Billiton over environmental claims and barring the State from participating in any legal action. This was a key section of the 9SA allowing BHP Billiton to leave OTML freely. Subsequent to this change, litigation has been brought against OTML regarding riverine tailings by South Fly communities (Namarong 2014)

The 10SA cancelled the shareholding of PNGSDP and reissued them to the State of PNG (Section 4(1) a and b). It stated in Section 6 ‘Notwithstanding anything to the contrary in any Act, the State has the necessary powers restructure PNGDSP and its operations to ensure that PNGSDP applies its funds for the exclusive benefit of the people of Western Province’. PNGSDP brought a case against the national government in the Singaporean High Court, and unsuccessfully attempted to have the case arbitrated by the International Centre for Settlement of Investment Disputes.
Figure 3.5 – OTML equity participants in 2013 (OTML 2013)

2.10 Conclusion

The history of the OTMC gives insight into the workings of the corporate mentality, as well as the grounding of the mine closure and sustainability planning that guides the mine into the future. The growth and development of the CMCA consultation process from opaque to fully transparent and accountable, and with it the corporate culture of the organisations involved, is a measure of the ability of institutions to change substantially in response to internal and external pressures.

The mining company has changed internally since the early to mid-1990s in fundamental ways. The OTML of 1995 is not the OTML of 2009–2013. OTML had to change its corporate culture after becoming a by-word for flagrant widespread environmental destruction during the class action litigation in the mid-1990s for environmental damage, and since that period, OTML has dramatically changed its internal and external relations to engage communities in a meaningful way.

The importance of the political situation at the time determined how both the political elites and the grassroots community members viewed the mine. Throughout the whole history of OTMC, it has been demonstrated that the national government’s
priorities have heavily influenced the working of the mine. When the mine has been in its doldrums, particularly around the time of the court case, the national government’s support and help ensured that the mine did not close. Until recently, the government had taken a ‘hands off’ approach to The Ok Tedi mine. However, political fortunes can change as quickly as the weather in Tabubil. The most recent attack on PNGSDP and cancelling of their shareholding, making OTML a state owned enterprise, will have untold impacts on the OTMC.
Chapter Three – The Communities of the Ok Tedi Mining Complex

3.1 Introduction

The residents of the impacted regions are from overlapping communities, ranging from family units to wider tribal and language group affiliations. Recognizing the diversity of the communities and membership of groups within the impacted regions and hinterland of the Ok Tedi mine is important to sustainability planning leading up to mine closure. The mine closure and sustainability planning process and implementable policy outcomes are designed to manage the closure of the Ok Tedi mine in a way that does not disadvantage the surrounding population. These people rely, at present, on the Ok Tedi mine to provide or subsidise infrastructure, transport, health, economy, and education. The Ok Tedi Mining Complex (OTMC) stakeholder organisations provide varying levels of financial and in kind support to communities, which will be detailed in chapters 4 and 5.

The Ok Tedi mine's impact area is the largest of any mine in PNG. It covers approximately one third of Western Province's landmass (30,000km2) (See Map 3.1 in Appendix II). In assessing the relationship the communities have to the mine, and the extent they have been impacted and affected by the environmental, economic and social changes to their life worlds, the aim is to understand the complexity of planning and sustainability for the stakeholders and communities alike. Assumptions, aspirations, expectations, and reality all play a significant role in the development of good policy. As Jorgensen (1996:198) states ‘…the Ok Tedi project transformed the Mountain Ok region from an obscure backwater to the centre of economic development in the western part of the country’. At Ok Tedi there is an element of ‘action at distance’ – those people who reside in the mine’s impact area and who perceive a negative
consequence of the mine versus those who are directly impacted by actions of the mine (Burton 1991). These impacts, which affect numbers of people, can be environmental, economic or social effects.

There is a definite difference between the impacts and effects felt by communities in the Ok Tedi mine’s impact area. Initially in the original impact reports (Jackson, Emerson and Welsch 1980) this impact region was minimally defined. These reports only covered the actual immediate area around the mine site and associated facilities of Tabubil Township, Ok Menga hydro and Ok Ma tailings dam. The expansion of the impact area from 10–12 villages to an impact corridor stretching from the mine site town to the Gulf of Papua and covering 156 villages in total was due to the tailings management system failing in construction in the early 1980s and the subsequent environmental impacts down river and 6SA allowing the mine to proceed to production without a new tailings management system. The importance of discussing the total expanded impact area of the mine as opposed to just discussing the North Fly area is that it gives context to the CMCA and MLE discussions.

As a stakeholder group, the communities that surround the Ok Tedi mine possess one commonality that binds them together – their relationship with the Ok Tedi mine. They span across two provinces (Western and West Sepik/Sandaun), four districts (Telefomin, North Fly, Middle Fly, and South Fly) and numerous local level government areas. The argument contained in this chapter is that the communities of the Ok Tedi mine’s impact area should not be treated as one group, nor in a hierarchy. It is of equal importance for impacted communities as non-impacted communities to have access to services and economic opportunity. This is especially evident in the North Fly District where communities while not directly impacted by river degradation or roads are influenced by the lack of consistent access to services and amenities. This will be
demonstrated through analysis of the grievances of individual communities within the
North Fly District’s Ok Tedi mine impacted areas.

The different degrees of influence on communities inform policies, plans, and
projects enacted in the communities. The extent and magnitude of the communities
influenced by the mine because of downstream environmental degradation and other
economic and social consequences is of central importance to understanding the
challenges facing the design and effective implementation of plans to ensure post
closure sustainability. However, when the mine closes, how can the level of services be
maintained when there is no mining company to support them? This dilemma faces the
residents of Tabubil and surrounding communities. The problem is that there are so
many uncertainties, as closure was slated to be in 2013 but under MLE it was extended
to 2025 as stated in the OTML Detailed Mine Closure Plan 2009.

Over the course of fieldwork research between 2009 and 2012, I was able to
visit a number of villages in the North Ok Tedi, Highway, and Mine Villages. The
village visits were part of the normal OTML Community Relations (CR)
communications patrols or OTDF agricultural/livestock site checks. In 2012 I
accompanied the North Ok Tedi Mine Life Extension community consultation team on
their village meetings. The types of information I collected on these village trips were
observations of the interaction between OTML/OTDF/PNGSDP and the communities,
community complaints, assessing the housing and public facilities (schools, water
tanks, churches), and general development level. This information was important for
analysing the relationship between organisations and groups in the Ok Tedi Mining
Complex.

The geographical area covered in this section is the most socially and
economically affected, but not the most environmentally affected. The observations
made in villages at meetings, report data and statistical data make up the bulk of the information in this chapter. The statistical data used within this chapter relies on:

- 2007 CMCA Population Census and 2011 CMCA Population Update carried out by OTML
- 2009 Western Province Socio-Economic Urban Survey by PNGSDP
- 1984 Population Survey of the Border Census Divisions of Western Province conducted by Pula and Jackson

Using this data, a demographic profile of the people within the Ok Tedi impact area, as well as an idea of the people outside this impact area and how they are influenced by the mine’s presence and downstream environmental consequences can be addressed.

3.2. **Broad geographical and political divisions in the CMCA**

The physical aspects of the Ok Tedi mine impact area are critical to mine closure and sustainability planning. The geography, hydrology and geomorphology of Western Province are the reason for the wide scale of the impact area. The Ok Tedi mine is located atop Mount Fubilan, a formerly 2134m peak of the Star Mountains, 18 kilometres from the PNG–Indonesian border (Pintz 1984: 16). The position of the mine within its geographic setting, including its proximity to the Indonesian border, underscores the importance of the mine to both the local and wider PNG community. Western Province, where The Ok Tedi mine is situated, forms the majority of the border with the Indonesian Province of Papua and has a land mass of 98,189km2 (NRI 2010: 51). Western Province is the largest province in PNG. It accounts for one third of the total landmass of the eastern (PNG) half of the island of New Guinea.
Each of the CMCA trust regions in the Ok Tedi mine impact area have significantly different geographical aspects to them, however there is one commonality: The Ok-Fly River system. Water is of great importance in Western Province as two major rivers, the Fly and the Strickland, and PNG’s largest lake, Lake Murray, provide food and transport for the people and animals. The rivers start in the mountains in the north of the province. Mt Fubilan, the location of the Ok Tedi mine, is the source of the Ok Tedi. The Ok Tedi, Wai Tri, Ok Ti, Ok Deri or Alice River is a fast flowing river (Burton 1993). The annual rainfall for the catchment of the Ok Tedi ranges from 11,000mm at the Folomian Mill site on Mt Fubilan, to 7000–8000mm at Tabubil, to 3000mm at Kiunga. The main tributaries of the Ok Tedi are the Ok Ningi, Ok Gilor, Ok Mabiong, Ok Mani, Ok Menga, Ok Ma, Ok Iluk, Ok Munga, Ok Tarim, Ok Birim, Ok Taub and Ok Mart. The hilly topography means that many of the river valleys are steep and deep. The Ok Tedi is not very wide above Ningerum with the main river channel being no more than 10m across. Below Ningerum to Bige, the river is a braided channel, shifting with every flood. Below Bige to the D’Albertis Junction, the river and the surrounding countryside is level, with a wide floodplain. D'Albertis described it as ‘full of rocks’ (D’Albertis 1880) (See Plate 3.1 in Appendix I). The most significant feature of the Ok Tedi is that it has always been a fast flowing and high sediment load river.

The regions of the North Fly District located in the catchment areas of the Ok Tedi and its tributaries are Mine Area, North Ok Tedi, Highway and Lower Ok Tedi. These regions correspond roughly to the CMCA trust regions respectively – Mine Area Village Trusts, Nupmo Trust, Tutuwe Trust and Wai Tri Trust. The CMCA trust regions correspond directly to the tribal identity of their residents rather than the location – some villages presently on the Kiunga-Tabubil Highway are under the Nupmo Trust.

The Ok Tedi combines with the Fly River at the D’Albertis Junction. The Fly River below this junction has a wide main channel and a number of oxbow lakes and
freshwater lagoons, the Bosset Lagoon being one of the largest. The Kawok rock bar on the Fly River above the D’Albertis Junction is a significant barrier to shipping concentrate down the Fly River especially during El Niño Southern Oscillation events (droughts and dry spells), as ‘if the river drops to three metres over the Kawok rock bar, then most vessels operating on the Fly River will not be able to arrive and those already in Kiunga will not be able to leave’ (TPNG 31/10/1992). In 1972, 1976, 1982, 1993, 1997 (Barr 1998). In 2004 (OTML 2004d) there were dry spells significant enough to stop shipping to and from Kiunga, with the 1982 drought affecting construction of the Ok Tedi mine and the 1997 one leading to a 5 month shut down of production (Pintz 1984; Barr 1998). During the most severe droughts in 1982 and 1997 large swathes of the sago swamps in the lower Ok Tedi and Middle Fly dried out and burnt (Barr 1998). The area is also affected by the Madden-Julian Oscillation (Mathews et al 2013), and from rain data taken from the OTML environment stations in Folomian (Mill) to Obo (Middle Fly) a clear picture of the oscillation of the rainfall in this area is shown. Plainly shown is evidence of the 1997 drought through all stations and the 1972 and 1981/2 droughts in the Tabubil station (Figure 3.1 in Appendix VI)

Between Kiunga and the Fly River Delta, there is only a 50 metre descent across 800 river kilometres (Banks 2002: 47). Along the length of the Fly River there are vast numbers of sago swamps supporting local wildlife and communities. The Strickland River is the source of the waters for the Middle Fly District’s major water feature, Lake Murray. The communities in this part of the river are represented through the Middle Fly CMCA Trust. The Middle Fly communities comprise the people living along the banks of the Fly River and its lagoons. The people along this stretch of the river generally are from the Boazi and Zimakani tribal groups. The population has remained reasonably static compared to the North and South Fly (see Table 3.5 in Appendix III). The larger villages of this region are Obo and Bosset.
The Fly River meets the Strickland River at the Everill Junction. The Strickland system is sourced high in Enga Province with some flows coming from the Porgera mine via the Lagaip River. South of the Everill Junction, the Fly is wide with flat plains and swamps surrounding it. Suki Creek is a tributary and there are a number of large river islands such as Stuart Island, before the Fly Delta, and Kiwai and other large islands in the Fly Delta. The delta is 56km wide where the Fly River empties into the Gulf of Papua. There are four CMCA trust regions in the South Fly District. These trust regions relate to the position within the South Fly District – Suki Creek area, south shore of the Fly River Delta, north shore of the Fly River Delta, and Fly River Delta Islands. The trusts respectively are Suki Fly Gogo Trust, Dudi Trust, Manawete Trust, and Kiwaba Trust.

Sometimes in South Fly regions, because they are so far away from OTMC organisations, strange things can happen. In Manawete, the region covers the North Shore of the Fly Delta there was a population explosion after the CMCA review. The extreme population increases seen in Manawete were called into question by OTML’s Socio Economic Research and Education Extension unit within CR Department, stating bluntly that ‘In 2009, the total population were [sic] 17212 compared to 12901 in 2008. The increase is extremely suspicious and unrealistic’ [their emphasis] (OTML 2009i: 6). This was confirmed when OTML did a validation on the 2009 figures in South Fly, finding in Manawete 2,393 ‘ghosts’ on the CMCA census lists (OTML 2010b: 8). This was put down to VPC and village recorders getting carried away and not removing deceased and illegitimate people from the rolls, in addition to OTML CR not monitoring the situation closely enough and swiftly dealing with irregularities.

The Non-CMCA areas of Western Province are of peripheral importance to OTML in mine closure planning, but are of a central importance to other stakeholders. The FRPG, PNGSDP, and Christian Missionary organisations (Montfort Catholic,
Evangelical Churches of Papua) all have a stake in ensuring that post-closure of the mine the provision of services to the people of the Non-CMCA areas do not decline. The North Fly District Non-CMCA areas include the whole of Olsobip Rural and Kiunga Urban LLGAs, as well as portions of Kiunga Rural and Ningerum Rural LLGs.

In Middle Fly and South Fly there are many communities not included in the CMCA but these communities are a significant distance from the mine area so the economic and social changes are not present or at least less problematic. Outside the CMCA, the difference in population growth in communities can be seen with a representative slice of Olsobip and Ningerum Local Level Government (LLG) villages. Population growth within the Ningerum LLG Non-CMCA areas has been less than that of the CMCA areas (see Table 3.1 in Appendix III). These villages have always been outside the recognised Ok Tedi impact areas. The decreases of population particularly in the Olsobip LLG indicate that there has been significant shift from these villages to Tabubil probably due to the close proximity and kin network ties with local inhabitants. One other possible reason for this is that there are not the services available for maternal and general health that are available in the CMCA villages. As seen in the North Fly Health report (2009) the non-OTML/non-NGO run health centres do not have the same level of services as those in villages within the CMCA areas.

For localisation and training and local business development, the Principal Agreement states in Clauses 30.6 and 32.3 ‘...in so far as is practicable give first preference (for employment and assistance) to landowners in and other people originating from the Kiunga and Telefomin sub-provinces of the Western Province.’ This was what gave rise to the Preferred Area Districts (PAD) and the provision of projects for those areas. The non-impacted communities of Western Province were not given any specific provisions for preferential treatment under the PA beyond the Preferred Area Districts. It was in the Principal Agreement that the Kiunga and
Telefomin Districts acquired the right for ‘preferred’ sourcing of services and employees. The benefit of having local labour and contracting services was supposed to be to develop local skills and capital. The program was well used in the construction of the mine, as there were many unskilled or low-skill labouring jobs involved. Initially in the construction of the mine from 1982, the total labour force during this period was about 3500 with roughly 60 percent drawn from the local area (Jorgensen 1984). By 1985, this had been dramatically reduced to about 1900 workers (Harold Dugiu pers. comm. 2012). The establishment of local landowner businesses – for example, Tabubil Engineering, Starwest, Azobelle, and WangBult Stores – were all developed and assisted by OTML under localisation and business development programs. The downside for many of the local businesses is that their sole contract is with OTML, and they are not yet competitive with other national businesses.

**Local Politics**

In the North Fly there was little historical interest in politics\(^\text{24}\). The lack of politics reported in the North Fly (Burton 1997b) is attributable to the fragmented social relations and traditional processes of authority, especially within the Mountain Ok areas. The way the traditional male initiatory cults worked was a process over years, in which the most senior men had the most esoteric knowledge, and by extension they had authority over their clans (Barth 1987). The role of men and women has changed in the mine area. Where previously men were responsible for security, garden clearing, and decisions, men now have no place, as there is no risk of tribal warfare, people in the mine area rarely plant large gardens and decisions are left mainly in the hands of elected leaders, rather than being the product of community wide discussion (Polier 1994). The lack of this guiding traditional structure means that there is a more

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\(^{24}\) This has changed in more recent years with the emergence of a younger politically active generation jockeying for power in the village planning committees and ward development committees.
The younger generation of people who have lived their entire life with the mine seem more politicised than the older generation. It is changing from apolitical or at least apathy about politics to a more politicised generation. The breakdown of traditional initiatory structures has left the younger landowner generation subject to more generic power structures. These people are less likely to respect the older traditions because of their uninitiated status.

At the most basic level of the political organisation spectrum is the various region and village-based committees. A range of the committees is responsible for development in their communities. There are also committees and groups associated with women’s and youth issues. Village planning is the responsibility of two different committees – the Village Planning Committee (VPC) and the Ward Development Committee (WDC). The WDCs are a feature of LLGs across PNG. The VPCs were set up to facilitate the relationship between OTML and the villages. The difference between these two committees is important because one (VPC) deals with the funds available through OTDF and other trusts. The chairman of the VPC wields considerable power because of the responsibilities over CMCA trust development funds.

3.3 Mine Area Villages

The people around the Ok Tedi mine are known collectively as the Mountain Ok, who range from the east with the Oksapmin, who border the Strickland Gorge, to the west the Sibilmin (Ngalum) who are over the border in the Papua Province of Indonesia. The Mountain Ok people are confined to the Star Mountains valleys (such as Eliptaman and Ifiltaman) and the northern and southern slopes, which are the catchment for the Fly and Sepik Rivers. The original inhabitants of the area of Mt

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25 This term was first coined in 1964 by Healey in his PhD dissertation *The Ok Language Family of New Guinea* to describe the linguistic similarities of the people of the area between the Fly and Sepik Rivers.
Fubilan are the various tribes and clans of the Min or Mountain Ok. This broader group is characterised by a common language group (except the Oksapmin) (Healey 1964), a common cultural ancestress called Afek, and an associated male taro initiation cult (Brumbaugh, 1990; Brutti 2000; Hyndman 1990; Jorgensen 1980, 1990; Quinlivan 1954). The cultural centre of the Min people was the Telefolip to the north east of Mt Fubilan. The Mountain Ok people occupy an area of approximately 10,000 square kilometres and number around 20 – 25,000 (Jorgensen 2006: 238). The Mountain Ok people share some commonalities as Fredrik Barth points out:

In most outer respects, [the Mountain Ok] population is reasonably homogeneous: technology, subsistence and economy are closely similar, based on shifting horticulture with an emphasis on taro, extensive hunting and collecting and streambed products, and the raising of domestic pigs. Languages are closely cognate, physical type is indistinguishable. House type and dress are so similar that, apart from a few details, photographs from one village could be used to illustrate life in another (Barth 1987: 2)

A significant commonality seen in most of the Mountain Ok people’s religious practices is the Afek cultural ancestor myth. Afek is believed to have arrived in the area 300+ years ago from the east. The myths surrounding her travels across the mountains make up a large part of the ‘dreaming tracks’ that criss-cross the landscape. The story of Afek has been passed down orally via ‘Afek Sang’ (sacred myths) (Jorgensen 1981; Jorgensen 1990b: 49; Brumbaugh 1990). Where she travelled various streams, sinkholes and spirit houses were created, marking the land with significant and sacred sites (Quinlaven 1954; Brumbaugh 1990). Afek’s teachings were central to the male initiation religious cults and taro fertility cults that constituted the core of Mountain Ok peoples’ religious and sacred secret activity (Craig and Hyndman 1990).

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Afek is known by various other names: Karigan, Fukunkon, Fitipkanip and Yuwan. This is due to the nature of her journey across the mountain landscape through many different groups of people. Spirit houses

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The Wopkaimin are the landowners of the Ok Tedi mine site. Mythical underground tunnels which link the villages of Bultem and Telefolip, which both have significant yolam\(^{26}\) houses built by Afek, with Bultem having a futanman (Brumbaugh 1990). Mt Fubilan is a significant site in the general mythology of Afek, as it is the land of the dead and the place where she left her brother’s corpse (Jorgensen 1998). The map (see Map 3.1 in Appendix II) shows the parishes (villages) the land belonged to at the time of colonial expansion into the Wopkaimin lands (Hyndman 1994a). The six parishes, Iralim, Migalsim, Kamfaiwolmin\(^{27}\), Kavorbaang, Fetiktaman and Beinglim, show the extent of the Wopkaimin tribe across the area around Mt Fubilan. In 1975, just prior to independence, Jeff Ransley conducted the last colonial patrol in the first Wopkaimin parishes, counting 694 people (Hyndman 1994a: 214).

Identifying the villages likely to have the most direct impacts from the mine was not a clear process, as villages relocated, merged, and dissolved between the first kiap patrol to the headwaters of the Ok Tedi and the feasibility study. The identification of potentially impacted villages depended on the placement of the mining leases for The Ok Tedi mine project and associated infrastructure leases – the mine site, mill, tailings lease, Tabubil and the Ok Menga hydro scheme. M. Eggleton did the original Land Investigation Report for Tabubil and Mount Fubilan in 1968–70, along with a map (Appendix II Map 3.2) that clearly shows the rough location of the boundaries between Bultem, Wangbin and other villages, however individual village/hamlet boundaries were never precisely identified (Welsch 1979).

An assertion by Pintz (1984:128) that ‘…everyone within a radius of 150 kilometres seemed to be asserting some sort of claim over the area…and that…Land in Melanesian society is a highly emotional issue, and the history of Ok Tedi is no

\(^{26}\) Kamfaiwolmin parish villagers are not Wopkaimin – “Back when the kiap (patrol officer) first came to the Kam Basin we were fighting the Kamfaiwolmin. We have many wasi sung (war stories) that tell how we drive the Kamfaiwolmin out of the Kam Basin to Lake Sokilmik (Lake Wangbin)” (Hyndman 1994:207)
exception’ (Pintz 1984: 127–130) contextualises the complexity of identification of landowners in this area.

Complicating the situation of landowner identification is that village groups are not always as static as maps illustrate. Welsch (1979:51–2) outlines the splitting of Finalbin village from the other Iralim parish (Bultem) villagers, after a drunken dispute in Tabubil in 1977, leading Finalbin to settle on the western side of the Ok Tedi and refuse to allow the east side Bultem villagers access to their land. He also asserts that prior to government control, the villages of Atemkit (Gigabip) and Kavorabip were part of Iralim parish, but split off into a separate parish. Jackson (1993:70) confirms that the inclusion of Atemkit and Kavorabip was because of the villagers’ membership of the Fikalinmin, Kinugsengaiun, Kaiokaiamin and Ablemkaimin clans.

The originally identified impacted communities are those that are within the direct influence of the originally planned tailings dam, mine site and milling facilities. Welsch (1979:) identified ‘areas likely to receive most direct impact’. The areas were:

- Mt Fubilan and the area around Hongkong camp plus access to Tabubil
- Tabubil township site
- The Ok Mani drainage where coarse waste will be dumped
- The proposed tailings area along the upper Ok Ma (Munga) and [possibly the Lower Ok Ma (Menga)]
- The proposed Ok Menga hydro area, above the gorge
- Lands along the Ok Tedi south of Ok Mani which will probably be affected by changes in the Ok Mani (#3)
- The proposed Kiunga-Tabubil road to the east of the Ok Tedi

The seven villages in six parishes he proposed would be directly impacted were: Kawentikin, Atemkit, Kavorabip, Bultem, Finalbin, Wangbin and Miglasimbip. These are census villages of the Star Mountains Census Division (Welsch 1979:5).
In Jackson, Emerson and Welsch’s (1980) *Impact of the Ok Tedi Project Report*, the villages identified as immediately impacted by the mine and associated leases were divided into two groups:

1. Finalbin, Wuritengkit (New Kumguitt), Okteditau and Wangbin
2. BulTEM, Migalsimbip, Boliwogam and Nioksikwi28

The absence of Atemkit, Kavorabip and Kawentikin from the latter list of potentially impacted villages was amended subsequently. The final land that was covered under mining leases29 was the land of six villages of this area: Atemkit, Kavorabip, BulTEM, Finalbin, Wangbin and Miglasimbip. Kawentikin was seen as not having a legitimate claim as its current location is at the far eastern side of its land.

This region is not a CMCA trust region, but rather a geographical grouping of the mine villages. Each village within the geographical group signed separate CMCA agreements with OTML. They do not receive the same compensation as the other 150 villages in the CMCA, as they are already receiving benefit streams from OTML in the form of royalties, dividends, and lease payments (further detailed in chapter 5). They are Wopkaimin and Kamfaiwolmin people and census figures show a significant increase of these people living in the Mine Area villages since 2001. This table shows the growth in population from 1980 to 2011.

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<td>94</td>
<td>115</td>
<td>261</td>
<td>292</td>
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<td>645</td>
<td>570</td>
<td>421</td>
<td>939</td>
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<tr>
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<td>51</td>
<td>198</td>
<td>615</td>
<td>370</td>
<td>412</td>
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28 See Map 3.3 and 3.4 in Appendix II
29 The various leases will be further examined in Chapter 5
30 Atemkit listed as Atembit in 1980 and 1990
The specific challenges of the mine area are vastly different to those faced by the rest of the impacted communities. These people are cut off from some of their lands by the implementation of the mining leases. The land has significant industrial assets located on it – the mine, the mill, roads, and pipelines – as well as significant informal settlements.

Mine closure and the issues of sustainability of livelihoods and community are important to the Mine Area Villages. They are represented through a variety of different mechanisms and organisations. They key political organisational entities of importance to the six mine villages are:

- Star Mountains Rural Local Level Government (Star Mountains Rural LLG) – Ward Councillors
- Mount Fubilan Resource Owners Association (MFRA)
- Village Planning Committees (VPC)
- Clan organisations – e.g. Kimka Sepiyan Sub-Tribe

There are other temporary or short-term representative bodies that hold importance in negotiating agreements, specifically the important Mine Life Extension community consultations. The elected delegates from the Mine Area Villages were John Wanim (Bultem), Joel Dangkim (Kavorabip), Amos Kiki (Migalsim), Thomas Uneng (Wagbin), Kelly Bineng (Finalbin) and Jerry Musolok (Atemkit) and the women’s reps Anora Wenis (Wangbin), Donna Wanim (Bultem) and Alice Mumuyong (Bultem). There is significant overlap between the people who are leaders in the other political
organisations and the MLE delegates – for example: John Wanim is a principal landowner of Mt Fubilan, he is also president of MFRA, and VPC Chairman and the Ward Councillor for Bultem.

The Mine Area Villages raised a diverse range of problems and issues through the MLE delegates at regional and village meetings from 2009 to 2012. A consistent theme emerged of the concerns of the communities in this area: anxieties about development projects via OTDF or PNGSDP for the various communities and also funds distribution relating to OTDF and also to PNGSDP. Some villagers from Wangbin expressed a desire that ‘PNGSDP should put into place large infrastructure projects such as bridges and airstrips for [Lower Ok Tedi (Wai Tri), North Ok Tedi (Nupmo)] and up to the mine villages’ and ‘Funds allocated in 9th CMCA if not used what will happen, Are we liable to be taken to court?’ (MLE Meeting 26 Oct 2010:9).

The difficulties facing Bultem village in the lead up to mine closure are mostly related to the structure of the community, the location of the village, and the distribution of benefit streams from the mine. Throughout the MLE process, Atemkit village representative, Jerry Musolok, said they wanted assistance from OTML and PNGSDP to relocate the village despite OTML contesting they told the leaders previously not to relocate their village to that location because of the landslide risk. Bultem leaders also said they wanted a road built up to the Kam Valley so they could access their land easier (MLE Village Meeting 7 March 2012). The issues for Atemkit villagers in Bultem is that they asked constantly if the overburden from the mine can be used to make a road to Atemkit and Kavorabip, but OTML consistently refused saying the rock was not suitable, and that they would not commit to building a road that was not part of their core business activity (MLE D Meeting 7 March 2012).

31 The majority of landowners from Atemkit village have relocated to Bultem village as Atemkit is a 6 hour walk behind the mine site away through mountainous terrain. No MLE village meetings were conducted in Atemkit village, but rather the Atemkit and Bultem village meetings are conducted concurrently at Bultem. The same thing happens for Kavorabip at Finalbin.
Migalsimbip villagers were primarily concerned with maintaining facilities leading into mine closure. Amos Kiki and Meki Mamemim raised in village meetings the desire for maintaining the Ok Menga Tunnel, which people walk through from Olsobip and other parts of Migalsim’s hinterland. Leading up to closure, Migalsim villagers want to ensure they have access to power and water facilities.

Wangbin community leaders stated that the villagers wanted the mine to continue so that benefits would continue to flow (MLE Meeting 6 March 2012). Borok Pitalok in 2010 stated at a village meeting that if MLE was approved, a lot of social problems would be encountered and that the squatter settlement issue should be addressed by all stakeholders before MLE. For Wangbin, the concerns about the maintenance of facilities in Tabubil are of prime importance, as they are the closest village to the township.

The Mine Area Villages have few complaints about community development projects from PNGSDP and OTFRDP as they are not party to CMCA trusts and have their own royalty and dividend trusts. Their concerns are primarily about the daily immediate conflicts they have with settlers and OTML over a variety of issues. Mine closure and the future of Tabubil are important to the Mine Area Villages because they have businesses tied up in OTML contracts, investments in joint ventures and housing, and the community relies heavily on subsidised food and utilities from OTML. Going forward, the communities will need to adapt to the smaller Ok Tedi mine operation under MLE, which will see significantly reduced royalty payments to the villages.

3.4 Nupmo Trust Region / North Ok Tedi

The Nupmo Trust area in North Ok Tedi region is composed of the Ningerum tribe villages historically in Ningerum, North Ok Tedi and South Ok Tedi Census Divisions.
Generally, the area of the Ningerum tribe is bounded by the Ok Mani in the north, the Ok Tedi in the east, Ok Birim in the south and the Indonesian Border in the west (Burton 1991:9). There are 18 villages in this trust region – Ankit, Boliwogam, Boungkim (Duombonkim), Bumbin, Derongo, Digam, Haidowogam, Kawentikin, Kolebon, Korkit, Kumguit, Ningerum Tamaro, Nioksikwi, Ok Teditau, Walawam32, Wogam, Wombon, Wurimkanatgo. The population of the area has grown over the period of Ok Tedi mine’s operation, but the population may not necessarily reflect actual people from there, as there has been significant immigration and settlement from other parts of PNG and Indonesia. The 1980–2000 growth rate was 4.25 percent annually, whereas the post 2000 growth rate was 6.28 percent for the whole region. (See Table 3.4 in Appendix III). Some of the villages were earlier identified as original impacted communities due to their ownership of the land leased for Ok Mani and abandoned Ok Ma tailings dam. Welsch (1979: 7) states that the villages that were proposed to have their land most impacted by the tailings lease were Okteditau, Kumguit, Nioksikwi and Boliwogam. Even though the tailings dam was never completed, these villages still have a tailings lease over their lands.

There is little cultural variation across the Ningerum tribe, but there are dialectical differences (Welsch 1979:4) that were confirmed by Lalamana Gaegae from Walawam who was unable to understand the Ningerum tribe people of Korkit when they spoke their local dialect of Ningerum (MLE VM3 notes 2012). The people of this area refer to themselves at times as ‘Ningerumians’. The Ningerum, at the time of the early mine operations phase,

…only have slight involvement in the cash economy, mainly through the sale of food crops at one of the urban markets in Ningerum township. Virtually none of the Ningerum is involved in the mining operation. Most settlements are well established,
and there is no social flux like that experienced by the Wopkaimin (Uljaszek et al 1989: 62).

This confirms Welsch’s (1978: 4) assertion that ‘…development within the Ningerum census division is negligible’ despite the government station opening on the east bank of the Ok Tedi at Ningerum Station in 1964, and the subsequent extension of the road from Rumginae in 1968. The Ningerum constructed road benches along the ridge tops in the foothills parallel to the Ok Tedi and Ok Ma in order to access Ningerum Station via a local ferry.

The settlement pattern is significantly different today than it was before the Ok Tedi mine was constructed. The Ningerum traditionally lived in scattered hamlets consisting of family units, gardening and exploiting natural forest and river resources such as fish and sago swamps (Welsch 1978:3). By the 1950s many of the southern Ningerum had coalesced into villages, at the suggestion of missionaries, but many people maintained a part-time village existence where they maintained bush houses and gardens away from the village (Welsch 1978:6). The Ningerum had no over-arching cultural or political organisational structure to bind them together, and traditional pig feast gatherings were often attended based on personal clan connection rather the broader tribal affiliation, with social cohesion diminishing as groups became larger (Welsch 1979.: 24). The complexity of the Ningerum clan affiliation is summarised by Welsch (1979: 27) in reference to the Daupka clan:

There are many sub-sub-clans. Each of the smallest segment forms its own independent local clan segment. Sub-clans which are not segmented compete on an equal basis with the segments of other sub-clans and there is no more cohesion between sub-sub-clans than between segments of different clan names. Once segmented sub-clans and sub-sub-clans would fight with and kill members of other local groups who have the same clan and sub-clan names as readily they would any other group.
This sub-sub-clan complexity, although not deployed for warfare in modern times, informs the way that politics is performed in Nupmo trust region. Not all of the villages within the Ningerum tribe’s lands are defined as being impacted by the Ok Tedi mine. Many villages are not within the boundaries of Nupmo trust region, such as Hukim and Tarakbits. These villages are significantly worse off than those within the Nupmo trust region, due to the lack of resources available to them via the CMCA development funds and cash payments. The villages in Nupmo trust region can be divided into 3 distinct groups – northern, southern, and east bank (highway). These distinctions roughly align to those mentioned by Welsch (1979) as being previously used as dialectical divisions (Kasuwa, Alice and Daupka). Burton (1991:11) reported that informants state the division is *katuwa* in the north and *kangua* in the south. My division is not based culturally but rather geographically, as the Nupmo trust villages on the Kiunga-Tabubil highway have different concerns to those located in the northern and southern Nupmo region.

The northern villages are part of the Lease for Mining Purposes (LMP1) area. The most northerly villages are closest to the border between Ningerum and Star Mountains Rural LLGs, with land mountainous in topography. These villages have two clans of the Ningerum tribe – the Konwop and Wopka clans (OTDF 2002n:5). An example of these villages is Nioksikwi. Most Nioksikwi residents live in the Ok Ma 11 corner, on the Ok Ma access road built in the early 1980s to serve the subsequently abandoned tailings dam. The original village is not accessible by road so they moved to the road corridor. The MLE Village meeting round #3 had the meeting as a combined Ok Ma 11 with village representatives from Boliwogam, Bongkim, Nioksikwi and Ok Teditau. The specific concerns expressed relating to mine closure and sustainability were
• The need to fix the Lower Ok Tedi (Maria) Bridge as it was the link to Tabubil and services. Since the bridge was unusable the aid post and school were running low on supplies
• For stakeholders to come together to manage/evict resident of informal settlement at 7 Kona.
• Community development projects promised by CMCA were not delivered which compounded the lack of development for the last 30 years.

The southern villages are geographically close to Ningerum Station, but on the west bank of the Ok Tedi. An example of a southern village is Kolebon. I travelled to this village as part of the 2012 MLE village meetings. Kolebon is located northwest of Ningerum Station on the west bank of the Ok Tedi. Kolebon has an aid post and a school, as well as a road bench that aids villagers to access other villages. Garden sites are along the ridges to the north, and Ningerum Station is in the south. Kolebon has two clans of the Ningerum tribe – the Nium and Bii clans (OTDF 2002k: 5). Kolebon is only accessible by walking or helicopter. The southern Ningerum villages have least access to the benefits from the mine and associated infrastructure because of the lack of road access to the west bank south of Ok Ma. The issues of the west bank isolation were highlighted by the MLE delegates Daniel Atmeyok (Kumguit), Lalamana Gaegae (Walawam), Keop Kowa (Wombon) and women’s rep Noni Dukmun (Kumguit) at Delegates Meeting #3. The west bank villages, as a whole, face difficulty of access to services, especially since the Ok Tedi (Maria) bridge at Tabubil closed. The bridge was originally built to provide access to the Ok Ma tailings site; however, the tailings site has long since been abandoned. Since the end of 2011 it has been decommissioned because the FRPG declined permission to OTML for the use of FRPG’s royalty funds to maintain it (Michael Namalok pers. comm. 2012; OTML 2012). OTDF commissioned the construction of a footbridge over the Ok Tedi at Ningerum Station to
link up with the network of road benches constructed by communities along the bank (OTDF 2013). This allows villagers to have safer passage across the river than the use of risky ferry crossings that have led to deaths in the past.

The east bank (highway) Nupmo villages are exemplified by Wurimkanatgo, a village I travelled to numerous times. The village is located at Km96 on the KiungaTabubil Highway. The village relocated from the west bank of the Ok Tedi because of increased opportunity and access to services. Wurimkanatgo has a roadside market and villagers engage in artisanal mining along the riverbanks. Wurimkanatgo has no primary school only an elementary school, but has a small ECP church (OTDF 2002w: 6). There are five Ningerum clans in Wurimkanatgo – Kimkwi Opka, Dopka, Gengho, Boni Kim and Boni Opka (OTML 2003w). In MLE Village Meeting #3 on 27 February 2012 Wurimkanatgo village concerns were for need of better telecommunication and access to the west bank of the river for connecting with their families. Villagers also raised concern about how the P’nyang mudstone33 (proposed to be dumped in the Ok Tedi as part of the MLE) would affect gold recovery rates in their artisanal mining activities. In addition, concern was voiced about the lack of development projects in the villages. The highway Ningerum villages have easy access to Tabubil, Ningerum, and Kiunga, as there are many PMVs travelling the highway. They can sell their garden produce roadside, or travel to markets that are more central. They face road safety issues, such as risk of death from car accidents and convoys, dust, and pollution. The highway villages also deal with the risks associated with the pyrite concentrate (P-Con) and copper concentrate (Cu-Con) pipelines that run adjacent to the road. Multiple P-Con and Cu-Con ruptures and spills over the life of the mine have meant the highway communities are impacted by tailings in their waterways. At times OTML moves fast to contain and clean up any spills into waterways and

33 The overburden from the West Wall extension to the mine site.
compensates communities for the impacts through special compensation rather than as a part of the CMCA or RESA funds (OTML 2009).

Across all the MLE village meetings attended in the Nupmo trust – Korkit, Derongo, Wombon, Digam, Kolebon, Ningerum Tamaro, Wurimkanatgo and Ok Ma – every single village raised the same issues relating to CMCA community development and infrastructure projects not being implemented in their villages. Facilitating economic and social development and capacity in these villages in the lead up to closure is the most important function of the CMCA trust funds, but there was a disconnect between PNGSDP, OTFRDP and the communities. Many villagers put this down to the VPCs being disorganised and unresponsive to their respective communities. This on the whole has led to community expectations for development not being met, and the promises of the CMCAs left unfulfilled.

3.5 Tutuwe Trust Region / Highway

The importance of roads to community and development cannot be overstated. Throughout the developing world, roads act as arteries of a nation. With road access, communities are open to money, healthcare, education and marketing, but also they bring in many social vices. The Kiunga-Tabubil highway stretches the 137kms between Kiunga, a government port town on the Fly River, to Tabubil. The establishment of this road was and continues to be significant for the local people of the North Fly. The road, which started as a crude road cutting from Kiunga to Rumginae in 1968 and then later to Ningerum (Jackson 1979), is the sole reason for the migration of all the villagers that currently live along the road corridor, from Sisimakam down to Gre. The majority of these villages moved to align themselves with the road corridor prior to the Ok Tedi mine’s development (Jackson 1979). The road is mostly dirt, and the northern parts towards Tabubil after Sisimakam require daily grading. Dust from the road had become
a big complaint of the communities that border the road corridor. This complaint prompted a program of road sealing initiated for the northern villages Sisimakam, Wurimkanatkgo and Kwiloknai by 2012.

With any infrastructural development in Melanesia there is an accompanying ‘wave’ of migration, resettlement, and settlement pattern change that accompany this type of development (Gibson and Rozelle 2003). As an example, with most of the main roads in Papua New Guinea, including the Kiunga-Tabubil Highway, the Enga Highway extension to Porgera mine and the Kutubu access road in Southern Highlands Province, local people have moved their settlements (or set up new secondary settlements) so they can more readily access the accompanying benefits that roads provide: access to schools, aid posts and other people to do bisnis with. People also move to the outskirts of large towns so they can access these same benefits. These settlements are referred to as ‘corners’ or ‘highway corners’ when referring to roadside settlements (Jackson 1993: Chapter 10; Burton 1991).

In the region around the Ok Ted mine the ‘highway corner’ settlements on the sides of roads are tolerated by the provincial government and the mining company (Burton 1991). As an example as soon as the Awin and Ningerum people heard rumours of a feeder road being built between Ningerum and Rumginae in the late 1960s, they moved their villages in expectation of where the proposed road would be constructed (Burton 1993b). When BechtelMKI built the Kiunga-Tabubil Highway more people shifted from existing settlements to take advantage of the highway (Jackson 1993: 126; Burton 1991, 1993a, 1993b).

Living on the east of the Ok Tedi means the Awin people have direct access to the Kiunga-Tabubil Highway in contrast to the Yonggom people on the west bank of the river. The lack of feeder roads to the Kiunga-Tabubil Highway has meant that many

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34 This highway links the port of Kiunga on the Fly River to the Ok Tedi mine site.
northern and western Awin people have moved great distances to settle in ‘highway corners’. Awin informants explained to Burton in the early 1990s, the reasons that they moved to roadside ‘highway corners’ such as Pampenai were:

The first [is] that ‘the government’ needs people in one place. This seems to accompany an implicit feeling that living in scattered hamlets is somehow backward. However, if pressed, secondary reasons are given, such as the need to be near schools and the Ningerum Health Centre. These, by contrast, are excellent reasons and are a reflection on the poor delivery of services to rural dwellers here. (Burton 1991: 21)

Many Awin and Ningerum have moved up to fifteen kilometres onto other community lands to live adjacent to the Kiunga-Tabubil Highway (Burton 1991: 16). Some villages relocated from the west bank of the Ok Tedi (Wurimkanatgo, Haidowogam, Bumbin). The Awin informants were adamant that when feeder roads were constructed, allowing for easy access to the Kiunga-Tabubil Highway, they would move back onto their own lands and resettle in their former villages (Burton 1991: 21). It must be stressed that whilst people moved and constructed housing on the side of roads many people maintained, or just locked up, their former settlements. They even retained gardens and animals in their original villages, and often just used the roadside houses as part-time sleeping quarters (Burton 1991).

The commercial opportunities, access to the cash economy and services that this brings to the Awin and Ningerum outweigh the effect of dislocation from their lands. As a consequence of increased settlement in ‘corners’ away from traditional hunting grounds and gardens means that often people cannot hunt or garden on the lands that they now live on, as they are not permitted to by the local land custodian. However, often the case is that the people who move to the area seek the permission of the local people to use the resources (Jackson 1993: 65). It has only been in the last 30 years that this move into ‘corners’ and permanent settlements has occurred (Kirsch 1993: 44;
Jackson 2003). Jorgensen (2006) argues with reference to the Telefol living in small villages, which prior to the advent of mining in the region were perceived as good places to live, are now by these same people seen as marginalised places out of touch with modern life. The people of these villages have greater aspirations for bisnis, education and for modern lifestyles. These people recognise that if they continue to live in small villages their current situation will not allow them to achieve their aspirations; consequently, they move to ‘corner’ settlements (Kirsch 1993: 44).

The villages along the Kiunga to Tabubil Highway identified are impacted by the road extension from Ningerum to Tabubil. North of Ningerum, the road runs along ridge-tops of steep hills. The villages along the highway had their lands compulsorily acquired for the road\textsuperscript{35}, and were compensated for destroyed gardens and economic trees.

The Tutuwe Trust or Highway Region consists of the Awin/Aeykom tribe communities. It comprises 29 villages\textsuperscript{36} and has a population of 13,703 as of 2011 (OTML CMCA 2011). The villages can be divided into two groups, those north of Ningerum Station, and those south of Ningerum Station (Ningerum is generally seen as the half-way point of the 137km highway as it is at Km 70 from Kiunga). The northern highway villages are, in proximity to Tabubil – Sisimakam, Kwiloknai, Tapko, Hoskomugu, Hosonai, Awin Tamaro, these villages are in a hillier area, and are closer to the Ok Tedi than their southern counterparts.

An example of a highway village is Sisimakam. This village is representative of villages along the highway and is the product of a movement where people coalesced from hamlets in the lands to the east into a series of roadside village developments along the road to Rumginae in 1968 or during the construction of the Ok

\textsuperscript{35} The leasing arrangements will be discussed further in chapter 5.

\textsuperscript{36} See Appendix II for a map of village locations and Appendix III for the population table.
Tedi mine (Jackson 1979; 1982). According to Welsch (1979:45) the name Sisimakam was originally the name of the boundary mark for the village of Apram, located some way inland. Sisimakam is the first major roadside settlement south of Migalsim on the Kiunga-Tabubil highway, and the most northerly Tutuwe trust region village. Sisimakam has a large roadside market, an aid post, and all weather road access. The portion of the Kiunga-Tabubil Highway that runs through the present settlement of Sisimakam is sealed. The village refused to sign the CMCA until 2009. This was probably due their non-participation in village meetings. The Awin clans in Sisimakam are Somoi, Kriakoe, Ipine, Ningelin, Prine, Ipin-Rupkoe, Hore, and Fikalin (OTML 2008s). According to a letter to OTML in 2001 Sisimakam had been involved in landowner issues with neighbouring village Migalsim as well as espousing a claim over Mt Fubilan.

The highway communities face different environmental and social challenges to the other impact areas. While the highway brings economic advantage and mobility, the main concern for most of the communities is road safety, dust, and pollution associated with the truck convoys and CuCon and PCon pipelines. In the initial Plan D patrol (the proto–MLE), some of the concerns of the community were voiced. An important point raised by Kevin Deko (VPC Wanganai) was that:

…travel and banking facilities is [sic] very hard for the communities. The banks are usually full with long lines, and people cannot bank in one day, they overnight and have no place to stay. Can OTML, Mr Masani recommend to [PNG] Micro Finance to open an office in Ningerum.

Awin Tamaro villagers raised questions about the CMCA Women and Children’s 10% fund, especially wanting to know how to access the funds. Also mentioned that they want to know what is going on at strategic level for the allocation

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37 Part of the CMCA Review’s compensation package, see chapter 5
of Women and Children’s fund. The Tutuwe trust region communities all, as reported in the minutes of delegates, regional and village meetings, are concerned with ensuring the KiungaTabubil Highway is maintained at the same (or at least close to) standard it has been while the Ok Tedi mine remains open.

Across the whole of Tutuwe Trust, there was a level of hopelessness in the communities reported by OTML CR personnel in 2009, relating specifically to the fact that mine closure was so close and that ‘now they showed resignation to the fact that nothing much may happen by mine closure. They have very high expectation of change by way of tangible benefits without really knowing exactly what they want’ (OTML 2009k:17). The shifting goalposts for mine closure do not help with managing expectations of communities in the CMCA more widely. Many of these issues were brought up by MLE delegates Michael Gen (Hiorenkia), Penai Napu (Tope), Keri (Kerry) Krori (Mimigre) and women’s rep Cathrine Puse (Menumsore) in Delegates Meeting #3 in March 2011.

A common difficulty for the OTMC stakeholder organisations with the highway communities was refusal to attend scheduled meetings. This occurred during the CMCA Review as well as the MLE meetings (Michael Namalok pers. comm.2012). The communities were not happy with the outcome of the meetings. In a letter to OTML in 2011 the people of Highway Villages (29) stated that:

OTML CR Consultation Patrol was not welcomed [sic] by Highway Communities…on the basis of fundamental issues yet there are other issues to be named, we hereby strongly advice [sic] you that your unfacilitated consultation patrol is not welcomed. Even if facilitated, our people will still refuse to welcome any form of consultation patrol related to OTML operations, whether it is MLE or whatever (Letter OTML 4 November 2011).
When OTML CR officers, the Tanorama facilitators, MLE regional delegate Lalmana GaeGae, attempted to conduct the MLE meeting in Kwiloknai, Haidowogam, Tapko and Bumbin these villages refused to turn up or be interested in the consultation process. This meeting round was able to be conducted at Sisimakam. The avoidance of the MLE village meetings stems from long running disputes between OTML and the highway villages about issues such as grass cutting to PCON spills. It is a form of protest that they do not engage with the OTMC stakeholder organisations unless they see some form of obvious immediate benefit.

South of Ningerum is twenty highway villages ranging from Ienkenai to Gii, located just outside Kiunga. The southern villages are inland of the Ok Tedi and not subject to the same level of river based environmental impact that is associated with the northern highway villages. This area was not covered in my fieldwork, and I was not party to any meetings as the MLE meetings are divided between Kiunga and Tabubil based field teams.

3.6 Wai Tri Trust Region and Alice River Trust Region / Lower Ok Tedi

Alice River Trust region

The Lower Ok Tedi Agreement was recognition that the Lower Ok Tedi area deserved more compensation for damages, as the impacts on access to resources was greater than any other part of the Ok Tedi impact area. The communities involved in the LOTA were: Ambaga, Atkamba, Bige, Bongobun, Demasuke, Dome, Ieran, Iogi, Kawok, Komopkin, Konkonda, Kwiape, Miamrae, Sarae, Senamrae. These villages signed the agreement on 9 May 1997. This special recognition enabled access to a K40m package further discussed in chapter 5.
The Wai Tri trust region is located along the Ok Tedi on both the east and west banks. The Yonggom inhabit the west bank of the Ok Tedi River and this area is where profound changes have taken place during their lifetimes (Jackson 2003; Kirsch 1993; Kirsch 1997). During the 1960s, the Australian colonial administrators encouraged the Yonggom to move as far away from the border as they could, but remain on Yonggom land (Jackson 1993; King 1997). This meant settling far nearer to the bank of the Ok Tedi River than any of them had previously lived. This situation created new pressures and conflicts on resources, such as garden land, housing, and services (King 1998:80). The Yonggom were the main ethnic group represented in a class action suit for compensation against the Ok Tedi mine’s major shareholder BHP. The west bank is not accessible by road, so there are different development challenges faced by the villages there. The main features of this region are the river damage and the Bige Mine Waste Tailings Project.

A small number of North Fly villages within the RESA village list are not represented in the CMCA. In the North Ok Tedi region, one particular village is Karandimok, which highlights the confused nature of community and company perceptions in funding issues. This village was recognised through the RESA era environmental impact assessments in 1995 to be affected by the development of the mine, as it is located on the Ok Birim. It annually receives compensation from OTML via the Heduru Trust. In 2000 the village had 44 people, but it was not surveyed separately in the 1980 or 1990 censuses (NSO 2000:11). In 2012, Karandimok had a population of 74 people and consisted of three clans – Kimki Taramgo, Kimki Kereyap and Kiko Tetput (OTML 2012g). However, it is not part of the CMCA as a standalone village. In a letter from OTML CR to the Ningerum LLG Senior Area Affairs Officer,

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38 See Map 3.7 in Appendix II and Table 3.7.x in Appendix III
Dume Wo’o, in November 2001, it is stated Karandimok was believed by OTML to be part of Kungembit village, and as such would receive benefits through that channel. A 2003 OTML CR interoffice memo states that Karandimok chose not to join the CMCA even though it was invited, as it was part of a class action against OTML in the early 2000s (OTML 2003c:5). By March 2010 Karandimok was asking OTML to be included separately in the MLE negotiations, via a letter of endorsement from the Ningerum LLG Manager Jim Ufaio. However, Karandimok was not on any schedule of MLE meetings at any level as obviously OTML still considers it not a separate community.

This area is not covered in my fieldwork and I attended no MLE village meetings as these meetings in this area were covered by another MLE extension consultation group. The delegates at Delegates Meeting #3 in Tabubil representing the Wai Tri were Ketu Nuri (Kwiape), Nick Bun [39] (Atkamba), James Assan (Konkonda), Moses Oti (Bongabun) and women’s rep Juliet Hmentori (Senamrae). The main concerns expressed by these delegates was they lacked confidence in the FRPG to implement development in the area. They also wanted better access to funds through OTDF. They also expressed health concerns from environmental pollution damage to the river: sores on legs. The concerns relating to health and environment are important to people in this region, as this is where the most significant overbank flooding and dieback occurs along the lower Ok Tedi. Stuart Kirsch has long advocated for the communities in this region, writing extensively about their responses to environmental impacts (Kirsch 1991; 1996a; 1997; 2002; 2004; 2007b; 2014).

Kirsch has talked less about how the desires of the Yonggom communities of the Wai Tri trust region are the same as the rest of the 156 villages across the CMCA mine impact region. As with the other three previous examined trust groupings, what

[39] Also the President of Ok Tedi Mine Impact Area Association.
the Wai Tri trust region communities are most unhappy about is the lack of CMCA
development projects or PNGSDP projects in each of their villages. At the village
meeting in Atkamba 13/5/2010 villagers raised two comments relating to future
livelihood and development in their village:

- What are we going to survive on when our environment is already
  spoilt?
- This is like a cover up because since the mine started there has been no
  schools, no aid post, no development in our village. We want to live in good
  houses, have electricity, water supply.

The basic desires for a better, easier life through community development and
infrastructure projects is the same across all the villages in the Wai Tri trust.
Development is a priority, but communication of development plans and processes
from OTFRDP and PNGSDP and the method to access money are critically important.

3.7 Conclusion

This chapter examined the communities of the Ok Tedi mine impact area as a range of
stakeholder organisations – the CMCA trust regions. The communities within the
CMCA trust regions all have fears about mine closure despite MLE being discussed
and negotiated. The communities all complain about the lack of tangible benefits from
mining. The lack of effective communication from PNGSDP and OTDFRDP through
the VPC channel to villagers obviously needs to be Remedied, because there is a
complete disconnect between the grassroots villager and the funds held in trust for
community development. Without effective mechanisms to communicate to
communities, there might as well not be money for development because the
communities are not seeing the benefits in front of them.
The next chapter will discuss the development of mine closure and sustainability planning through the OTMC and the bottlenecks hindering development in Western Province.
Chapter Four – The institutional politics of sustainability and mine closure planning

4.1 Introduction

This chapter is about the politics of planning for Western Province, in particular the North Fly District. This chapter will examine the way planning is conducted through relations between the major stakeholder organisations of the Ok Tedi mine for the communities in the mine impact region. The chapter, through this examination, illuminates the fundamental issues of sustainable development in Western Province. This chapter debates the details of the political stakeholders, the substance of available plans, and the influence that the Ok Tedi Mine Complex (OTMC) has on determining the outcome of the planning process.

The existence of the OTMC influences both the design and outcome of the post closure sustainability planning process. As cited earlier in the introduction chapter, Historical New Institutionalism describes the institution as being able to ‘shap(e) not just actor’s strategies … but also their goals as well’ (Thelen and Steinmo 1992: 9). This chapter will demonstrate that the expectations of the various political stakeholders are heavily influenced by the constraints of the OTMC, as such the failure to generate outcomes from plans are foreseen by the plan designers before they are implemented.

The power relations between the primary stakeholders and the secondary stakeholders needs to be examined in detail because there are different levels of influence and agenda setting abilities for the primary and secondary stakeholders to wield. The three most important stakeholders in the development of the sustainability and mine closure planning process were the national government, OTML, and PNGSDP. The other stakeholder organisations, Ok Tedi Development Foundation/Ok Tedi Fly River Development Program, CMCA trusts, provincial and local level government, are involved in the social and economic aspects of mine closure.
The social and economic aspects of mine closure plans are especially significant for the pivotal place that the Ok Tedi mine holds in the regional economy and the opportunities, benefits and services that it provides to local communities. This chapter will explore the complex relationships that have developed between the primary stakeholders: the national government, the provincial government, PNGSDP, and impacted communities, on the subject of mine closure planning during the life of the mine to date. It will also reflect the way that plans for the sustainable development of the mine-affected area have been related to the broader national policy process dealing with the issue of mine closure and the contribution of the mining industry to sustainable development outcomes for people living in such areas. An in-depth examination of PNG's mine closure policies and a discussion of the inadequacies of the current regime is conducted.

4.2 Fundamental challenges in sustainability planning in Western Province leading up to mine closure

Planning for a sustainable future for the Ok Tedi mine’s impact area involves a greater community focus than most other mines. The scale of the Ok Tedi mine impact area, coupled with the lack of government engagement in the province, means that the difficulties and complexities of the closure planning are exacerbated. OTML has over the years provided many services, both for the Tabubil community and for the province as a whole. Through the various development trusts, the company and its development partners provide services to over 100,000 people from Atemkit all the way to the Fly Delta islands.

The Ok Tedi mine is the primary economic driver of the province, as without it, the province would not have much in the way of significant economic activity. Mining in remote areas can often mean that the mining company becomes a de facto
administrator, providing services such as healthcare, education and transport infrastructure (Jackson 1992). There is a disconnection between public policy making, and all that it involves in agenda setting and discourses, and implementation of policy. In this context, a mining company enters into an area and creates services for the local people, not just the people who work for the company. This induces reliance by the local communities on the mining company, referred to as the resource dependency syndrome (Filer 1998), which leads to expectations that the services will continue post closure. This means that consideration of socioeconomic impacts of mine closure have to be at the forefront of mine closure planning.

This commitment goes beyond corporate social responsibility to a role similar to that of a foster parent to a neglected child. The government services throughout PNG are run down, underfunded or absent. In the 40 years since independence there has been little actual change in the lives of people in remote areas. Considering that the majority of the population lives in rural and remote areas, the dearth of services available to this majority of the population is notable.

National Government

The relationship between OTML and the national government is complicated because of the different departments involved. The national government is a complex stakeholder of Ok Tedi. It has an 18.2% equity stake in OTML which it holds on behalf of the people of PNG, Western Province and the Mine Area Village landowners (Post Courier 16/6/2011). The national government also collects royalties and taxes on the copper concentrate and gold that the mine produces. It also, through the Mineral Resources Authority, regulates and monitors the mine. Rather than the national government being an amorphous singular voice, the various departments and offices of the Government have very different views and relationships with the Ok Tedi mine.
The Department of Treasury sits on the OTML board, but is not involved with regulation of the industry. The MRA and the DEC are most involved in regulation of the mine. The national government also approves amendments (supplemental agreements) to the Mining (Ok Tedi) Act, as well as the Mine Closure Plans. Although there would seem to be a conflict of interest in the Government's relationship with the mine and OTML, different departments deal with different aspects of the relationship.

From the inception of the Ok Tedi project, the national government has had a full role in the development and operation of the mine. The structure of the Principal Agreement clause requiring any changes to the Act be discussed with and passed through the parliament, in addition to the equity participation in the project, ensured that the national government has always been appraised of the workings of the mine. This insider knowledge has meant that at times OTML has benefitted from the government’s cooperation and support when facing difficult situations (for example, with the Interim Tailings Scheme), and at other times OTML has been subject to particular and intense scrutiny. The government-company relationship heavily depends on the motivations behind the particular elected official from Western Province interest in the mine. The national government acknowledges the lack of good governance throughout PNG as stated in the Vision 2050 document of 2009:

the lack of good governance, accountability and transparency has contributed to the deterioration in the delivery of public goods and services at the microlevel…Infrastructure in the broad sense must be improved to enhance accessibility and service delivery to bring improvement to remote, rural and urban communities. (Vision 2050:29)

The national government’s appropriation of PNGSDP’s shareholding in OTML has placed pressure on the relationship between OTMC stakeholder organisations. This action by the national government has severely curtailed the development activities of
PNGSDP since 2013, and changed the positive relationship that had developed between the OTMC stakeholder organisations. This does not bode well for the sustainability of services for Tabubil town or Kiunga, as PNGSDP had planned to assume control of these assets as opposed to them defaulting to the provincial government.

*Western Province Government and Administration*

The Western Province’s government, more commonly known as the Fly River Provincial Government (FRPG), was established in 1977. The stakeholder organisations of the OTMC have gone through peaks and troughs with FRPG. The lowest ebbs of the relationship are when the provincial government was suspended by the National Executive Council for gross mismanagement of funds in August 1985, and in the 1990s when the provincial administrator resigned after touring the province getting signatures to press for the closure of the mine (Jackson 2003). Up until the 2012 elections the relationship between other stakeholders and the provincial government was at another low. The elected Governor Dr Bob Danaya, the Governor for 2 terms, was antagonistic and difficult. He was continually in the business of obfuscating and grandstanding, however he was primarily against environmental damages. FRPG is led currently by Governor Ati Wobiro.

Table 4.1 Premiers and Governors of Western Province

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<tr>
<th>Premier/Governor</th>
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<tr>
<td>Tatie Olewale</td>
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<td>Dere Waramo</td>
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40 Ati Wobiro has a Masters in Economics, was a former Provincial Planner of Western Province in the 1990s, former Acting Administrator of Department of Western, former country Manager of World Vision, former Church Elder of the Evangelical Church of Papua, former employee of PNGSDP. As of February 2015, charged with corruption. He was charged with 12 offences: four for abuse of office, four of conspiracy to defraud and four of misappropriation of public funds (Papua New Guinea Today 2015).
At the provincial level there are two distinct groups that are critical to the overall Ok Tedi mine stakeholder relationship for mine closure and sustainability planning. The first is the elected government represented in the Western Province Assembly; the second is the Western Provincial Administration. The provincial administrator, William Goinau (2009–2011) and Modowa Gumoi (2011–2015), is the head of the bureaucracy and controls the budget. The relationship between Provincial Administrator and FRPG of late has been difficult. Internal politics within the province are often blamed for the lack of effective policy planning and implementation. Goinau worked cooperatively with OTML and PNGSDP during his tenure, but the sourness of the relations between the FRPG and OTML, PNGSDP, OTFRDP, and the WPA is often shown by the absence of provincial government representatives at critical meetings. There has often not been effective governance in Western Province over the past 30 years, with the administration being suspended numerous times.

Many difficulties exist in the Provincial and LLG planning for development. The Western Province Capacity Building Project funded by OTML in 2000 was designed by OTML to overcome some of these difficulties. But with a history of weak governance, corrupt administration and even an absentee government (provincial government suspended several times by the national government for gross mismanagement) within two years of this project commencing, funds for the running of this organisation were not forthcoming from either the national government or the provincial government. OTML even asked the national government not to place its
contributions into ‘the black hole otherwise known as the Provincial Operating Account’ (Filer and Imbun 2009)

These complex problems are not aided by specific and directed difficulties in stakeholder relations with the provincial government. Overtly hostile is the only way to describe the FRPG's stance towards OTML and PNGSDP. The former governor of Western Province, Dr Bob Danaya, used threats of annexation of PNGSDP on behalf of the people of Western Province as a constant destabilising device. PNGSDP's Chairman retorted to this by saying that ‘the (Western) province has no history of a fully functioning government or a fully functioning infrastructure to deliver goods and services to the people’ (Namorong 2011). The thorn in all other stakeholders' sides is the grandstanding and posturing of the provincial government at the expense of the very people they claim to represent. The Western Province Administration (WPA) is in charge of the bureaucracy, and the provincial administrator is able to act independently from the Governor and three Open members. However, the WPA has over the years been ineffectual in expanding services to areas within the province which are subject to increasing population pressures. The North Fly District has been effectively left to be administrated by OTML since the early 1980s. In this climate, effective provincial planning is impossible. The plans that the provincial government and administration have in the past developed are not in line with the reality of Western Province. In 2008, the Deputy Provincial Administrator, Willy Kokoba, wrote:

In Western Province, well-meaning projects and program plans fade away as a result of conflicting and contradicting political views compounded by past administrations either by default, design or both. The political desires to support a transparent budget to sustain the implementation of development proposals were mismatched such as proper project costings which, in most cases were non-existent...thus resulting in increased bad administration with
below average production of goods and services. To the people of the province, it meant that very little or nothing had been achieved through past governments and the public service.

The chronic development dilemma for Western Province was that there was little existing public infrastructure, health or education services or transport to facilitate policy and project implementation. The decades of neglect from FRPG, on top of the vastness of Western Province, meant that even if a project was properly planned, the implementation was often ineffective and the outcomes were unsustainable. Maintenance and development of new roads to aid transportation have not been funded by the government but left to OTML to fill the gap. The division between the bureaucracy of the Western Provincial Administration and the elected members of the FRPG is the only thing that enables any form of dialogue between the Administration and OTML, PNGSDP, and OTFRDP. Even this budding relationship came under fire from the Governor, who in 2011 attempted to sack the Provincial Administrator William Goinau despite having no such powers. This antagonistic relationship harms the province. Goinau subsequently left and Modowa Gumoi was appointed, but there have been allegations of corruption levelled against him.

The role of Western Province in supporting Tabubil post closure will have to be one of mutual cooperation with other stakeholders. The FRPG would ideally like all of Tabubil's assets, infrastructure and utilities to be turned over to them when the Ok Tedi mine closes (Nigel Parker pers. comm. 2012). However, their track record with maintaining towns to a safe standard is wanting. The deterioration of Daru, the provincial capital, is testament to the ability of the provincial government to provide services to the people. The 200 deaths from the 2010 cholera outbreak on the island (PC 7/12/2010), the overflowing morgue (PC 25/10/2010), and the crumbling infrastructure all point to a crisis in provincial governance.
OTML over the years has slowly had to take over many of the functions that should be the responsibility of the provincial government. The handout mentality is something that afflicts the Ok Tedi mine's local communities. The local communities always look to OTML to give them things, such as healthcare and education, even when it is the responsibility of the provincial government (Musje Werror pers. comm. 2010). The provincial government is ‘difficult’ with OTML and PNGSDP, to the point that Western Province Governor Bob Danaya did everything in his power to prevent productive relations between OTML, PNGSDP and the provincial administrator. This situation is highlighted by a 2006 statement by the Governor where he accused PNGSDP of financial wrong doing and OTML of lack of community consultation and engagement. He expressed the desire that the people of Western Province should have a majority ownership of the Ok Tedi Mine – at least 52% (Danaya 2006). Considering the amount of money that the provincial government collects from Ok Tedi, which puts it at the highest per capita revenue in the country, the lack of provincial service provision is stark.

Throughout the country there has been varying success with provincial governments. Western Province has the worst record of all provinces in terms of capacity, governance, and service delivery. Other resource rich provinces have managed the windfall from large mines or other resource developments better than Western. Comparing New Ireland, Enga and Western Provinces shows that there has been much better management in New Ireland Province and Enga than in Western on every single development indicator. While Western Province is much larger with a sparser population than Enga and New Ireland Province, the problem is not with distance, it is with basic management of funds.
OTMC Stakeholder Organisations and priorities.

OTML has over the years taken the role of de-facto administrator in the North Fly, providing services which had been non-existent in the colonial and independence era. They act where government capacity is lacking. The expectation from the communities is that OTML is supposed to provide, but in many cases it is the provincial government which is supposed to provide. OTML has been trying to withdraw from this role, with OTFRDP and PNGSDP taking over. OTML and PNGSDP have improved relations considerably since PNGSDP was formed. They had previously been unsure of what role the other was taking, and as such meetings and relations were cool. PNGSDP became a more mature development company, and OTML became sure of the supportive role that PNGSDP had, disagreements were less often and are more easily resolved.

OTML and OTFRDP have an interesting relationship, because of the fact that most of the staff of OTFRDP are former OTDF or OTML employees. This however has led to some CMCA communities expressing the opinion that OTFRDP is no different to OTDF, and are sometimes difficult with the OTFRDP officers. However, the OTFRDP is not OTML or OTDF, and they have their own ways of approaching development. OTFRDP staff have indicated that they see their role as developing communities, where OTML’s role is to mine and give compensation. This may sound negative, but the division of labour between these organisations is critical. OTML is a mining company; OTDF/OTFRDP and PNGSDP are development companies. The less they ‘overstep’ each other's boundaries the better.

As for OTML, OTDF/OTFRDP, PNGSDP and their relations with the FRPG, there were a multitude of problems facing the relationship to become less adversarial. The more that Danaya and Boka Kondra (Member for North Fly) postured about how PNGSDP should be owned by FRPG, or that OTML has ruined the province, the less
cooperation can be fostered. FRPG and the Provincial Administration had effectively left the North Fly district to OTML to administrate for the last 30 years, and only now that the mine is scheduled for closure, the FRPG is complaining that the provincial services are lacking; despite service provision in Western Province being the responsibility of government. With closure possibly imminent, working out the roles for each stakeholder is critical. By working multilaterally rather than unilaterally on a variety of community and regional development projects, much more effective outcomes can be reached.


The Ok Tedi mine was developed at a time when globally mine closure planning was in its infancy. The shift towards more environmentally safe abandonment practices, established throughout developed countries such as Australia and Canada, had not yet occurred in PNG. The Ok Tedi mine did not have any guidance from the national mining framework at the time (Mining Ordinance 1937) or the Mining (Bougainville Copper Agreement) Act 1967. Therefore, there is no reference to mine closure in the Principal Agreement in 1976. The mine was expected to operate for at least 25 years. As Panguna, the other large-scale copper mine in the country, was not near the end of the mining cycle in 1976 either, at the time of the Principal Agreement, very little thought was generated for policies about mine closure or post-closure. As there were no large-scale mine closures occurring any time during the 1980s in PNG, there was a lack of attention paid to the sustainability and mine closure planning issue as the mine was only just starting. At Ok Tedi the focus was solely on the construction and operation phases. It was not until the early 1990s when the Development Forum process was conducted retrospectively at Ok Tedi mine, that future planning for
community development was acknowledged as a policy necessity. At that point, there was a commitment by the national government to examine the long-term development of the Ok Tedi area. In the 1991 MOA Clause 6 states:

…the National Government will make available a consultant for such period as is required to assist the Star Mountains Local Government and the Fly River Provincial Government in establishing a long term economic development plan for the Tabubil District.

The Office of National Planning and Implementation and Department of Mineral Resources were responsible for funding the economic plan, rather than the Office of Environment and Conservation. It took until 1999 to produce the Tabubil Outline Long Term Economic Development Plan by OTML consultant Richard Jackson. After 1995 the Organic Law on Provincial Government and Local Level Government (OLPGLLG) meant that the provinces and LLGs would be responsible for drawing up their own development plans, but the commitment to the Long Term Development Plan (LTDP) pre-dated the new law. The eight year gap between the commitment and the outcome meant that OTML was effectively in charge of district planning in the North Fly District, as the provincial government was incompetent and distracted with other governance problems. This document took almost a decade to be produced. It was part of the Ok Tedi MOA in 1991. In 1993 and 1995, the terms of reference were provided for it by the Department of Finance and Planning. The substance of the finally delivered LTDP on December 1st 1999 can be summarized in three general recommendations:

(Firstly)…There must be prudent financial planning for the future for without that nothing can be done. Overwhelmingly, such planning must be restricted to the public finance sector – which, at all levels of government in PNG has not performed immaculately in recent years – but there remains some scope for
advice on investment on investment strategies to be given to private individuals. (Secondly)…the administrative capabilities of government structures, especially local government structures, urgently need to be developed…When the project (Ok Tedi Mine) closes they will be expected to be the prime suppliers of community facilities and their maintenance. They are not in a position to do this at the present time. Thus, a planned process of gradual institutional strengthening is required. (Thirdly)…the presence of OTML has temporarily masked – thanks to the company providing massive transportation subsidies for many of the region’s activities – the fundamental problem facing any sort of development work in the North Fly in general and in the Tabubil area in particular…So even if public funds are accumulated over the next few years as a result of a carefully managed financial policy and even in an increasingly form of local government can evolve in that period, without significant reductions in the region’s isolation much of those funds will be wasted and many of the most efficient of the LLG plans will not succeed. (Jackson 1999: 106)

The Ok-Fly Social Monitoring Project reports between 1991 and 1995 highlight the need for better planning and process in designing community projects under the auspices of the Fly River Development Trust (FRDT) as many failed in their putative aims, and were poorly implemented with no follow up (Burton 1993; 1994). The recommendations of the report series were largely ignored as the reports were not widely distributed throughout OTML so their impact on the development of sustainability policy is difficult to determine. Sustainable development was also examined in the OTML consultancy report ‘Towards Sustainable Development in the Ok Tedi Area’ (Jackson et al. 1995), which was produced at a time when many people...
were calling for the immediate closure of the mine due to environmental concerns. This report included the following observation:

It is clear that currently there is a significant level of business activity in the region. It is equally clear that little of this activity is sustainable. Most of the activity is directly or indirectly dependent on OTML…the heavy subsidies and support (aside from direct compensation) currently provided by OTML to many activities in the area can be viewed in the same way as any sort of subsidy – they encourage inefficiency, impede initiative and are effectively a tax on the people of PNG outside Western Province….the existing standard of living could not be maintained in the presence of ‘real’ prices for these services and most businesses could not survive in the face of “real” competition’. (Jackson et al. 1995: i)

The clear message from all the reports of the time was that there was no overarching plan for the North Fly District or Western Province as a whole. This is attributable to the FRPG being undermined by the Kiunga Lake Murray District Development Agreement (discussed in chapter 2), or distracted by the suspension of Isadore Kaseng’s government, or the Victorian court case. The lack of provincial engagement with OTML, especially in planning matters, was detrimental to the development of the province.

Mine closure planning formally started at Ok Tedi in 1998 through the Ok Tedi Rehabilitation Planning Committee. This committee consisted of members from OTML departments and government representatives. It was set up to help categorize key issues associated with the mine closure, develop a suitable closure framework, and aid communication of mine closure issues with all stakeholders (Newton et al. 2000: 4). The committee was later renamed the Mine Closure Planning Committee, and consisted of the primary committee and a number of sub-committees: Infrastructure,
The sustainable development agenda was further developed by the formalisation of recognition of the need for sustainability in the Ok Tedi mine impact areas. In early 1999 a sustainable development workshop was held by OTML and attended by other stakeholder organisations to discuss the sustainable future of the area (Newton et al. 2000). Ten sustainability principles emerged from this workshop:

- providing a sustainable economic base
- maintaining infrastructure (road network, bridges, radio station, hospital, Kiunga - Tabubil highway, airstrips and communication systems)
- providing effective governance for the future
- mitigating environmental impacts
- ensuring a skilled labour force
- continued access to health and education services
- gender equity
- providing food security
- having an integrated development and mine closure plan

(Newton et al. 2000)

In July 1999, OTML convened another workshop to discuss how these principles of sustainable development could be applied to OTML's environmental and community programs. This workshop was attended by stakeholder representatives from OTML, BHP, the national government departments of Mineral Resources, Environment and Conservation, Treasury, Planning, Attorney General and Western Province, as well as independent participants (OTML 2000). At this workshop, the idea
for OTDF was first mooted, as distinct from the previous Ok Tedi Fly River Development Trust. Importantly, the group defined sustainable development as it applies to the North Fly and the rest of the Western Province after the Ok Tedi mine is exhausted. This workshop identified sustainability objectives that need to be achieved by the time the mine closes in order to have satisfied the elements of sustainable development as the group defined them. This focus on sustainability with specific reference to mine closure shows that OTML's consideration of sustainability concurs with the influence of the global sustainability planning agenda through the Mining Minerals and Sustainable Development Project.

OTML’s first mine closure reports were developed out of these collaborative workshops on sustainability. The reports consisted of two major documents: OTML Rehabilitation and Closure Plan and Social and Sustainable Development Issues in Relation to Mine Closure. These reports were presented in November 2000. The OTML Rehabilitation and Closure Plan 2000 was prepared with the national government to meet both parties’ obligations and sets out to identify functional areas (mine operations), issues and options associated with mine closure and addresses rehabilitation of the functional areas and other areas of impact (OTML 2000a). The Social and Sustainable Development Issues in Relation to Mine Closure report details OTML’s position on sustainability for the impacted communities. For OTML sustainability:

- includes a relationship between current and future generations;
- requires an institutional framework for governance so that facilities and programs can persist, and
- assumes both socioeconomic and environmental improvements, ongoing after mine life.
Sustainability will be measured by such factors as regional economic stability, infrastructure and access, skills base and jobs, and social cohesion (OTML 2000b:50).


Between 2001 and 2006, the OTMC expanded with new stakeholder organisations, legislation, and regulations. This section examines the key parts of the 9SA applying to the mine closure and sustainability planning process. The 9SA has as its third schedule the Mine Closure and Decommissioning Code 2001, known as the ‘The Code’ or MCDC, which sets out the obligations of OTML for closure planning. The Mining Act 1992 had no provisions for closure, and the national government had only just started discussing a national mine closure policy as part of the PNG Mining Sector Institutional Strengthening Technical Assistance project funded by the World Bank. In any event, any national mine closure policy would only act in Ok Tedi's case to ‘fill the gaps’ in the MCDC, as Ok Tedi mine is not subject to legislation inconsistent with its own Act and Supplemental Agreements (Allens, Arthur, Robinson 2006; Patrick Kapuot pers. comm 2011). The MCDC in Clause 2.3 (a) states:

…this Code (MCDC), and the Mine Closure Plan, apply in respect of the operations of the Project (Ok Tedi Mine) after the Commencement Date to the exclusion of anything inconsistent with them in the Principal Agreement and any other laws or regulations concerning mine closure and decommissioning whether in force before or after the Commencement Date.

The closure planning process involved not just decommissioning, rehabilitation and relinquishment plans, but also a central theme of socio-economic and cultural impacts, and effects of closure on the impacted communities. From 2002 to 2006, OTML provided three Draft Mine Closure plans to the national government as the MCDC requires draft plans to be submitted every 2 years.
Draft Mine Closure Plan 2002

This OTML Draft Mine Closure Plan was developed: ‘…in accordance with Company desires, shareholder commitment and Government agreement…in conformance with the Ok Tedi Closure and Decommissioning Code 2001…and in the spirit of Best Practice Environmental Management’ (OTML 2002). The draft Mine Closure Plan was to be developed after consultation with all levels of Government and communities affected by the mine. It was to be ‘substantially’ consistent with development strategies of the national government and complement the provincial government and LLG development plans within the areas affected by the mine (MCDC 2001). It would appear that the main point of this draft plan was to identify gaps in existing data and in planning preparedness. The data and analysis was to be used ‘to establish priorities for further consultation’ (OTML 2002).

CMCA Trusts

CMCA regional plans were developed by regional trusts in conjunction with OTML’s Regional Development department in order to facilitate use of the CMCA development funds in a more sustainable way. Plans were conceived from extensive field consultations with consultation with provincial government, CMCA villages, and LLGs.

Outcomes from these consultations took the form of five year rolling plans. An example of this extensive consultation is the Nupmo Development Plan of 2002. In this plan the prioritised areas of development were:

1. improved housing; improved housing with electricity;
2. increased small business activities including: timber milling, cash crop introduction,

41 Tutuwe regional trust also had a development drawn up by OTML at the same time.
3. livestock production and cottage type industries;
4. improved farming methods and systems;
5. community and public facilities such as meeting halls (Nupmo Trust 2002)

Development strategies outlined in this document point to the promotion of selected and suitable business and cash cropping activities. The OTDF and the Regional Development Team and the Trustees are to ensure that every proposal is well set out and feasibility studies are carried out to determine viability before funds are approved.

‘The ‘Hand-out’ culture must be discouraged in all sectors of the community and equity (in whatever form appropriate) must be an important component to all village project implementation’ (Nupmo Trust 2002:36).

This points to the community taking:

…full responsibility for all development activities that are approved by the Trust for implementation…the trustees should adopt a ‘slow but sure’ attitude…That all members of the VPCs and village leaders understand the importance of wellplanned and designed project(s) and the slow process of implementation …The villagers will in turn contribute land, labour cash and other resources towards agreed project activities (Nupmo Trust 2002:36).

The development plans indicate that a level of comprehension within the CMCA community organisations of the complex funding and planning processes, and feasibility study outputs was expected by OTDF and OTML Regional Development department. Unfortunately, the reality in the CMCA communities was a low level of communications and information sharing between the OTDF, Village Planning Committees and the villagers. The penetration of information to the grassroots CMCA villagers from OTDF over the course of 2002 – 2006 was low. The expectations put on the VPCs to understand the processes and responsibilities proved to be onerous and
unworkable in many cases. These issues were raised by communities as a reason why OTDF needed to become independent and more responsive to the CMCA communities.

**2004 Draft Mine Closure Plan**

The 2004 Draft Mine Closure plan was submitted to the national government on the 15th February 2005. Part 2 of Social and Economic Impact Report of this Plan highlights again the problems for Western Province when the mine closes. Given very little provincial government presence in the area during mining there is no assurance that the FRPG will have the capacity to maintain infrastructure and services throughout the region. This is compounded by the province’s isolation from the rest of the country, low social and economic achievements, and ineffective government (OTML 2004).

It was noted that since the mine started OTML has initiated various socioeconomic development initiatives. These programs have been undertaken through various business development, agriculture, forestry and fisheries divisions. Most of these programs have been under the direct control of OTML personnel. These functions should, when the mine closes, be transferred to other entities notably the provincial government and either PNGSDP or OTDF (OTML 2004:26).

**2006 Draft Mine Closure Plan**

The process in developing the 2006 Draft Mine Closure Plan built on the work done in 2004. The SER in the 2006 iteration was more detailed. Once again this draft mine closure plan highlights the inadequacies within the FRPG and WPA to cope with the closure of the mine. Western Province did not have a master plan to effectively guide development or a mechanism to coordinate the activities of development partners. This draft plan emphasizes (OTML 2006c:64) factors that have contributed to the lack of development progress in the province:
• The province covers a vast area and the cost of service delivery is exceptionally high;
• High transport costs and the absence of basic infrastructure, such as power and communication systems…
• Low education standards may inhibit entrepreneurial activities and limit suitably qualified staff required for any new ventures
• Many people in North and Middle Fly, in particular land users (not owners), will be prevented from planting cash crops or establishing new businesses
• The South Fly, in particular is subject to particularly harsh climate conditions and many communities are forced to relocate in search of water….
• The quality of public sector governance in Western Province has for many years been poor

It is expected that government income will also fall dramatically post mine closure from around K160 million per annum to approximately K55 million per annum.

4.5 Working towards a best practice mine closure planning process 2007–2012

After the CMCA Review was completed, a new managing director took over and there was progress towards the Detailed Mine Closure Plan (DMCP), which was submitted in 2009. A key influence on the DMCP was the strategic community and regional development planning activities OTML undertook leading up to the finalizing of the CMCA Review.
Community and Regional Development Strategy

In early 2007, OTML and OTDF released the Community and Regional Development Strategy (CRDS). This strategy was developed in response to the reality that the FRPG used their ‘national budget allocation and mining revenue entitlements… principally for recurrent activities’ so OTML was the ‘only institution with additional development revenues… capable of community and regional development in the province’ (OTML 2007:1). The Mine Closure and Decommissioning Code’s regulations relating to the Social and Economic Report (SER) of the mine closure plans submitted to the government meant OTML reviewed its contribution to Western Province, and accordingly the impact that closure would have without substantial capacity building in economic and social development. The CRDS acknowledges the ‘primary obligation to support the mine impacted communities in the lead up to and after mine closure’ with the goal of ‘support[ing] sustainable and equitable development in the mine impacted communities and the Western Province’ (OTML 2007:2). The CRDS would be implemented through two program initiatives: Community and Livelihood Development and Regional Development. The Community and Livelihood Development program was ‘to improve the livelihood and wellbeing of the communities living within the mine villages and the CMCA trust areas’ (OTML 2007:4) and would focus the development activities of OTML and OTDF on:

- Community Relations Support
- Trust Management
- Food Security
  - To support food security and improve household nutrition and access to income earning opportunities.
- Community Development and Training
To improve community development and planning skills and public access to information and resources in support of livelihood development

Development Vehicle – OTDF

The Regional Development program was ‘to promote programs which diversify the economic base of the Western Province and facilitate public infrastructure and service development through partnership arrangements’ (OTML 2007: 6). This included:

- Landowner Business Development
  - Local Contractors
  - Regional Business Enterprises
- Rubber Development
- Rural Development
  - To promote food security and primary industry development in support of sustainable livelihood development
- Ecotourism
- Public and Community Infrastructure
- Health and Education Services
- Planning and Coordination
  - To assist the provincial government to establish effective development planning and coordination mechanisms which will assist the development partners in working together to achieve the Western Province development priorities.

From the highlighted portions of the plan, it can be seen that there was a large focus on community livelihood and sustainable development planning for the mine.
impact areas. OTDF took over much of this responsibility (except Community Relations Support and Landowner Business Development, which remained within the Community and Business Support department of OTML). This is reflected in the OTFRDP 2010-2015 Business plan and 2010–2015 North Fly Regional Action Plan. These plans set forth the ways that the CRDS framework is built on and developed into practical policies for project implementation. The business plan, which was developed over three years, clarifies the respective responsibilities between OTML and OTFRDP. Chapter 5 identifies the scale and scope of the funding available for development programs overall, but for planning purposes OTFRDP identified thresholds for accessing CMCA Trust funds (K300,000), PNGSDP (K300,000 – 2 million) and Western Province People’s Dividend Trust Account – CMCA portion (More than K2 million) (OTFRDP 2010b:74)

This assumption of responsibilities was in line with the CMCA review outcome that OTDF should be separate from OTML. The CRDS acknowledges that the Regional Development program ‘is reliant on ongoing and effective collaboration’ between OTML, FRPG, PNGSDP, MRA and the Trusts, but that ‘collaboration… is hindered by the lack of a master plan to effectively guide development within the province and a mechanism to coordinate the activities of development partners’ (OTML 2007:18).

OTFRDP’s main concerns were driven by the development aspirations of communities within the CMCA trusts. It was obligated to deliver existing programs to CMCA communities under the CRDS framework for Community and Livelihood Development and Regional Development. With new funding partners, OTFRDP would also develop larger scale programs: community housing projects, establishment of proper water supply systems and the construction of feeder roads to open areas for forestry, which were designed to benefit entire communities in the CMCA areas (OTFRDP 2010:14). For example, in the North Fly region, on the outskirts of Kiunga,
OTFRDP partnered with KK Kingston Ltd and the Provincial Department of Works to construct a feeder road using a chemical polymer road base.

OTML also identified OTDF as the best mechanism to deliver development to the mine impact areas as it was already working with the communities there, but just needed the guiding strategy to become more effective and targeted in its approach. The CRDS represented a recognition of the OTMC’s impact on development. The programs identified within the strategy required cooperation from the OTMC stakeholder organisations for both planning and effective implementation.

**Benchmark Study Trip**

OTML learnt from the closure of Misima that provincial government capacity has to be clear and obvious for the government to be left in charge of infrastructure (OTML 2008a). OTML was heavily influenced in their mine closure planning by a benchmark study tour (OTML 2008) of three closed mines in the region – Minahasa Raya in North Sulawesi, Kelian in East Kalimantan (Indonesia) and Misima in Milne Bay Province in PNG. I will focus here only on the lessons drawn from the Misima mine. This trip served as a cautionary tale for OTML as to the importance of focusing on post-closure asset outcomes, securing sites and fixing land issues. The study came up with one key lesson: never leave infrastructure, plant equipment or services in the hands of organisations which lack the capacity to maintain them. The trip to Misima Island appears to have had the most influence on the perceptions and policy issues on the mine closure study group although their focus was more on remediation than on socio economic factors (OTML 2008).

Misima Island is located in the Louisaide Archipelago in Milne Bay Province. Misima mine had a fairly short lifespan, as it was opened in 1989 and closed in 2004. The mine was operated by Misima Mines Limited (MML), which was 80 percent owned
by Placer Dome/Barrick and 20 percent by Orogen Limited, a majority PNG
government owned company. Misima Island's main town is Bwagaoia, which is the
Samarai-Murua district headquarters. The current population of the island is somewhere
around 5000 people.

The island had a long history of small-scale gold mining going back to 1889
(Nelson 1976), but before the large-scale mine was developed, most people were
engaged in subsistence agriculture. Since the closure there has been a move towards
artisanal and small-scale mining on the island in an attempt to generate cash incomes to
maintain the lifestyle to which people had grown accustomed. Misima mine’s closure
went according to plan, especially the technical aspects of the closure to do with
rehabilitation and revegetation. However, the mine closure plans (MML 2000; MML
2002) were not approved by the provincial government, and there were no (and still are
not any) national level guidelines, policies or legislation for MML to follow. Being the
first planned mine closure in the country meant that Misima's closure outcomes were
like a rudderless ship. The post-closure experience on Misima has guided OTML in
how not to close a mine.

Ok Tedi mine closure planning committee members went to Misima in
December 2008. This visit influenced the way OTML has approached closure planning
for their mine. One of the key lessons OTML took from Misima post closure was that
mines have to be very careful what assets they leave to the provincial government.
Road plant equipment was handed over to the provincial government to maintain roads
on the island, but the roads are unmaintained and the equipment is rusting away where
it was left by MML (OTML 2008: 61). This problem was signalled earlier by the MRA
when they conducted their post closure inspection report (MRA 2007). Much of the
problem is that the provincial government does not have the funds to support
infrastructure and maintenance. Without government will or capacity to look after plant

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equipment for road maintenance, or maintenance of other critical infrastructure such as a wharf, then there is no point in leaving them, as they become a hazard.

This problem was highlighted in the plane crash at Misima in August 2010 which killed 4 people. The poorly maintained runway at the airport was found to be covered in moss and grass that may have been a contributing factor to this tragedy. Funding issues contributed also to the poor airfield maintenance (AICPNG 2012). Infrastructure maintenance should be a responsibility of the provincial government, and provincial government capacity is better in Milne Bay Province than in Western Province. They have similar logistical issues, having to deal with dispersed populations across a large geographic area.

My own trip to Misima three years after the Ok Tedi Benchmark Study team was a more hopeful tour. The provincial government had taken over the management of the maintenance of infrastructure, including the hydro station and roads. People were now being paid wages to maintain services. Power was more or less constantly in supply, with only short scheduled blackouts for priming and maintenance of the hydro station. The physical rehabilitation work done by MML was excellent, but the social program side was still inadequate. The lack of sustainable programs was evident, as most islanders were engaged some way with the informal artisanal mining sector.

**Detailed Mine Closure Plan 2009**

In 2009 OTML submitted the Detailed Mine Closure Plan (DMCP), which was the culmination of a decade of ‘back and forth’ consultation with the national government. This plan is the most comprehensive to date, and comprises four volumes. The DMCP was approved in May 2012. It contains a base case scenario which describes the ‘likely scenario for Tabubil if alternative sustainable major industry is not possible’ (OTML 2009a: 39). This ‘base case’ was defined to assist in the development of closure plans,
cost estimates and schedules. It is to give an idea of how Tabubil will appear after mine closure (OTML 2009a: 39). OTML have estimated that the cost of running Tabubil after mine closure, under the base case scenario, will be approximately US$12 million per annum (in 2009 terms) (OTML 2009a: 40).

The most significant items in the list of the base case are that the town will be limited and the services will be scaled down. Significantly, OTML seems to recognise that Tabubil has little scope beyond a single industry town. This plan also has an expectation that the national government and PNGSDP will underwrite the basic services required under the base study (OTML 2009a: 41). For it to become a viable post-closure town, it would have to become a centre of commerce rather than a distant outpost. However the problem that hampers this vision is the terrain around Tabubil. Road linkages to the north, west, and east are problematic because of the landslide prone terrain. OTML is not going to build any more roads in the Ok Tedi area because they do not serve a core mining purpose. The roads that exist in the area are there for access to key infrastructure, such as the mine, mill and Ok Menga hydro power site. As in the OTML Draft Mine Closure reports of 2002, 2004, 2006, this report concludes that:

...without an effective development that extends beyond the mine closure period, it is uncertain whether the province has the staff and resources to operate and maintain public facilities...far more support should have been provided by government to the people Impacted by the mine, particularly during the early years of mining in terms of lifestyle education, which could have included awareness and/or training in basic financial management, personal savings, the importance of attaining a good education. (OTML 2009c: 69)

Mine closure planning demands rigorous community consultation, and in this did occur for the DMCP. The system might not be perfect, but it is a significant push in
the direction of community-based mine closure. An example of local villagers’
attitudes to the DMCP after consultation is shown in this document sent to OTML from
Wangbin village:

We the Principal landowners of Wangbin Village have come up with the
strategy for mine closure in 2013. We are hereby to give [sic] our opinion
about what we have missed during the first signing of the MOU in 1991
agreement. Now, we want the National Government, Ok Tedi stakeholders and
the Developers take initiative from the strategy plans below. These are the
following strategy plans for mine closure that we have come up with.

- Relocating a new Wangbin Village.
- Costs of building new houses. (K250,000 each houses)
- Road Link to Old Wangbin (Wangbin Lake).
- Tourism centre in Wangbin Lake.
- Request for Warehouse 120.
- Allocate B and C houses to Wangbin for rental.
- Sealing of New Wangbin Village.
- Increasing power and water supply.
- TV and telephone line connected from Tabubil Township.
- Relocating the church.
- Women Centre in Wangbin Village.
- Sealing of Tabubil Airport.
- Sealing of Kiunga Tabubil Highway.
- Power and water supply to Kiunga
- Grade 11 up to university Ok Tedi must met cost
- No contract awarding outside the (Min Boundry)

Signed Thomas Uneng 19/06/09
PNGSDP

PNGSDP and OTML had a common Board Chairman, Prof. Ross Garnaut, until the end of 2012. In the Annual Report 2008 PNGSDP stated that it ‘seeks to sustain the excellent infrastructure established by OTML for broader social and economic development beyond mine closure’ (PNGSDP 2008:7). With large cash reserves for development of Western Province post closure, the organisation had the ability to keep the northern part of the province from sliding into the FRPG mire.

The 2007 management change in OTML with Managing Director Alan Breen signaled a new working relationship between OTML and PNGSDP on mine closure. PNGSDP from 2007 became more heavily involved in closure planning with the establishment of the PNGSDP Mine Closure Impacts Office, headed by Patricia (Pepena) Kila, former Principal Policy Officer and Mine Closure Coordinator in the PNG Department of Mining.

PNGSDP was committed to keeping Tabubil as a viable town (Clewett et al. 2011). PNGSDP had a significant role in the sustainable planning for Tabubil through the Tabubil Futures project. Significantly, PNGSDP had already taken the commitment to fund the maintenance the Kiunga-Tabubil Highway despite it being a national government road that OTML leases. The road, which is essentially a private road, is a key to maintaining Tabubil as a town because otherwise the only transport link is the airport. A significant influence on PNGSDP's plans was the population of the Tabubil area. A PNGSDP manager indicated that they wanted to encourage the settlers to stay in the area, rather than drive them away. However, others within PNGSDP thought that a smaller Tabubil would be preferable. Settlement maintenance would be in direct contradiction to the view of OTML, local government, and local landowners, that settlers are better served going back to their places of origin.
In 2010 PNGSDP commissioned nine ‘element studies’ on the future sustainability of Tabubil. These studies covered: population demographics, health, education, security and law and justice, governance, economic development, utilities, transport, urban planning. These studies were commissioned because PNGSDP wanted independent analysis of whether Tabubil was sustainable. The PNGSDP board position on these was that they would pursue specific projects out of the element studies but these projects have yet not come to light. With regard to PNGSDP's Tabubil Futures project, the comment from OTML officers was that the consultants were just taking OTML information and repackaging it rather than making their own discoveries. Many ideas have been floated as alternative industries or commercial reasons to keep the town. These include setting up Tabubil as an army base to guard the border, developing a tourism industry, operating the town as a FIFO base for the Frieda mine (in West Sepik Province) and various oil and gas developments planned for Western Province, and having it as a college town. Some of these ideas have been called 'pie in the sky' ideas. Much of the impetus behind big ideas for Tabubil stemmed from the then Chairman of PNGSDP, Ross Garnaut (pers. comm. 2012).

PNGSDP continued its active participation in community consultations and negotiations associated with the proposed Mine Life Extension throughout CMCA Trust regions. The process that began in 2009 seeking prior informed consent from the mine impacted communities culminated in all the CMCA Trust regions plus six mine villages signing their respective compensation packages with OTML, in December 2012 (PNGSDP 2012:40). This, however, does not denote agreement to the mine closure plan, as that is approved by the relevant ministers of MRA and Department of Environment and Conservation on behalf of the communities.
4.5 Conclusion – The future of sustainability for OTML as a State Owned Enterprise – Some thoughts.

Ok Tedi having its own mine closure and decommissioning code means that the closure will be a lot more regulated than the closure of Misima. However, OTML needs to learn the lesson from Misima, that regardless of how difficult the provincial political situation, the provincial government is at a basic level responsible for the provision of services and maintenance of infrastructure in the province. Despite having one of the highest per capita revenues of any province in the country, the FRPG has been one of the least effective at development. Mine closure and sustainability planning for the North Fly region depends on a common conception of what is sustainable and what is not. PNGSDP had viewed Tabubil as an asset which it could not let go to waste, but unfortunately Tabubil’s future is not under the organisation’s control any longer. Since OTML is not going to be responsible for Tabubil after it passes to whichever organisation takes over, so their conception of what is sustainable and what is not is fairly concrete. OTML managers understand how much the company spends on services to the community. From utilities to logistics, OTML heavily subsidizes the daily running of the town. No town would have existed in this location without the Ok Tedi mine. Managers and other workers of the mining company express disappointment that the town will not go on into the future if there is no new mineral deposit found nearby. The town is not in a desirable location, nor does it have a desirable climate.

Without the mine, the area was a rural backwater and with closure the economic base and access to services are forecast to be severely diminished. Without intervention the economic hub will shift from the northern end of the district, Tabubil, to the southern end at Kiunga. Diversification in the Tabubil area is difficult due to the very high maintenance costs of the town and transport links as well as the unsuitable land...
for cash cropping. Kiunga and Ningerum have a clearer diversification route, through agroforestry, oil and gas exploration, and tourism. The expansion of road networks, with the Pampenai Feeder Road and the Aiambak Road upgrades, makes Kiunga a central access hub for the North and Middle Fly. Various plans exist to develop alternative industries in the Tabubil area in order to support the continuing existence of the town.

The criticism of PNGSDP led to a full stripping of its equity through the revised 9SA 2013 and 10SA 2013. The expropriation of PNGSDP’s equity holding in OTML was framed by many within the national government as a way to get BHP Billiton’s influence out of PNG and force PNGSDP to be more transparent with its decision making and funding of projects (Post-Courier 4/2/2013) With this national government takeover of OTML, the future sustainability of Tabubil and the other villages above Ningerum becomes less likely. The people of Western Province are unlikely to benefit at all from the national government’s appropriation of PNGSDP’s share in OTML.
Chapter Five – Compensation and Benefit Streams: Past, Present, and Future.

5.1 Introduction

This chapter examines the financial basis for sustainable planning and mine closure policy for the Ok Tedi mine impacted communities. The financial aspect to mine closure and sustainability planning is important because without necessary ongoing funding of programs they usually fail. For a sustainable future for the Ok Tedi impacted communities and a positive legacy of the mine post closure, the financial health of trusts and payments is crucial. The wide variety of funding sources currently available to Ok Tedi impacted communities is a result of the unique history of the mine within PNG. The historical changes to the amount and extent of funding available mirrors the growing emphasis within OTML and the other stakeholders to facilitate the identified impacted communities to receive ongoing benefit from the mine. The changes to the structure of compensation and benefit sharing reflect the broader national debates and changes in policy stemming from the Namaliu government’s reforms to the Mining Act to include development forums and negotiated benefit-sharing agreements between government, and landowners. This chapter provides original analysis of the Ok Tedi mine’s compensation and benefit streams up until the end of 2012. It supplements and expands upon the work of Filer, Henton and Jackson (2000) and Finlayson (2005).

This chapter is the result of fieldwork and data collected between 2009 and 2012. It also approaches key questions about the quality of the management of the funds in trust earmarked for future generations. It asks if there something special about the Ok Tedi Mining Complex (OMTC) landowning groups that make them more or less likely to engage in mismanagement of money. Why if there is funding for sustainable development initiatives projects has there not been more cooperation.
between development organisations? In what ways does the OTMC ensure transparency in payments to communities? The analysis contributes to the basic thesis of the dissertation: how change can be managed by OTMC to reduce negative consequences on communities after mine closure.

The chapter is divided into three sections. The first is an overall discussion of the compensation and benefit streams in PNG for the non-renewable resource sector. The second section is an historical look at the compensation and benefit streams over time, and the changes made to the structure and substance of these streams ranging from Lease Payments and Royalties to Tax Credit Scheme. The third section focusses on the complex issues dealing with expending development funds and investing future generations’ funds for the ongoing benefit of communities. The fourth section is a discussion of the issues relating to the OTMC organisations’ deployment of compensation and benefit streams, and community issues with access to trust funds.

5.2 Debates about Compensation and Benefit Streams in PNG

The basic premise of all compensation in PNG is that the majority of land in the country is under customary custodianship and thus requires permission from the landowners to proceed with any development. Customary understandings of land ownership and custodianship are complex and have been discussed in detail by academics (Crocombe 1987; Larmour 1991). PNG has a complex variety of land tenure. The special relationship between land and Papua New Guineans is not uniform across all cultures, however the possession and transmission of land through tribe, clan or familial custodianship is a common factor. Traditionally land is not privately held by individuals, it is communal with overlapping usage. Byron Chan, Minister for Mining (2011), expresses the view that the Papua New Guinean landowner does not see a distinction between soil and minerals – they see them as all being subject to their
traditional land tenure, rather than an arbitrary line underground separating them. In a survey of Papua New Guinean market vendors, public servants and university students about attitudes towards resource development, a significant proportion of the people surveyed said that the landowners (32.9 percent) or both the landowners and the government (43.3 percent) should own subsoil natural resources, as opposed to the government solely (22 percent) (Toft and Saffu 1997: 27). These community attitudes have changed little over time, and is confirmed by grassroots support for the ‘Boka Kondra Bill’ that would vest mineral rights in the landowner rather than the State. The construction of ‘the landowner’ as an entity has accompanied the exercise of compensation demands for resource development in PNG. Much of the compensation demanding behaviour is rent seeking. McGavin states ‘Compensation claims in PNG usually start off with some fabulous sum that “comes into the head”, and in customary circumstances conclude with the maximum that can be extracted.’ (McGavin 1994: 14). This understates the strategic nature of compensation demands from customary landowners. Compensation covers a wide range of happenings, from a dog being run over by trucks to river system wide pollution at PNG mines. Burton (1997b) argues that all forms of resource rent are regarded as forms of compensation – royalties, leases, and compensation packages.

Discussions about compensation and benefit streams in the PNG resource sector have been occurring since before independence. Some of the discussions have resulted in positive outcomes for communities, but other discussions have resulted in armed conflict. The agreements for Ok Tedi and Panguna mines occurred when the negotiations were conducted between two stakeholders, State (whether Australian Administration or Independent PNG) and Company, with little to no involvement of recognised landowners beyond securing permissions for land access. The State of PNG received royalties and taxes distributing benefits to the Provincial Government and
landowners. This posed a problem generally, as the ferment of discontent about colonial mining development and perceptions of inequitable distribution of benefits over 20 years after the Bougainville Copper Agreement at Panguna shows (Denoon 2000; Quodling 1991). Bedford and Mamak (1977) conducted a rigorous examination of the benefit-sharing regime at Panguna before and after the first Bougainville Copper Agreement renegotiation in 1974, examining the history of the agreements and legislation that formed the genesis of the benefit-sharing regime that exists throughout PNG.

In 1966 royalties were a point of contention between the colonial administration and the representatives of the people of Bougainville. There was a tension between the Australian laws, which reflected State ownership of minerals, and Melanesian concepts of land and resource ownership. A small royalty – 5 percent of the 1.25 percent total copper revenue royalties paid to the government by BCL – were passed in the House of Assembly as recognition of the need to assuage grievances local landowners had over the resource development (Bedford and Mamak 1977: 14–15). The distribution of benefits has become critical to the academic study of resources in PNG. The most important discussion about the negative results of perceived inequitable benefit sharing and compensation is Colin Filer's (1990) discussion about the economic and social aspects of the community's compensation payment distribution at BCL's Panguna Mine. However, as rightly predicted by Oliver (1977: 164), the royalty issue would 'continue to disturb the companies’ local public relations for many years to come'.

The changing landscape of benefit sharing over the past twenty-five years has reflected the trend of recognizing the rights of indigenous people in resource development. The emergence of the Development Forum and the subsequent benefit sharing agreements associated with the negotiations have changed the way wealth accumulated from mining and oil/gas projects is distributed (McGavin 1994; Toft
This negotiation process is much more inclusive, however it is still not immune from pressures of corruption.

Communities receiving funds from compensation and benefit sharing agreements with mining companies is an important aspect of mining projects in PNG. The different ways in which communities are provided for by way of cash, trusts, and development stakeholders influences the possibilities of sustainability and orderly mine closure. The interests of the company, stakeholders, and government are sometimes pitched against the desires of the communities over how the money is to be deployed. A recent example of academic interest in disentangling the complex webs of benefit stream and compensation is the 2012 National Research Institute report by Peter Johnson (2012). This report describes in detail the available information on the Porgera mine's benefit streams, including some of the problems associated with benefit sharing and compensation money management. Porgera mine is located in Enga Province's Lagaip-Porgera District. The mines have very different arrangements with the government and other organisations. In particular, the political context of landowner organisations and traditional forms of conflict and negotiation that exist around the mine sites are different. The report builds on previous research done by Banks (1997) during his PhD as well as his working paper for the PNG Mining Sector Institutional Strengthening Project (Banks 2002). The clear issues which face any mine, and especially Porgera, are that the problem is not always problems with capacity, but rather the basic power relations within the community. Trusts and landowner associations are a central part of analysing the benefit sharing at any mine in PNG.

Analysis of benefit sharing and compensation arrangements present at the Ok Tedi mine and the way they enable the sustainability policies the mine's stakeholders develop is essential to understanding the process of mine closure. At Ok Tedi mine the compensation money is at a scale and complexity that requires its own detailed
examination. The financial aspect of the OTMC is central to the discussion of sustainability and mine closure. The OTMC does not convey immunity to the problems of money ‘going missing’ or there being disputes about how it is spent. The background legislation and agreements relating to the benefit stream and compensation arrangements contribute to the OTMC having a unique position within the PNG mineral resources sector. The OMTC covers a large number of organisations, which are more heterogeneous in their approach to development than is normally acknowledged by academics such as Kirsch (2008) and Jorgensen (2006; 2007b). By analysing the benefit streams and compensation, currently and longitudinally, there is more ability to examine the development context of the OMTC. The next section deals in more detail with Ok Tedi mine compensation and benefit streams.

5.3 Compensation and Benefit Streams from Ok Tedi mine

This section deals with the benefits streams and compensation resulting from the Principal and Supplemental Agreements and other agreements. The changing of the structure and substance of compensation packages is a result of the various unique historical events related to the Ok Tedi mine. The significance of the mine having its own Act subject to supplemental agreements has given OTML advantages and special considerations not applicable or available to other mines. The Ok Tedi mine is not guided by the Mining Act 1992 for compensation and benefit streams like other mines in PNG. The Development Forum process was retrospectively conducted for Ok Tedi mine (Filer and Imbun 2009). This section details the particular financial flows over time.

Lease Payments

Lease payments represent a large source of income for individuals within landowning communities. Lease payments are compensation for occupation, use of land and restriction of access by the mining company. OTML holds a number of leases, both for
mining purposes and general purposes. The lease payments for the various leases at Ok Tedi are mandated under two pieces of legislation. The main Special Mining Lease (SML) No. 1 and Lease for Mine Purposes (LMP) 1 were granted under the Mining Act 1937 (Papua). Portion 1 and 2 were acquired under the Lands Act but are bundled with the Mining Leases for compensation consistency (OTML 2005). SML No. 1, the lease covering the Mount Fubilan mine, milling facilities, covers a total area of 2083.45 ha, of which cleared land was 1460 ha, and physically used land was 1190 ha (OTML 2005).

The physically used land is the land that has improvements – infrastructure assets (roads, tailings, waste dumps, buildings, etc.) whereas the cleared land has ground improvements (e.g. taking out trees) but no physical asset on it. The LMP 1 lease, the Harvey Creek (southern) dump, Taranaki (northern) dump, North and South Ok Mani, covers an area of 8593.00 ha, of this in 2005, cleared land was 1440 ha, and physically used was 1231 ha (OTML Lease Schedule 2005).

For the town site of Tabubil, the State acquired 363 ha of Wangbin village owned land for a 99-year lease on the 31/09/1981 under provisions of the Land Act Section 73 and shortly after sub-let it to OTML on the 09/10/1981. The initial period was for five years under the tenure of a Town Sub-division Lease (TSL). The lease was expanded to accommodate airport extension, road realignment and a creek in early 1982 taking the total to 389.57 ha (Ransley to Public Affairs Manager 2/9/1985). Special provisions were granted to OTML over the TSL. Firstly OTML could use as much of the land as deemed reasonable to conduct its business, without the normal requirement to survey and return all unused land to the State. The second provision was the lease payments given to customary landowners (Ransley 2003). Normally when the State acquires land a one off payment is given and is final, as it was with the Kiunga-Tabubil Highway, but with Tabubil Portion 1, ongoing lease payments are made under
the Mining Act leases, LMP 1 and SML1, to maintain consistency (Ransley 2003). In 1998, after the second renewal of the TSL lapsed, the State granted OTML a Special Purpose Lease for a period of twenty years to be effective from 8/10/1998 under the same provisions for the previous TSL (Ind. State of PNG 1999). This meant that the complications of the TSL, including prohibition on modifications to land use and permanent subletting, in post mine town planning would not have the same impacts. The three extensions to the Tabubil Town lease – LMP 28 Tabubil Plateau Extension – Eastern Ridge Line (219.1 ha), LMP 36 Tabubil East Extension (6.599 ha) and LMP 75 Tabubil Escarpment Extension (153.96 ha) – were made after landowners requested help from OTML to control land degradation from illegal gardens and overpopulation by informal settlers (Ransley 2003). The payments the landowners receive for the leases acquired are significant. Table 5.1 shows two payment schedules 21 years apart.

Table 5.1 Lease Payment at Ok Tedi mine fees in 1990 and 2011

<table>
<thead>
<tr>
<th>Fees</th>
<th>1990 in K/Ha</th>
<th>2011 in K/Ha</th>
</tr>
</thead>
<tbody>
<tr>
<td>Occupation</td>
<td>7.00</td>
<td>10.00</td>
</tr>
<tr>
<td>Restricted Access</td>
<td>15.00</td>
<td>62.92</td>
</tr>
<tr>
<td>Cleared Land</td>
<td>10.00</td>
<td>48.28</td>
</tr>
<tr>
<td>Physically Used Land</td>
<td>20.00</td>
<td>82.09</td>
</tr>
<tr>
<td>Lamin Trust Non-Renewal Resources Fund</td>
<td>8.00</td>
<td>36.21</td>
</tr>
</tbody>
</table>


The cash components (all payments excluding Non-Renewable Resources/Lamin Trust Fund) are paid to landowners’ clan accounts. OTML was sensitive to the differences of impacts on landowning clans within the leases, acknowledging that especially for the LMP 1 there was a significant burden on the Ok Mani landowners compared to the bulk of landowners. By paying all the landowners in

42 The majority of landowners had bank accounts with Bank of South Pacific in 2011 (OTML 2011b).
the lease for the cleared and physically used lands, OTML realised they were ‘short changing’ the Ok Mani clans, so they took those two components out of the bulk payments and paid them instead to the impacted clans (Ransley n.d). Lease payments are distributed annually in the fourth quarter, reviewed every five years, and indexed at up to 5 per cent (OTML 2011:8). In 2011, the SML villages received cash payments per head (Table 5.3):

Table 5.2 Special Mining Lease village cash payments

<table>
<thead>
<tr>
<th>Village</th>
<th>Payment per person (K)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wangbin</td>
<td>344.70</td>
</tr>
<tr>
<td>Migalsim</td>
<td>217.27</td>
</tr>
<tr>
<td>Bultem, Atemkit, Kavorabip, Finalbin</td>
<td>328.88</td>
</tr>
</tbody>
</table>

Source: OTML 2011.

In addition to the payment made to communities, OTML pays K12.00 rental per leased hectare per annum to the Registrar of Tenements in the Mineral Resources Authority and to 2011 this was estimated to be K2.6m (OTML 2011: 13).

**Kiunga Tabubil Highway – ROADCO**

In 1982 the road corridor between Kiunga and Tabubil was compulsorily acquired by the State of PNG and payment of compensation to landowners was K110,023.00 (at K75 per ha), as deemed in 1983 to be its value by the Valuer General (Giheno 1996; PNG NIO 2004: 3). The national government borrowed K50m to build the road and OTML through the ‘user pays’ system repaid the loan (Ransley 2006a; Giheno 1996). It is not subject to any ongoing lease payments as it was acquired under the Land Act Chapter 185. Over the course of the last 30 years, the highway landowners from Km45 to Km59, known as the Kiunga-Tabubil Highway (Landowners) Association, have disputed that the land was acquired and registered
correctly, demanding proof of proper process and extra compensation (Giheno 1996; KTHA 2003; PNG NIO 2004; Kokoba 2007).


Royalties are a large component of the cash benefit stream at the Ok Tedi mine. Ok Tedi mine's royalty regime has changed over time. Initially, as per clause 24.2 in the Principal Agreement:

The Company shall pay royalty at the rate of one and one quarter per cent (1 1/4 percent) of the sum of -

(a) the F.O.B. Revenue applicable to deliveries by the Company pursuant to sales or other dispositions made by the Company of Mine Products where such deliveries are directly or indirectly for export; and

(b) the Net Smelter Returns applicable to such Mine Products where they are smelted or smelted and refined in Papua New Guinea.

The royalty shall be paid monthly in accordance with the procedures to be agreed between the State and the Company or in default of agreement as determined by the State.

The State of PNG collected K21.9m in royalties from OTML between 1985 and 1990 (OTML 2007d: 9). The State paid the majority of the royalties to the provincial government, minus transactional costs, and under section 67 of the Organic Law and Chapter 107 of the Mining Act 1977, 5 percent was paid to owners of ‘private land’ (Little and Regan 1987). The breakdown of royalties paid out was of the 1.25 percent royalty, 95 percent to the Fly River Provincial Government, and 5 percent to mine area landowners. In 1986, it was decided that half of the Provincial Government’s share would go into a trust to fund infrastructural development and maintenance in the North Fly District, as the provincial government did not have the capacity to spend the money (Little and Regan 1987: 3). This money is still being used to fund maintenance of provincial buildings, various bridges, and other provincial infrastructure development.
Garden and other Specific Compensation

The basis for the compensation for downstream effects comes from the Principal Agreement and related to the Lower Fly. In clause 29.12 (See Chapter 2) the requirement for compensation for damages was established and garden compensation was paid at agreed rates (see Table 5.3).

Table 5.3: Garden compensation payments, 1991–96

<table>
<thead>
<tr>
<th>Region</th>
<th>Month/Year</th>
<th>Amount (K)</th>
</tr>
</thead>
<tbody>
<tr>
<td>North Ok Tedi</td>
<td>June 1991</td>
<td>24,787</td>
</tr>
<tr>
<td>North Ok Tedi</td>
<td>August 1992</td>
<td>38,854</td>
</tr>
<tr>
<td>Ningerum</td>
<td>April/May 1994</td>
<td>395,342</td>
</tr>
<tr>
<td>Lower Ok Tedi</td>
<td>September 1994</td>
<td>1,380,000</td>
</tr>
<tr>
<td>All Regions</td>
<td>1995/1996</td>
<td>2,702,625</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>4,541,608</td>
</tr>
</tbody>
</table>

Sources: Ransley 2006b: 2; Burton 1991.

Requests for small claims compensation from the community are constant and are reviewed and dealt with by OTML based on the Valuer General's schedules for the payment of specific compensation for individual items – such as a dog being hit by an OTML vehicle, or a road-widening taking out a Pandanus tree.

However, at times there are compensations which require discussions and agreements with the community and this is where the principal and supplemental agreements give flexibility in compensation payments for damages. The Tailing Pipeline Spill in 2011 was one such example. In 2011 there were ruptures of the pyrite concentrate (PCon) pipeline which was installed in 2007 as part of the Mine Waste Tailings Project along the Kiunga - Tabubil Highway between the mine site and Bige.
The ruptures occurred at five sites along the highway - Km45, Km80, Km84, Km87 and Km90. There were three creek systems impacted: Wai Sontri, Wai Smare and Wai Swreme/Wai Meari (Ok Mart), which are customarily owned and used by both CMCA and Non-CMCA villages. In a letter dated 16th June 2011 the Km 80–90 affected communities outlined their case for receiving compensation to the tune of K638,500,000, stating ‘Our demands are non-negotiable. Any negotiation attempts by the company will only increase the amount of money we are charging’. As a response to OTML negotiation, the communities revised the demand to K168m on 6 September 2011. The finalised compensation package from OTML was stated in an interoffice memo as K2.05m.

Other times, OTML compensates for things that are not necessarily the company’s fault. On the 10th December 2011 Korkit (Ward 11) councillor Tokona Kevam was allegedly hit on the mine access road between the Helsinki checkpoint and Finalbin village by an OTML hired vehicle by a former OTML employee who did not subsequently stop and render assistance. In a letter dated 7th February 2012 Tokona Kevam demanded K290,000 for pain and suffering (including a dislocated knee), and alleged that OTML Security at Helsinki checkpoint did not notify the Tabubil Police or Asset Protection Department, and it took him three days before he got taken to hospital. He states in his letter, ‘I’m just a village councillor/landowner. When I had an accident, OTML, security firm treated (me) like animal [sic]’ and threatened that if the matter was not responded to within the fortnight that he would take ‘this matter to customary magicians to make a landslid [sic]’. In an interoffice memo dated 12th February 2012 OTML CR manager Yaru Pohei states that initially OTML tried to get Tokona Kevam to register a third party compensation complaint with Motor Vehicle Insurance Limited. Tokona Kevam refused as he thought it would take too long, be complicated, and likely

43 Although there seemed to be inconsistency in the reports as whether the driver, Abel John, was employed by OTML.
not to result favourably for him due to the time between the incident and when he was taken to hospital. The memo states that the incident was a ‘bad image for OTML when the driver is getting away free of charge while the victim is suffering…incident could have caused him his life’, resulting in the decision by OTML to pay compensation to Tokona Kevam of K10,000 to conclude the matter to both parties’ satisfaction.

1991 Ok Tedi MOA

In January 1991, in response to the changes in negotiations and benefit sharing arrangements stemming from the new mineral regime in the late 1980s, the State of PNG and the Ok Tedi Landowners conducted Development Forum negotiations and entered into a MOA between the national government and the Ok Tedi Landowners (in addition to FRPG MOAs with the national government and the Ok Tedi Landowners). This MOA changed the structure of royalties paid. The Provincial government was now obligated to share the royalties at a rate of 70/30 with the Ok Tedi landowners, splitting the 30 percent between the six mining villages: 25 percent for the four mine villages and 5 percent for Migalsim and Wangbin. On 1st July 1996, the overall royalty level was raised from 1.25 percent to 2 percent (Jackson 2002: 8), applying the RESA changes to Section 24.2 of the PA agreed to the previous August. The monthly royalties were paid out in cheques to village clan leaders with little or no savings mechanism.

1995 Restated Eighth Supplemental Agreement

The RESA granted compensation to be paid out to 120 villages along the river. The RESA funds come as general compensation for the downstream communities. The RESA general compensation payments are distributed into clan accounts along the Ok Tedi and Fly Rivers. The money is deposited into the Heduru Trust account. The Heduru Trust pays out to the 120 communities that receive money over two weeks every March with the next year's payments being decided in the February. In 2012,
K12,457,952.16 was given to a total population of 50,760 people, which is K245.43 per head (OTML 2012b). The money is paid to clan accounts, and the majority of this was paid into BSP accounts, but 598 people did not have clan accounts so were given cheques instead (OTML 2012b). The amount people receive per year is indexed at a rate of 5 percent, with reviews every 5 years, as per clause 29G. This compensation runs parallel to the CMCA compensation payments. The Mine Area Villages are not part of the Heduru Trust, but receive set general compensation from OTML. The Mine Area Village general compensation benefit was incorporated into the CMCA unlike the RESA.

**1997 Lower Ok Tedi Agreement**

The LOTA, signed in 1997, was the out of court agreement reached for extra compensation for the people in the lawsuit, 15 LOT villages: Atkamba, Ieran, Dome, Ambaga, Kawok, Iogi, Kompokin, Bongobun, Senemrae, Kwiapipe, Bige, Miamrae, Sarae, and Demasuke. The total out of court settlement for the LOTA was a K40m package that was divided into three parts (Table 5.4):

Table 5.4 LOTA Compensation package

<table>
<thead>
<tr>
<th>Fund</th>
<th>K amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Development Funds</td>
<td>23,110,920</td>
</tr>
<tr>
<td>Future Generation Fund (FGF)</td>
<td>2,533,361</td>
</tr>
<tr>
<td>Landowners and Land Users Fund (Cash)</td>
<td>14,355,719</td>
</tr>
</tbody>
</table>

Source: LOTA 1997.

Initially the representatives from 15 villages who had signed the Heads of Agreement, accepting the out of court settlement and RESA compensation were adamant that the K40m be paid out in cash (Ransley 2006b). Eventually two schedules to the LOTA were settled, with a recognition that the Land User and FGF should be
structured so they incrementally went up by 5 percent per annum to appear as if they were indexed. The first part of the structure decided was the FGF as it was recognised that 15 percent of the money should be quarantined for the future, as it was a requirement from the Government (Ransley 2005).

The Landowner and Land user funds were a source of difficulty because of the contentious issue that in one of the early meetings ‘only about 5 percent of the resident population of the LOTA area are actually landowners’ (Ransley 2005). This reflects Jackson's assertion that many people from the border area moved closer to the river in the 1960s to gain easier access to the emerging cash economy around Kiunga (Jackson 1977). OTML CR had conducted social mapping as part of a possible extension to the LMP1 tailings lease area to cover the riverbanks to a varying width that were impacted by riverbed aggradation and die-back (Ransley 2005). This lease idea was derailed by the FRDT, general compensation, garden compensation and the court case all emerging in the early to mid-90s. OTML already had the data about landowning communities and the extent of their land boundaries for comparison to the claims of landowners and land users in the discussions. However, there had to be a recognition in the LOTA that the land users were an important part of the impacted community (Kirsch 2007). As such, funds were divided between the landowning and land using communities which served the interests of both parties well. The Development funds were envisaged by the 15 member committee to be for private, small scale, clan or individual projects, not public, physical and social infrastructure because that was seen as the responsibility of the Government (Ransley 2006b). The projects were undertaken under the auspices of the Lower Ok Tedi Investment Corporation (LOTIC). The LOTA was intended to supplement the compensation in RESA, as the impacts, especially the dieback because of overbank flooding along the river, is most significant in the Lower Ok Tedi area, and people there deserved more compensation (Ransley 2006). In addition, in the

148
agreement there are responsibilities and rights on both sides of the agreement. There was no renewal of the LOTA after the agreement lapsed in 2009 (Bull to Kaledi 2011).

**LMP 37/79**

As a result of the agreements relating to the LOTA and RESA, the Bige Dredge Mine Waste Management Project (MWMP) was started in 1998, and subsequently the Mine Waste Tailings Project (MWTP) was commenced in 2007, the communities of Dome and Bige have required lease payments and compensation for the sites, LMP 37 (dredge trial/mine waste camp) and LMP 79 (dredge storage) of the pyrite and silt storage.

Table 5.5: Lease and compensation payments (in kina) for LMP 37 and 79

<table>
<thead>
<tr>
<th>Fund</th>
<th>LMP 37</th>
<th>LMP 79</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lease Payments</td>
<td>2,380,109</td>
<td>2,142,197</td>
</tr>
<tr>
<td>Access Road</td>
<td>1,400,000</td>
<td>-</td>
</tr>
<tr>
<td>Development Fund</td>
<td>1,400,000</td>
<td>1,570,000</td>
</tr>
<tr>
<td>Grant</td>
<td>1,000,000</td>
<td>3,000,000</td>
</tr>
<tr>
<td>Pyrite Storage</td>
<td>-</td>
<td>3,500,000</td>
</tr>
<tr>
<td>Discretionary</td>
<td>280,000</td>
<td>-</td>
</tr>
<tr>
<td>Kobom Investment</td>
<td>-</td>
<td>1,000,000</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>6,180,109</strong></td>
<td><strong>11,492,197</strong></td>
</tr>
</tbody>
</table>

Source: OTML 2013.

**2001 9SA Community Mine Continuation Agreement**

Compensation was again widened in its scope in 2001 when 155 villages were identified as requiring compensation under the CMCA process. Before the mine could proceed beyond the withdrawal of BHP from the consortium/shareholding, a review of the business case and social licence to mine were conducted. The original compensation agreements were not sufficient for the mine to proceed beyond BHP’s exit. As part of the transition from the BHP era to the 9SA era of Ok Tedi, the CMCA negotiations were conducted. The result of these agreements was a compensation package for impacted communities downstream from the mine site and along the Kiunga Tabubil Highway. The communities were divided along regional lines and the
compensation reflected the distance and impact from the mine. Community Members Fund was given to the Nupmo, Tutuwe, Wai Tri and Middle Fly initially, as they were recognised as the most heavily affected (due to sedimentation and dieback). The original package for the communities was K176m.

The villages in the Mine Area have special arrangements that came under the RESA originally, and were subsequently converted into CMCA. As part of the CMCA, the Mine Villages continued to receive these fixed amounts as recognition of the impacts, but it is not as much as the other affected villages because they already receive lease payments, which compensate them for the restriction of access and clearing that occurred on their lands. The four SML and Migalsimbip villages received village development funds totaling between K4,375,000 each between 2001 and 2013. Finalbin received K2,886,244 for a special community housing project. The two LMP Villages received a separate component called special compensation which totals K1,019,231 for Migalsimbip and K2,183,230 for Wangbin over the 2001–2013 period.. Wangbin also received K5,750,000 for Village Housing general compensation payment to Wangbin community of K987,347 between 2001 and 2013, K1,200,000 for Housing Maintenance in 2002, and K700,000 for Business Development in 2002/3 (OTML 2009d).

The 2004 MOA changed the royalty split between FRPG and Landowner to 50/50. The extra 20 percent for landowners was put into a trust for the landowning villages called the Ok Tedi Landowner Royalty Investment Trust. The six mine villages receive, as per the 2004 revised MOA, 50 percent of the 2 percent royalty. The other 50 percent is paid to the FRPG, of which some is sequestered by OTML for maintenance of provincial buildings and infrastructure (Nigel Parker pers. comm. 2012). Of the landowners 50 percent, the breakdown is as Table 5.6 shows:

Table 5.6 Landowner Royalty Split

150
<table>
<thead>
<tr>
<th>Village/Trust</th>
<th>Breakdown</th>
</tr>
</thead>
<tbody>
<tr>
<td>Atemkit, Bultem, Finalbin and Kavorabip Migalsim and Wangbin</td>
<td>25 percent</td>
</tr>
<tr>
<td>Ok Tedi Landowner Royalty Investment Trust</td>
<td>5 percent</td>
</tr>
<tr>
<td>Administration (Mt Fubilan Resource Owners Association)</td>
<td>19.5 percent</td>
</tr>
<tr>
<td></td>
<td>0.5 percent</td>
</tr>
</tbody>
</table>

Source: OTML 2011.
### Table 5.7: Summary of the Ok Tedi royalty payments, 1985–2013 (in kina millions)

<table>
<thead>
<tr>
<th>Year</th>
<th>State of PNG</th>
<th>Fly River Provincial Government</th>
<th>Mine Area Villages</th>
<th>Western Province Development Project Trust</th>
<th>Total (*Incl. WHT tax)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1985</td>
<td>2.0</td>
<td></td>
<td></td>
<td></td>
<td>2.0</td>
</tr>
<tr>
<td>1986</td>
<td>2.6</td>
<td></td>
<td></td>
<td></td>
<td>2.6</td>
</tr>
<tr>
<td>1987</td>
<td>3.4</td>
<td></td>
<td></td>
<td></td>
<td>3.4</td>
</tr>
<tr>
<td>1988</td>
<td>3.6</td>
<td></td>
<td></td>
<td></td>
<td>3.6</td>
</tr>
<tr>
<td>1989</td>
<td>4.7</td>
<td></td>
<td></td>
<td></td>
<td>4.7</td>
</tr>
<tr>
<td>1990</td>
<td>5.5</td>
<td></td>
<td></td>
<td></td>
<td>5.5</td>
</tr>
<tr>
<td>1991</td>
<td>3.6</td>
<td>1.5</td>
<td></td>
<td></td>
<td>5.0</td>
</tr>
<tr>
<td>1992</td>
<td>3.4</td>
<td>1.4</td>
<td></td>
<td></td>
<td>4.8</td>
</tr>
<tr>
<td>1993</td>
<td>3.2</td>
<td>1.3</td>
<td></td>
<td></td>
<td>4.6</td>
</tr>
<tr>
<td>1994</td>
<td>4.7</td>
<td>1.9</td>
<td></td>
<td></td>
<td>6.6</td>
</tr>
<tr>
<td>1995</td>
<td>5.9</td>
<td>2.5</td>
<td></td>
<td></td>
<td>8.4</td>
</tr>
<tr>
<td>1996</td>
<td>8.1</td>
<td>3.3</td>
<td></td>
<td></td>
<td>11.4</td>
</tr>
<tr>
<td>1997</td>
<td>4.2</td>
<td>1.7</td>
<td></td>
<td></td>
<td>5.8</td>
</tr>
<tr>
<td>1998</td>
<td>9.8</td>
<td>4.0</td>
<td></td>
<td></td>
<td>13.8</td>
</tr>
<tr>
<td>1999</td>
<td>11.3</td>
<td>4.6</td>
<td></td>
<td></td>
<td>15.9</td>
</tr>
<tr>
<td>2000</td>
<td>12.3</td>
<td>7.8</td>
<td></td>
<td></td>
<td>20.1</td>
</tr>
<tr>
<td>2001</td>
<td>15.0</td>
<td>6.5</td>
<td>1.1</td>
<td></td>
<td>22.9</td>
</tr>
<tr>
<td>2002</td>
<td>13.0</td>
<td>7.1</td>
<td>4.3</td>
<td></td>
<td>24.8</td>
</tr>
<tr>
<td>2003</td>
<td>23.5</td>
<td>10.6</td>
<td>2.6</td>
<td></td>
<td>37.3</td>
</tr>
<tr>
<td>2004</td>
<td>22.6</td>
<td>10.9</td>
<td>-</td>
<td></td>
<td>34.0</td>
</tr>
<tr>
<td>2005</td>
<td>28.0</td>
<td>28.0</td>
<td>-</td>
<td></td>
<td>57.5</td>
</tr>
<tr>
<td>2006</td>
<td>43.2</td>
<td>43.2</td>
<td>-</td>
<td></td>
<td>88.5</td>
</tr>
<tr>
<td>2007</td>
<td>44.9</td>
<td>42.7</td>
<td>-</td>
<td></td>
<td>89.8</td>
</tr>
<tr>
<td>2008</td>
<td>36.8</td>
<td>35.1</td>
<td></td>
<td></td>
<td>73.5</td>
</tr>
<tr>
<td>2009</td>
<td>33.6</td>
<td>31.9</td>
<td></td>
<td></td>
<td>67.1</td>
</tr>
<tr>
<td>2010</td>
<td>46.8</td>
<td>44.5</td>
<td></td>
<td></td>
<td>93.6</td>
</tr>
<tr>
<td>2011</td>
<td>42.9</td>
<td>40.7</td>
<td></td>
<td></td>
<td>85.8</td>
</tr>
<tr>
<td>2012</td>
<td>32.7</td>
<td>31.1</td>
<td></td>
<td></td>
<td>65.4</td>
</tr>
<tr>
<td>2013</td>
<td>25.1</td>
<td>23.9</td>
<td></td>
<td></td>
<td>50.2</td>
</tr>
<tr>
<td>TOTAL</td>
<td>21.9</td>
<td>474.3</td>
<td>386.0</td>
<td>8.0</td>
<td>909.1</td>
</tr>
</tbody>
</table>

Source: OTML 2013: 10.

**2006/7 CMCA REVIEW**

In 2007, the total compensation package was revised up from K176m to K1.1bn for the period to 2013, which included TCS projects, PNGSDP’s and the State’s 5 percent
contributions from their dividends to fund community projects (CMCA MOA 2007: clause 3). PNGSDP’s contribution to the CMCA review package is K21.5m or 2 percent of dividends, whichever is higher (PNGSDP 2009: 9). The eight CMCA regions and the mine villages directly receive funds from OTML, through the Community Members Fund, but the Development and Investment funds are paid into the eight regional trust accounts. The eight CMCA regions receive payments annually in the 4th quarter.

Table 5.8: OTML contribution to CMCA funds from 2007

<table>
<thead>
<tr>
<th>Fund</th>
<th>Kina millions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Development Funds</td>
<td>218</td>
</tr>
<tr>
<td>Community Members Fund (Cash)</td>
<td>163</td>
</tr>
<tr>
<td>Investment Fund (Excl. Mine Villages)</td>
<td>80</td>
</tr>
<tr>
<td>Special Compensation (Wangbin &amp; Migalsim Villages)</td>
<td>4</td>
</tr>
<tr>
<td>Legal Fees (Middle Fly Development Foundation)</td>
<td>1.5</td>
</tr>
<tr>
<td>Total</td>
<td>466</td>
</tr>
</tbody>
</table>

Source: OTML 2011.

In the eight CMCA trust regions a Women's and Children 10 percent Fund was set aside in the 2006/7 review of the CMCA. This fund is for projects directly targeting women, youth, and children in the eight impact areas. It was originally established in 2001 in the Middle Fly as the Middle Fly Children's Fund (Middle Fly CMCA 2001), but was expanded to the rest of the CMCAs except the Mine Area in 2006/7. The projects under this 10 percent fund are guided by the individual trust regions Women and Children Action Plans designed by women’s groups and implemented by OTDF. To 2009, PNGSDP and the State of PNG paid K64.5m and K249.6m for the CMCA communities (OTML 2010c). According to Clause 4.2.2 of the CMCA MOA, the mine villages did not receive any increase in direct funds from the CMCA review, but were able to access development funds, via OTDF, the State and PNGSDP’s contribution. The CMCA only extended to the end of 2013, when the agreements lapsed, and were
replaced with the Community Mine Continuation Extension Agreement. Over the course of the Ok Tedi mine’s operation, communities have been paid out a total of K1.277 billion in compensation payments for environmental damage.

Table 5.9: Historical compensation (exclusive of lease and royalty payments) expressed as a kina per tonne of waste measurement

<table>
<thead>
<tr>
<th></th>
<th>Waste Mt</th>
<th>Tailings Mt</th>
<th>Total Waste Mt</th>
<th>K/t</th>
<th>Total compo Kina M</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre CMCA</td>
<td>501</td>
<td>353</td>
<td>854</td>
<td>0.08</td>
<td>71</td>
</tr>
<tr>
<td>CMCA 2001–2007</td>
<td>311</td>
<td>165</td>
<td>746</td>
<td>0.35</td>
<td>170</td>
</tr>
<tr>
<td>CMCA</td>
<td>211</td>
<td>145</td>
<td>356</td>
<td>2.90</td>
<td>1036</td>
</tr>
<tr>
<td>CMCA Subtotal</td>
<td>552</td>
<td>310</td>
<td>832</td>
<td>1.45</td>
<td>1206</td>
</tr>
<tr>
<td>Total</td>
<td>1023</td>
<td>663</td>
<td>1686</td>
<td>0.76</td>
<td>1277</td>
</tr>
</tbody>
</table>

Source: OTML 2010c.

### 2009–12 Mine Life Extension – Community Mine Continuation Extension Agreement (CMCEA)

OTML’s MLE proposed to the communities that they would receive 60 percent of the compensation rate they had from the CMCAs. In March 2012 Yaru Pohei, Community Relations manager, indicated that CR would prefer to give all the MLE compensation funds to the communities as cash because they had asked repeatedly and it was their money. The CMCEA were signed at the end of 2012 at the MLE Regional Meeting in Tabubil (Post Courier 31/12/2012). The value of the total package in 2013 was K544,076,000.
Table 5.10: CMCEA compensation K millions

<table>
<thead>
<tr>
<th>Region</th>
<th>Cash</th>
<th>WCF</th>
<th>Investment</th>
<th>Development</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nupmo</td>
<td>25.396</td>
<td>4.232</td>
<td>6.349</td>
<td>6.349</td>
<td>42.328</td>
</tr>
<tr>
<td>Tutuwe</td>
<td>27.609</td>
<td>10.573</td>
<td>3.524</td>
<td>17.035</td>
<td>58.743</td>
</tr>
<tr>
<td>Wai Tri</td>
<td>55.872</td>
<td>16.328</td>
<td>11.974</td>
<td>20.683</td>
<td>108.859</td>
</tr>
<tr>
<td>Middle Fly</td>
<td>100.318</td>
<td>14.331</td>
<td>2.388</td>
<td>2.388</td>
<td>119.427</td>
</tr>
<tr>
<td>Suki Fly Gogo</td>
<td>30.672</td>
<td>3.834</td>
<td>1.917</td>
<td>1.917</td>
<td>38.341</td>
</tr>
<tr>
<td>Manawete</td>
<td>32.220</td>
<td>5.245</td>
<td>-</td>
<td>-</td>
<td>37.466</td>
</tr>
<tr>
<td>Dudi</td>
<td>29.869</td>
<td>7.070</td>
<td>0.910</td>
<td>0.910</td>
<td>38.762</td>
</tr>
<tr>
<td>Kiwaba</td>
<td>31.846</td>
<td>4.683</td>
<td>0.936</td>
<td>-</td>
<td>37.466</td>
</tr>
<tr>
<td>Total</td>
<td>350.099</td>
<td>75.698</td>
<td>27.998</td>
<td>86.265</td>
<td>544.076</td>
</tr>
</tbody>
</table>

Source: Popotai and Ofasu-Amaah 2013: 19

The regional representatives from each trust region were able to negotiate and decide on the split between cash, investment, development and Women and Children’s fund. The range was from 26 percent cash in the Mine Villages to 86 percent cash in Manawete (Popotai and Ofasu-Amaah 2013: 19). The Middle and South Fly communities had cited that they preferred 100 percent cash compensation to investment and development funds in the delegates meeting in March 2011. The North Fly trust regions all have compensation funds allocated for investment and development, but the Mine Villages decided not to allocate for investment as they already have access to a royalty investment trust. All regions allocated at least 10 percent (Nupmo, Suki Fly Gogo) to a maximum of 18.24 percent (Dudi) of compensation funds to the Women and Children’s Fund, a continuation from the 2006/7 CMCA review (Popotai and Ofasu-Amaah 2013; Menzies and Harley 2012).
Although it appears to be a larger compensation package from OTML to the communities than the previous CMCA package, it is important to recognise that the cost of goods and services has increased significantly for people in Western Province. Although headline inflation has remained on average around 6–7 percent between 2006 and 2012 (Bank of PNG 2013), the reality is that in remote areas purchasing power erodes faster due to higher inflation. Even if the package is indexed to a cap of 5 percent, this still represents a reduction in real value for the package.

**Dividends**

OTML was a joint-venture company, it is not listed on any exchanges, nor are its shares available for trading, always owned by just a few organisations, which has been detailed in previous chapters of this dissertation. The dividend situation of Ok Tedi mine has changed over the lifespan of the mine as a reflection of the changing ownership structure. In 2011 Inmet Mining of Canada sold back its shares in OTML (after initially trading them for a 5 percent net smelter return), which were subsequently cancelled, making it the last foreign mining company to own a stake in OTML. The equity partners of OTML reflect the shift towards greater landowner participation in resource ownership. As such in 2013, the shareholding was 36.6 percent national government (owned by MRDC on behalf of landowners and the provincial government) and 63.4 percent by PNGSDP.

The dividends for Ok Tedi have changed over the years depending on the shareholding of OTML. The first ordinary dividends were not paid out until 1997, this was a big problem leading into the 1990s, the mine was not very profitable after its tax-free grace period was over, then that was not in the interests of the shareholders. The dividend breakdown until 2013 was paid out to two organisations - PNGSDP and the national government. The Government portion is divided into sections – 18.3 percent goes to the treasury as consolidated revenue, 12.2 percent goes to CMCA and Non-
The wholly owned MRDC subsidiary company Mineral Resources Star Mountains (MRSM) holds the Mine Area ownership; the Mineral Resources Ok Tedi No.2 (MROT#2) holds the Western Provincial Administration share. The Western
Province Peoples' Dividend Trust Account (WPPDTA) is the 12.2 percent of money held on behalf of the CMCA and Non-CMCA people in Western Province.

**Other Benefit Streams**

The other avenues for funding development and sustainability projects that are available to individuals and communities, which are not a result of direct agreements between the mining company and community, can be broken into two separate categories. The first category relates to large scale funds available for infrastructure projects (Special Support Grants, Tax Credit Schemes) and the second to broad community initiatives (Preferred Area District programs, Local Local employment and education assistance programs) as well as emergency funding (donations committee).

**Preferred Area District**

The population of the general hinterland of the Ok Tedi mine was provided for under the localisation and training and local business development provisions in the Principal Agreement which state in Clauses 30.6 and 32.3 ‘...in so far as is practicable give first preference (for employment and assistance) to landowners in and other people originating from the Kinga and Telefomin sub-provinces of the Western Province’.

This was what gave rise to the Preferred Area Districts (PAD) and the special provision of projects for those areas. The non-impacted communities of Western Province were not given any specific provisions for preferential treatment under the PA beyond the PAD. The Preferred Area Districts receive assistance from OTML in the form of scholarships, preference for employment at the mine, as well as development programs.

The significance of the PAD is that OTML was required to support the development of both Telefomin and North Fly Districts, despite the fact that Telefomin is outside Western Province. Other infrastructure programs, such as TCS, follow on from this as they provide funds for the PAD as well as the rest of Western Province more generally.
The Mine Villages receive special treatment in the form of ‘Local Local’, which provides training and education for landowners, as well as preferential contracts awarded to landowner companies. This is a feature of the 1991 and 2004 MOA. A significant criticism of Local Local is that despite 30 years of training, not one person from Western Province, and especially not from the immediate landowners, is at the level of Team Leader or above (by 2013). In comparison, Telefomin District sourced workers at OTML have worked their way up to Manager External Affairs (Atimeng Buhupe – who subsequently in 2002 was elected Telefomin Open MP). Why there is this disparity between the Western Province people and Telefomin District is not readily apparent. Possibly, it is because there was more habituation with leaving Telefomin because of colonial labour migration, or that West Sepik has overall a less dysfunctional primary education system. As discussed earlier the local landowners have less incentive to work as they receive large amounts of money.

The employment breakdown at Ok Tedi mine out of the directly employed workforce of 2310 in 2013 was 763 (33 percent) employees from the Preferred Area, 83 (4 percent) from non-Preferred Area Western Province, and 1,349 (58 percent) from the rest of PNG and 115 (5 percent) expatriates. (OTML 2013). This is in stark contrast with the case of Misima where the majority of people working at the mine were local Misimans, and they mostly lived in the villages rather than in work camps. This is because Misima Mines Ltd provided transport from their villages to the mine site for every work shift (Israel Israel pers. comm. 2012).

For contracts, the majority of contracts tendered are given to local companies or local/PNG joint ventures (75 percent of total contracts), but the value of these contracts is only worth 33 percent of the total value of contracts (K371.5m with payments of K293.1m) with most high value contracts going to overseas companies or PNG/overseas joint ventures in 2013 (OTML 2013). The local and joint venture
companies contracted include Fubilan Catering Services, Faiwol Investors, Azobelle, Camp Administration, Wokman Teleoks, and Tabubil Engineering.

**Special Support Grant**

Special Support Grants (SSG) are paid by the national government to the provincial government and trusts. For those provinces hosting a major mining or petroleum project, based on the export value of minerals and petroleum production in the province (May 2007: 209). Usually it is 1 percent of export value of the mineral/petroleum goods from the province. In the 2012 budget the SSG received by Western Province was

K15.5 million, while SSG for FRDT was K3.9 million (Department of Treasury 2012: 641); Over the period 1990 to 2008 K103,484,000 was for projects in Western Province. The Special Support Grant is listed in the RESA under clause 29J as

29J.1 The government of Western Province from time to time will identify projects to be funded out of the Special Support Grant. Projects will be identified on the basis that:

(a) approximately 20 percent of the Special Support Grant is to be supplied in the vicinity of Tabubil;

(b) approximately 40 percent of the Special Support Grant is to be applied in the area of the North Fly (outside the vicinity of Tabubil; and

(c) approximately 40 percent of the Special Support Grant is to be applied in the area of the South Fly.

This limited the geographical extent to which the grant could be applied. The projects are identified in the Western Province Development Plans, which are since 2005 generally modelled on the Millennium Development Goals and the Medium Term Development Plan authored by the national government. A criticism of plans by provincial governments is that they are fantasy plans, based on desire rather than
budgetary reality (OTDF officer pers. comm. 2010). According to clause 29J.1 there is an onus on the Western Provincial Administration to implement SSG projects, but it was up to OTML to decide whether the Provincial Works Department had the capacity to undertake the projects. Instead OTML got local contractors, such as Tabubil Engineering and Starwest, to perform most of the work. Perhaps the interesting part about SSG is that it is in legislation that OTML is in control of a portion of SSG. Normally the provincial government would have capacity to spend SSG by itself, like other provinces.

29J.2 Subject to Clause 29J.3, the company will have the right and responsibility, during the life of the Project, to implement the projects referred to in 29J.1. Unless the Lower Ok Tedi/Fly River Development Trust has ceased to exist, those projects will be implemented as part of the Trust's programme.

The Lower Ok Tedi/Fly River Development Trust did cease to exist. It was replaced with the Ok Tedi Development Foundation in the 9SA in 2001 and it assumed the responsibilities of the FRDT. As was described earlier, OTML spun out OTDF into a zero tax entity, starting in 2008.

29J.3 The Company will involve the Provincial Works Department of Western Province in the implementation of the projects referred to in Clause 29J.1. The Company will assist that Department to put in place an agency or other instrumentality which will assume responsibility for implementing and maintaining projects.

The use of the term ‘involve’ indicates that the Provincial Works Department does not have an active part, but merely was required to be consulted. The relationship between OTML and the provincial government was at its most trying in the late 1990s and early 2000s and the SSG issue might have something to do with it.

SSG has become a source of tension between the stakeholders. The inequalities between the implementation of SSG projects and FRDT projects lead to a significant
problem of growing envy of the non-FRDT areas. Many of the SSG projects implemented fall into the same category as the Tax Credit Scheme projects. Both are identified in the Western Province rolling 5 year plans. The problem with the SSG was that it was not effectively implemented for the benefit of the people of Western Province by the FRPG. From the very start, the SSG has been subject to corruption and mismanagement (TPNG 11/04/1991; TPNG 17/10/1991). It was routinely raided by the government for other purposes, rather than used as a targeted development apparatus. In 1996, removing administrative responsibility from FRPG, in reality, meant that the national government had little faith in the capacity of the provincial government to stand alone. However, this created even more reliance by the people of Western Province on OTML as administrator, lessening the legitimacy of the provincial government and administration. It is acknowledged by OTFRDP in their Business Plan (OTFRDP 2010) that the capacity in implementing projects is weak in the Western Province Administration. Effectively the WPA goes to OTML for implementation of Projects, and leading up to closure, OTFRDP is to take over that role from OTML.

The FRPG's general problems with money was most evident in the 1990s with the lack of infrastructure being invested in Western Province (Burton 1993a; 1993b). Western Province was particularly affected by the breakdown of authority as it was constantly in the throes of political intrigue and corruption allegations. In the early 1990s there were even riots on the streets of Daru. Also during the 1990s the Provincial Premier was suspended a number of times for corruption and mismanagement with the NEC appointing an administrator (Jackson 2003).

**Tax Credit Scheme**

In 1992 the national government amended the *Income Tax Act* allowing the mineral resource developer companies to exchange ‘0.75 per cent of their gross revenues on the construction of social and economic infrastructure, and have this counted as corporate
income tax already paid to the government’ (Filer and Imbun 2009: 89). OTML started utilizing this tax credit in 1997, and is entitled to a tax credit against the income tax payable in respect of any tax year, for an amount equal to the aggregate amount of royalty paid or payable during that tax year less the aggregate amount of royalty that would have been paid or payable had the royalty been payable at the rate of 1.25 percent instead of 2 percent. If the tax credit exceeds the income tax payable by OTML, the excess is to be carried forward to the next tax year. In 1997 the limit was raised to 2 percent, then in 2001 it was reduced back to 0.75 percent (Department of National Planning and Monitoring 2001: 3). This means that the equivalent to a 0.75 percent royalty is set aside for the Regional Engineering Department to use for provincial infrastructures. For example, the rural airstrip upgrades, specifically the Olsobip terminal and strip upgrade, as well as the North Fly Administrative building in Kiunga were built with TCS funds (The National 24/05/2012). The TCS essentially makes up for the lack of capacity in the Provincial Government to do large infrastructure projects. Over the course of 1997 – 2008, OTML allocated K 97,150, 000 for TCS projects inside Western Province and K28,423,000 for TCS projects outside Western Province in Telefomin District (OTML 2008f). To 2014, OTML has delivered 116 major infrastructure projects worth K272.04 million (OTML 2014). OTML transferred management of TCS to OTDF at the start of 2012 (The National 24/05/2012). This reflects OTML’s organisational transformation from primary community development manager to being solely a mine operator, and a shift of responsibility to PNGSDP and OTDF to manage sustainable community development and infrastructure projects. This brings the TCS into line with the SSG project implementation.
**Donations Committee**

The OTML Donations Committee apportions money not tied to any compensation or other benefit sharing agreement. These are generally seen as goodwill payments to engender good relations between the Company and the local communities. The Donations Committee of OTML contributes to the community for special projects — for example, if there is a death of a community leader, the donations committee can contribute to the *haus krai* and organise transport for the body to go back to the village. OTML contributed K5,078,000 through the Donations Committee between 1982 and 2008 (OTML 2008f), with an additional K3.6m from 2009 to 2013 (OTML 2013). Donations are often the subject of articles in The North Flyer and Tok Tedi, two OTML community news outlets. The Donations Committee is funded out of the Community Relations budget.

**5.4 Ongoing funds for sustainability – Trusts**

The discussion of sustainability at Ok Tedi mine ultimately rests upon the ongoing funds available to enable implementation of sustainable projects. This is where the trusts come into play. While the majority of the compensation flows listed above (excluding SSG and TCS) have been cash compensation, the trusts are sequestered funds for development and future generations. Development or Infrastructure funds are for current expenditure on identified projects, some of which will be elaborated on in Chapter 6 and 7. Future Generation or Non Renewable Resource Funds are for the ongoing funding of projects in the future, after mine closure.

**The Royalty Trust**

The Ok Tedi Landowners Royalty Investment Trust (LORIT) was set up by the Minister for Treasury to administer the 19.5 percent of the monthly royalty payments from FRPG’s share given to the landowners because of the 2004 MOA. OTML acts as
the trust administrator. The LORIT pays out for authorized investment, at a rate that
does not exceed 20 percent of the annual investment income annually to the
beneficiaries to ensure the sustainability of the trust into the future (OTML 2012:14).
The trustees in 2011 were: Henry Asekim (Wangbin), Joel Dangkim (Kavorabip),
Leonard Lagisa (OTML), Yaru Pohei (OTML), James Topo (MRA), and Timothy
Mais (Treasury).

The views of the villagers, as seen in correspondence between their lawyers and
the state solicitor indicate that it was from the village side that concerns about wasted
funds were being voiced, not from OTML. The now current arrangements between the
State and the Landowners reflect the importance of sustainable funding arrangements
continuing into the future. The payout of the royalties to the MAV demonstrates a
sustainability focus on the funds. Whether the funds are actually invested sustainably is
another matter. There has been criticism from people inside OTML and OTDF that the
investment of funds into property in Australia and PNG does not represent a good
investment return for local people. For example, The Weigh Inn Hotel in Konedobu is
owned by the people of the mine area villages. In the end, the investments are chosen
by the landowners, and if they want to invest in foreign hotels then that is their
prerogative. Investing only locally in businesses that will have to relocate at mine
closure represents a risk some landowners are not willing to take.

In a letter dated 30th January 2009, landowners from Bultem Village
questioned a withdrawal from the 'Ok Tedi Landowners Investment Trust' of K3
million which highlights first hand villagers concerns of possible malfeasance. This
letter was not sent via the Mount Fubilan Resource Association which is the peak body
for the 12 Star Mountains and LO villages.
In 1985, the Lamin Trust Fund was established to be a non-renewable resources fund that acts as a future fund or the main leases of Ok Tedi mine and associated town infrastructure. The Lamin payments are part of the lease payment schedule previously outlined. The leases are as according to the OTML compensation payment Instruction form (OTML 2008f):

- SML 1 (Mine and Mill)
- Portion 1 (Tabubil Township)
- Portion 2 (Ok Menga Hydro)
- LMP1 (North and South Ok Mani),
- LMP 16 (Sawmill Flats)
- LMP 19 (Sawmill itself)
- LMP 21 (Tabubil explosive magazine)
- LMP 22 (Yuk Creek Mini Hydro)
- LMP 27 (Kumsumbip Gravel Pit)
- LMP 28 (Tabubil Portion 1 Extension)
- LMP 29 (Dablan Water Supply)
- LMP 36 (Tabubil East Extension)
- LMP 75 (Tabubil Escarpment Extension)

The Lamin Trust Fund covers the villages of Atemkit, Bultem, Finalbin, Kavorabip, Ok Teditau, Kumguit, Nioksikwi, Wangbin, and Migalsimbip. The Lamin Trust is managed by an Investment Advisory Committee, and the funds are managed by KPMG and invested to earn interest, on behalf of the SML, LMP 1, and Portion 1 and 2 lease landowners. Since 1985, K6,758,740.67 has been deposited into this trust (OTML 2012).
Dividend Trust Accounts

Dividends trusts accounted for large benefit steams deployed for sustainable development in the both the CMCA and Non-CMCA communities of Western Province. There were three main dividend trust accounts to 2013 – PNGSDP, MRSM and MROT#2.

PNGSDP was established for the benefit of Western Province, to act as a type of future generation fund for the province. Of the dividends from PNGSDP’s 63.4 percent equity, one third went to current projects (Development Fund), of which one third again is allocated for projects within Western Province. The other two thirds of the development fund went to administration and projects throughout PNG. The two thirds of the dividends go into a Long-Term Fund, which is invested for the benefit of Western Province to last at least 40 years after mine closure. The LTF is entirely held offshore, which is legal because PNGSDP is a Singaporean registered entity. Between 2002 and 2012, PNGSDP received K5.534bn in dividends from OTML, which has appreciated vastly to make it a significant financial instrument. The way that PNGSDP distributed the funds from the development fund in PNG was to fund already existing organisations or programs. For example PNGSDP funded health aid posts and health clinics run by the Monfort Catholic Mission and the Evangelical Church of Papua.

A significant part of PNGSDP was its subsidiaries. Western Power, PNG Micro Finance, Cloudy Bay Forestry were a few of the companies set up to deliver services to the community. Western Power conducted the rural electrification program along the Kiunga- Tabubil Highway. PNG Micro Finance provided micro banking and microloans to communities. Cloudy Bay Forestry (located in Central Province) managed logging concessions and plantations, which supply housing and infrastructure projects. Outside Western Province, PNGSDP funded extensive feasibility studies on large infrastructure projects, such as the long-proposed Purari Hydro Scheme.
Mineral Resources Star Mountains (MRSM) is the holding company for the share of the SML, LMP, and Portion 1 and 2 landowners’ 3.05 percent equity stake in OTML. Over the period 1997 to 2013, the MRSM received K296.7m in dividends from the Ok Tedi mine (OTML 2013). In 2010, the Board had John Atmeyok (Kumguit), Nellie James (DMPGM), Augustine Mano (Managing Director MRDC), Bill Menim (Finalbin), Toby Nongkim (Kavorabip), Borok Pitalok (President Star Mountains Rural LLG).

The MROT#2 WPPDTA is sectioned into 2 parts. The Non-CMCA and CMCA funds are held in the same account but are subject to different conditions. The CMCA part requires OTDF, whereas the Non-CMCA is managed through a different mechanism (see Figure 5.1 Appendix VI) The CMCA part was created as part of the 2006–7 CMCA review process, the WPPDTA accrues the dividends that are derived by the 12.2 percent equity holding that MROT#2 holds on behalf of the CMCA and nonCMCA communities of Western Province. In 2007, this account held K132m. There has been dispute between OTDF, Ok Tedi Mine Impact Area Association, and FRPG over who should have control of the funds, and for which sort of development they should be used. OTDF accessed the CMCA portion of the funds in order to pay for three Fly River ships – the Fly Warrior, the Fly Hope, and the Fly Explorer.

**Heduru Trust**

Heduru Trust was set up as the trust mechanism to facilitate the payment RESA compensation. It is managed by Deloitte. The board had in 2011 the representatives:

- Chaired by the Secretary of the DMPGM (Shadrach Himata)
- OTML (two positions – Musje Werror and Leonard Lagisa)
- President of Kiunga Urban LLG (Patoro Ako)
- President of Lake Murray LLG (Peter Ambrose)
President of Kiwai LLG (Kamea Segewo)

The trust is administered by the OTML nominated trust administrator (Eminoni Kaleidi), with payments managed by OTML and Deloitte. All RESA funds are paid into the trust in March, and then the trust pays them out to the communities the following February. In the time between when the trust is paid by OTML and the communities are paid (eleven months), the Heduru trust garners interest from the capital of the following year’s payments. This accrued interest is saved for emergency disasters, with the remaining to be paid out to the RESA beneficiaries after mine closure. As of 2011, the Heduru trust was holding K19m of accrued interest (OTML 2011:5)

Alice River Trust

The Alice River Trust (ART) administered the Development and Future Generation Funds allocated in the LOTA with OTDF being responsible for implementing approved projects, but originally the Lower Ok Tedi Investment Company (LOTIC) was the vehicle of implementation. The trust had nine trustees, with two each from OTML board and Kiunga Rural LLG, and one each from the Mining Department, FRPG, one PNG council of churches, one Yonggom representenative, one Awin representative, and one member from the Individual and Community Rights Advocacy Forum. The OTML Community Relations Department, Deloitte, and trust administrator Eminoni Kailedi were responsible for payments (OTML 2011:6). The funds were not subject to escalation or review, and were paid out in the fourth quarter of each year from 1997 until the schedule for payment ceased in 2009. The ART also received Non-renewable Resources funds from Leases (LMP 37 and 79), before it ceased to exist (AAR to Kailedi 2011)
**CMCA Regional Trusts**

These different trusts are managed by trustees and OTDF and held by professional service companies: Deloittes and KPMG. The funds are deployed by OTFRDP for village-based projects. Significant political and bureaucratic systems have been set up in order to facilitate the approval of such projects. OTFRDP has a process for communities to access the funds from CMCA trust accounts. The process is meant to increase the transparency of the transfer of money from Trust to project. Initially, OTDF was created as an independent entity but in reality acted as part of OTML's Regional Development Department. It was responsible for running programs in the CMCA villages from the Mine Area to Kiwai in the Fly Delta. It was intended to be an independent organisation that acted on the behest of the CMCA communities not OTML. However, in the 2006/7 CMCA review, many landowners complained that OTDF and OTML were the same and that they saw no point in calling OTDF separate when it was not. This is mirrored by other stakeholders saying that historically OTDF was more like an arm of the OTML Public Relations Department than a foundation for genuine development. Subsequently in the CMCA MOA 2007, commitments were undertaken to clearly delineate between OTML and OTDF (CMCA MOA Clause 3.1).

Many of the projects OTDF engaged in were unsuccessful, especially those involved with agriculture/livestock (See chapter 6). The difficulty in implementing rural development schemes at Ok Tedi reflects the wider difficulty throughout the country of successful sustainable development.

In mid-2010 OTFRDP was completely spun out of OTML, becoming a ‘new entity’ and a new, separate stakeholder in sustainability planning. The vision statement states: ‘To ensure self-sustainability and improve the quality of life to all Western Province communities’ (OTFRDP Business Plan 2010–2015). It is the trading name of OTDF, but has different responsibilities to its parent. OTFRDP is responsible for new
small-scale community development projects. OTFRDP is at the coal face of sustainable livelihood policy implementation in the area. Whatever plans are made by other stakeholders are directly actionable by this entity. Community members come to OTFRDP and float ideas which have to be approved through village planning committees (VPCs), and can be then be funded through a range of options from 10% Women and Children’s' fund to PNGSDP project funding (OTFRDP 2010).

To access development funding from a CMCA trust, an individual or group first must put together a proposal to submit to their VPC. The VPC decides whether the project is passable, then they send it to OTFRDP. OTFRDP decides whether the project is sustainable (according to its own metric) and consults with the VPC about improvements to the proposal. The VPC transmits this information back to the individual or group the review and recommendations OTFRDP has made, and ask for a resubmission of the proposal if it does not meet sustainability guidelines. OTFRDP assists with resubmission if necessary. When the project is deemed to be sustainable and workable, it is submitted to the Trust for approval (Watson Siarit pers. comm. 2011). There are opportunities to apply for counterpart funding from other organisations depending on the scale and type of project. PNGSDP only counter funded community (village) benefitting projects (facilities like churches, school upgrades) rather than projects benefitting individuals.

The significant issue with this system is the reality that close to 70 percent of VPC members are illiterate, and often do not transmit the results of applications for funding back to the community. There have been accusations within the community of nepotism, whereby VPCs approve projects that are not close to sustainable, and fail to pass on other projects depending on whether there is a conflict within the community with the submitter (Tike Kulingim pers. comm. 2011). The struggle for OTFRDP is identifying what is sustainable and what is not. The largest challenge to sustainable
development in the Ok Tedi impact corridor is ensuring proper ongoing engagement of communities in the projects. There is no lack of funding for well thought out and planned projects, but mismanagement of funds, loss of interest, lack of upkeep of machinery or equipment all hamper sustainability projects. The types of projects funded through this mechanism are almost exclusively small scale and end up being short term. This will be explored further in chapter 7 with reference to food security.

The funds accumulated by the communities in various trusts over the life of the current mine are substantial and are increasing as the rate of spending on community development projects is slow and far exceeded by the new funds being paid directly from OTML and via the two shareholder dividend streams (PNGSDP and the State) (OTML 2010c: 3). Between 2001 and 2009 (OTML 2010c: 4) the eight CMCA trusts received:

- K88.7m in cash payments (this was direct from OTML to family accounts);
- K15.2m to women and children, with the total amount still in trust;
- K51.7m in investment funds, with K12.6m additional in investments, resulting in K64.3m left;
- K108.3m in development funds, of which K48.7m was spent, leaving K56.6m.

This means that in 2009 there was K139.1m in accounts for communities to use, and of that K74.8m of Development and Women and Children’s funds were not getting deployed by OTFRDP and the CMCA Trusts for the benefit of the beneficiaries.

5.5 Discussion
The importance overall of the benefit sharing payments to the development of the Western Province is significant. Although the initial benefits were to flow to a small
section of the North Fly District, the subsequent compensation for downstream environmental impacts have seen a tenfold increase in the amount of people receiving benefits from the mining operations. The amount of money available for development is sizable, and the mechanisms by which it is distributed are also important to determine how it can be effectively deployed for sustainable development.

OTML effectively distributes the cash compensation to the communities through financial institutions, but they have no control over how the money is spent. The amounts of assistance and financial flows to communities in the impact and affected regions indicates that there have been many missed opportunities in the communities. While every village in between Ningerum and the mine has some measure of basic infrastructure and services, there is little in the way to indicate that the money, which is being allocated to them through compensation, royalties or dividend payments, is actually working to make their lives sustainably better. Issues relating to school attendance and health outcomes are less important to people in the Mine Area Villages than demands for moving Bultem or a road to Atemkit and Kavorabip, as though returning people to their lands is a panacea to the problems of gambling, prostitution, drunkenness and addiction in their community. The Mine Area Villages are especially depressing when it comes to what they look like. People seem to be more interested in individual permanent housing than they are in developing their community as a whole. Tallying up all the money the Mine Area villages receive in compensation, royalties, lease payments and other funds, there is a discrepancy between the actual money and the noticeable outcomes of that money. There are problems associated with distributing such large sums of money to people who did not have existing mechanisms for dealing with cash45. The cash money is rarely saved, and a number of people are in

45 OTML pays out all the compensation on a regular basis. Most compensation payments come in the 4th quarter, but some are earlier, for example the RESA funds. Some are paid by cheque and others are direct deposited into clan or individual accounts, depending on the type of payment.
debt to loan sharks or gamblers in anticipation of recieving their compensation money. PNGSDP set up PNG Microfinance Ltd in order to facilitate easier access for bank accounts and other financial transactions, but even this did not work the way it should. By 2012, the PNG Microfinance office in Tabubil reported that 90 percent of microloans taken out by people in the Mine Area and North Ok Tedi were never paid back (Lydia Gah-Bell pers. comm. 2012). PNG Microfinance acted as another benefit sharing mechanism, as there was little effort to ensure the sustainability of the microloan business ventures. Education of villagers has been necessary to prepare them for Ok Tedi mine closure. The compensation and benefit sharing flows will significantly reduce or cease altogether, so individual savings are very important to ensure that villagers have enough money to afford basic needs into the future.

The transactional nature of PNG society means that people assume that when you give something you will get something for it in return. However, a problem of royalties is that a generation will pass and the younger generation do not associate the sacrifice of their ancestral land with the payments. The payments become divorced from their meaning, and the cash becomes just cash, not compensation for resource development. Conflicts become clashes over money, rather than over the land. This is what happened on Bougainville. Since the payments were divorced from the land they compensated for, the new PLA made demands of the money, rather than saying they demanded to be the true owners of the land the money was paid. The abstractness of money is problematic because money is divorced from its meaning. The southern Ningerum people from villages outside the LMP 1 area said in MLE meetings they were upset because the northern Ningerum LMP 1 villages of Nioksikwi, Boliwogam, Kumguit and Okteditau were seen to get an unfair share of the CMCA because they ‘already get paid’, but this is a misunderstanding of why they get paid. The southern villagers believe the LMP 1 villagers get paid for no reason because there is no tailings
dam. However, the LMP 1 villages receive payments because of the extensive damage to the Ok Mani, which has been smothered to a depth of 100+ metres in rock and silt.

There is much confusion in the villages about what is what when it comes to royalties, dividends, lease payments, and trusts. I witnessed at Korkit village the people not understanding the dividend arrangements, mistaking them for royalty payments\(^{46}\). Korkit has a share in the royalty trust by way of being located in Star Mountains Rural LLG but does not receive a cash component. There is no reasonable explanation in the villagers' mind that they would not receive money from the royalties, as they claim Mt Fubilan is their land. However, Jeff Ransley noted that when he surveyed the region in 1973 the Korkits and Kawentikins said their present villages were at the eastern extremity of their customary lands, as most of their land is in Papua Province (pers. comm. 2012). Despite this, the younger generation of people is at the age where they feel that their proximity to the mine site, but distance from benefits, is reason enough to say they want more of the Ok Tedi pie.

Considering the geographical extent and cultural heterogeneity of the communities receiving benefits from the mine, no singular mechanism could logically be applied for development. Some of the criticism that comes about the CMCA is that it was essentially bribing the downstream communities into approving the continuation of mining. This is despite the best efforts of the mining company saying that it was prepared to close the mine had they not gained approval from the communities. To close the mine in 2000 or 2001 would have meant the environmental impacts of the mine would have been the only thing left, rather than the continuation of the mine facilitating further development in the area. The development of the OTDF and PNGSDP with the 9SA meant that there was higher potential for enduring development than there was with the FRDT.

\(^{46}\) Although in fairness, it is extremely complicated and not very transparent – especially when it comes to the FRPG portions of dividends and royalties.
The key issue faced in mobilising all of the funds available to the landowners and impacted communities is the lack of a cooperative framework for design and implementation of projects. PNGSDP and OTDF both have very different ways they are using funds to develop Western Province. Because of their different structures and management, they tend to concentrate on different but overlapping projects rather than working together for the benefit of efficient fund use. There needed to be clearer delineation of the roles of the respective organisations rather than both trying to do everything – e.g. OTFRDP aquaculture fisheries projects and PNGSDP Barramundi Hatchery covering the same fish-based ground rather than collaborating and sharing expertise. Counter funding arrangements need to be clearer, because every single person in Western Province has a right to PNGSDP funds, and additionally every person within the CMCA has rights to CMCA trust funds. Communicating this to communities is fundamental.

There has been in recent years a growing dissatisfaction with the way the benefits have been dispersed. As I witnessed in MLE village meetings in early 2012, many villagers cited that they were not happy with the lack of projects from OTDF, PNGSDP and OTML. The absence of an OTFRDP representatives in the North Fly MLE meetings in 2012 which I attended is testament to the inadequacy of their organisational structures and lack of capacity facilitate officers to go on the MLE trips, especially in the Nupmo trust region, as the communities wanted to ask questions of the OTFRDP people but unfortunately were denied the opportunity. The communities had hoped that OTFRDP was going to be markedly better than OTDF and OTML’s engagement in the past (especially considering this was a key issue they brought up in the CMCA review). OTML historically had poor follow up and monitoring of their community projects and they recognise this (Yaru Pohei pers. comm. 2010). They have effectively outsourced their community development programs to other organisations.
because they were not core business activities. However, like with most things in Western Province, there is no point having large sums of money available if it is always used poorly. OTFRDP does not yet have the capacity to undertake or monitor all the projects that it wants to develop, and relies too heavily on outside consultants to design projects.

Over the years there has been constant erosion in self-determination for the communities. Rather than enabling communities, OTDF and PNGSDP, although they do good work and have technocratic and development staff who are trained in the implementation of programs and policies, are seen by the communities as being another gate keeper to money. Many communities state that the funds should just be given to the community so they can determine what they want to do with them. While the arguments of the communities might have weight and be reasonable, the reality is there is no capacity in individual villages to undertake the sorts of projects which are implemented on their behalf – for example rural electrification, water and sanitation, road building. The community complaints about the processes by which the monies are accessed is an issue which needs to be addressed more by both OTFRDP and PNGSDP, because there is general confusion about how to go about it. The VPC project funding lodging process is not necessarily the best process, considering the problems with VPC members moving out of the villages they are supposed to be representatives of, or not transmitting the results of applications back to the community. There need to be more effective feedback loops to the community, which give individual community members the ability to respond directly to the concerns or comments from OTFRDP about the sustainability of proposed projects. The best outcomes for communities come from transparent processes, rather than perceptions that the VPCs are doing things for their personal benefit rather than the benefit of the community.
Much of the discussion in communities around PNGDSP focuses on the disconnection between the aims of the board and the desires of the grassroots people. The significant proportion of PNGDSP's headline grabbing infrastructure projects do not or will not significantly improve the lives of people in Western Province. The Star Mountains Institute of Technology is a prime example. The problem lies in basic primary education in Western Province, not vocational or university level education. The design of the buildings is inappropriate for Tabubil as well. It is all for show, as very few Western Province citizens are able to gain access to university as the primary school system is rife with problems. PNGDSP was using its funds to build this university which would benefit people coming in from all other provinces, but unless they provisioned to set aside a scholarships or free tuition for Western Province people, local people would be unable to attend. Otherwise it would have just been another example of PNGDSP funding projects which do not benefit the local people.

There was some argument between OTFRDP and the previous Western Province Governor Hon. Dr Bob Danaya over who has the right to use the WPPDTA CMCA money. Handed out during the Delegates Meeting in March 2011 was a memo from Danaya to Western Province MPs saying that the WPDDTA was ‘our 10% equity’, rather than recognizing that the equity belonged separately to CMCA and Non-CMCA communities in Western Province, and that OTDF is the sole fund manager and implementer of CMCA trust funds for development. Ian Middleton, CEO of OTDF, framed this as an attack on the right of OTDF to use money designated for the CMCA communities. The hostile relationship between OTDF and FRPG over the expenditure of funds for development eased with the election of former PNGDSP employee Ati Wobiuro to the governorship of Western Province in 2012.

In late 2012, there was a renewed criticism of PNGDSP and BHP's relationship with the organisation, with PM Peter O'Neill even stepping in to say that former
Chairman Professor Ross Garnaut was not welcome in PNG any more, despite him still being Chairman of OTML's board. The difficulty with PNGSDP is that it is essentially a private not-for-profit company and operates as such, so the more money it accrues because of Ok Tedi's recent economic successes, the more political officials and elected members claim that they should have control over it. While this is not a new phenomenon in developing countries, it is nevertheless a worrying one from the point of maintaining the trust's integrity. The significant amounts of money involved in dividends means that there is a large amount of money for development in Western Province. Of any province in the country Western Province has the money available for big infrastructure projects, community development and sustainable livelihoods projects, and better health services. The province is far from having everything it should after 30 years of a rich mine pouring money into Provincial Government coffers, trusts, development companies and pockets of landowners. The accountability and monitoring of money and projects is absent in Western Province.

5.6 Conclusion

This chapter has demonstrated that there are vast amounts of money available for the communities to develop. The trust system set up for the benefit of future generations’ means there will be money available for post-closure project funding. However, as discussed, the actual outcome of the money has been for the majority of communities unsustainable. The lack of actual benefits from the Ok Tedi mine for grassroots villagers is because of failed and abandoned projects, a lack of focus on livelihood enabling infrastructure, and an absence of adequate review. While the communities in the North Fly District might be better off under the OTMC that is only because their lives were dire before the mine existed. They are still isolated, subject to poor health, and still desperate for development.
In the next chapter, I will examine how the money from these trusts and other benefit streams is used to further sustainable post closure livelihoods.
Chapter Six – Agriculture and Livestock Project Case Studies – Towards food security and sustainable livelihoods in the North Fly.

6.1 Introduction

This chapter is a study of the ways stakeholder organisations of the OTMC have approached agricultural development and food security for the communities in the Mine Area Villages and the northern parts of the Tutuwe and Nupmo trust regions. It will address through a series of case studies the different types of food based projects implemented, and will address the fundamental problems of sustaining interest in agriculture, livestock, and fisheries projects despite the stated fears for the post-closure future.

Agricultural development for food security presents a livelihood development opportunity within the context of the Ok Tedi Mining Complex (OTMC). Agricultural practices exist already within the North Fly District, however the social and economic changes brought by the introduction of the cash economy have increased the population’s reliance on store bought foods and a shift away from subsistence. There has been a shift away from isolated individual stakeholder organization driven agricultural programs to multi-stakeholder collaborative decision making and project development of agricultural and food security programs promoting sustainable livelihoods, particularly after the 1997 drought and highland frost crisis. This chapter describes the substance of the agricultural practices existing in the North Fly, the OTMC response to the practices, and the complications for OTMC developing policies to mitigate food security risks into the post-mine closure future. This contributes to the overall argument of the thesis as an example of the OTMC institutional influence on communities in the impact area. It is a case study of how the mine closure and
sustainability planning processes have influenced the development and limited the effectiveness of post-closure livelihood promotion policies under the OTMC.

Food security forms a large part of the community livelihoods planning in mine closure and sustainability planning. The policy agenda of food security in the Ok Tedi context was significantly influenced by the 1997 drought (Wissink 2000; Wissink, Askin and Bomai 2000; OTML 2005d). Previous to this extended El Nino weather event, little thought was put into the issue of food security, because almost everyone in PNG has access to customary land which they rely on to provide sources of nutrition. When this crisis happened, Tabubil and Kiunga were cut off from the river barges bearing food to these towns for seven months. This brought into sharp focus the need to support subsistence agriculture as well as cash crops in the region. The specific context of Ok Tedi mine’s hinterland communities has been explained in earlier chapters, but the significance to food security policies and programs necessitates that this context be built upon. The OTMC organisational stakeholders’ discussions of food security fit into a broader discussion of the importance of community development (FRPG nd; OTDF 2005; OTFRDP 2010; OTML 2005d).

Since Kennecott started exploration in the Star Mountains, there has been a gradual move toward cassava and sweet potato production, as opposed to the taro monoculture that existed before. Watson (1965; 1977) argues that because taro has to be cooked before it is given to pigs due to oxalate crystals in taro. This may seem strange to say, because one would think that variety in human diet would be of more concern to people. The significance of the need to cook food for pigs comes from the fact that the Min have increased the intensity of pig husbandry (Jorgensen 2006: 243). Where before they would have raised two female pigs per family with wild boars siring piglets, they now have three or four female pigs and a male pig per family). The introduction of the shotgun has almost led to the over-utilisation of wild pigs. In
addition to this, village groups now throw large pig feasts in order to extract money from working relatives or kin. This was almost unheard in the area of before the Ok Tedi mine brought the cash economy into the sphere of the Min (Jorgensen 2006: 243–245).

In addition to the move away from taro monocultures, there has been a growing reliance on rice, tinned fish and bully beef imports. They are cheap alternatives to toiling in gardens, and give relief to women gardeners. Diabetes was almost unheard of in the North Fly District 30 years ago due high level of exercise and the lack of processed food in their diets. However, as with the trend that is common throughout the developing world, incomes increase and so do ‘lifestyle’ diseases. Whether the increased diversity of diet from taro and small amounts of protein from birds, lizards, and marsupials to tinned fish and beef, grains, sweet potato and other recent additions to the Mountain Ok diet increases nutrition and overall health remains to be seen.\footnote{The Ok Tedi Health and Nutrition Project (Lourie et al 1986; Ulijaszek 1989) provided a baseline to compare the current health status of the North Fly population, which is being undertaken by the North Fly Health Services Development Program, a joint initiative between OTML, JTA International and local church health services.}

In PNG, fruit and vegetables are generally grown for three purposes – subsistence, for sale in the domestic market, or for export. Plantations are still important for non-food or processing crops such as coconut (copra), rubber and palm oil. Cash cropping is an important source of income for rural Papua New Guineans. Common crops are sweet potatoes, coconuts, cocoa, taro, bananas, melons, broccoli, capsicums, carrots, and potatoes. Some crops are susceptible to blights and infestations, such as taro leaf blight and cacao pod borer that can cause significant crop losses (Okpul et al 2002; Yalu, Singh and Singh Yadav 2009; Curry, Lummani and Omuru 2010). The vast majority of the population lives on locally grown food and food bought from local markets. The incidence of bought food is low outside towns of Tabubil, Ningerum and Kiunga in North Fly District (PNGSDP 2009), as there is little cash.
money spare to buy food, after transport and school fee costs. The most common local staple foods in the Star Mountains Rural LLG are taro, sweet potato, cooking bananas, and sago. In Ningerum LLG and Kiunga Rural LLG, the most common staple foods are cooking bananas, sago, and sago. These are supplemented with store bought rice, Maggi noodles, and white potatoes where they are accessible.

6.2 Mine closure: the need for Agriculture, Livestock, and Fisheries Projects in North Fly

Agricultural programs have gone through various different forms in PNG over the past 50 years. In the 1970s, there was a large focus on integrated rural development because of the increasing impoverishment of rural communities (Carswell 1997). Since agriculture is the essential element in rural subsistence, many policies were developed to encourage a holistic approach to development hinged on agricultural development. The agricultural development sustainability policies require local knowledge and local applicability. Taking projects and implementing them without due consideration of local context usually means the projects are doomed to failure. Mine closure planning has to take into account what the absence or diminished ability to access the diversity of foods and the cheap prices of foods in stores will have on communities, and the livelihoods of people selling produce to each other or to the mine and government workers along the highway should not be underestimated.

The big issue in the Ok Tedi area is one that is common throughout mining impact areas in PNG. Dependency on store bought food is highest in the compensation receiving communities close to the mine. With ready access to all manner of imported (to the area, not necessarily imported to the country) foods, such as tinned meats, rice, and Coca Cola, people have shunned the old ways of growing and gathering food for subsistence (OTML 2003a: 8). Imported food is a status symbol of wealth and access to
the capitalist cash economy. Food security in the mine impact area varies from almost total dependency on store bought food to majority subsistence conditions. The local landowners, the residents of the six mine villages of Atemkit, BulTEM, Finalbin, Kavorabip, Migalsimbip and Wangbin, have shown through household surveys done by OTML and PNGSDP that they are very dependent on store bought food (OTML, 2009j; PNGSDP 2010). This is the ‘Ok Tedi generation’. Reliance on store bought food has led to a decline in knowledge and practices of traditional gardening and animal husbandry in the villages that receive compensation from either the SML or LMP. These villages vary in their access to the markets, with Atemkit, Kavorabip, Kawentigin and Korkit being isolated, lacking road access. The further down the river or highway people are, the less dependent they are on store bought food. OTDF indicated that many local landowners from the mine villages are not enthusiastic about or interested in engaging in any model farming or food security programs (Watson Siarit pers. comm. 2010). The ready availability of cash from compensation to buy food from the supermarket and markets makes subsistence gardening not attractive or worthwhile.

OTML have indicated that PNGSDP need to make some sort of commitment to maintaining a portion of food transport subsidies that OTML provides for transport of food to Tabubil and Kiunga. PNGSDP cannot afford to subsidise food for Tabubil as their prime aim is for sustainable development. OTML will not be providing subsidies for food transport to the region after closure (OTML 2009a). The consensus opinion from OTML, OTDF, and PNGSDP is that the local people will need to reduce their dependence on store bought food and start subsistence gardening again. This is a problem for the generations born after the mine started operation. The local people will have to (re)learn how to operate in a subsistence model, which included hunting for wild proteins, which was customary in the area before mining.
The influx of settlers has also had an impact on food security in the Tabubil area. The local people have allowed or been strong armed into letting settlers use their land for both subsistence and market gardening. The local people are also paying the settlers to garden and maintain fish farms on their behalf (Tike Kulingim pers. comm. 2010). This is an unsustainable practice and needs to be dealt with before closure, as if the settlers are crowding out local entrepreneurialism and business activity, there is less incentive for local people to seek out OTDF assistance to set up agricultural projects, and when the settlers leave, there is no knowledge base to run projects on their own. In 1998, a survey in the Tabubil area villages was conducted by David Wissink of OTML’s Regional Development Department which showed that even then people had fears for food security in the future (especially post-closure). This concern centred on the inability and knowledge of how to grow their own food. Many people from the villages surveyed believed that the OTML agricultural officers (didiman) should show them how. Some people even said that they would starve without help (Wissink 2001). Wissink stated ‘Only 37 percent of those surveyed (in 1998) report any form of investment or savings. When directly asked the question about life after mine closure, 93 percent believed they would have problems feeding themselves when the mine closed’ (Wissink 2001: 129). Despite the anxiety about long term food security, planning for the post-closure future appeared to be a low priority in many communities when compared to immediate needs. Wissink (2001:134) concluded that:

"The present economy is overly reliant on revenues generated from Ok Tedi mine…building relationships with additional stakeholders is an essential part of the transition from communities that have become dependent on the support and resources of OTML, to communities that have the knowledge, skills and resources needed following mine closure"
With this in mind, the next section deals with challenges of developing policies for agricultural development in the North Fly.

6.3 Failed Agriculture and Livestock Initiatives of the Past

OTML implemented, through its Public Affairs (Community Relations) Department, the Community Agriculture Program (CAP). This program, initiated in the 1990s, deployed OTML development funds, through the Fly River Development Trust, to enable local communities to increase agricultural and livestock production in the region. However, OTML’s self-evaluation of the program was that it was a limited success. Although there was commitment by communities at the start, many of the CAP era agricultural projects failed due to a variety of factors. A 2002 assessments by OTML at the conclusion of the CAP before it was rolled into OTDF showed that improper use of funds and community disinterest in projects were the two main problems (OTML 2002). These factors, coupled with OTML poorly planning and coordinating project, not having enough emphasis on education programs and follow up visits as there should have been, and the over-encouragement of inappropriate projects such as fixed location agricultural projects for Middle Fly people who are semi-nomadic hunter-gatherers (Yaru Pohei, pers. comm. 2010). OTML has in the past undertaken agricultural programs with local people in the more immediate impact area, but they have not been a success overall. There was an issue with encouragement of appropriate crops for the climatic, cultural and land quality.

Case Study 1: Inappropriate Pineapple Project

One of the illuminating failed market gardening agriculture projects from the period 1996–2002 is the North Fly Pineapple Project. Pineapple plants thrive in the Ok Tedi mine area. The area has the right type of free draining soil, although the soil acidity and mineral content varies greatly throughout the region (Betitis et al. 2000). The
topography of the region is suited to cultivation with the varying slopes, fans, and ridges, with mountain streams cutting across the slopes. The high rainfall of around 7500mm a year for the Tabubil Township, and 11,000mm a year for the mine site is helpful but erosion and landslides are a constant issue.

In 1998 OTML commissioned Eddie Pfeiffer from Sogeri Spices, an organic pineapple producer near Port Moresby, to carry out a pre-feasibility study into pineapple production in the mine affected areas. In the initial report on pineapples in the North Fly, Pfeiffer notes that existing local growers of pineapples were selling pineapples too cheap and that the market for juice in Tabubil was non-existent (Pfeiffer 1998:10). This early identification of the market problems did not deter OTML from commissioning a full feasibility report from Sogeri Spices in 1999. The proposed project was known as the North Fly Pineapple Project. It would feature a nucleus estate, with farmers selling produce to the single desk in order to get a good price. The only real problem signalled by this report was concerning a market for the produce (Pfeiffer 1999). Pfeiffer wrote that ‘the land is there, the soil is suitable (after some improvement), the technology is available, the market are [sic] there and waiting: all these are facts. The only unknown and incalculable factor in this equation are [sic] the people themselves.’ (Pfeiffer 1999:27). Both reports by Pfeiffer are not up to the standard of a professional business feasibility report – at times the language is extremely colloquial, using phrases such as ‘every Tom, Dick and Harry’ and statements about his own business:

I have no personal experience in the dried fruit business as yet since I haven’t produced any. I have, however. Researched [sic] this aspect of the fruit processing rather thoroughly and came to the conclusion that while I was producing the base material for it anyway it would be a shame not to go the last step and process it as well. (Pfeiffer 1999: 9).
Despite the red flags contained in the reports, OTML proceeded with securing organic pineapple suckers, and distributed them in preparation for the North Fly Pineapple Project nucleus estate to be established.

The communities were interested and many farmers took advantage of the business opportunity, and started to produce pineapples. In 2000 the Migalsim ‘Integrated Farm (chickens, vegetables and pineapples) and 22 small farms along the Kiunga – Tabubil Highway were all given over 20,000 pineapple suckers by the CAP (Pani 2003:3). By 2003 despite being given pineapple suckers and being supported by OTML and OTDF, no real infrastructure had been set up by any organisation due to a miscommunication about equity participation and management between OTML and Sogeri Spices. OTML was under the impression that Pfeiffer would take a stake in the North Fly Pineapple Project, and the participating communities would fund it through the CMCA trusts. In 2003, Rob Crane, OTML’s Team Coordinator, Business Development, in a Memorandum to David Wissink, Manager Regional Development, contended

The Pineapple Project is viable and should be pursued. However, progress was stalled, and continues to be stalled due to lack of proper planning … Due to this situation, the community (in general) are confused and becoming increasingly frustrated with OTML (Crane 2003: 2).

The village farmers had no market to sell their produce, and nowhere to process the pineapples to add value, despite the proposals that Pfeiffer had set out in his feasibility reports and in meetings with farmers. The farmers, in anger and frustration, dumped their pineapples on the doorstep of the Kiunga OTDF office (OTDF Officer Pers Comm 2010). In March 2003 a group of 25 existing pineapple farmers formed the North Fly Pineapple Limited to represent their business interest. The organisation is not listed as existing on the Investment Promotion Authority website, and Pani (2003)
clarifies that ‘the company is yet to be incorporated because the payment for registration fee was not given’ (5). The North Fly Pineapple Limited business plan (NFPL 2003) asserts Pfeiffer as manager, but he did not author the plan, so the authenticity of this claim cannot be established. Crane questioned the commercial acumen of Pfeiffer, arguing,

His past record as an agricultural producer seems sound but his commercial credibility in the marketplace seems to be lacking. Additionally, the reports submitted by Mr. Pfeiffer read more like a Kiap patrol report rather than a business man investigating a serious commercial venture. (Crane 2003:3).

In OTML’s Food Security Program Review (2005), they state, ‘Each year there is an untold number of pineapples that go to waste because of a lack of markets, or alternatively lack of access to markets’ (OTML 2005d:23). Pineapple production in the Tabubil area has remained very small scale due to the lack of market and high cost of logistics. There are still pineapple plantations along the Ok Ma road; however, with the closure of the Maria Bridge their access to Tabubil produce market is significantly reduced. Along the Kiunga-Tabubil Highway, roadside markets often have one or two small pineapples for sale, as many gardeners keep a small plot of pineapples. The North Fly Pineapple Project was a failure because a good idea was acted upon rather than a good policy was implemented. Although Pfeiffer was experienced in the growing and marketing of pineapples near the capital, it is obvious from his reports that he never fully considered how isolated and inaccessible the North Fly was to markets, and the significant subsidies required for getting produce to markets. From this case study it can be seen that the strategies for promotion of cash cropping in the lead up to closure face problems of adequate infrastructure, market access and business management.

48 The business plan was written by educated village members, or by an OTML employee, with limited editing skills as by page 14, the business name changes to Komopkin Business Group and the business type changes to rental cars.
Case Study 2: Failure of Finalbin Model Farm

Finalbin farm was established under the CAP program. It was a large project, with tens of thousands of kina invested into it, and for many years it was a reasonably successful operation. It was under the stewardship of a local landowner from Finalbin, who managed all aspects of the farm. The farm was located just off the Mine Access Road close to the village of Finalbin. It was a large site, with a range of agricultural, livestock, and fisheries facilities built.

I went to the site with Tike Kulingim of OTFRDP as he wanted to show me how motivated some of the community members in the Mine Area Villages could be when it came to farming. The farm appeared to be overgrown, with no noticeable agricultural activity. There were empty sheds, unkempt gardens, a dirty unmaintained fish pond, and wreckage of a 4WD. The caretakers – two men from Telefomin – showed us some of the remaining animals (two malnourished small pigs and a few chickens) and related to us they had been hired by farm owner’s family mind the farm. The former owner had died in a car accident sometime prior, and the family was in dispute over ownership of the farm. Meanwhile, all the farm assets invested in over the time the farm was operating were stripped away, and the farm was no longer functioning. Tike Kulingim was very disappointed and upset that the farm had gone to ruin. He had a good working relationship with the late owner.

Few Mine Area Village landowners showed interest in business development and agricultural production. The unfortunate aspect for the community is that the farm was a source of fresh locally produced chicken, pork, and fish. OTFRDP agriculture and fisheries officers described the Mine Area Village community’s attitude to food security programs as ‘failure, disinterest, and general unhappiness with the community to follow through on projects’. A comment by an Executive Manager sums up this frustration: ‘You can lead a horse to water, but you can't make
OTFRDP staff indicated that many of the local landowners from the Mine Area Villages are not enthusiastic about or interested in engaging in any model farming or food security programs. The ready availability of cash from compensation, lease payments, and royalties (as discussed in Chapter 5) to buy food from the supermarket and markets makes subsistence gardening not an attractive or worthwhile activity for Mine Area Villagers.

6.4 Recent Successes in Agriculture and Livestock Projects.

**Case Study 3: Improving Viability in Poultry Projects**

As per the 2006–2012 FRPG Food Security Strategic Plan, poultry projects have the objective ‘to increase small holder incomes and employment opportunity and to provide source of protein for these communities’ (FRPG 2005: 11). Improving access to protein sources in the Mine Area Villages and the Nupmo and Tutuwe trust regions means taking measures to fully utilise birds for breeding, egg laying, and consumption. OTML implemented poultry projects as part of the CAP food security program between 1996 and 2002. Poultry projects included Australorps, broiler chickens, and Muscovy ducks. The intention for the OTML projects was to train village farmers to grow the chickens and ducks, sell or eat a portion, and breed a new lot of birds with the remaining stock. Australorps were chosen to improve the breeding stock of village chickens, as they are hardy birds with high egg yields that do not require specialist feed. Broiler chickens grow fast but also require specialist feed. Muscovy ducks are a hearty breed and perform well in open range at the village level (OTML 2005d: 38–39).

By 2002, only two of the poultry projects established by OTML in the Mine Area Villages and Tutuwe trust region were still operating (OTML 2005d: 77–80). The failure of the projects was ‘probably due to a lack of market, high feed and logistics...
cost and a lack of business acumen among the local people and probably also the extension officers responsible' (OTML 2005d: 38). A common occurrence was that birds would be given to farmers with the intention of sustainable breeding, but Christmas or Easter would come and all the birds would be slaughtered for sale, then the farmer would come back to OTML and ask for more birds (Tike Kulingim pers. comm. 2010). A consistent lack of record keeping meant that there was no way for the poultry programs to be monitored and evaluated in order to prevent stock loss or mismanagement (OTML 2005d). The effect on the poultry program was that many farmers were not held accountable, and treated the program as handouts rather than an opportunity for sustainable food security. The challenge of maintaining the balance between community assistance and dependency was not managed well by OTML CAP, as the poultry project example shows.

OTFRDP has attempted to change the attitude of communities with their poultry projects. There has been moderate success, although it has not yet been successful in encouraging the local farmers to sustain their flocks by keeping a select few birds for breeding. To eliminate this practice targeted education of farmers on sustainability has been suggested (National Agriculture Research Institute liaison officer pers. comm. 2012) The problems of the old CAP poultry projects still exist. The high price of chicken pellets inhibits the success of the village broiler projects, but OTFRDP has more success with Australorp chicken projects due to their varied dietary needs, which are similar to village chickens. Communities are still interested in broiler chickens, as they are easy income generating projects. Encouraging sustainability and ongoing viability of the poultry projects has become more important for OTFRDP rather than just as one off projects for approval to access CMCA trust funds.

OTFRDP has also engaged outside help to improve the most important aspect of broiler production – the feed inputs. A collaborative Broiler Feed Trial Project by
ACIAR was established in order to reduce the costs of broiler chicken production. This project was intended to trial reducing reliance on imported (from Lae) broiler feed concentrate by supplementing it with locally sourced feed, such as cassava and sweet potato (Glatz 2013). The project was also aimed at training officers from the National Agriculture Research Institute, OTFRDP, and relevant NGOs (Christian Leader Training College and Lutheran Development Service) in supporting farmers in increasing profitability for broiler projects. The Mine Area Villages, northern Tutuwe and Nupmo trust regions were chosen as one of three geographic areas within PNG where the trial was conducted. It involved three objectives:

1. To develop on-station a range of best-bet feeding options for broiler production and profitability.

2. To evaluate broiler production and profitability on-farm of various feeding options that incorporate local feeds.

3. To promote the wide-spread adoption of alternative feeding options for broilers (and layers) that will improve profitability (Glatz 2013).

Observing the preparation of grow out trials for the broiler project meant going to the field sites along the Kiunga Tabubil highway and in Mine Villages. I visited 11 different trial sites from Kwiloknai up to Bultem, and many of the farmers were new to broilers. There were some established famers involved, such as Willie Wokasok from Km118, others were newer peri-urban farmers. The farmers had prepared new facilities for the chicks to live in. One farmer from Old Wangbin was not taking care of his existing chickens (they were dehydrated and overcrowded in the pen). This farmer was given a stern reprimand from the NARI liaison officer and the OTFRDP officer Tike Kulingim. Most of the farmers were excited about the prospect of being in the grow-out trial.
The result of this Broiler Feed Trial was proof of scope for farmers to improve profitability of their broiler projects through the use of locally available feed supplementation – sweet potato and cassava – at a much more achievable price for rural villagers (K800/t compared to K2000/t for commercial feed) (Glatz 2013). This means for the post-closure viability of the livelihood that small scale poultry farmers will be able to, with the use of a mini mill, produce their own broiler chicken feed and grow healthy chickens for sale even if they do not have access to commercial concentrated broiler chicken feeds.

**Case Study 4: Popular and Effective Highland Aquaculture Projects**

Aquaculture projects have been popular in the North Fly since 2000 when the first project was initiated in Golgobip. Aquaculture has high numbers of participating farmers. In 2005 there were 417 farmers with 385 fishponds across the North Fly District and into Telefomin District, with the majority of fish farmers in Olsobip LLG (103) and Telefomin (210) (OTML 2005C: 41-42). Aquaculture in the Ok Tedi area is an important project encouraged and supported by OTFRDP. Villagers are given access to fingerlings (Common Carp *Cyprinus carpio* and Tilapia *sp.*) from OTDF and Western Province DAL and encouraged to start fishponds. The fish are sold for money or eaten by the family or local villagers. The program has been successful in Migalsim with many fish ponds. There are close to 70 fishponds in and around the village. In 2010 OTFRDP took five farmers from various villages to Goroka to see fish farming and learn about the techniques. My fieldwork took me to Migalsim to look at several of the fishponds there. Near the corner of the road to Migalsim and the Kiunga-Tabubil Highway, a large and well planned carp and tilapia fish farm operated and owned by a man called Abraham (see Plate 6.2 in Appendix I), who was a settler from Olsobip. Abraham has been particularly entrepreneurial in his fish farming with seven large
ponds which he started by buying a plot of land from the Migalsim village landowners. He started a business selling fingerlings to Migalsim and Olsobip villagers, as well as selling the large fish for food. With the money generated, Abraham started a canteen, a small chicken farm and bought part of a bus. He teaches the other local people how to farm fish, an central element the program was designed to encourage, so that capacity is built from within the small scale industry (Watson Siarit pers. comm. 2010). Migalsim has benefited greatly from the increased local business activity.

Criticisms of the impact of these aquaculture projects on fish species in the Fly River were made by Water Management & Resources and Hydrobiology Ltd, who prepared a report for OTML on freshwater fish diversity in 2007. The report said that:

It can be expected that the currently present exotic fish species will exert adverse pressure on the recovery of native fish populations … It would be advisable to minimise the risk of further adverse pressure by actively discouraging the introduction of other exotic fish species to the catchment, or the further transfer of the existing exotic species within the catchment. In particular, the pond culture of carp and tilapia in the catchment should be strongly discouraged. (WRM and Hydrobiology 2007:33)

OTFRDP has not stopped or discouraged carp or tilapia fish farming in the catchment area of the Ok Tedi. I am not sure whether escaping fish is taken into their risk assessment consideration when selecting or approving aquaculture projects.

A significant problem with aquaculture development projects is low enrolment into projects in the Mine Area Villages, with the exception of Migalsim. There are hundreds of people outside the CMCA areas who are very interested in gaining access to the fish farming. The fish farm project is one that could be expanded around any mine in the developing world (depending on water supply and soil type) because it can be a subsistence activity or on a larger scale for business.
6.5 Conclusion

The case studies within this chapter have illuminated some of the problems with agriculture, livestock, and fisheries livelihood development in the North Fly. Engaging with communities and communicating that the approaching mine closure means that they have to be prepared to become subsistence farmers is difficult when the communities are receiving large benefit streams from the mine. OTFRDP is attempting to make sure that their projects connect with the communities, and the success of the aquaculture program shows that a livelihood that considers the lifestyles and skills of people before implementation has a high degree of success.

The next chapter is another livelihood development case study, but with a focus on artisanal and small scale mining.
Chapter Seven – Artisanal and Small Scale Mining Case Study

‘The river is our ATM!’ - (Ningerum artisanal miner).

7.1 Introduction

Artisanal and small-scale mining (ASM) presents a livelihood development opportunity within the context of the Ok Tedi Mining Complex (OTMC). The communities involved developed the practice without assistance or encouragement from any of the OTMC organisations. This chapter describes the substance of the communities’ ASM practices, the OTMC response to the practices, and the complications for OTMC developing policies to mitigate risks into the post-mine closure future. This case study contributes to the overall argument of the thesis as an example of the OTMC institutional influence on communities in the impact area. It is a case study of how the mine closure and sustainability planning process has influenced the development of post-closure livelihood promotion policies under the OTMC.

ASM is an activity that occurs throughout the developing world. Over the last two decades, ASM has become a focus of academic and non-governmental interest for sustainable livelihood development in resource-rich countries with large rural populations. From the countries of sub-Saharan and West Africa to PNG, rural people are engaging in ASM to support their families. ASM is most common with reference to gold, but there are many people engaged in precious stone and metal mining, such as sapphires in Madagascar (Duffy 2005, 2007; Cartier 2009), diamonds in Sierra Leone (Silberfein 2004; Wilson 2011; Monachie 2012; D’Angelo 2014), and coltan in the Democratic Republic of Congo (Nest 2011; Sutherland 2011). Formalising ASM activities and promoting their safe and regulated engagement through sustainable development policy is an important part of both general development and gendered development. The World Bank and the European Union have supported projects on
ASM throughout the world (Hilson 2003). Much of the academic writing on ASM is in the African context. The problems in Africa, which cause people to turn to artisanal mining as a livelihood, include war, poverty, educational disadvantage and land pressure (Hilson 2002). The development of the artisanal mining sector in developing countries has led to many conflicts with larger mining companies. The artisanal miners often breach mining lease boundaries, causing security and safety issues for the mining companies.

In PNG, there are multiple regions of ASM activity. From the long existing alluvial goldfields of Wau-Bulolo in Morobe Province (Nelson 1978), the gold rush of Mt Kare in Enga Province (Ryan 1991; Biersack 1999), to the dangerous ASM at the Porgera mine in Enga Province (Human Rights Watch 2011). ASM is widespread across regions where an intersection between subsistence rural life and formalised, larger scale mining exists. In 2010, there were estimated to be between 70,000 and 100,000 artisanal miners working across PNG (Javia and Siop 2010: 2).

Misima Island, in Milne Bay Province, is an example of post-mine closure artisanal mining management to prevent environmental damage and social problems. In 2012, just as Barrick was preparing to relinquish the Special Mining Lease (SML) for their Misima mine that closed in 2004, as part of a broader study into employment in the resource sector, Bill Sagir and I inspected the ASM activity on the island. ASM on Misima Island was in a boom. From the end of large-scale mining in 2004, miners have been exploiting creeks beds and digging hillsides to access the gold that has made Misima Island a centre of Louisiade economic life since the 1880s (Nelson 1978). In previous times, the mode of production and division of labour was mainly controlled by Australian colonial interests (Nelson 1978: 41). Today, the ASM is directed and performed by Misimans rather than outsiders. The miners set up an artisanal mining cooperative Misima Alluvial Gold Mining Association (MAGMA) which was
incorporated in 2009. MAGMA has also set up a microfinance office to give loans out for small development on Misima without the assistance of any outside organisations (Susan James pers. comm. 2012). The guiding principle was to develop Misima into a locally driven development island, as large-scale mining did not leave many services for the people, and there was little in the way of benefit sharing trickle down from the landowners of the site. A survey of alluvial miners on the island produced a picture of the Misiman ASM economy. Firstly, the majority of gold goes is sold through MAGMA to obtain a better price. Secondly, health and safety issues are different on Misima Island to river based ASM, e.g. along the Ok Tedi. Misima miners excavate hillsides, sometimes tunnelling in unsupported horizontal shafts metres into hillsides (see Plates 7.1, 7.2, 7.3 in Appendix I). Reports of deaths from cave-ins meant that a MAGMA issued directive that banned children from engaging in this ‘hard rock’ mining (Solomon Sete pers. comm. 2012). The self-regulated ASM activity on Misima provides a comparison for the following description of the Ok Tedi ASM activity.

7.2 Ok Tedi artisanal mining as a case study

Approaching the ASM activity along the Ok Tedi as a case study of a process of planning and engagement with communities for post-closure sustainable livelihoods is the purpose of this section. This section will establish the specific situation of the Ok Tedi artisanal miners, present the arguments for regularizing, formalisation, and assistance from OTMC, and discuss the community perceptions of the planned regulatory regime and intervention from OTMC. The downstream effects of the tailings from Ok Tedi mine are well established, but the downstream benefits are less discussed. There are real economic and social benefits that the downstream

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49 The final SML and LMP land lease cheques were being distributed in April 2012 (Israel Israel pers. comm. 2012).
communities to Ningerum are generating from artisanal gold mining. This economic activity has been completely self-generated, independently of OTML.

The source of the Ok Tedi’s gold was Mt Fubilan. The extensive leached gold capping on the top of the mountain eroded over time. The resulting gold in the river originally drew the attention of both Lawrence Hargrave in 1880 (D’Albertis 1880) and Kennecott exploration geologists (Jackson 1982a) to be interested in the potential of the upper tributaries of the Ok Tedi. Once the Ok Tedi mine shifted to exploiting the copper ore underneath the gold cap, the fine tailings, which the Folomian mill produces as waste from the copper flotation process, have contained large quantities of gold. Estimates are that flotation only recovered 73–75 percent of the gold, the balance is left in the tailings deposited into the river system (Joe Seegers pers. comm. 2010). Over that time, approximately 100 tonnes of gold have been discharged into the river. OTML stated that they have no interest in alluvial mining and that the communities were well within their rights as owners of the river to exploit this resource. There has been very little published research conducted on the artisanal mining along the Ok Tedi. OTML CR conducted surveys in July 2008 and November 2010. They surveyed 120 people in 2008 and 241 people in 2010 (OTML 2008g; OTML 2010c). The surveys covered the area from Bultem Bridge in the north to Ningerum Station in the south. This chapter uses both of these data sets in addition to personally collected data. The data collection for this chapter took place between 2009 and 2012. It constituted surveying participants in the ASM activity in groups. The individual villages or settlements where people were surveyed were Yuk Creek, Haidauwogam, Kwiloknai, Wurimkanatgo, Bumin, and Ningerum Station. OTML Community Relations officers accompanied and facilitated me on the survey trips. The survey participants were all artisanal miners. We surveyed separately groups ranging from two people to 25 people. The surveys addressed various aspects of their livelihood including gold yields, methods used, what
they used the money for, worries about pollution and views on regulation and assistance from stakeholders.

The questionnaire I used (see Appendix V) was basic because of the need to gather information that was more general than specific. Age information was general rather than specific, because of the difficulty in obtaining accurate age data from respondents. In choosing the informal survey method rather than a more rigid formal survey, there was more readiness to talk about ideas or opinions on the topic of artisanal mining than there would be if people were accounted for individually. The initial surveying was performed with individuals, but I modified this method due to the difficulties of obtaining participants and the poor quality of responses\textsuperscript{50}. The shift to focus group surveying was due to more participants being willing to engage in a group discussion, rather than having individual opinions recorded. Group communications are a common way community members engage with OTML and other stakeholder organisations\textsuperscript{51}, so the interviewed people seemed to feel more confident to speak up about concerns or with comments in this context.

The following is an example of my surveying technique can be found in my field notes when visiting Bultem Bridge in June 2010:

Yon Buhyana dropped Michael Namalok and myself off outside the entrance to Bultem Village. We walked across the road and jumped over the water pipeline and walked down a bush track through some sweet potato gardens down the tiered hillside. The drop was about 300m from top to bottom. At the bottom we noticed there was a man behind us. It turned out it was a ‘cousin brother’ of Michael's from Olsobip. We started walking with him to where he was going. We passed a man who has set up a table at the base of a small waterfall/stream coming out of the rocks. I took some

\textsuperscript{50} This could be because of the presence of OTML Community Relations Officers, who did translating from Awin.

\textsuperscript{51} For example: MLE village meetings, community patrol meetings, and agricultural extensions. OTML, OTDF, and PNGSDP collectively conducted hundreds of these meetings a year, with the Mine Area, North Ok Tedi and Highway areas the most often visited due to their proximity to Tabubil.
photographs (see plate 7.4 in Appendix I) of him because I thought it was an ingenious method, because it had a constant supply of water to wash the gold. There were about 20 people in the area, but about 15 were gathered around a pool of water watching a man washing gold. Michael explained who I was. Then we sat on some rocks and did the group interview. This group have been panning for a long time. The Olsobip man had been panning here for 10 years, and the others around 5–6 years. They were very open about the sellers they sold their gold to, the process and their yields. They even said that two people lived illegally in the bush around the river. Many were workers with OTML and contact companies, but said the money was better panning.

Then after we finished there they told us that there were people further up the river. So we walked up towards the Bultem Bridge and found another group of people. These were mainly young men doing the panning during school holidays. The reception was less warm here than the previous place. There was an old man at this location who said he had been panning for 3 months, but Michael said that the young men signalled at each other when the old man said that, indicating that he was lying.

After we finished there, one of the young men ran after us and asked Michael if the Special Mobile Force (SMF) was going to kick them out. The SMF was in Tabubil at the time (came to Tabubil on the 7/6/2010) to enforce evictions from the settlements around Wangbin and to burn down illegal buildings. The presence of the SMF is probably the reason why the second group was more reluctant to talk than the first group. The first group were long-time residents of Bultem Village, whereas the second group was made up primarily of short term migrants – high school students from Tabubil, Telefomin, Ningerum High Schools and Finalbin Primary. However, most times people were happy to answer questions but also at times there was a general feeling that people were hesitant to talk because of the presence of OTML CR Department officers. Particularly at Yuk Creek and Bultem Bridge, people expressed by their body language, and through their outright lies, that they were not comfortable answering some questions.
The artisanal mining is confined along the Ok Tedi between Bultem Bridge (Pratt's Crossing) and Ningerum Station. The area covers a distance of about 80km. Below Ningerum Station, the Ok Birim and Ok Mart dilute the tailings such that the concentrations of gold are not enough to support a significant population of miners, and then the Bige dredge removes much of the remaining sediment. OTML reported that there were no artisanal miners in the SML (Yon Buhuyana pers. comm. 2010), but this could be because there are significant deposits easily accessible gold deposits along the Ok Tedi. Thus there is no reason to encroach on the mine site.

Artisanal miners come from many different communities. The main source villages of artisanal miners are Wurimkanatgo (with Walawam corner), Haidowogam, Bumbin, Kwiloknai, the Ok Ma villages of Boliwogam, Okteditau, Nioksikwi, Derongo and Bongkim (in settlements at Km115–118 from Kiunga), Awin Tamaro, Ningerum Tamaro 52, Yuk Creek miner settlement, which consists of people from the border villages of Korkit, Kawentikin, Ankit, as well as Olsobip and Oksapmin LLG areas), and Tabubil township (below the actual town along the river). There is a general division between landowners and settlers depending on the location. Along the northern stretch from Bultem Bridge to Ok Menga (Wild Dog), the majority of the artisanal miners are not from the Mine Area Villages. The majority are either settlers from other parts of Western Province or Telefomin District, with some Southern Highlands and Hela province people. From Ok Menga down to Ningerum Station, the majority are landowners from the villages adjacent to the river. Some people travel from the west bank Nupmo trust area base villages to set up camps on Ningerum land on the east bank – for example, two men of Boliwogam village residing at Km118 from Kiunga.

52 Ningerum Tamaro also contains a significant proportion of villagers from the west bank Nupmo trust villages of Wombon, Wogam, Digam, Kolebon, as well as people from Hukim, Tekim and Ok Tarim which are outside Nupmo trust region but still in Ningerum RLLG
Artisanal miners in other settings typically employ unsophisticated technology to extract gold from sands and soils. (Susapu and Crispin 2001; Crispin 2003). The basic tools range from a pan up to sluice box. At Ok Tedi, the artisanal miners similarly use crude methods to extract gold from the sands. They employ the table and cushion method and panning in a basic manner. Since the gold is fine and processed through the mill, the use of mercury to extract gold is rare. This section details the types of technology and methods employed and sets the baseline for upskilling intended in OTMC assistance program to artisanal miners.

There are five main stages in the Ok Tedi artisanal mining process.

1. Gathering the silt, sand, or gravels:
2. Using an incline table and cushion method to wash the sand, letting the heavy gold particles get trapped in the carpet or mat (cushion).
3. Washing the carpet into the wok or pan in order to pan for gold.
4. Using the pan to filter sand from fine gold dust on rubber mat
5. Collecting in tubes for sale to the gold buyer.

Environmental concerns are peripheral or non-existant because the artisanal miners cannot damage the river ecosystem any more than the waste from the nearby mine already has. However, the increasing settlements along the river could lead to problems of landslips due to destabilizing the hillsides when clearing land for gardens (OTML 2010c). In the northern Ok Tedi, the banks of the river are almost perpendicular in places, and landslides here regularly block the paths artisanal miners use to move along the banks. In the northern part of the Ok Tedi above the confluence of the Ok Mani, around Bultem Bridge, Yuk Creek, and Tabubil Township, the miners dig ditches in the riparian zone to get sediments. The artisanal miners do not undercut the riverbanks because the gold is contained within the river sands and tailings in the river itself. Below the confluence people rely more on the top layer of sediments so
utilize a greater area of the riverbed, but only skim the top layer off (see Plate 7.6 in Appendix I). Therefore, in both cases, flooding, which is a very common occurrence in the Ok Tedi, takes care of the river impacts of the panning. As for suspended sediments, the mine site and natural erosion contribute millions of tonnes of sediment to the river annually so any increase in turbidity contributed by the miners is negligible (Joe Seegers pers. comm. 2010).

Many artisanal miners I spoke to complained that using this process was labour intensive and hard on their bodies and that they had sores from standing in the river water. The water pollution is significant in the minds of the artisanal miners, despite OTML’s assurances that the pollution from dissolved copper and other metals is within acceptable environmental limits. The local people have always been suspicious of the science about the river (Kirsch 1993:42–45; Burton 1993a: 2–4). Blood testing along the river has been conducted by OTML health patrols to establish whether there is any lead or heavy metal poisoning occurring from the river water to assure local people the river is safe (letters sent out confirmed people were within the safe range). The locals look at the river every day, and it has a grey appearance and a greasy feeling (Javia 2011: 3). A significant common theme among all the population of the artisanal miners surveyed is a concern about the effects of river pollution on health. Almost all groups surveyed reported that they were concerned with the effects of chemicals in the water while they were panning. Open sores and boils on the legs were a common issue. These sort of sores are common when skin is constantly immersed in water, and without the proper medical attention, they become tropical ulcers or become septic. As most of the miners are located within 40kms of Tabubil or Ningerum, a solution to this problem might be that health patrols could go out and treat sores and give information on how to prevent them.
All surveyed miners said that the benefit of money from selling gold outranked health concerns. This was a critical question relating to whether there comes a time when the health impacts reported outweigh the need to pan for gold. This question has not yet been sufficiently answered by my survey or the OTML surveys.

Other health issues associated with artisanal mining generally around PNG involves the use of mercury amalgam (Susapu and Crispin 2001: 15). This has not become an issue for Ok Tedi artisanal miners due to the nature of the fine alluvium in the river and the non-use of mercury at the Ok Tedi mine. The OTML CR surveys reported only one person who used small amounts of mercury in the process of mining (OTML 2010c).

The amount of time artisanal miners spent engaged in this activity ranged from a few hours to 16 hours per day, depending on whether a ‘flash flood’ event occurred on the Ok Tedi. What is meant by ‘flash flood’ is that when there are periods of very heavy rain (100mm or more in an hour) in the catchment of the Ok Tedi, a gush of water flows across the areas where the artisanal miners conduct the activity. If there has been a ‘flash flood’ there is more gold containing sediment from higher up the river, so people are more willing to spend all day doing the mining than they would otherwise as the benefits are evident.

In terms of yields and money to be made out of the activity, there was a varied response, depending on where the people were located. Many of the artisanal miners stated that they can yield up to 3 grams a day of gold on a regular day, with anything between 1g/day to 10g/day reported. In the northern end of the mining area, around Bultem Bridge and Yuk Creek, the yields were lower and the money paid by gold buyers was also lower, by about a third when compared to the highway villages and Ningerum Station. The difference in Kina terms was Bultem Bridge/Yuk Creek received between K40 and K50 per gram (in 2011), and the highway villages received
between K60 and K73 per gram. I did not talk to gold buyers about the reason for this
disparity, but some local people said that the gold in the north was 'nuggets' whereas
the gold in the south was 'dust'. In 2011, I saw a 'nugget’ which just looked like regular
alluvial gold, not like the fine tailings gold found further south. In my 2012 surveys,
the miners reported receiving less for their gold than the previous year because of
international gold price depreciation.

Many of the artisanal miners reported that they were using the money that they
were getting from selling the gold for school fees for their children or themselves. This
response is consistent with many of the artisanal miners being from outside the CMCA
area. Within the CMCA area, also, many people are unaware that they can access
CMCA funds to send their children to school, so they also save for that. In some cases,
though, people said that they used their profits to buy betel nut and alcohol. When
asked if they would like improved productivity, most miners said that they were happy
with the current yields but would like some technical assistance to not work so hard.

There are a high proportion of women and children involved, especially in
holiday periods and on weekends. In OTML’s 2008 survey, a large proportion of the
surveyed miners did not have any formal primary education (41/241). Women were
more engaged in artisanal mining. The data collection I conducted confirmed the
significant presence of women involved in the activity. Many small children were
present with their mothers in the activity but may not necessarily be involved directly.
The effects on children seems to depend on where the people are from. For the
highway communities, they reported that the children only engaged in artisanal mining
after school, on weekends and in holidays. There may be many children involved
during holidays, at other times of the year it is unclear how many children are involved.
My surveying always seemed to coincide with school holidays so my assessment on
this may be flawed. OTML survey showed that 24/241 (10 percent) artisanal miners
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were school aged children (OTML 2010a). The women stated that they saved money and also still worked in their gardens. This means that they have some measure of independence from their husbands to buy the necessities.

The majority of miners in the northern end around Yuk Creek/Bultem Bridge, as indicated by my surveying and OTML’s are not landowners but migrants from the border region villages (Korkit, Kawentikin), Telefomin District, and Olsobip LLG area. The mine area landowners are not involved in the artisanal mining. The 2008 small scale mining survey showed this, as well as my own surveying. All of the artisanal miners in the Bultem Bridge and Tabubil Town area I talked to were from either Oksapmin, Telefomin, Olsobip or Bolivip.

Through the surveys of people and asking views and opinions of a sample of people from Bultem Bridge down to Ningerum, two clear dichotomies emerged. At Yuk Creek Mining Camp, people did not want any assistance from PNGSDP or OTML or the government in their artisanal mining. The reason for this would derive from the nature of their settlement. As all of the people talked to in the Yuk Creek/Bultem Bridge area were not local landowners, this has bearing on whether they want people formalising their activity. Many of them have settled without the express permission of the local landowners, and as such have no rights over the gold they are getting out of the river as the local landowners have custodial rights over the resources in the river. There are law and order problems, with the occasional heist or robbery in Tabubil – some with significant amounts of money taken and injuries to local people. Illegal drugs and alcohol, prostitution, gambling and a money market are all problems which have developed in the villages and settlements around Tabubil. However, these problems face any large town in Melanesia generally. Whether or not these issues are because of artisanal mining is unknown, because they could be issues due to settlement
generally. However, it is noted that the changes in the social structure around the mining area are blamed on influxes of 'Southern Highlanders' rather than local people.

There was no regulation of the artisanal mining activity on the Ok Tedi when I was conducting the data collection. It has been occurring on the peripheries of Tabubil and downstream for up to 10 years without any intervention from OTMC. There are provisions to regulate mechanised small scale mining in the Mining Act 1992, however as the activities along the Ok Tedi are artisanal, there is no way the government can regulate it under the existing Mining Act. The way artisanal gold mining is taxed is through issuing export licenses to export gold. This mechanism is inadequate due to the smuggling of gold, and the fact that much gold is traded domestically.

7.3 Issue for OTMC relating to mine closure – Settlers and Immigrants.

To understand the motivation for the OTMC response to ASM activities, a contextualising examination of one of the primary factors for formalising must be conducted. Throughout PNG, land issues are central to social concerns about mining. Ok Tedi ASM is no different. Many artisanal miners, especially in the Yuk Creek and Bultem Bridge localities, are migrants from other parts of the province and Telefomin District and less from other parts of the country. Land ownership in the Tabubil area is well established between the six mine villages. However, because of the nature of Min culture, kin relations from all over the Mountain Ok area have set up camp around the fringes of these villages and Tabubil township. From Yuk Creek, 7 Kona to 6 mile, there are thousands of migrants setting up informal settlements on Wopkaimin, Ningerum, and Kamfaiwolmin lands, with varying degrees of consent.

The change in the nature of immigration is stark. Before 2000, there was a circular movement of people between informal corner settlements and their home villages (Polier 1996; Hyndman 1994a: 107–30). These corner settlements were largely
dormitory rather than permanent settlements. Post–2000 and especially in the years between 2007 and 2012 there was a sharp increase in permanent informal settlements. Some of the community members during the MLE village meetings in 2012 attribute this to the decline in MAF flights to remote villages, such as Olsobip, Telefomin, and Gogolbip, and the no longer readily available helicopter rides to mine villages Kavorabip and Atemkit (OTML 2003a: 14). This has meant that the people who used to or usually would have had a propensity for circular movement have stayed put in Tabubil's hinterland.

In 2008 OTML Community Relations raised the issue in a report titled *Population Increase in Tabubil Township is Everybody's Concern*. This report outlined the significant challenges the increase in population in informal settlements was having on OTML’s ability to regulate the mine town and ensure that Mine Area Village community was not overwhelmed with settlers. The report lists (OTML 2008f: 1) a number of contributing reasons for the increase in population summarised below:

1. Lack of basic services in Preferred Area Districts (PAD)
2. Current major projects and opportunity for employment for unemployed from PAD and non-PAD areas.
3. Informal employment opportunities such as gold panning along Ok Tedi River.
4. Ineffective travel services by Mission Aviation Fellowship (MAF) to PAD areas.

The report also outlines the different opinions from provincial leaders, six Mine Area Village leaders, and settlement leaders. There is a general consensus that OTML needed to become more involved with regulating the communities outside Tabubil Township despite it being the governments’ job. It also is significant that all reported
that some of the landowners from the Mine Area Villages are partially to blame for permitting people to settle and associated activities to occur on their land.

In 2009, OTML conducted the Tabubil Plateau Survey, a census of the existing population including OTML and contractor employees, mine villagers, and immigrants. The results of this survey showed that the settlements of 7 Kona, Yuk Creek, corners in Finalbin and Bultem, Old Wangbin and along the highway adjacent to the Laydown area all the way to Migalsim Junction, there were 10,732 settlers. Old Wangbin had the highest population at 4846 people in 796 households, with the vast majority coming from Western Province (2528 people) and West Sepik Province (1836) (OTML 2009b:11). Throughout the settlement areas, there were a total of 4705 people from Western Province, 4013 from West Sepik Province, and 966 from Southern Highlands (OTML 2009b: 16). According to the survey, many households in settlements housed people employed by OTML or OTML contract companies (e.g. Old Wangbin had 102 households with OTML employees and 436 households with OTML contractors’ employees) (OTML 2009B:33). This implies that the housing situation for OTML contract companies is insufficient.

I make a distinction between immigrants and settlers. The former describes people from areas outside the Preferred Area Districts and have no tribal or kin connection to the people of the Tabubil hinterland, whereas the latter have strong tribal, kin, and customary linkages to the people of the area. Atemkit and Kavorabip have wholesale moved to Finalbin and Bultem respectively. The landowners from the two villages have allowed the ‘exiles’ to build permanent housing in corners with trust money. The demands of many of the local people in negotiations for the MLE reflect the desire to be back on their land, as they say that if there were roads they would move home.
Immigration of people from Southern Highlands Province, Hela Province, West Sepik Province and other parts of Western Province has complicated the social and economic structures in Tabubil and its hinterland. Land pressure has increased in the area, with outsiders marrying in and claiming land, and then settling their extended families on it. This ‘chain migration’ is popular in PNG. This means that the little arable land available for local landowners’ gardens is further reduced. Stories from around the town talk of people trying to claim land that they have no right to, even after being told they could not settle. Some even alleged that a woman from Southern Highlands was receiving royalties from OTML by unlawfully claiming that she was from a mine village. Since these people have pervaded local structures so thoroughly, the question arises whether they will return to their home villages or provinces once the mine closes. Other developments in the region, such as the Frieda mine in West Sepik, and the LNG project in Hela Province, could potentially draw the people away when Ok Tedi closes.

Letters from people living in the Mine Area Villages about settlers and immigrants causing mayhem illustrate the problem. For example, on 09/09/09 a letter was sent to Terry Walsh, then manager of Asset Protection, from six concerned leaders, including Borok Pitalok the President of Star Mountains Rural LLG. In this letter there was an account about an OTML employee Charles Kimbuka and his activity in Wangbin Village:

When he was drank [sic] under the influence of alcohol he suddenly entered Pastor David of Baptist Church premises, entered into the house, and broke the living room door. He then yelled and starts threatening people in the house. Everybody in the house was very afraid and ran out for help… The employee is not related to local community

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33 See also Porgera (Golub 2014 chapter 3) and Lihir (Bainton 2010: 128-129).
and we believe he is from the highlands which he have [sic] no right to come around to our village and disturb the community.

Another two from the elected leaders of Ok Ma (Nioksikwi, Okteditau, Ankit, Kumkit, Derongo, Boungkim) dated 10/03/2011 and 24/08/2011 outline the impacts of out of control settlement activity at 7 Kona, between the Lower Ok Tedi (Maria) Bridge and Tawap Kamen (TKI) Camp on Ok Ma access road. According to the letters, settlement of people was originally permitted by Levy Bineng and Walap Bonben, the founders of TKI, who have since passed away. The leaders report:

Over the last few years major criminal offences such as rapes, robbery and assaults have been inflicted upon members of Okma communities and reported to Tabubil Police Station. Other minor offences such as harassing traveling public and stoning vehicles owned by Okma people have been attended to but resolved apologetically on site of incidents by perpetrators… Recently we have experienced upsurge or increase in major illegal activities such as smuggling and sale of alcohol, drug trafficking, building up off [sic] arms in the area. … Guns smuggling and build up is a major concern and should be taken seriously (Letter to Ignatius Wanjiman 10 March 2011).

7 Kona is the site of the majority of Southern Highlands Province immigrants to the area, with 613 people from that province living there in 2009. There is a common theme voiced by many local landowners that the problems in settlements are all because of Highlanders. Even in other smaller settlements, such as Bak Kona opposite the Laydown area, Wangbin landowners in an eviction letter to Bak Kona settlers state that ‘Law and order problems– this is causing fear to our women who are going to and from garden and our women have been subject to intimidation, oppression and holdup’, and in a subsequent letter to OTML, the leaders state ‘We had tried [to resolve the matter] but were threatened because we feel that we were outnumbered by the settlers’. The settler problem will not be eased for the landowners of the Mine Area Villagers until eviction and repatriation of immigrants without community, but that costs money
and there is anecdotal evidence that people quickly return to resettle because of the opportunities, particularly the easy alluvial gold and well-run services in Tabubil.

7.4 OTMC Response – Small Scale Mining Pilot Project

In 2009, the issue of the influx of settlers and immigrants to informal settlements around Tabubil had become an issue requiring significant input from the OTMC. Since the key maintainer of the settler population was ASM activities, there was a push from communities to regulate and formalise the practice as a mechanism to discourage informal settlement. The specific organisations that would be involved in this regulation and formalisation were the Mineral Resources Authority (MRA) and PNGSDP primarily, with input from OTML Community Relations, Star Mountains Rural LLG, and Ningerum Rural LLG. The communities along the highway involved in ASM activities formed and registered an association – Alice River Alluvial Mining Association54. The leadership of this association mainly comes from Wurimkanatgo and Bumbin villages from the Nupmo trust region, and Kwiloknai and Tapko from the Tutuwe trust region, but there are 17 villages involved from Migalsim to Ningerum Station. In 2009, the initial meetings and planning commenced for a three-way sustainable livelihood project focused on artisanal mining along the Ok Tedi. A working group made up of representatives from MRA, PNGSDP, OTML, community, and LLGs started investigating the potential for the ASM activity to be ‘upgraded’ to mechanised small-scale mining and examined the existing legislation for its ability to regulate the landowners’ exclusive exploitation of alluvial gold along the Ok Tedi.

In the initial working group stage, many ideas were passed around about the potential for productivity increases for artisanal miners through mechanisation with floating dredges. I attended a working group meeting in June 2010 – and this position

54 The entity is not an incorporated association but rather a company named Alice River Alluvial Mining Ltd registered on 29 August 2008.
situated me as an active member of the OTMC, rather than an outside observer, in this case. It was suggested that the pilot project be split into three areas: Zone X from Yuk Creek to Ok Menga (Wild Dog); Zone Y Ok Menga (Wild Dog) to Km100–105 (Haidauwogam), and Zone Z Upstream Ningerum to Ok Birim Junction. Notably, this did not include the main village areas from Km97 (Wurimkanatgo) to Km89 (Tapko). An idea to encourage semi-mechanisation of the activity with a large floating dredge was raised also. I suggested that it was not appropriate technology considering that it required specialist mechanical maintenance and for a post-closure livelihood that it might be too expensive and difficult to access qualified mechanics. I was not present at any further working group meetings, but the idea of a floating dredge ended up not being pursued because of ARAMA securing a floating dredge that did not work well in the Ok Tedi (due to finer gold than naturally occurring alluvial gold) and subsequently the group became reluctant to spend any more funds in the future on that technology (Jeff Ransley pers. comm. 2011)

The other part of this project was assessing what regulatory mechanisms would be appropriate for formalising the currently unregulated gold market in the area. These regulatory mechanisms would function to “lock out” settlers from engaging in alluvial gold mining with mechanical equipment without permission or licences from landowners along the river. This regulation would hopefully make the area less attractive to settlers (Yaru Pohei pers. comm., 2010)

After over two years of working group meetings, the pilot project was commenced. The World Bank funded the MRA’s appointment of Joe Seegers as project manager of the Ok Tedi Small-Scale Mining Pilot Project in November 2011 under the contract number 2011-MRA-C2-CS-017 for one year at USD104,000. This was part of the wider second Mining Sector Institutional Strengthening Technical Assistance Project (MSISTAP II) which was funding various regulatory reforms
throughout the mining sector in PNG. The official start of the pilot project was 11/10/2011. A Project Funding Agreement that had been signed in February 2011 clearly delineated the stakeholders of the project. Clause 3.1 states ‘The Project Committee (PC) shall be responsible for the Project Activity and shall comprise of representatives appointed under Clause 3.6 of this Agreement’. Clause 3.6 elaborates that ‘Membership of the PC shall comprise of two (2) representatives from: PNGSDP, The Company; MRA, The Project Partner; and OTML, The Interested Party’. The role of the PC was explained in Clauses 3.3 and 3.5 as ‘overseeing the implementation’ of the contribution of PNGSDP and MRA, as well as monitoring, review and compliance activities relating to the pilot project activities. The restriction of the membership of the PC to the direct supporters of the project, as opposed to other parties (LLGs, FRPG, or ARAMA), was made ‘for reason of keeping full control over project activities and budget expenditure for the duration of the pilot project. Without the key parties exercising their control, the project might easily derail or being [sic] hijacked by other parties to serve their own interests’ (Seegers 2012: 4). The reality is that without significant oversight, many projects fail from misappropriation of funding in Western Province.

PNGSDP’s main role was the fund the project. They were the primary driver of the project as they were providing K2m in funding to the budget of the project.

The MRA was the centre of the pilot project. The MRA’s role was also initially counter funding of the project. In 2009 meetings, the MRA was slated to contribute K3m to the project, but in 2011 that had been reduced to K100 thousand. This reduction in cash contribution was because the MRA could absorb the cost of regulatory affairs as that is the function of the MRA in the PNG mining sector. The MRA’s Regulatory Operations Division is responsible for the technical supervision of the regulation communication during the pilot project. MRA ROD already was
regulating by way of the Alluvial Mining Leases (AMLs) under Division 4 of the Mining Act 1992 that apply to mechanised alluvial mining. Such leases are only available, according to the Act, Section 48(1) to

… a natural person who is a citizen or a land group in respect of land owned by that natural person or land group and after considering a recommendation from the Board, grant an alluvial mining lease over that land to that natural person or land group.

This effectively means that only landowners will successfully be granted an AML. AMLs according to Section 50(1) and (2)(a) of the Act ‘may only be granted over land that is a river bed, and land that extends no further than 20m from any river bed’ and is ‘no more than 5ha’. Since the natural riverbed along the Ok Tedi is significantly wider than it was prior to mining, the amount of space available to landowning communities for AMLs is considerable. The clan land ownership done as part of the compensation process by OTML should have ensured that little dispute about who owns what part of the river would occur, but of course there were still issues. The role of the MRA RDO was also to communicate the relevant information to the relevant communities about the AMLs and how to go about securing them. This was a core component of the pilot project, as many villagers do not have access to the legislation or know the processes that are required.

The MRA Wau Small Scale Mining Training Centre’s (WSSMTC) role was to develop and implement training packages for the pilot project. The trainers are all from WSSMTC which is a joint venture between the EU and the MRA set up in the early 2000s. As part of the pilot project, Immaculate Javia of the WSSMTC conducted a site visit to the area. The WSSMTC trainers’ time was paid for out of the K2.1m budget for the project. In May 2012, the trainers did Level 1 training near Ningerum.

National Gold (PNG) Ltd was contracted by the MRA to provide technical, testing and marketing for the pilot project. Managing director Lubo Todorov came and
did a site inspection along the Ok Tedi and indicated there was scope for the communities to have a long, sustainable small scale mining future along there. National Gold supplies lightweight dredges of various sizes in PNG.

OTML was involved in the project by providing ‘in kind’ logistics, accommodation, and food for the trainers and PC members when in Tabubil. OTML CR had been pressured initially to provide monetary support for the project, but privately indicated that it did not seem fair for MRA or PNGSDP to ask for money considering that OTML directly contributed millions in dividends and fees to both organisations annually. CR collected data on ASM activity in 2008 and 2010, and conducted SSM awareness campaigns along the area between Ningerum Station and Yuk Creek.

Since the fieldwork for this thesis ended in March 2012 I have been unable to secure any follow-up on the success of the pilot project from the PC members. The project was intended to run for one year, with a final report provided by the end of 2012. However, from the initial working group discussions to the start of formal project planning, the scope of the pilot project was significantly reduced. The importance of the pilot project was that it gave more information and technical skills to the communities involved in ASM, and gave them more options going forward towards post-closure to exploit the resource available to them in a more prescribed way.

7.5 Conclusion

The description and discussion of ASM along the Ok Tedi proved that although the environmental damage to the river is significant, the communities along the river have access to an economic resource they did not have before. The influx of settlers and immigrants threatens the sustainability of this resource, so the OTMC organisations devised a project to regulate and formalise, as well as support existing artisanal miners
to improve the activity. This chapter has shown the potential for OTMC organisations to collaborate and work together, using both the funds available from compensation and benefit streams as well as international organisations to support post-closure sustainable livelihood projects in the mine impact area. My surveys showed that there was not as much appetite for assistance from the OTMC organisations, and that many artisanal miners were happy with subsistence yields from the activity. The ongoing support for artisanal miners might be under threat from the relationship between the national government and PNGSDP, but the communities are still interested in the development of resources.
Chapter Eight – Conclusion

8.1 Conclusions of the research – Ok Tedi Mining Complex and Sustainable Development in Western Province

The original contribution of this thesis has been to provide a framework for approaching the challenging and complex conundrums of sustainability and mine closure planning in the PNG context. The thesis drew on existing analysis but provided fresh insights into the development of policies for the CMCA trust regions, food security and artisanal and small-scale mining.

This thesis posed questions about the role of stakeholder organisations in sustainability and mine closure planning for community development. The main theme of this thesis was that changes in the prevailing political conditions almost always influenced the development priorities of the stakeholder organisations. As was demonstrated in Chapter 2 and Chapter 4, the history of the Ok Tedi mine is not one of a mining company in isolation digging for gold and copper, but rather it is just a part of a complex and dependent system of organisations, agreements, and legislation. The political situation influences the planning for closure, but also the implementation and outcomes are determined by the political situation as well. The stakeholder organisations work within a tightly restricted boundary of what is possible regarding sustainable development in Western Province. The funds for programs, as described in Chapter 5, are not a limitation on sustainable development in the CMCA communities. However, the mechanism for approving proposals from the villages was assessed as lacking transparency from the perspective of communications with communities.

The communities, as described at length in Chapter 3, constitute a set of political organisations. The expansion of the impacted communities from the originally defined villages to the CMCA trust regions as a result of both internal changes in stakeholder organisations and outside influences was discussed. These communities
were shown to have broad and differing concerns leading up to mine closure, but a common theme throughout was that community livelihood and regional development projects were lacking in their communities. The communities themselves determine whether projects, such as food security and agriculture (Chapter 6) and artisanal and small-scale mining (Chapter 7), actually meet their supposed sustainable outcomes. However, the processes to set up projects and access CMCA trust funds (as well as counterpart funding from other stakeholder organisations) needs to be reformed and communications made clearer for the communities. Many people in the villages complained of not having enough information to apply for projects. Through the case studies of agricultural and food security projects in Chapter 6, I established that OTML, as a mining company, was not suited to drive development in this sector. The new entity of OTFRDP, being dedicated to Community and Livelihood Development (as a function of the Community and Regional Development Strategy framework for responsibility), is better equipped to respond to the development desires of the CMCA communities. Chapter 7 described artisanal and small-scale mining as a viable post-closure sustainable livelihood for the people between Ningerum and Bultem Bridge. The push by stakeholder organisations to legitimise what started as a grassroots activity, through regulation and formalisation to reduce growth in the informal settlements around Tabubil, was discussed. The outcome of this project was not available due to the limitations imposed by the changing stakeholder organisation situation post-2012.

The thesis contributed to the body of literature on PNG mining, joining and building on the research of other PNG resource specialists. It provides a different perspective on the Ok Tedi mine and OTML from the writing of Stuart Kirsch and David Hyndman. It complements the research conducted recently by Alex Golub on
Porgera mine, Nick Bainton on Lihir mine, Colin Filer on Panguna mine, and Glenn Banks on Porgera and Ok Tedi mines.

The thesis creates the foundations for a bridge between purely political theory, in Historical New Institutionalism (HNI), and the applied politics of sustainability. It functions as an analysis of political new institutionalism that fits amongst the theoretical works on HNI, serving as an effective case study of an institutional complex. The complex, the OTMC, grew and shaped the ways the stakeholder organisations approached different aspects of compensation and benefit streams, mine closure planning, sustainable livelihood planning, and the organisational interrelationships.

HNI is a powerful tool to understand the nuances of the Ok Tedi mine’s seemingly impenetrably complex socio-economic and political situation. The constantly evolving nature of the OTMC meant that no single stakeholder organisation ever had enough political clout to act as a circuit breaker, as the institutional complex influences decisions of the stakeholder organisations and communities in fundamental ways.

The example of the changing Community Mine Continuation Agreement process showed that despite the free and prior informed consent in social license to operate negotiations, the OTMC agenda from the outset, irrespective of the wishes of OTML, was that the mine would continue to operate. The impacted communities did not have a genuine choice, as the FRPG, WPA, and respective LLGs had no capacity to provide legitimate alternative options for managing ongoing community development. This lack of real choice is not the fault of OTML, PNGSDP, OTDF or the impacted communities. It is the inevitable confluence of provincial government inadequacy and genuinely disadvantaged communities. The absence of progress in the provincial and local level governments towards becoming robust and effectual public entities has been
shaped by the institutional complex over the history of the Ok Tedi mine. The erosion of public trust and confidence in Western Province’s elected officials and appointed administrators over the course of the last 40 years mean that communities inevitably rely on OTML, PNGSDP, and OTDF to be the safety net.

By contextualising the decision making of stakeholder organisations under the OTMC, the thesis showed that the OTMC ‘structures the political struggle itself’ (Thelen and Steinmo 1992: 6). Nothing at the Ok Tedi mine, and more broadly in North Fly District and Western Province, happens outside the context of the OTMC. Throughout the CMCA regions and the Preferred Area Districts, the influence of the institutional complex is felt by the decisions made relating to policy, planning, and implementation of various projects. The end results of these projects are shaped and constrained by the OTMC in significant ways by either the conscious or unintended results of deliberate political strategies, conflict, and choice (Thelen and Steinmo 1992: 9–10).

8.2 Possibilities for further research

There are a number of other possibilities for further research into mine closure and sustainability planning at the Ok Tedi mine. This research was only able to engage with a small slice of the sustainability program planned by the OTMC stakeholders. A significant and important sustainable economic activity that was heavily pushed by OTML and then PNGSDP and OTDF was rubber. The scope of my research did not extend to non-food cash crops, but it is important to acknowledge the important place that rubber has in North Fly District, and the important collaboration between PNGSDP and North Fly Rubber Limited

Another limitation is that I was not able to go to a Non-CMCA area for purposes of comparison. All of the villages I visited are under the CMCA trusts or are
Mine Area Villages. I was offered the opportunity to take a 10-day cruise down the Fly River to sign up a new village to the CMCA in the Kiwaba Trust region but my research focus was the North Fly District, so I passed it up, which I now thoroughly regret. My interest in, and connection to, Western Province does not end with the submission of this thesis, so I hope to be able to conduct research in Non-CMCA parts of the province in the future.

The analysis in this thesis was focussed mainly on the OTMC stakeholder organisations of OTML, PNGSDP, OTDF and the CMCA trust regions. There is a lot of scope to do further research into provincial and local level governments in Western Province, as there is a significant lack of academic research on them. The dynamic of politics in Western Province is likely to have changed significantly since my fieldwork ended in 2012, as PNGSDP has shrunk to a greatly diminished role in PNG, and OTML is now a state-owned enterprise. The relationships between OTML, OTDF, PNGSDP and the provincial government are likely to have changed significantly. Going forward, analysis of this paradigm shift in the OTMC’s structure is worth scrutinizing through rigorous fieldwork-based academic research.

8.3 Epilogue

The Ok Tedi mine faces an uncertain future. The present relationship between the stakeholder organisations involved in the mine is very different from when this research project started. The emergence of OTDF and PNGSDP as credible standalone development organisations and the reduction of OTML’s direct involvement in the processes of development are important steps towards a sustainable post-closure future. The poor governance of Western Province by both provincial organisations, FRPG and WPA, is unlikely to change without significant reforms in the provincial government system PNG-wide. The role of the National Government in the Ok Tedi mine’s future
is more important than ever, as it is now the 100 percent shareholder in the mine. The relationship between OTML, PNGSDP, and the National Government is not currently working well, with a court case between PNGSDP and the National Government over access to the PNGSDP Long Term Fund being played out in Singaporean Courts in 2014 and OTML not posting a 2013 dividend. The way forward for the National Government seems to be to take the Western Province allocated funds and use them for current expenditures. If this were to occur, the people of Western Province would suffer from the loss of potential development.

At present (August 2015), the strengthening El Nino is being blamed for a shutdown of the Ok Tedi mine. Time can only tell if the mine reopens, or if the stripping of cash reserves and workforce restructuring that has occurred since the mine became a state-owned enterprise will mean the mine closes using the base case scenario laid out in the detailed mine closure plan. If this happens, much of the groundwork laid out by the OTMC stakeholder organisations for post-closure sustainability will have gone to waste.
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Appendix I – Plates

All photos and figures are the authors unless otherwise attributed.

Plate 2.1 - Looking up the Ok Mani valley

Plate 3.1 - Ok Tedi at Ningerum 1981. Credit: Ian Hollingsworth
Plate 3.2 - People in canoe on Ok Tedi 1981. Credit: Ian Hollingsworth

Plate 3.3 - Hiri Chief on the Fly River during 1997 drought. Credit: Billy Simon
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Plate 6.2 - Abraham’s fish farm, Misgalsim Junction, 2010.
Plate 7.1 Hillside excavation near Narian village, Misima Island, 2012.

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Plate 7.12 Artisanal miners Yuk Creek, 2011.

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Plate 7.14 Artisanal miners from Daru at Ningerum Station, 2011.

Plate 7.15 Artisanal miners Ningerum Station, 2011.
Plate 7.16 Artisanal miners, Ningerum Station, 2011.

Plate 7.17 Artisanal miners, Wurimkanatgo, 2011.
Plate 7.18 Artisanal miner Yuk Creek, 2011
Appendix II – Maps

Map 3.1 CMCA Trust Regions - source Ok Tedi Mining Limited
Map 3.2 Wopkaimin Parishes – source Hyndman 1994b

Map 3.3 Cultural Map of Tabubil Area - Eggleton 1970
Map 3.4 - Ok Tedi Proposed Facilities - Jackson, Emerson and Welsh 1980

Map 3.5 - Village ownership Ok Tedi - Jackson, Emerson and Welsh 1980
Map 3.6 Nupmo Trust Region and Mine Area Villages – Adapted from Ok Tedi Mining Limited
Map 3.7 Wai-Tri Trust Region and Alice River Trust Region – Adapted from Ok Tedi Mining Limited
Map 3.8 Tutuwe Trust Region – Adapted from Ok Tedi Mining Limited.
# Appendix III – Population Tables

Table 2.1 Fly River Development Trust Villages

<table>
<thead>
<tr>
<th>Census Division &amp; Unit</th>
<th>Village Name</th>
<th>No. of Villages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ningerum</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CU006</td>
<td>Boliwogam</td>
<td>8</td>
</tr>
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Table 3.1 – Non-CMCA villages in Ningerum LLGA and Olsobip LLGA

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Source: National Statistic Office 1980 – 2000
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Table 3.9 Kiwaba Trust CMCA Villages

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### Appendix IV – MLE Delegates Meeting 3 Attendance

Table 2.1- List of Participants and Organisations being involved in the MLE Consultation Process (Source: Boeha and Geno 2011)

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<th>No.</th>
<th>Name of Participant</th>
<th>Organisation &amp; Representation</th>
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<tr>
<td>1</td>
<td>Nigel Parker</td>
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<td>Musje Worrer</td>
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<td>Yaru Pohei</td>
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<td>Ian Sheppard (sick)</td>
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<td>Ian Middleton</td>
<td>Ok Tedi Fly River Development Program</td>
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<td>Leonard Lagisa</td>
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**TABLE 2.3- List of External Facilitators and Organisation**

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<tr>
<td>2</td>
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<td>Tom Seta</td>
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**Table 2.4- List of External Observers and Organisations**

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<tr>
<td>1</td>
<td>Dr. Beno Boeha</td>
<td>Professional Valuers of PNG Ltd</td>
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<tr>
<td>2</td>
<td>Ila Geno</td>
<td>Ila Geno and Associates</td>
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Table 2.5 - Attendance list for DM3

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<th>Present (✓) 31 Mar</th>
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<td>Martin Brash</td>
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<td>✓</td>
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<tr>
<td>2.</td>
<td>Kori Maraga</td>
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<td>Tanorama</td>
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<td>✓</td>
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<td>Tom Seta</td>
<td>Facilitator</td>
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<td>Timothy Mais</td>
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<td>Government</td>
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## Appendix V – ASM Group Survey Form

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<td>Are you happy with the current yields?</td>
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<td>Do you think there should be more regulation of the activity?</td>
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<td>Do you think the government, PNGSDP or OTML should do more for miners? If so what should they do?</td>
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<td>Any other comments?</td>
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Appendix VI – Figures

Figure 1.1 Stakeholder organization, legislation, and agreements of the Ok Tedi Mining Complex
Figure 3.1 Rainfall Patterns across the North Fly 1970–2010 (Mathews et al 2013)