From the Horse's Mouth: A Resource for Teaching Development in Anthropology

Film and Monograph by

Emma Gilberthorpe

DVD Production and Editing by

Michael D. Fischer & Stephen M. Lyon

VideoG

Copyright Information

Acknowledgements

This monograph and film are dedicated to the Fasu and Min

Preface

This project comprises a DVD and Monograph (including standalone film, interactive teaching exercises, searchable video dataset and theoretical text on key issues). In this project we consider a relatively unexplored element of development – the industry of non-renewable resource extraction – in a region where very little development research is conducted – Papua New Guinea – and where, it seems, the development community is largely absent. The aim of the project is to foster academic and corporate discourse on resource development in an accessible learning tool that illustrates the need to acknowledge community and culture in broader processes of global development. It is not our aim to criticise industry or impede its development but to facilitate its movement toward an ethically sound and culturally tolerant development strategy through improved methods of knowledge transfer.

There are two primary objectives guiding this project:

1. To provide a learning tool for understanding resource development within academic institutions.
2. To create a resource that will be instrumental in developing corporate knowledge of indigenous social organisation and perceptions.

To fulfil this we have developed a teaching package around the film From the Horse's Mouth: perceptions of development from Papua New Guinea (Gilberthorpe 2005), which comprises a series of interviews with employees of two non-renewable resource extraction projects in Papua New Guinea – the Kutubu oil project and Ok Tedi copper mine – and members of the local communities affected by these projects.

Whilst the DVD provides the film itself (suitable for a lecture slot), from this we have extracted a number of clips to create a set of e-learning tools that enable users to make sense of some of the more complex issues involved in development. The searchable database of video clips (indexed with context meta codes) provides a set of interactive decision making exercises using selected video clips (using graphical drag and drop features) and a short text introduction to the key issues of international development, participatory research, empowerment, sustainable development, resource extraction, globalisation and applied anthropology (see DVD for user instructions). The film and interactive exercises are supported by the monograph Development and Industry: a Papua New Guinea Case Study, which focuses on community-based issues within the broader framework of development theory and practice to excite debate about issues raised in the film.

Anthropology as a discipline, has sought to make better use of visual materials and to find ways to encourage students to analyse source materials in order to develop a more sophisticated appreciation of the literature. A further objective of this project is thus to highlight the importance and efficacy of using film media in anthropology as a teaching device and methodological tool (Gilberthorpe 2007b). This project provides a model of how other social scientists may integrate semi-analysed data with polished publications in order to aid students' understanding of how data informs explanation. The project will be particularly suitable for anthropology, geography, sociology and development studies, but will also have relevance for any social science involved in participatory research. It also provides an ideal practice model for the inclusion of Information and Communication Technologies in research and teaching of contemporary problems in development. The project builds on research conducted by Emma Gilberthorpe in Papua New Guinea and Steve Lyon in information technologies.

Michael Fischer
Emma Gilberthorpe
Stephen Lyon

Development and Industry: A Papua New Guinea Case Study

Emma Gilberthorpe

Contents

Acronyms

BHP	Broken Hill Propriety Limited
DoM	Department of Mining
DPE	Department of Petroleum and Energy
FHM	From the Horse's Mouth: perceptions of development from PNG
HDI	Human Development Index
GDP	Gross Domestic Product
ILG	Incorporated Land Groups
MMSD	Mining, Minerals and Sustainable Development
MNRC	Multi-National Resource Corporation
NGO	Non-Governmental Organisation
NRRE	Non-Renewable Resource Extraction
OSL	Oil Search Limited
OTML	Ok Tedi Mining Limited
PDL	Petroleum Development Licence
PNG	Papua New Guinea
PNGSDP	Papua New Guinea Sustainable Development Program Limited
PJV	Porgera Joint Venture
UN	United Nations
WWII	World War II

1. Introduction

My forefather's eyes see the majestic beauty of the forest floor
He sees the sublime beauty of my land that surrounds with flowering plants
He sees a picture that no-one has thought of
He feels old and fragile
As the technology advances the beauty becomes extinct
I see it through my forefather's eyes
(Bronya Kumulgo-Kain, *FHM*)

1.1 The Development Experience

Perhaps the clearest message that the film From the Horse's Mouth: perceptions of development from Papua New Guinea (*FHM*)[1] relays is that indigenous populations hosting resource extraction industries in Papua New Guinea (PNG) have an idealised view of development formulated within the context of resource extraction projects. Here, multinational resource corporations (MNRCs) operate in enclaves that act as markers of prosperity, wealth and modernity to local indigenous populations. Local development comes in the form of cash royalties and services (from aid posts and schools to supermarkets) and there is a level of expectation on behalf of the project operators and government that local populations will capitalise on these essentially Western models of development to develop skills, invest and build equity to ensure their own long-term socio-economic development. However, these models not only conflict with cultural factors characterised by interconnected social, economic and political systems, but are often imposed at the expense of the natural environment. The extraction process can thus have a formidable impact on cultural and physical environments over an essentially limited period of time.

The purpose of this project is to present the reader with data from PNG to generate discussion on some of the more uncommon variables bound up in concepts and processes of development and to understand how development is perceived and articulated by those experiencing it. We focus specifically on socio-economic development within the sphere of non-renewable resource extraction (NRRE) in two regions of PNG – Kutubu and Ok Tedi. Kutubu is home to the Fasu, hosts of the Kutubu oil project; and Ok Tedi is home to the Mountain Ok or Min, hosts of Ok Tedi copper mine. This project marks a shift from the traditional development literature focusing on analyses of development and development agendas (Escobar 1995; Gardner and Lewis 1996; Grillo and Stirrat 1997; Ferguson 1990); sustainable development and methods of implementation, including participatory development and indigenous knowledge research (Sillitoe et al 2002); and ethnographic studies of development (see especially Conklin and Graham 1995; Ferguson 1990; Hutchinson 1996). Whilst we do, to some extent, incorporate all these elements, our primary aim is to examine NRRE within the broader institution of development, to consider its potential as a development strategy and its status as a representation of modernity.

Our assessment of development is slightly removed from how it has come to be understood in the broader literature on the anthropology of development (for definitions of development, the anthropology of development and development anthropology see Grillo 1997: 2-3; also Escobar 1991: 660; Ferguson 1990: 15; Gardner and Lewis 1996: 3-8). In its broadest sense development is an ideology based on theories about how societies are organised and how they can be changed to fit into a universal European model (Nelson and Wright 1995: 6). Agents of development act on this ideology to devise strategies that bring about change in what are perceived as undeveloped regions. Importantly, development strategies have a beginning and an end; they are planned and work within a philosophical ideology of telic progress. The industry of NRRE does not, however, follow a

development trajectory of imposing socio-economic transformation; and without a clear end point it can almost be considered external to any development philosophy. With objectives centred on production and maximising profit targets development is an often obligatory off-shoot of the NRRE industry. In PNG, for example, local populations come to expect some level of development with NRRE projects where cash (royalties, compensation, wage labour) and services (schools, medical centres) are de rigueur in resource development operations.

What can be identified in contexts of NRRE in PNG is what Glenn Banks refers to as 'hyper-development' (2005), where an excess of benefits, cash, services and infrastructure are imposed and integrated over a limited period of time. Rarely are these obligatory development initiatives matched by sustainable development programmes placing technical development (hyper-development) in conflict with socio-economic development. When projects come to an end and the technical aspect withdrawn, many indigenous populations are left without the resources necessary to participate in a global or even national economy. Communities affected by NRRE industries are often external to international development because of the benefits they receive as hosts; and environmental devastation caused by large-scale extraction is often seen as a fair exchange for the supposed opportunities assumed to accompany NRRE projects (see Kirsch 2007: 306). What we argue here is that resource development should not be seen as external to development and sustainability measures should be integrated into company and government policies before extraction begins. What is needed is a protracted view of the industry to avoid issues of poverty, ill health and civil warfare in post-development environments.

To promote an understanding of development in this context we highlight how it is experienced by those living in the shadow of NRRE. We begin this discussion with an outline of development as it is understood in the related literature, followed by our case for drawing resource development into this broader spectrum. This is supported by an ethnographic outline of the Kutubu and Ok Tedi regions. This is a particularly important feature of this project as it is here that we profile the cultural aspects that call into question the probability of sustainable development in these, and indeed similar, regions. Our aim is to provide the necessary data for the reader to place a discussion of development in cultural contexts. We show the isolated and inhospitable landscapes characteristic of NRRE in PNG to highlight not only the underlying reasons for government absence in these regions, but also how these projects have avoided the ecological legislation observed in urban centres.

We also highlight the cultural characteristics of the Fasu and Min. By providing details on clan organisation, contact history, interrelationality, livelihoods, and the location of project beneficiaries within a broader environment of inter-group activity, exchange and knowledge, the reader can make more informed assumptions about the efficacy of Western models of development in these areas. Moreover, our outline of the services available, benefit streams and potential opportunities for development at the two sites provides the reader with data to asses how different the development experience can be, and also the distinctive problems associated with each. Finally, we provide further discussion of the key points raised by *FHM*'s contributors, providing the reader with the opportunity to consider some of the more prominent problems associated with short-term development in PNG. Succinctly put, we invite the reader to consider development from the bottom up; within the social and cultural spheres it is ultimately created.

1.2 The Development Paradigm
Like anthropological theory, development theory has evolved in a way that reacts to what came before it, rejecting previous theories or taking them forward through discourse and intellectual

development. But what exactly do we mean when we talk about 'development'? In socio-historical terms development (or evolution) refers to natural processes directed by human interaction and the diffusion of ideas and practices over time. International development suggests aid and capacity building whereby agents of development (the development community) seek to implement long-term solutions to third-world problems in conjunction with communities' needs and wants (see Hobart 1993: 1). Human development is used in reference to improving literacy, education, living standards, life expectancy and health (a process measured by the United Nation's Human Development Index). Development as it is theoretically deliberated in academia, however, falls within the sphere of socio-economic development, which relates to a philosophy of progress and improvement imposed by the so-called 'developed' world on the so-called 'developing'.

According to the Dictionary of Anthropology (1997) development is:

> a process of change through which an increasing proportion of a nation's citizens are able to enjoy a higher material standard of living, healthier and longer lives, more education, and greater control and choice over how they live. Development is generally believed to rest on rising levels of labor productivity, which can be achieved through the application of science, technology, and more efficient forms of economic and managerial organization (Hoben 1997: 113).

What can be taken from this definition is that development is a systemic process incorporating objectives for an ideal outcome (Robertson 1984). This ideal and the process of reaching it is what we refer to as the development philosophy (Ferguson 1990), the objective to develop and modernise through integration. This philosophy (often subsumed within the label neo-liberalism) has incited criticism as a form of 'imperial capitalism' (Grillo 1997), a view generated by the social, political and economic problems created by development processes, and the apparently unachievable alleviation of poverty. Development is thus a paradoxical concept harbouring an ideology of socio-economic progress whilst creating the potential for poverty, economic dependency, civil warfare and disease (Gilberthorpe, forthcoming).

Development is a technical process institutionalised in the West and implemented through corporate planning and management (Crewe and Harrison 1998; Escobar 1995; Ferguson 1990). As a business its policies are couched in a capitalist framework whereby national programmes of development treat people as objects of those programmes, which ultimately conceive humankind as following a single path of socio-economic development (see Nelson and Wright 1995: 2). Development in these terms is, undoubtedly, a Western expression (Hettne 1995; Sillitoe 2002) carrying with it notions of unilineal development, telic evolution and the assumption of social transformation that hark back to the theories of human evolution that dominated early anthropological thought. It has since, however, been distanced from the more derogatory terms 'civilisation' and 'social evolution'. In some cases the more organic term 'growth' has displaced 'development' as a descriptive term (World Bank 2007).

The term 'development' was popularised in political discourse after World War II (WWII) becoming a new strategy for implementing industrialisation in the so-called undeveloped world (although it can, as a process, be linked much further back than this to the beginning of Western expansion – see Mair 1984). It was a post-colonial phenomenon linked to a number of political, cultural, economic and religions factors (see Escobar 1988: 429) including Europe's withdrawal from the colonies after WWII (Escobar 1995: 26-39) and the development of trade and investment opportunities in the West, particularly in the United States (Escobar 1988: 430; Meier 1984: 143).

After WWII development was put into practice in international development organisations capacitated through financial institutions such as the World Bank. In the 1950s development became a management strategy incorporating planning, investment, loans and the implementation of aid and technologies in the perceptively undeveloped world.

At this time development was characterised by top-down agendas in a process best described by Arturo Escobar as the professionalisation of development i.e. "a set of techniques and disciplinary practices through which the generation, diffusion, and validation of knowledge are organized, managed, and controlled" (1988: 430). The techniques and disciplinary practices (education, urban planning, health and so forth), which either already existed or were devised in the West, were institutionalised (Escobar 1988: 431; Ferguson 1990) and implemented by a development community (including international organisation such as the United Nations and the World Bank; voluntary agencies such as Oxfam; and non-governmental organisations) engendering a reorganisation of knowledge and practice in small-scale societies.

The top-down development philosophy is tied in with the modernisation approach to development which became the philosophical root of the development paradigm in the 1950s and 1960s (Gardner and Lewis 1996: 12; Nelson and Wright 1995; Sillitoe 2002). In its most basic form modernisation refers to the displacement of the traditional with the modern. Theoretically though, modernisation has been described as an objective of global, capitalist and industrial progress (see Gardner and Lewis 1996: 12), a process intended to match and feed the demands created in Europe by the Industrial Revolution. As an agent of development, modernisation was characterised by socio-economic growth and the progress of science and technology whereby wealthier nations (particularly the United States as part of an optimistic strategy to rebuild the global economy after WWII) took on the responsibility of modernising the social, religious, economic and political institutions of perceptively poorer nations.

Poverty alleviation was the driving force underlining development in the 1970s (still incorporated within the philosophy of modernisation) and the development community aimed to increase levels of literacy, education, health and living standards by building capacity within poorer nations. This was incorporated in the 'basic needs movement' (see Gardner and Lewis 1996: 7), which focussed on aid and welfare through the implementation of sophisticated technology to improve production and international trade.

Development in the guise of modernisation was, however, largely a failure. Whilst it seemed effective as a development strategy it broke down in practice. This was particularly evident in the grand trade schemes of Mexico and India that failed to distinguish between different social groups and cultural factors of hierarchy and power within households and communities (for example The Green Revolution see Pearse 1980; also Gardner and Lewis 1996: 14-15). Modernisation has been criticised for having clear links with the early disciplinary model of telic evolution, with industrialisation as an ultimate endpoint. As such it was ethnocentric, overly optimistic and unsustainable with minimal consideration for specific cultural constructs and traditional values, beliefs, needs and desires. It failed not only to understand the root cause of poverty but also to acknowledge its own role in the creation of unsustainable development (see Gardner and Lewis 1996:12-16).

The major political backlash to modernisation emerged in South American academic discourse on imperialist and post-imperialist ideology, dependency and underdevelopment in the 1960s and 1970s (manifested in such classical texts as Dorfman and Mattelart 1975; Frank 1967; Nash 1979;

Taussig 1980). Critiques drew on politically charged Marxist evaluations of capitalist exploitation, arguing that Western 'developers' were becoming richer through the large-scale exploitation of poorer nations (Gardner and Lewis 1996: 16). Critiques argued that 'underdeveloped' national economies were conditioned by and thus dependent on a Western core (Wallerstein 1974) and that the aid, resources and services provided by the wealthier countries prevented them from becoming self-sufficient. This critique of development is largely known as neo-Marxist or dependency theory (see Gardner and Lewis 1996: 16- 20; Larrain 1989: 4). This of course has problems of its own with theorists being criticised for not only working within a framework of top-down development but also for treating developing countries as passive recipients of exploitation (Gardner and Lewis 1996: 19; see also Sillitoe 2002: 3) as opposed to agents of their own development (see Long and Long 1992: 33).

A number of high profile intellectual critiques ensured a shift away from the grand theories of development (modernisation and dependency theory) and the international focus shifted to devising new models for ensuring sustainable indigenous livelihoods (Crewe and Harrison 1998; Gardner and Lewis 1996). In the early-1980s growing recognition within academic circles that the social and cultural aspects of development had hitherto been ignored (Mair 1984) marked the intellectual advancement of attitudes towards development strategies. These focussed on how to make better use of indigenous knowledge to ensure sustainable development (Escobar 1991: 659; Sillitoe et al 2002).

In the 1990s sustainable development emerged as the new development paradigm integrating empowerment, freedom and choice for indigenous populations within a framework that saw local solutions and cultural systems as useful rather than obstructive to development (see for example Dixon et al 2000). According to Hilson and Murck sustainable development is "the combination of enhanced socio-economic growth and development, and improved environmental protection and pollution prevention" (2000: 227). It was devised during the Earth Summit in 1992 as a development strategy for tackling global poverty (Hilson and Murck 2000; Pezzoli 1997) and remains central to development practice to this day. The sustainable development paradigm marked a shift from top-down to bottom-up focussed agendas (see for example Marzano 2006) and called for the integration of third-party mediators and advocates including non-governmental organisations (NGOs), social scientists, ecologists, and other professional participants (Escobar 1991).

This intellectual development grew within the sphere of globalisation. Globalisation, in its most basic formulation, refers to the creation of a global economic arena through production and trade. Whilst, as stated above, socio-historical development is an inevitable process of interaction and the diffusion of ideas and knowledge over time, globalisation draws this out onto a world stage; and what might be viewed as some of the basic elements of interactive sociality – status, hierarchy, competition – are magnified and intensified, engendering large-scale stratification, inequalities and conflicts of power (an attribute often associated with the institution of development in general, see Escobar 1988: 430-1; also Gilberthorpe, forthcoming). However, whilst globalisation operates within a framework of integration the strategies facilitating its implementation are incorporated in socio-economic national and international development directed by models of Western production, power and knowledge.

Development remains central to institutional discourse and is used as the referential for how we measure cultures and nations – i.e. as 'developed' and 'developing' or 'First World' and 'Third World'[2] (see Wallerstein 1974). Nations are placed along a development continuum by the Human Development Index (HDI), a tool devised by the United Nations (UN) to measure literacy, life

expectancy, education and living standards (UN 2006). As a result of globalisation and mass communication, many indigenous populations living in the low HDI bracket have come to expect development as part of international development programmes.

International and socio-economic development are intimately linked, both operating within a framework in which objectives and strategies are devised through Western discourse. Socio-economic development does, however, differ from the concept of international development as it is presented as an ideal lifestyle strategy (rather than being a mechanism for relieving the world of poverty). What links this contemporary model to earlier paradigms (particularly modernisation) is the assumption of progress, although conceptualised more along the lines of organic growth than displacement of the traditional with the modern, with a specific focus on the new paradigm of sustainable development.

In a number of ethnographies anthropologists emphasise indigenous understandings of the term development as organic, associating it with growth. Aneesa Kassam, for example, shows how the Ethiopian term finna, which refers to natural growth in humans, plants, and animals, is also used to refer to processes of external development (Kassam 2002: 70-71). Indigenous conceptions of social change in this respect thus represent a gradual process that works in respect of and in harmony with established cultural practices and values (see also Ernst 1999; Gilberthorpe 2007). What is evident here is the distancing of indigenous perceptions of development from those incorporated in academic discourse, i.e. of telic evolution and unilineal development. Development in indigenous discourse is perceived more along the lines of natural, inevitable growth.

This conceptualisation of organic growth is matched by *FHM*'s contributors. Therefore, when we talk about development in this monograph, we are placing it within the context of a desired and expected yet conceptually natural socio-economic development. Our aim is not to suggest that development as deliberated in academic discourse does not exist, or even to question its relevance. What we do highlight, however, is that development (natural or institutionalised) does become a problem when the encounter between the local and the global occurs in isolated regions with no offer of or access to broader national and international integration; where development as a strategy becomes lost in the impermanency of resource development. It is this problem that we have identified in the sphere of NRRE and it is to this point that we now turn in this monograph.

1.3 The Resource Development Paradigm

> One of the defining features of late capitalism is the completion of a process began centuries ago: the extension of the global economic system into the unexploited regions of the earth. In the world's remaining equatorial rain forests, indigenous communities often come into conflict with the states and transnational corporations which seek to exploit their natural resources. These conflicts may have tragic consequences when states fail to protect people from the degradation caused by logging, mining and petroleum projects (Kirsch 1996a: 1).

NRRE has become a huge global industry over the past century involving billions of dollars worth of investment and infrastructure. The NRRE industry includes the extraction of gold, copper, iron, opal, diamond, quartz, crude oil and natural gas. Due in large to the ecological conditions and geographic isolation of so-called undeveloped regions, many 'Third-World' countries host multinational resource extraction projects that perceptively boost local and national economies during the period of extraction. These projects often operate under the rhetoric of 'resource

development' (see Trigger 1997) and what is questioned in this project is how does resource development fit into the new paradigm of sustainable development (Hilson and Murck 2000)?

The main difference between resource development and the development outlined above is that resource development is not defined by social policy; there is no distinct end point based on a development philosophy and usually no distinct starting point either. The primary interest in any location, as highlighted in *FHM* by Glenn Darnley-Stuart, is profit maximisation (Darnley-Stuart, *FHM*) and all other initiatives stem from this objective. NRRE is an economic initiative based largely on overseas investment; sustainable development, growth and social change are not its principal objectives. As such it is difficult to categorise resource development as imperial capitalism (although corporate imperialism is a term often used in reference to NRRE) in the way that other development projects have been (for example see Ferguson 1990). Due to their primary objectives and contribution to national economies NRRE industries often fall outside the remit of national and international development policies, with 'resource development' focussing more on extraction, infrastructure and contributing to global share prices than socio-cultural development. If we look at the HDI in relation to some of the world's resource-rich nations, for example, it is clear that NRRE and development are not necessarily mutually exclusive (Auty 1993: 1; Ross 1999).

So why are we considering NRRE within a development framework? Well, it would be inaccurate to exclude it as it undeniably operates within a capitalist configuration that, regardless of its objectives, cannot fail to represent development, prosperity, wealth and power within the 'Third World' locations that NRRE industries often operate. These industries also impose (intentionally or not) some level of transformation whereby long-standing cultural practices are modified in conjunction with a shift in desires, needs and wants. Thus the impact cannot fail to expand socio-economic boundaries to impose on deep-seated cultural factors.

One of the most obvious problems with NRRE, as the term itself suggests, is that it is short-term, transitory and exhaustive. The construction of NRRE projects involves significant infrastructure, be that the mining towns built to support national and expatriate employees in open-cast copper/gold mining (see Ok Tedi case study below) or the more exclusive enclaves constructed to house oil project employees (see Kutubu case study below; also Ferguson 2005; Gilberthorpe 2007). And because NRRE is short-term structural changes are made only to be withdrawn at some time in the future. Whilst the process of imposition and rapid withdrawal has some obvious links with post-WWII colonial reduction (see Hobsbawm and Ranger 1983) the objectives, as outlined above, differ dramatically. And this is where we see the major problem with NRRE as resource-based industrialisation in the 'Third World'– the very real cultural impact that NRRE can have, often unbeknown to the MNRCs operating them.

There are three general characteristics of global NRRE:

1. Where industry is physically (and thus socially and economically) excluded from the local environment.

2. Where industry provides services, royalties and compensation to local communities but participation is limited (by way of labour productivity and resource trade partnerships).

3. Where industry interacts with locals providing labour and services over an unspecified period.

The first is evident in territorial enclaving, best described by James Ferguson in his assessment of NRRE in a number of African locations. He writes, "there has been a significant expansion of capital investment in Africa in recent years .... and it has been overwhelmingly in the area of

mineral resource extraction….. What is noteworthy is the extent to which this economic investment has been concentrated in secured enclaves, often with little or no economic benefit to the wider society" (Ferguson, 2005: 378).   In his assessment of off-shore oil extraction in Angola, for example, Ferguson argues that: "In spite of some 25 years of booming oil production, Angolans today are among the most desperately poor people on the plant" (2005: 378; see also Okoko, 1999; Robson, 1999).

The second outcome is what we focus on in the Kutubu case study (see 2.4) where locals remain external to industrial activity but receive significant royalties. The third describes the Ok Tedi case (see 2.6) where local people are involved to some extent in industry but face a future without these benefits. And whilst long-term NRRE has proven prosperous in many global locations (see examples in Haley 2004) short-term industry can be damaging to social organisation and networks of interactivity.

It is in the latter two cases that the notion of 'hyper-development' comes into sharper focus (Banks 2005). Here the influx of cash and services can cause confusion, apathy and a culture of dependency that can not only lead to unrest, violence and such undesirable outcomes as alcoholism, gambling and prostitution (Banks 2005; Sillitoe 2000), but can amplify patterns of consumption that are difficult to reverse (Auty 1990: 5).

The problem in PNG is that MNRCs operate on an assumption of matched economic knowledge, whereby cash royalties are disseminated to those so-called 'clans' that can demonstrate ownership of land. In some cases local populations emphasise elements of their own culture to ensure maximum benefits and security for their children. This may mean a tightening up of kinship structures (Gilberthorpe 2007) or an emphasis on clan land ownership (Ernst 1999). Whatever mechanisms are adopted (or adapted) to ensure benefit streams the influx of cash can be divisive to the community and family structure characteristic of PNG societies. At the same time local populations remain largely external to socio-economic development and a national economy and identity.

The contributors to *FHM* reveal a distinct anxiety about a future without resource extraction, with the general feeling that "when the company goes, we will go back to the way we were before" (Gilberthorpe 2005). Extractive industry, remittance economies and the temporary character inherent to NRRE industry call into question the concept of 'development', particularly as a process that increases the health, wealth and living standards of a people (see Dictionary of Anthropology quote above). With the continuing development of NRRE industry on a global scale (vis-à-vis the development of other destructive industries such as large-scale logging and palm oil production) the need to provide a resource that highlights experiences and expectations of development is not only important but also fills a gap in the literature. The questions raised in this project are can host communities survive the temporary impact of a capitalist economy and values that present themselves under the ambiguous umbrella of 'development'? Are these 'development projects' incorporated in processes of globalisation or simply institutions on the margins of it (see Ferguson 1999: 236)? In short, is resource development sustainable? Attempts to answer these questions in the DVD are literally from the horse's mouth.

There are several questions we ask the reader to consider:

• Can we apply dependency theory to enclaves of NRRE; and if so how does it differ from dependency theory as it emerged in South American political discourse?

- Whilst we can question the labels colonialism and modernisation as appropriate methods for imposing social change is it true to say they no longer exist?

- Can the modernisation approach to development be consolidated with local people's desire for development?

- Does a change in terminology (from modernisation to national/international development, or from development to growth) necessarily mean a change in ideology?

- Does (or should) NRRE play a role in nation-building?

- What exactly are indigenous people referring to when they talk about 'development'? Is this different from development as it is understood by the company employees?

- Does top-down development still exist?

- Is (or should) sustainable development part of extractive industry in 'Third World' locations? Is it achievable?

2. The Case Study

2.1 Papua New Guinea

> …….. if Ok Tedi mine closes and goes I just want Ok Tedi to establish some things that will keep this environment and the people in contact with the rest of the world; if they don't it will get back to all green again and we will be lost again (Bobby Kain, *FHM*).

PNG is an independent Commonwealth state comprising the eastern part of the island of New Guinea (see Map 1). It is part of Melanesia which includes the Solomon Islands, Vanuatu, Western New Guinea and Fiji. The majority of the country's population live in rural villages (85%) with the minority living in the few large towns which include Lae in Morobe Province and the capital Port Moresby in the National Capital District. PNG has significant geographic and ecological diversity; from the dense rain forests of the highlands, sago swamps of the valley regions and the wetlands of the Sepik and Fly estuaries to the pristine tropical beaches of the coast and islands. Due to its rugged interior, many of PNG's rural areas are inaccessible by road (with the exception of those regions lying along the Highlands Highway, see Map 1), air travel being the only means of transport.

Map 1: Papua New Guinea

Situated 12° south of the Equator in Oceania, PNG is located on the western rim of the Pacific Ring of Fire. It has a number of active volcanoes and earthquakes are frequent, often accompanied by tsunamis. It is temperately tropical with cooler temperatures in the highlands often reaching below zero in the high altitudes. Due to its vast altitudinal range rainfall varies; whilst coastal towns are characteristically dry the rain forest regions receive almost daily rainfall.

PNG has in excess of 800 language groups, a consequence of its varied and rugged interior landscape. Whilst the country is famous for its cultural and linguistic diversity the national language

is English and the lingua franca Tok Pisin is widely spoken throughout the country. In terms of human development PNG is rated 139th (out of 177 countries) in the global HDI, dropping from 137th position in 2005 (UN 2006). As a country it is considered 'Third World' and 'developing' hovering just above the threshold of low development in the mid-low development band of the HDI (PNG is at 0.523)[3].

The country's colonial history stretches back three centuries, although this was restricted to the island region and accessible coastal towns. Much of its inland territory was not 'discovered' until the 1930s (Schieffelin 1991; Sinclair 1988). The island of New Guinea came under colonial rule in the latter half of the nineteenth century, the western half by the Dutch (Dutch New Guinea), the northeast by the Germans (Mandated Territory of New Guinea) and, later, the southeast by the British (Schieffelin and Crittenden 1991: 14). The south-eastern quarter was transferred to Australia in 1906, becoming the Australian Territory of Papua. The Australian military occupied German New Guinea in 1914 and the eastern part of the island became the Territory of Papua and New Guinea in 1949, later to be called Papua New Guinea (1972). Indonesia took over Dutch New Guinea in 1969, making up what are now the two Indonesian provinces of West Papua and Papua within Western New Guinea (formerly Irian Jaya). PNG proclaimed Independence from Australia in 1975 under the governance of Michael Somare.

Post-Independence, PNG embarked on an extractive industry phase. Situated as it is in an environment characterised by dense rain forest and limestone ridges the cost of clearing and importing infrastructure was instrumental to the development of industry in PNG at this time. The country relied heavily on foreign capital to develop and sustain industries in the rugged inland regions where mineral resources were located. Ok Tedi mine, for example, cost US$1.4 billion to construct in the early 1980s.

By the 1990s it was clear that PNG was "unable to use mineral revenues to transform the structure of its economy away [from] a resource dependent one, and serious problems were evident in terms of management of the sector at the national level" (Banks 2001: 64). Investment interest in PNG went into decline due largely to some major industrial withdrawals including Riotinto from Bougainville in 1989 and BHP Billiton from Ok Tedi in 2003.

Whilst today the NRRE industry stands as a paradigm of indigenous landowner recognition, contact between local indigenous populations and prospectors in the past was not always peaceful often ending in bloody clashes or civil war. The infamous Bougainville conflict is a case in point where the Panguna copper mine was forcibly closed in 1989 after a decade of social unrest, only to slump into a further decade of civil warfare from which the island and country is still recovering (May and Spriggs 1990). Perceptions of Papua New Guineans as violent transcended such events and perceptions of a generic, violent culture played a role in inhibiting widespread investment in the country's significant resource wealth (Dinnen 2001).

The number of economically efficient NRRE industries that did develop across PNG in the 1980s and 1990s benefited from the flow of landowner royalties. The success of the royalty system was facilitated by the efficiency of the exchange networks that pre-existed resource development among PNG's language groups (Filer 1997: 157; Gilberthorpe 2007: 109)[4]. MNRCs became exchange partners (Gilberthorpe, in press) and, in the isolated regions that the industries operated, the companies came to represent much of what was understood by the term development.

Because PNG development (at national and local levels) has largely been constructed around NRRE there is very little room for local populations to define it for themselves. And because large-scale

industry requires technical skills and technological knowledge, limitations are placed on local participation (see Imbun 2006). So whilst landowners receive royalties, equity, compensation and so forth they are often sidelined in decisions that affect their land and livelihoods and they remain largely external to industrial activity and development opportunities (see Gilberthorpe 2007; Kirsch 2007). There is a very real issue of sustainability here, and as companies become more and more aware of their ongoing obligations to communities, particularly those affected by the environmental destruction caused by mining, sustainability becomes central to corporate and governmental discourse (Kirsch 2007: 313). Recently a number of sustainability projects have been developed, including the Mining, Minerals and Sustainable Development Report (MMSD 2002) and the Department of Mining's (DoM) Sustainability Policy, which aim to find solutions to the better management of resource funds in resource extraction contexts that provide opportunities and training for isolated groups (DoM 2003a).

2.2 Resource Extraction

In a country with a seemingly plentiful supply of natural resources, low environmental regulations and low wage labour have made it attractive to foreign investors. Industry is now the major source of PNG's economy with mineral and oil exports accounting for 49.7% of the gross domestic product (GDP) and agriculture, timber and fish exports accounting for 30.4% of the GDP in 2005. Under the Mining Act the State owns "all minerals existing on, in, or below the surface of any land in Papua New Guinea, including minerals contained in any water lying on any land in Papua New Guinea." (DoM 2003b:10). Whilst the State owns subterranean resources all but 1% of PNG's total surface area is recognised as customary-held land (Larmour 1991:1). Various Leases or Licences, issued to interested companies by the Minister for Mining, enable MNRCs to engage in exploration and/or extraction activities.

As a resource-rich country many of its rural residents have become embroiled in processes of resource development receiving compensation, royalties, land rentals and equity as well as services for the period of extraction. These are not always matched by training and education programmes or labour productivity making some of PNG's indigenous population passive recipients of short-term development (see exceptions in Brooksbank 2003).

However, whilst industry has dominated PNG's economy for the last thirty years, as a European colony and source of resources we have to go back a bit earlier to understand its resource extraction history. PNG's potential resource wealth was a significant driving factor in its colonisation by Europe and, later, Australia. According to Schieffelin and Crittenden Australian administrators "believed the future of the Territory of Papua lay in economic development and the extraction of the rich resources that everyone believed were hidden in it" (1991: 29). Glenn Banks describes the first resource exploitation industries as small-scale, technologically limited and low impact operations with little concern for environmental monitoring (2001: 12-14; see also Sillitoe 2000: 126-129). The early extraction projects were largely characterised by off-shore investments (by Australia and Canada) and local wages were low (Banks 2001: 12-14; Sillitoe 2000: 126-127).

There have been several waves of resource extraction in PNG each one being more culturally tolerant than the one before it (see Imbun 2006: 316-8). The first wave began in 1888 on Sudest Island in Milne Bay Province with the discovery of alluvial gold by Australian prospectors (Banks 2001:12). With this wave declining by the mid 1920s the second wave took hold in 1932 with the development of Bulolo Valley alluvial gold by the Canadian company Placer Dome Limited in Morobe Province. This coincided with the development of operations at Edie Creek in Morobe (gold) and Loloki Valley in Central Province (copper). The Bulolo gold mine in Morobe contributed

over 80% of what was the Mandated Territory of New Guinea's total export earnings in the 1930s (Sillitoe 2000: 129). Gold exploration in Morobe was also the first to adopt the dredging method that became the model of future gold extraction ventures. It was also the first to bring in large machinery needed for large-scale operations and a town was built to support the staff (Imbun 2006: 317; Sillitoe 2000: 127). The second wave was interrupted by the Japanese invasion of PNG during WWII, when towns were destroyed or appropriated (Banks 2001: 13).

The third wave of NRRE occurred with the discovery of alluvial gold on Bougainville Island by the Australian company Conzinc Riotinto in 1963. This was closely followed by discoveries at Ok Tedi (1967), Porgera (1981), Misima (1985) and Lihir (1982). Gold production from the Panguna mine on Bougainville began in 1981, from Ok Tedi mine in 1984, Misima in 1989, Porgera in 1990 and Lihir in 1997. Along with the development of Kutubu oil and Hides gas between 1988 and 1992 these industries represented the core of PNG's resource industry (Banks 2001; Nelson 1976; O'Faircheallaigh 1982). During this phase Papua New Guineans had a much broader knowledge of their rights to mining and its impacts and played a more central role in the workforce (Brooksbank 2003; Imbun 2006).

NRRE has an impact far wider than the language groups identified as main beneficiaries and each region hosting NRRE industries has its own complexities. There a number of excellent ethnographies focussing on each area independently but amongst some of the best are for Misima and Lihir (Macintyre 2003; Macintyre and Foale 2004), Porgera (Banks 2005; Biersack 1999; Golub 2006; Jacka 2001), Ok Tedi (Crook 1999; Hyndman 1990, 1994; Jackson 1982; Jorgensen 1996, 2006; Kirsch 1997, 2007; Polier 1996), Bougainville (Connell 1991; Filer 1990; May and Spriggs 1990, Ogan 1971) and Kutubu (Ernst 1999; Weiner 1998) as well as a number of assays on peripheral groups including those by Guddemi (1997), Sillitoe (1999) and Strathern and Stewart (1998).

2.3 Ok Tedi and Kutubu

The two areas under discussion in this project are the Kutubu region in PNG's Southern Highlands Province, home to the Fasu language group; and the Ok Tedi region of PNG's Western Province, home to the Min language group. The Fasu and Min make interesting case studies for this project as they are culturally diverse with different experiences of industry and development (not only in comparison with each other, but also within each language group). The single major difference between Ok Tedi and Kutubu is environmental in terms of infrastructural development and degradation. As is common with open-cast mining the infrastructure at Ok Tedi is large-scale and includes a permanent township, hydro-electric powerhouse and roads connecting it to other regions (fig. 1-2).

Fig. 1 Fasu Region

Fig. 2 Tabubil Townshi

The crude oil sector of extractive industry in PNG is far smaller than its mining counterparts. Infrastructure is much less intrusive and environmental damage caused directly by operations is minimal (see Knauft 1993). There is no central township or facilities, operations and employees are segregated from local activity, and local villages are some distance from operations. In terms of direct impact Ok Tedi is famous for its well publicised environmental devastation (Hyndman 1988; fig. 3-4). Ok Tedi was upheld as an example of negative policy and practice, along with Bougainville, in the MMSD project in 2002 (MMSD 2002). Kutubu on the other hand is famous for its low impact implementation (see fig. 5 [Armstrong n.d.; Kennedy 1996; McCoy 1992]). Life around the project sites and the 'development experience' is thus very different for the two language groups.

Fig. 3 Ok Tedi River

Fig. 4 Ok Tedi River

Fig. 5 Oil Pipeline through the Rain Forest (Courtesy of OSL)

2.4 Oil Extraction at Kutubu

The discovery of oil in the 1980s just west of Lake Kutubu in Southern Highlands Province (Map 2) began an oil boom which was set to last for a minimum of 25 years. The preparation of the region for extraction coincided with the down-fall of Panguna mine on Bougainville (see Filer 1990; May and Spriggs 1990) and, therefore, careful steps were taken to ensure operations were environmentally sound (McCoy 1992) and that local landowners were effectively compensated for the use of land (Knauft 1993). The area housing the Kutubu oil project lies between the Hekikio (Kikori) and Soro Rivers in an area that is amongst PNG's most isolated and inhospitable. This geographic enclave is home to a single language group, the Fasu, who as hosts to the project receive royalties, equity and compensation.
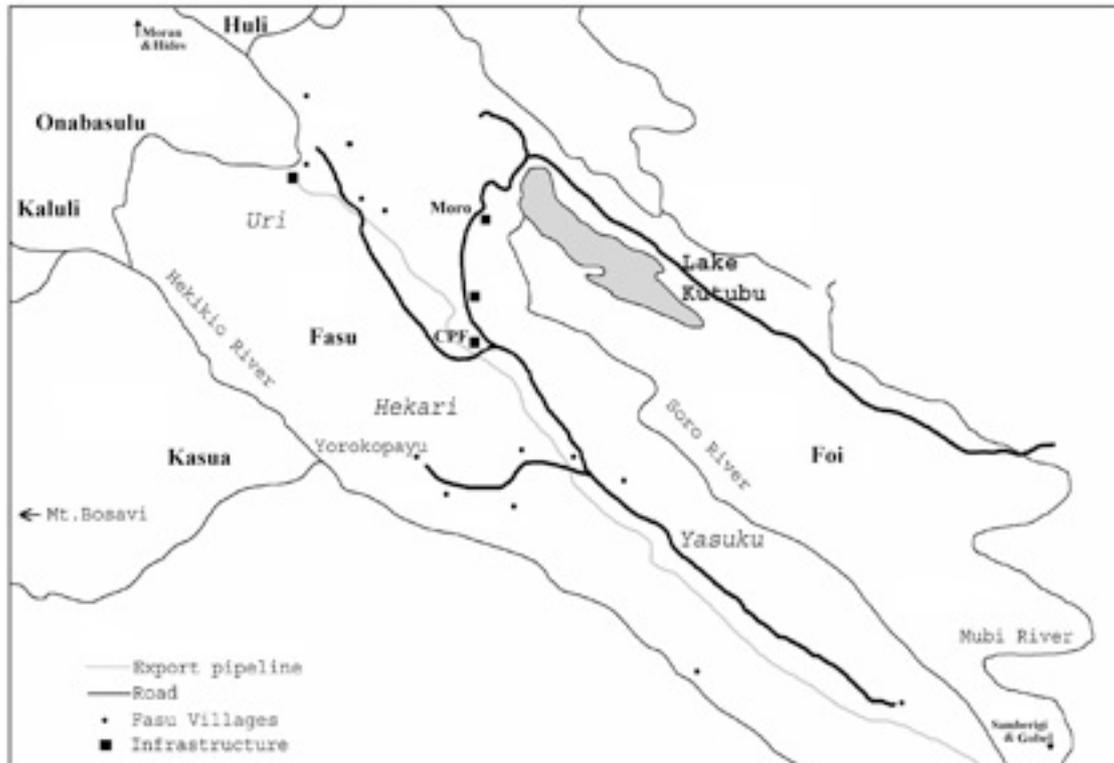
Map 2: Kutubu Region

The Kutubu oil project is a branch of the joint venture for oil and gas extraction in PNG that includes the Moran and Gobe oil fields and the Hides gas field. Infrastructure imposes on four main language groups, the Fasu, Huli, Samberigi and Onabasulu; the Fasu hosting the Kutubu project; the Huli and Onabasulu hosting the Moran and Hides fields and the Samberigi hosting the Gobe branch of the venture (Goldman 2004). The Kutubu oil project operates under Petroleum Development Licence 2 (PDL 2). Royalties for PDL 2 are based on 2% of well-head production value (Gilberthorpe 2007; cf. Ballard 1997: 55) of which theFasu receive 90% having allocated 10% to their close neighbours the Foi in an act of goodwill.

The development phase of the project began in 1990 with local communities playing a central role in clearing land for project infrastructure (Kurita 1985). Infrastructure now includes two company camps, an airport, two production facilities, a series of well-heads, and semi-permanent access roads (fig. 6-10). The main camp (fig. 11) has a number of employee cabins, a gym, basketball court, and medical centre. Both camps are tightly secured units, encased within barbed-wire enclosures that are policed on a 24-hour basis (cf. Ferguson 2005). Company employees work on a fly-in-fly-out basis in four-week blocks. The airport (fig. 6), although small, is international chartering employees to Cairns on Australia's north-east coast as well as to a number of national locations. The road network, developed as part of project infrastructure, includes access roads to the two production facilities (fig. 7), well-heads (fig. 9), and all but one of the Fasu villages (fig. 10). There is also an access road running along the banks of Lake Kutubu to the provincial capital Mendi (Map 2). Oil is processed on site and exported via a 265 kilometre pipeline (for the most part buried below ground)[5] to a marine loading terminal in the Gulf of Papua.

Fig.6 Moro Camp, Airport and Lake Kutubu

Fig. 7 Central Production Facility from the Air (courtesy of OSL)

Fig. 8 Central Production Facility from Ground (courtesy of OSL)

Fig. 9 Well-Head at Moran (Courtesy of OSL)

Fig. 10 The Pipeline Road

Fig. 11 Moro Camp

The exportation of petroleum from Kutubu began in June of 1992. At this time the joint venture partners were Chevron Niugini, Mobil, Broken Hill Propriety Limited, British Petroleum, Orogen, Oil Search Limited and Petroleum Resources Kutubu with Chevron Niugini (later ChevronTexaco) as the operating partner. In October 2003 ChevronTexaco's equity in the project was purchased by Oil Search Limited (OSL) who now operate and hold a 60.05% share in the Kutubu oil fields. Other shareholders in 2007 were ExxonMobil (14.52%), Merlin (6.78%), AGL Gas Developments Pty limited (11.9%) and Petroleum Resources Kutubu (6.75%) (OSL 2007). As hosts to the Kutubu oil project the Fasu have received in excess of 34 million kina in royalties, 4 million kina in compensation, 1 million kina in land rentals and 82 million kina in equity dividends since 1993[6].

Royalties are disseminated to registered landowners through the Incorporated Land Groups (ILG) system, a government-organised registration scheme that assures local people retain control of land and resources (Marru 2002; Sagir 2004). The ILG system of royalty distribution was implemented in the 1990s as a development of the Land Groups Incorporation Act established by the national government in 1974 to allow local groups to register as customary landowners. By definition ILGs are "legally registered corporations for the self-management of land resources" (Goldman 2004: 70; see also Gilberthorpe 2007; Goldman 2007; Marru 2002; Sagir 2004; Weiner 1998). Each registered ILG receives benefits through an ILG bank account into which royalties are paid biannually and accessed with the signature of any ILG member[7]. The 88 ILGs registered in 2005 received approximately 58, 500 kina each in that year alone (Gilberthorpe 2007). Much of the cash provided as benefits is absorbed into the local economy of bridewealth and compensation payments.

During the development phase of the project the Fasu region was conceptually divided by project officials into territorial pockets based on different groups' claims to certain areas (Ernst 1995). Based on Western ideals of land ownership, officials perceived each area to be 'owned' by a specific clan who were encouraged to register themselves as ILGs. At the time of project inception in 1992, 54 clans registered as ILGs; but by 2004 this number was closer to 88[8]. The 54 groups registered in 1992 were those 'clans' or named descent groups that existed at the time of initial registration. Whilst the landowner ideology enforces perceptions of land as the property of a fixed unit or 'clan', this conflicts with the fluid, informal nature of PNG traditional land tenure (Gilberthorpe 2007; Guddemi 1997; Sillitoe 1999). The number of ILGs frequently increases as landowning groups grow and fission, leaving a larger number of ILGs with fewer royalties. This is, however, largely inconsequential to monies received as inflation assures a significant flow of monetary wealth into the region.

The responsibility for ILG registration falls with local people and not with any external source, with neither operators nor government having up-to-date monitoring or management systems in place (Goldman 2004). ILG potential for developing capital ventures, managing resources, developing micro corporations and infrastructure, is not realised at the local level, and there is no government support to use ILG income for developing services and infrastructure (Goldman 2004). The function of the ILG then is solely as a vehicle for benefit distribution.

When the project began it had a life expectancy of twenty-five years (Simpson et al 1988a), and with production peaking in 1993 at 130,000 barrels per day, oil is now rapidly depleting (Goldman 2004). Since the late 1990s operations were dominated by discourse over the possibility of an off-shoot gas project that would extend beyond PNG's Gulf Coast, through the Torres Strait and down through Queensland's eastern coast. With this gas proposal being officially abandoned in February 2007, gas exploitation is instead set to remain in-country with the development of a natural gas and

liquefied petroleum gas phase of extraction expanding the infrastructure, impact and life of the project by a predicted 50 years (OSL 2007).

2.5 The Fasu

As recipients of 90% of the 2% commercial petroleum profits from the Kutubu oil fields the Fasu are major beneficiaries of the Kutubu project (see Gilberthorpe 2007). They are a small language group numbering some 1,200 men, women and children geographically confined between the Hekikio and Soro rivers (see Map 2). Although they share a language and belief system, social organisation is characteristically segmented, with shallow genealogical depth and putative historical connectivity (Gilberthorpe 2007). Identity is more firmly grounded in small, family groups who cultivate ties within and without their immediate territory. The project itself is relatively unimposing (see fig. 6-7); there is no central township or services and electricity, hygiene facilities and running water are not provided by the operators or government. Village architecture is based on pre-project models, with a central male-only longhouse made of bush materials flanked by smaller female-only houses (fig. 12).

Fig. 12 Fasu Houses in the Village of Yorokopayu

The Fasu make up a broader classification of people known as Kutubuans that also includes the Foi language group (Franklin and Voorhoeve 1973) and fall characteristically within the category of fringe highlanders (Weiner 1988). The Fasu are geographically isolated from their close neighbours by the Hekikio and Soro rivers, but a network of trade and intermarriage over generations of migration and activity ensured the development of ties with the Foi living around Lake Kutubu and between the Soro and Mubi rivers, the Huli to the far north, and the Kasua, living on the other side of the Hekikio. Some of the central Fasu groups also have ties with the Bosavi-Kaluli groups to the

west. Due to fluid migration patterns and principles of recruitment in the recent past, many Fasu are at least bilingual.

The landscape between the Hekikio and Soro rivers lies between 300 and 1,500 metres, offering a range of ecological conditions from sago swamp valleys and limestone ridges to dense tropical rain forest (see fig. 6-9). The Fasu region is roughly divided to form three geographically and dialectically distinct groups, the Uri (lit. 'mountain'), Hekari (lit. 'by the water') and Yasuku (lit. 'by the bush'), used more as a referential for other groups than as terms of self-reference which fall on much smaller totemic groupings. The concept of a bounded cultural group categorised under the generic term Fasu is not recognised by elders. They do, however, recognise a linguistic affinity between people who speak Namo Me (Namo 'real' Me 'talk') and the people who speak it as Namo Aporo (Namo 'real' Aporo 'people'). The Fasu make up a number of family-based groups of between approximately one and twenty people.

The Fasu are predominantly hunter-horticulturalists with a diet based on sago production and garden produce, supplemented by fish, game and sweet potato. Since the inception of the Kutubu oil project and the increase in cash, processed foods have entered the Fasu diet to varying degrees (particularly tinned meat and fish). This has seen a decline in male hunting and age-mate hunting parties are less frequent. Male activity is now far more concentrated around the villages, with a distinct focus on business, whilst female activity retains a domestic focus. Domesticated pigs still represent an important part of Fasu exchange. They are raised in small numbers by both males and females and consumed only on ceremonial occasions (Gilberthorpe 2004).

The Fasu observe a sharply defined sexual division of labour uncommon in the rest of the fringe highland region. Males exclusively hunt and trap and build exchange networks, whilst females exclusively produce sago. This division is the main reason for an increased burden on women as male activities shift from hunting and trapping to business activity. Sago and garden resources remain central to the Fasu diet so females continue to process the staple starch. The attenuation of gender sociality is mirrored in habitat, males occupying a male-only longhouse, females occupying smaller, female-only houses. The thirteen Fasu villages have changed very little since colonial times, moving within a limited area when new longhouses are built whilst retaining a primarily bush-material composition (see fig. 12).

According to Schieffelin and Kurita (1988) first contact with Euro-Australians occurred in this region in 1911 when the Baru-Paiama patrol passed through the area (see also Kurita 1985). An administrative centre was later (1937) established by the Australian government on the banks of Lake Kutubu in Foi territory (Ernst 1995)[9]. From here colonial patrols made their way out from the lake, establishing contact with the more isolated Fasu groups. Government roles such as kiaps (patrol officers), councillors, and medical orderlies were granted and scattered groups were forced together into more permanent villages (see Schieffelin and Crittendon 1991 for a succinct outline of regional colonisation).

Missionary occupation under the auspices of the Evangelical Church of Papua was established in the Hekari region in the 1960s, at which time an air strip and churches were built, local pastors educated and bans on sorcery, cannibalism, warfare and ceremonial dancing imposed[10]. According to Paul Freund (1977) the mission centre at Upuko became a centre of religious and social activity attracting individuals from the Kasua and Kaluli regions. Since the early 1980s there has been no missionary presence in the Fasu region and local church services are now conducted by local pastors in a mixture of the Fasu language and Tok Pisin.

The first literature on the Fasu appeared in 1942, compiled by government anthropologist Francis Edgar Williams whose monograph 'Natives of Lake Kutubu, Papua' (1976) presents an in-depth outline of the Foi culture, and a brief analysis of the 'Fasu-Kaipu' based on interviews with migrants and trading parties to Lake Kutubu. The term Fasu has been developed from Williams' early analysis to refer to a language and the people who speak it as a whole. The name Fasu is in fact the name of a single clan in the Hekari region, but has been adopted by the younger generation as a generic term of ethnic identity.

As for many Papua New Guineans the Fasu have recently adopted the term 'clan' to refer to the characteristically fluid units of affiliation known as aporo ira (lit. 'man tree'). These units are extended family groups with a patrilineal bias and kinship terms distinguishing levels of membership and obligation (see Gilberthorpe 2007). Each group is headed by the eldest living male member who is conceptually descended from a group founder. The head-man along with his younger brothers or mature sons form the core of the group and all decisions about land transfers, marriage and so forth are conducted through them. All affiliations to the core are the result of either migration – of wives and non-agnatic males – or progeny, dependents making up the broader clan group[11].

Totemic groups claim control of the land they occupy through perceived common descent from a group founder. The head-man inherits the obligation to maintain ties with other groups and individuals through the transfer of land and its resources. This was done in the past by ensuring that enough non-agnates were recruited to support the group in warfare and bridewealth accumulation, so that group founders may be quite recent and many of the 'clans' that exist today are the result of past migrations (see Gilberthorpe 2007 for in-depth discussion of this). In the current climate of resource extraction the ILG system of landownership has engendered rigidity in group organisation, seeing the development of exclusive landholding lineages, represented by a patri-unit of father and sons, and barring all male migrants (see also Guddemi 1997; Weiner 1998). Whilst non-agnates are no longer recruited, groups continue to segment in line with the growth of male children and the formation of new groups (this is evident in the increase of ILGs from 54 in 1992 to 88 in 2005).

Whilst Fasu interrelations adjust within a shifting landscape dominated by extractive industry, the issue of sustainable development remains ambiguous. Fasu villages remain traditionally structured from bush materials, generators remain an infrequent source of power and the availability of running water is restricted to a single source per village (although not all villages have this luxury). For the Fasu the landscape remains the source of subsistence as well as the source of individual identity and shared history (Gilberthorpe, in press). As such, development for the Fasu is characterised by a flow of cash rather than the kind of technical development that can be seen at Ok Tedi (see below). However, whilst the development experience may be limited for the Fasu, there remains a level of economic adjustment that has had a significant impact on the management and organisation of the economy at the local level.

The biggest change to the traditional economy is that of exchange paths. These have expanded beyond traditional territory as males establish affinal relations with individuals further a field (Gilberthorpe 2007 and in press). As is common in PNG bridal coupling is the medium for ongoing business relations between an individual man and his spouse's kin. Air travel and roads have made the scope for expanding these relations possible; and, in attempts to cultivate ties with perceptively more developed regions, marital ties have expanded to larger, commercial centres such as Port Moresby, Mount Hagen and Mendi. The obvious response to this has been an influx of the cousins, second cousins, sisters, friends, sister's friends and so forth of women married into Fasu groups. As

an acknowledged item of wealth cash has displaced the more traditional items of kina and cowrie shells and, due to the sheer amount of it within the region, is circulated during bridewealth ceremonies that now more than often involve external groups. This has defied elders' requests to keep the money circulating within the Fasu region and represents recognition on behalf of educated young males that development lies outside the Fasu region.

2.6 Mining at Ok Tedi

The Min are a much larger language group than the Fasu spanning a vast area in the Fly-Sepik headwaters (see Map 1). Due to the extent of infrastructural development and environmental devastation Ok Tedi copper mine affects a much larger percentage of the rural population than the Kutubu oil project does, including a number of non-Min groups. According to Dan Jorgensen upwards of 45,000 people are "most strongly affected by Ok Tedi" in an area spanning Western, Sandaun and West Sepik Provinces (2006: 236).

Ok Tedi Mining Limited (OTML) began the extraction and exportation of gold from an open-pit on Mount Fubilan (fig. 13) in the Star Mountains district of Western Province in 1984, after a three-year construction phase (Map 3). According to Glenn Banks Ok Tedi was "[o]riginally explored and developed to feasibility stage by Kennecott [1969], and the company withdrew from negotiations with the government in 1975" (Banks 2001: 16; see also Jorgensen 1996: 194). This was a consequence of the impact the transition to national independence had on government presence and demands in potentially affluent regions (Jackson 1982). Broken Hill Propriety Limited (BHP) of Australia revived interest in the mine in the late 1970s becoming the major partner and shareholder at its construction phase in 1981 (with a 52% share, the national government holding a 30% share).

Fig. 13 Ok Tedi Mine, Mount Fubilan (OTML 2007)

During this period the term 'development' became deeply entrenched in local minds, associated as it was with mining and the prosperity it was promised to bring (Jorgensen 1996: 194). The delay between Kennecott in 1969 and BHP in 1981 caused local resentment towards the government who were seen as impeding development for rural communities (Jorgensen 1996: 194). This resentment towards the government has continued throughout the mine's life and local people continue to question the role the government has and will play in ensuring sustainable development and ecological regeneration in the region when the mine closes (Burton 1999).
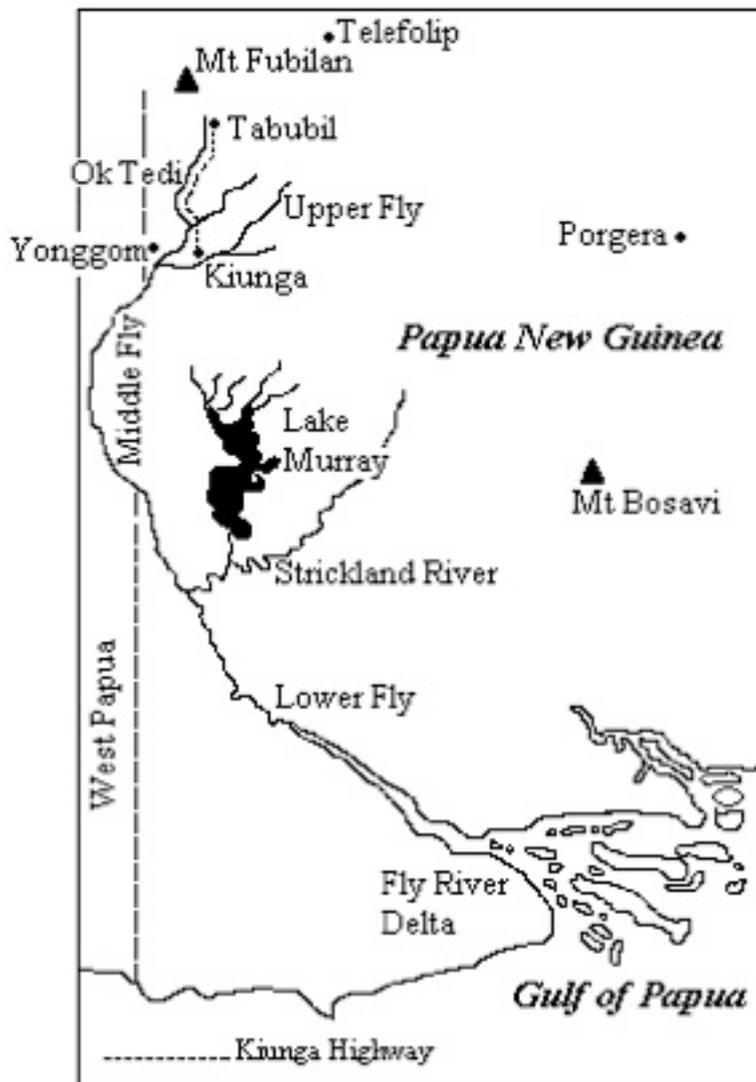
Map 3: Ok Tedi and Fly Regions

When construction began in 1981 it included clearing sites for the mine, company headquarters, hydroelectric powerhouse, access roads and highway to the river port of Kiunga, and developing infrastructure to support the project. OTML started life as a gold mine shifting in 1986 to a copper phase of extraction. Processed on site copper is piped 137 kilometres to facilities in Kiunga from where it is transported by barge to a port at the mouth of the Fly River (Hyndman 1990). Ok Tedi copper mine was central to PNG's economy accounting for one-fifth of its exports in the late 1990s (Burton 1999: 2).

The Ok Tedi project has become internationally well known for its unprecedented level of ecological damage. With the help of an Australian law firm a Au$4 billion lawsuit imposed by the Yonggom people in 1995 brought Ok Tedi to the attention of the world's media and environmental groups. The enormity of environmental destruction is caused by the riverene method of tailing disposal, which flushes 80,000 tonnes of untreated waste into the Ok Tedi River every day (Kirsch 1996a: 1). With the Star Mountains receiving over 7,000 millimetres of rainfall every year (Hyndman and Menzies 1990: 241) the exhausted river often bursts its banks, destroying surrounding gardens, hunting land and sago swamps (see fig. 4). Due to the high levels of rainfall mine tailings are washed down river, threatening the subsistence-based livelihoods of people living

in the upper, middle and lower Fly River estuaries (Banks and Ballard 1997; Jackson 2002, 2003; King 1997; Kirsch 1996a, 1997, 2002). After a series of environmental reports following the lawsuit, BHP admitted the devastation caused by the riverene method of disposal saying: "With the benefit of these reports and 20/20 hindsight, the mine is not compatible with our environmental values and the company should never have become involved" (cited in Burton 1999:1) [12].

Due to the level of environmental devastation the World Bank recommended BHP implement sustainable development projects and a dredging programme and close the mine (World Bank 2000: 21). BHP underwent a business merger with Billiton of South Africa becoming BHP Billiton in 2001, and withdrew as the mine's majority shareholder and operating partner in 2002 (see Kirsch 2007 for in-depth discussion of BHP Billiton's withdrawal). However, due to its economic dependency on Ok Tedi mine and status of near bankruptcy the national government pledged to keep the mine operating until the accessible copper ore was exhausted (Burton 1999: 2; Kirsch 2007: 309). BHP Billiton transferred their 52% share to the trust fund company PNG Sustainable Development Program Limited (PNGSDP) in 2002 and OTML continues to operate until a predicted closure date of 2012 (OTML 2007). Besides PNGSDP with 52% and the Independent State of PNG (including national and provincial governments and landowners) with 30%, the other stakeholder in the consortium is Inmet Mining Limited of Canada with an 18% share (PNGSDP 2006).

According to the World Bank Mine Closure Policy (World Bank 2000) services should continue beyond the life of the mine. PNGSDP have devised a policy to mitigate damage and take steps to sustain the Ok Tedi and Fly regions beyond mining by maintaining infrastructure and developing an urban centre for post-mine commercial activity (see PNGSDP 2005: 5).

During their time as operators BHP (and later BHP Billiton) developed the region into a bustling urban centre boasting a population of around 10,000 (Jorgensen 2006). OTML operates from a central headquarters in Tabubil town on the banks of the Ok Tedi River (fig. 14). The residential town has supermarkets, bakeries, post office, banks, hardware store, newsagents and chemist, as well as a number of public facilities including schools, medical centres, hotel, golf club and international airport (fig. 15). Rent-free, permanent houses with running water and electricity are built across the town in three categories. Category A and B houses (fig. 16) are exclusively for the upper echelon of mine employees (mostly expatriates), whilst C houses (fig. 17) are for government employees such as teachers, postal workers and medical staff, and for lower level OTML employees (mostly PNG nationals). OTML's main labour force live in dormitories (exclusively male PNG nationals).

Fig. 14 'The White House' – OTML Headquarters, Tabubil

Fig. 15 Tabubil Town Centre

Fig. 16 Category B Houses

Fig. 17 Category C Houses

All houses have televisions, receiving a variety of international and national shows including MTV and western movies. Whilst a number of films such as Superman and Jurassic Park cause significant confusion for local residents, horror films such as Dracula have played a central role in the intensification of sanguma ('sorcery') activity (see 3.7 below for discussion). Landowner villages lying outside Tabubil, including Migalsim, Bultem and Wangbin, have permanent houses with electricity and running water (fig. 18).

Fig. 18 Min Village of Migalsim

With mine closure looming locals predict that Tabubil will become "a ghost town" as people relocate to their rain forest villages. Even with the promises made by OTML and PNGSDP the ongoing maintenance of Tabubil township is impeded by the enormity of the environmental destruction. With the river and surrounding land incapable of sustaining livelihoods and the growing lack of faith in the government's maintenance of schools, medical centres and roads when the mine closes, local people's impulsion to stay in the town is practically non-existent.

Currently, all supplies used to support the running of the mine and town are brought in on a daily truck convoy along the specially-built highway from Kiunga. Everything from the goods that stock the supermarkets, bakery and pharmacy to the mechanical equipment used by the mine are trucked in, and it is this essential link that many Tabubil residents see as their connection to the outside world. One of the anxieties residents face as mine closure looms is that the Kiunga Highway (see Map 3), maintained by OTML, will fall into disrepair and simply "wash away" (Fig. 19).

Fig. 19 Unsealed Roads are Subject to Flooding

At Ok Tedi the isolation of the region and ongoing ambiguous governmental presence means that when OTML closes down and royalty and equity payments cease, it is more than likely that the infrastructure will break down. Without the communication networks made possible by the mine there will be little incentive for locals to try and maintain the town themselves.

2.7 The Min

The population of Ok Tedi includes a number of ethnic groups identified in the literature under two geographic factions – the northern mountain people known as Mountain Ok and the southern people inhabiting the foothills and sago swamp valleys who make up three ethnic groups – Ningerum, Yonggom and Awin (Kirsch 1995, 2006).

As inhabitants of the Star Mountains the Mountain Ok are closest to Ok Tedi mine. The term 'Mountain Ok' was devised by Alan Healey (1964) to describe the branch of the Ok language family living in the Fly-Sepik headwaters. More recently Mountain Ok acknowledge a collective identity under the ethnic grouping 'Min' (see Jorgensen 1990 and 1996 for a succinct outline of the development of Min identity; also Gardner 2004 for Min social organisation). Numbering some 25,000 (Jorgensen 2006) Min acknowledge a linguistic, cultural and geographic affinity (Jorgensen 1996: 190) and common descent from a single female ancestress widely known as Afek (in other dialects Karigan, Fukunkon, Fitipkanip and Yuwan [Brutti 2000: 102; Gardner 2004: 108]). Afek mythology states that she imposed land boundaries, trade networks, customs, clan specialty, rituals, and male initiation from a central cult house in Telefolip village (Brumbaugh 1990; Jorgensen 1996; see also Barth 1971; Hyndman 1990). These activities formed the cultural nexus for different groups with the suffix min (literally 'people'), which include Telefolmin, Urapmin, Oksapmin, Tifalmin, Wopkaimin, and Faiwolmin. Whilst affinities did exist between groups, regional anthropologists suggest that recognition of a homogenous unit was unlikely "and the term

'Mountain Ok' remains an outsider's designation rather than one used by the people themselves" (Jorgensen 1996: 192). The term Min, however, has been widely adopted by groups to demonstrate collective identity and ownership in an industry-dominated context.

The Star Mountains are rugged, steep limestone ridges with a rain forest cover and one of the highest rainfalls in PNG. Elevations range between 300 and 3,000 metres offering a range of resources and thus a variety of subsistence activities including sago production, hunting (wild pig, cassowary and small game) and taro gardening. Pig husbandry is practiced on a small scale, although this has increased since the inception of the mine (Jorgensen 2006: 243-244). Recent dietary introductions include supermarket produce, which are costly due to high importation costs and depend on the regional circulation of cash.

In the past local groups were autonomous and self-sufficient with loosely demarcated boundaries and fluid group membership. They interacted very little with outsiders, observing rules of trade and intermarriage as set down by Afek within a limited territory[13]. They traditionally inhabited more than thirty scattered villages, including Wangbin, Bultem, Migalsim, Bolangan, Imigabip, Tabarabip, Telefolip, Bolivip and Olsobip, of up to 250 people. Habitat has been described as varied, "from scattered households to shifting longhouses or fixed central villages" (Jorgensen 1996: 191). In this sense group organisation was, like the Fasu, fluid and flexible with the term 'clan' being a recent gloss for characteristically mobile units of affiliation.

A complex network of exchange operated across the broader Min region in line with the pathways created by Afek to ensure the circulation of resources and valuables around the region (Barth 1971; Brumbaugh 1990)[14]. Each group specialised in some form of resource production and/or circulation; this has since broken down and the flow of valuables (shell wealth in particular) has, in effect, disappeared (Jorgensen 1996: 197).

Taro is a particularly important crop central to Min culture and male cult activity (Barth 1987; Crook 1999; Jorgensen 2005). Pre-mine, cult and initiation centres were socio-political cores located across the region to represent a network of affinity between otherwise autonomous groups. Cult houses were the centre of cult activity and contained powerful relics, including bones and ancestral remains (Jorgensen 1996: 191). Membership to cult houses was based on a series of male initiation rites[15] marked by a complex system of taboos and secrecy that varied between groups but were essentially grounded in Afek's teachings (Barth 1987; Brumbaugh 1990; Jorgensen 1996; Kaoyak 2003). Telefolip was the name of the supreme taro cult house (fig. 20), said to be built by Afek and widely acknowledged as the most significant of all cult houses. Telefolip (and the village that shared its name) was the centre of regional cult activity and "visible testimony to ethnic links connecting all the Min peoples and the Ok Tedi mine" (Jorgensen 2005: 450). It was rebuilt on the same site for many generations, but its survival was threatened by the Christian Rebaibal in the 1970s (Brutti 1999; Hyndman 1990; Jorgensen 1981; Lohmann 2001; Robbins 1995, 2004)[16] and its significance as a cultural and ethnic core was finally destroyed (fig. 21) during the pentecostalist Christianity movement known as Operation Joshua (or OJ) in 2001 (see Jorgensen 2005 for in-depth discussion of OJ).

Fig. 20 The Supreme Taro Cult House in 1992 (Courtesy of Dan Jorgensen)

Fig. 21 Site of the Supreme Taro Cult House in 2004 (Courtesy of Dan Jorgensen)

Contact with missionaries and administrators was limited in the Fly-Sepik headwaters until 1943 (Jorgensen 1996) when the construction of a government patrol post (Telefolmin Station) marked the period of regional Australian Administration control and missionisation. Administrative control spread to remote areas in the 1950s with large-scale censusing and social mapping programmes dominating the period. This was closely followed by missionisation by the Australian Baptist Missionary Society, who constructed churches, schools, aid posts and airstrips, the latter affording males the opportunity to work in copra and tea plantations in coastal and, later, Highland areas (Jorgensen 1996). By the 1960s Telefolip was set up as the regional headquarters; "with its own local government council …. [it] became the site of a range of amenities that drew people from throughout the region: a well-stocked mission trade store, primary school, hospital and maternity clinic … local court and gaol" (Jorgensen 1996: 194). Access to European goods, including steel tools, and the development of trade stores meant that cash quickly became central to regional economic activity during this time.

With the development of the Ok Tedi mine in the 1980s the centre for regional activity shifted from Telefolip to the mining town of Tabubil on the banks of the Ok Tedi River (see Map 3). During the construction phase a number of Min left more remote areas to live in Tabubil and surrounding

villages (Jorgensen 2006; Polier 1996). According to a number of Faiwolmin (Gilberthorpe 2003) Kain Bakoyeng ('founder of Tabubil') of Bolangan village was amongst the first to enter the region and organise groups to clear land for infrastructure. The 'Mining Agreement' (1981) ensured that work and training was made available for the local population and approximately 1,300 locals (particularly Faiwolmin, Telefolmin, Oksapmin and people from the north Fly region) were employed by BHP during the construction phase (Brutti 2000: 108; Jackson and Ilave 1983; Jorgensen 2006: 242). This marked the dominance of cash in the region as workers sent money back to their villages (Brutti 2000: 108). Whilst many mine employees returned to their villages post-construction (Polier 1996; cf. Zimmer-Tamakoshi 1993) many either continued to work for the mine in different capacities or remained in the Tabubil region as residents.

During the mine's construction phase OTML devised the 'Principal Agreement' to register landowners. Those that lay claim to the land were the Wopkaimin groups living closest to the mine site and Tabubil. Wopkaimin moved their villages closer to the mine site and now live on the outskirts of Tabubil. All landowner villages have permanent houses with kitchens and bathrooms, running hot and cold water and electricity (used to varying degrees, with most families using traditional cook houses to cook and sleep in) and, as landowners, Wopkaimin receive 30% of the 1.25% royalty rate from the mining consortium (Ballard 1997: 55; Jackson 1993).

There are a number of landowner grievances in the Ok Tedi region. All Min consider themselves as "custodians of Afek's legacy" (Jorgensen 2004: 73) claiming historical connections to, and collective ownership of, the territory between Mount Fubilan and the Strickland River. Perceptions of the mine as the mythological centre of Min society (see Jorgensen 2004) are at the heart of unofficial stakeholder claims. According to Brumbaugh (1990) the Afek myth is a mnemonic map that integrates all Min and underlies the plausible historical connection of interrelated, interdependent groups to the mine site (see also Barth 1971). Dan Jorgensen best summarises this claim by highlighting the cultural significance of mythology in the region; he writes:

> In the mythology of the Afek cycle, Afek's younger brother Umoim created the Land of the Dead (Kwiinbil or Bagelam) after she had killed him at Telefolip. She sent him off to the west along an underground track, in the direction of the central Wopkaimin hamlet of Bultem, and he established the Land of the Dead underneath the mountain known as Fubilan …. Traditionally held to be the source of stone adzes (fubi, hence the mountain's name) and shell wealth originally produced by Afek's brother, Fubilan was torn apart by OTML in order to get at the gold. Thus shells no longer move along the old trade routes because their source beneath Fubilan was destroyed, and local people know that the mining company does this in order to turn gold into money. So it is that money is replacing shells in bridewealth transactions, just as the extraction of gold replaced the mythological source of shell wealth.

This account articulates a common view that the money now available to Min people is their just due, not simply as a replacement for shell wealth, but also as compensation for its loss. This, plus the traditional mythology linking Afek and her descendents to named locations in the Mountain Ok area have served as a focus for agitation claiming a right to a share of Ok Tedi's benefits for all Min" (Jorgensen 1996: 98).

Mining operations cover only a small part of what is seen by most Min as collective territory and only a percentage of the whole group receive benefits. As Faiwolmin see it they have not been

compensated for the invasion of ancestral land by OTML (Polier 1996). A number of comments made by Faiwol males substantiating this claim include:

> My group were left out of the benefit distribution in which I question the National and Fly River Provincial Governments including the Ok Tedi Mining Limited whether they did proper anthropological and sociological findings to justify their decision. They made a decision that builds the enmity between Wopkaimin, Faiwolmin, Telefolmin and other territorial groupings within Min. I do not know what the future will be like when the company leave and we are left with all the dissatisfactions (Gilberthorpe, field notes, 2003).

> The governments and Ok Tedi Mine destroyed the [trade] network that is why there had been no flow of money and businesses in the Min area since the mine started. The government made a terrible mistake because they did not do full investigations into our society to decide the number of tribes, clans and sub clans and conclude why we are different from other landowners in Papua New Guinea (Kaoyak 2003: 13).

> It is as if [Wopkaimin] are cooking a pig and the smell is wafting over to us, but they will not let us taste a bit of it (Gilberthorpe, field notes, 2003).

The conflict over benefits is growing by the day, along with resentment against Wopkaimin who have the power and knowledge to include all Min in the benefit stream, but continue to refuse extending this privilege. With mine closure looming, the rivalry between Wopkaimin and other Min groups will undoubtedly outlive the mine.

3. Issues Raised in the Film

There are a number of particularly poignant issues raised in *FHM* that we highlight here for more focussed consideration by the reader. Whilst the ethnographic and historical data provided above offers the reader the opportunity to consider these issues on a local and national level, these sections might alternatively be isolated for independent discussion and/or used as comparative data to discuss the impact of NRRE on a global scale. All introductory quotes are from *FHM*.

3.1 Environmental Destruction

> There are disadvantages of Ok Tedi being here, like environmental destruction is totally a chaos here, the river system is just really polluted (Bronya Kumulgo-Kain, *FHM*)

Environmental destruction seems to have been an inevitable side effect of global NRRE especially in earlier projects when environmental impact assessments were given very little thought. There are two major differences between hard-rock mineral extraction (copper, gold, diamond, quartz) and oil and gas extraction. Both can have significant, but different, environmental impacts. With hard-rock mineral extraction waste disposal practices have been a major concern as tonnes of earth need to be removed to access the minerals. In *FHM* Tabubil residents discuss the impact the mine has had on the environment; with the mine dumping "80,000 tons of untreated waste material into the river system each day" (Kirsch 1996a: 1) the impact on waterways and surrounding vegetation is devastating (see fig. 3). Mine tailings also disseminate toxins into the water that are potentially dangerous to aquatic resources and the individuals who subsist on them (Banks 2001: 56; Bryce 1996: 2; Jackson 1991: 67).

Concerns over the impact of tailings from the Ok Tedi mine were acknowledged during its construction phase, and although a tailings dam was initially constructed, when it was destroyed by a landslide in 1984 it was rendered an unsafe method of disposal. The Interim Tailings Disposal Scheme to allow riverene disposal was approved by the national government in 1985 and this later became the permanent system (Banks 2001: 55; Kirsch 2007: 305). The riverene method of tailings disposal has had a significant impact on the Ok Tedi and Fly River systems (see fig. 4-6); 1,554 square kilometres of rain forest have been affected by pollution and this "may eventually cover the entire floodplain of the river, or 4,200 square kilometres" (Kirsch 2007: 308).

The lawsuit filed against BHP in Melbourne, Australia between 1994 and 1996 by the Yonggom of the Lower Fly District ensured US$30 million in compensation for those most heavily affected by the tailings, a US$90 million trust fund for 30,000 residents and the construction of a tailings containment facility (Banks and Ballard 1997; Kirsch 1996b; see also OTML 2007). Whilst participants in the lawsuit "hoped that the mine would continue to operate, providing them with economic benefits and opportunities, albeit not at the cost of the river and the surrounding rain forest" (Kirsch 2007: 314), the level of environmental devastation led the World Bank to recommend early mine closure. The outcome has thus not been entirely beneficial to the regional population who not only face a future without the economic benefits of industry but must also contend with an exhausted river and devastated surrounding vegetation that will outlive the mine by many decades. Sediment in the lower Ok Tedi River is estimated to continue for a further 60 years whilst the sediment in the middle Fly River (where the Yonggom and Awin groups reside) is estimated to take several hundred years to return to normal (Kirsch 2007: 308).

Foreign companies are often permitted to destroy natural resources by national governments that have grown dependent on mineral extraction. The contribution Ok Tedi mine has made to PNG's national economy since the early 1980s, for example, has rendered it immune to a number of

Mining Act Legislations (Banks 2001: 35-36). The colonial model of NRRE, where environmental devastation is seen as an acceptable exchange for economic benefits (Kirsch 2007: 310), has stayed with the industry in PNG since it began in 1888. And just as the enormity of the environmental destruction caused by early mineral exploitation on Sudest Island in the 1890s and Morobe in the 1930s are still visible today (Hughes and Sullivan 1989), the impact of mining on the Ok Tedi and Fly rivers will remain visible for hundreds of years to come.

Whilst oil/gas extraction is characteristically smaller than open-cast mining, the ecological impact can be equally devastating. The impact of oil spills, gas flaring and/or gas emissions from extraction projects on vegetation, wildlife, marine life and human health has been famously reported in the Niger Delta (Okoko 1999) and Aceh, Indonesia (Ross 2003) to name but two. Conversely, in the Kutubu oil fields, developers went to extraordinary lengths and expense to ensure eco-friendly extraction. An underground pipeline was devised to minimise rain forest destruction and the possibility of pipeline damage and subsequent oil spills (McCoy 1992), whilst the isolation of project activity from villages has limited the impact of gas flaring on human health (fig. 7).

3.2 Material Culture

> People will buy items .. cars and stuff, but whereas say for example in Australia … there's a material culture of these items … and there's facilities and resources to repair them ..…what happens here is they'll use it, it'll break and it'll get chucked away and they'll have to buy a new one…. there's a lot of waste (Jack Taylor, *FHM*)

One of the major problems with development imposed from an external source is that of commodity dependency, which is difficult to reverse leaving it hard for cultural groups to return to a pre-development way of life (Auty 1990:5; Jorgensen 2006: 252-3). This is a particularly prominent problem when development is short-term, where the development experience offers people a taste of a Western lifestyle that will eventually cease to be available.

Ok Tedi is a prime example of a dependency culture. Those living in Tabubil and the surrounding landowner villages enjoy a Western style of life, living in houses with kitchens, bathrooms, gardens, washing machines and so forth. A large superstore and supermarket provide outlets for material including clothes, pots and pans, bicycles, ice cream, TVs, barbeques, beds, lawn mowers and coffins (see fig. 22-23). Many of the wealthier landowners (chairmen in particular) own four-wheel-drive vehicles, whilst more entrepreneurial landowners have set up small businesses, including trade stores, building companies and motor mechanic warehouses. Whilst such business ventures are few and far between (a consequence of jealous attacks threatening businesses across the Ok Tedi region) the majority of people have grown dependent on these and other services provided by the mine.

Fig. 22 Superstore Goods

Fig. 23 Superstore Goods

This is a particular problem for the younger generation who have grown up with fast food, MTV and supermarket goods as they have little opportunity, currently, to develop the skills and knowledge needed to survive either a market-based or subsistence-based lifestyle. In *FHM* the elder, Kiki, says "when the mine goes I'll go back to my village and eat taro and banana for the rest of my life" (Kiki, *FHM*); but he is fully aware that his son and grandson will not be going with him. And whilst Kiki's son has been lucky enough to be employed by OTML and sponsored by them to train at a technical college in Lae, many have not been so fortunate and the probability of large-scale migration to larger towns (particularly Lae) when the mine closes will cause inevitable housing and labour problems in that area.

The Fasu experience of material culture is very different from Ok Tedi. The impact of material goods began with general store produce (tinned meat and fish, rice) and increased to include stereos, televisions, VHS recorders, cars, motorbikes, and four-wheel-drive vehicles. However, with only 2% of villagers owning generators and the poor state of the road making four-wheel-drive vehicles the only viable form of transport, few objects are actually used. Without the electricity source to use TVs and videos, these objects become status symbols (in the way that kina and cowrie shells represented status in the past) whilst others, such as cars, bicycles and motorbikes, are used and discarded when they break down.

3.3 Cash Economy

> Money has caused a lot of death and jealousy and fighting …money is the main root of everything here now, people are getting jealous of each other, like clans, before we were recognised as one tribe….we had one tribe and .. we had sub-clans; now we have split [up] because of the money (Sarah Ekali, *FHM*)

Prior to resource development the availability of cash was minimal across PNG. It was introduced during periods of colonisation and missionisation, but was largely integrated into traditional economic systems. With the rise of large-scale industrial activity across PNG's isolated, interior landscape cash has become central to exchange activity. However, its provision in royalty payments is not always matched by development strategies and/or opportunities to invest in labour and training programmes. Therefore the way that cash has been imposed in contexts of NRRE does not bode well for sustainable development.

As is clear from the ethnographic data above the influx of cash into isolated, rural regions of PNG has caused a number of social problems, particularly inter-group conflicts. Here we have situations where socio-economic development was not part of the resource development objective but is, rather, a side effect of commercial industry (as OTML stress on the Sustainable Development section of their website "At its core…. OTML remains a mining company"; OTML 2007). Whilst the economic transition of local populations may not be industry's primary objective, NRRE marks an inevitable and major transformation from a subsistence lifestyle to one dominated by cash and capitalist ventures.

Perhaps the biggest problem with imposing a market economy on rural PNG landowners has been the assumption on behalf of foreign investors that Papua New Guineans have the same socio-economic organisation as Western cultures. During the social mapping phase of resource development local populations are largely assumed to own land as fixed hereditary clans (see Ernst 1995), and a cash economy is assumed to be compatible with a traditional one. Clearly this is not the case (see examples in Carrier and Carrier 1989; Gilberthorpe 2007). Cash not only transforms

traditional economies (even if it is used in much the same way as traditional forms of exchange), but this transformation has an impact on social organisation (see Gilberthorpe 2007).

One of the more poignant statements made in *FHM* by Bronya Kumulgo-Kain is that education should come before industrialisation (Kumulgo-Kain, *FHM*). At the moment many individuals do not have the information necessary to make informed decisions about resource extraction and about how it will connect them economically to the rest of the world (see also Sillitoe 2000: 140). Those who do understand this have reservations about the future of resource extraction in their area. This concern is most evocatively expressed by Tabubil artist Bobby Kain in the analogy of his painting with development at the end of the film (Kain, *FHM*).

3.4 Land Ownership

A lot of effort goes into trying to determine who the proper landowners are or where the land boundaries are, but if it wasn't for a project that generates cash I don't believe we'd have these issues (Glenn Darnley-Stuart, *FHM*)

Traditionally pre-oil project, pre-contact even there was no need to firmly define boundaries, there would have been just a ridge line, people would have had an understanding and quite often there would have been a buffer zone where maybe two different tribes of people like some Huli clans and some Fasu clans had an interest (Jack Taylor, *FHM*)

Issues relating to land ownership are central to global NRRE industries as land owners need to be identified before terrestrial extraction can begin. One of the primary issues relating to indigenous land rights is the conflict between Western ideas about land ownership and indigenous ones. This has been particularly prominent in the Australian literature (see for example Merlan 2004; Sansom 2002; Strang 2004). Whilst in many locations the state is identified as land owner or land is seen as uninhabited (as was the case in the Sudan, Ferguson 2005: 378-9) PNG has been a paradigm of landowner recognition, acknowledging that local people have claims to land that may appear un-used and un-inhabited. Whilst this has been central to the development of PNG industry it has had problems of its own. As suggested above, problems over who owns what land are central to conflicts in the Ok Tedi region whilst at Kutubu land ownership has engendered social atomisation.

Issues over land do not only affect those perceived as its owners, but also those peripheral landowners, or "unofficial stakeholders" (Filer 1997: 254), who are not considered direct beneficiaries of resource-generated benefits. The impact of industry is hard to isolate, particularly in the mining sector where tailings and infrastructure span a region broader than the mine site itself. At Ok Tedi the impact of the mine is far more expansive affecting populations living downstream from the mine, particularly the Yonggom and Awin groups, whose own claims have been on the basis of environmental devastation (Kirsch 1995, 2006). The Huli are another example who, as one of PNG's largest language groups (at a population of approximately 65,000), make a number of claims on NRRE projects including Porgera, Ok Tedi and Kutubu (Banks 2001: 50). In some cases the in-migration of people (kin or otherwise) to mine sites causes anxiety for the operators and local people (Banks 1999, 2005; Polier 1994). Porgerans, for example, complain that there are "faces we do not know" (Banks 2001: 47); whilst in other areas the halt on in-migration causes problems of its own (Gilberthorpe 2007).

New forms of group organisation are materialising right across PNG vis-à-vis an ideology of culture and cultural heritage as people recognise the benefits of modernity and development bound up in resource development projects. In a number of regions people fight for recognition as

landowners or beneficiaries of compensation from resource development projects (Jorgensen 2006; Kirsch 1997; Macintyre and Foale 2004), whilst in others people live in hope of minerals being discovered on their land (Ernst 1999; Guddemi 1997; Jorgensen 2004; Sillitoe 1999; Strathern and Stewart 2002). For those communities benefiting from NRRE projects, the imposition of land tenure principles in order to receive royalties forces them to reconsider the nature of group organisation (Burton 2005; Gilberthorpe 2007).

3.5 Closure Plans

> To me closure planning should start at the beginning, you should have a solid vision of what things are going to look like from a cultural .. social impact point of view [and] environmental impact point of view; and you should be implementing that plan throughout the operation, it's not something we should be thinking about late in the day (Jack Taylor, *FHM*)

Another major problem with NRRE is the ambiguous issue of project life expectancy. Project life can rarely be predicted as possibilities for further developments are encountered along with social and political problems that can put an abrupt stop to production (as was the case in Bougainville, see Filer and Macintyre 2006). Therefore, closure planning is rarely a consideration at the development stage. In PNG this was justified in the past by the focus on the commercial benefits (as opposed to socio-economic development agendas) of resource development. But with the post-Bougainville focus shifting to sustainability both the DoM and the Department of Mining (DPE) are taking a serious stance on drawing sustainability into PNG's resource development sector (DoM 2003a; DPE 2007). Mine closure documents with a focus on sustainability and regeneration have become prominent in mining contexts over the last few years; Ok Tedi now has a mine closure document (PNGSDP 2006) as does the Porgera Joint Venture (PJV 2002), whilst Kutubu has none.

Whilst the issue of sustainability is pronounced at the mine sites (see especially Armstrong n.d.; Banks 2001; MMSD 2002; PNGSDP 2006) it remains less of a concern in the oil/gas regions of Kutubu, Gobe, Moran and Hides. Whilst these sites have a number of social impact assessments, the issue of closure is avoided in all of them (Goldman 2004; Simpson et al 1998 a, b, c). The reasons for this lie with the environmental destruction, physical displacement and loss of land that go hand-in-hand with mining in areas like Bougainville, Ok Tedi and Porgera but do not exist at Kutubu. Both OTML and the PJV have been forced to respond to criticisms over their business practices, which have been publicised through the media (the Ok Tedi lawsuit was well documented and a documentary on the impact of the Porgera mine was made for Australian TV in 1995 by SBS). Conversely, the internationalisation of the oil/gas extraction industry has been positive (Bryce 1996; Diamond 1999; McCoy1992).

Perhaps the most prominent concern with both the ongoing operation and closure of NRRE industries in PNG is the communication barrier that exists between project operators and local populations, regardless of the non-renewable resource that is being extracted. Local uncertainty about project life is made clear in *FHM* by its contributors in statements such as: "if the mine does go……". The facts surrounding Ok Tedi's closure are well reported on Ok Tedi's website (OTML 2007) and yet this information has not filtered down to the villages. From the grass roots' perspective at a number of extraction sites across PNG the future lies in continued resource extraction and ongoing access to cash, services and goods (Jorgensen 2006; Zimmer-Tamakoshi 1993: 253).

3.6 Local Employment

> When locals ask for employment with the mine they just say 'just wait', .. they put them aside, they aren't accepted. I ask 'what is the reason'? I'm suspicious of this… they are making it very difficult for us to develop (Emma Kain, *FHM*, translated from Faiwol)

The issue of local employment is a contentious one in PNG. Whilst a study carried out for the DoM in 2002 revealed that:

> the Porgera, Lihir and Ok Tedi mines have all provided considerable business development, training and employment benefits to their immediate project area landowners and communities further affected in the respective provinces (Brooksbank 2003: 4).

The national workforce earn far less than expatriates do for the same job (Imbun 2006: 323). The managerial sector of the workforce is also largely made up of foreign and non-local individuals (for earlier studies on PNG's indigenous mine workers see Imbun 1999; Jorgensen 1998; Polier 1994).

Due to the country's extensive NRRE history a trained workforce has emerged that moves from one site to the next as new projects develop (Imbun 2006) making opportunities for locals beyond the construction phase less viable (see Brooksbank 2003 for statistics). The provision of cash royalties, equity and compensation to customary landowners makes a number of language groups hosting extraction projects very wealthy by national standards; and royalty and equity payments do not guarantee opportunities for locals to develop the skills necessary to effectively manage and maintain their economic base when projects cease production (see Ballard and Banks 2003; Banks 2002; Biersack 1999; Ernst 1999; Filer 1999; Hyndman 1994; Jacka 2001; Jackson and Kirsch 1997; Jorgensen 2004; Macintyre and Foale 2004; Zimmer-Tamakoshi 1993).

There are two primary factors influencing the number of local residents employed by NRRE companies in PNG. Firstly is a low level of education and literacy; and secondly is the comfort created by remittances that distracts from the need or desire to seek wage employment. At Kutubu, for example, only two out of 300 individuals worked for OSL in 2005. This was due to low levels of education in the region, lack of motivation to seek employment as a consequence of a local remittance economy, the ongoing practice of a subsistence-based lifestyle, and the fly-in-fly-out working roster that secludes individuals from family and kin at four-week intervals.

The situation at Ok Tedi is a little different; here a much larger percentage of the population work, at various levels, for OTML. Telefolmin have been particularly successful in gaining employment with OTML both at the construction and production phases (Jorgensen 2006: 242). One of the major problems clouding mine workers 'developing' at Ok Tedi has been the traditional structure of exchange and obligation that continues to be prominent throughout the Ok Tedi region. Wage labour operates along traditional lines of exchange (and non-exchange) so that wages are disseminated to family and kin rather than invested in business ventures (Jorgensen 2006; Kirsch 2006; Polier 1996).

3.7 Sanguma

> If the money's not been shared [sanguma] just kill, and if they see that someone is very successful they just kill, if they see that someone is being very educated and is going ahead of things they just want to kill. [It's] just jealousy, they think that if they are more educated, if they do more business they will earn more money and they will get richer and richer and the relatives who cannot afford or [who are not] able to earn such

> [money] will get poorer and poorer … so the practice of sanguma …. is very different now than in the past …. The mine being here has intensified the practice of sanguma and it has really destroyed a lot of people, productive people, in this society (Bronya Kumulgo-Kain, *FHM*)

Sanguma ('sorcery') is a noticeable problem in Ok Tedi and its presence plays a central role in hindering sustainable development in the region. As the above quote suggests jealousy and hostility impedes the possibility of landowner industries and economic ventures developing as levels of sorcery intensify. Sanguma is not exclusive to the Ok Tedi region (and indeed is prominent right across PNG) but cult activity is a prominent cultural characteristic (Barth 1987). In its traditional form sanguma was grounded in male initiation and secrecy, whereas in its modern formulation it is far more destructive and restrictive. For example, some factions have been influenced by films such as Dracula and Frankenstein, seen as representations of Western progress, power and wealth, and distinct cult groups are developing in response to these (cf. Michaels 1994: 80-95; Taussig 1980). These have the potential to be very damaging in a post-development context. One of the main problems is that sorcery is largely controlled by Atamakayak, sub-group of Faiwolmin, who do not receive benefits. The internal problems caused by this remain largely unknown to OTML[17].

3.8 Government Role

> When the company goes the road and infrastructure will break down; I don't think the government will maintain them (Kapi Nato, *FHM*)

> I don't think the government is blatantly trying to avoid its responsibilities in these communities but I don't believe they fully understand what is required to meet all the promises they make (Glenn Darnley-Stuart, *FHM*)

As Auty has argued (1990: 3) political constraints and limited regional policy are two of the prime factors restricting sustainable development and the future of long-term industry in 'Third World' countries. Certainly in PNG a succession of weak governments underlies the ongoing rural neglect, immature transport network, and lack of monitoring and reform programmes throughout the country's rural areas. At both national and provincial level the government does not have adequate management policies and strategies needed to provide the services and development programmes that would ensure sustainable development in these regions.

At both Ok Tedi and Kutubu, integration into a broader national political regime remains limited as extraction policies fail to adequately focus on regional needs and regional development. Rather, resource development falls under a generic remit incorporated in 'The Mining Act' (DoM 2003) and 'Oil and Gas Act' (DPE 2006). At Ok Tedi the mining consortium has even managed to fall outside the remit of 'The Mining Act' due to its significant contribution to the national economy. As stakeholders and policy makers the government receive major financial benefits from OTML. The fact that this does not adequately trickle down to the region (and particularly the grass roots) is one of the major problems impeding sustainable development in PNG on a national and inclusive level. As Glenn Banks argues "there are few existing mechanisms to ensure that revenues secured by Papua New Guinea from the [mining] sector are employed in any way to further the interests of sustainable development at national, provincial or local levels" (2001: 63). He continues: "Even if tough decisions are made in terms of policy … it may not be possible to carry through or implement new policy because of the lack of resources and capacity within the Papua New Guinea state" (2001: 72).

Whilst the Kutubu oil project has so far evaded large-scale environmental devastation, initial requests to the government for 'development' from local communities, which included the construction of school houses, aid posts and roads, were largely met by the operators (OSL) who took on a pseudo-government role in the broader Kutubu region (including Foi territory around Lake Kutubu and the Mubi River). OSL provide health centres, classrooms/schools and roads on the expectation that these are staffed and maintained by the government (Gilberthorpe 2007). These have not been sufficiently manned or maintained and no longer meet the growing needs of the people. One of the more prominent consequences of the lack of government presence in NRRE contexts is to local health (see discussion in Connell 1997a). For the Fasu, low population density over a vast area has meant poor access to health facilities that are poorly stocked, and low life expectancy and infantile death remain prominent throughout the Kutubu region (Owens n.d.).

At Ok Tedi in the much smaller region around Tabubil, OTML have also taken on a pseudo-government role. They have built schools, houses and maintain roads within Tabubil where the Euro-Australian population live side-by-side with the local population. The Australian population assures the provision of teachers and government workers and locals have access to well-stocked health centres, housing, running water, sanitation facilities and healthy food. This has meant a healthier region where children in particular suffer less from malnutrition and disease (compare fig. 24 with fig. 25). The fear is, however, that with the withdrawal of OTML (and the Australian residents) in 2012 the upkeep of the facilities will also cease.

Fig. 24 Fasu Child

Fig. 25 Min Child

In both the Kutubu and Ok Tedi regions the lack of government initiative has meant that the government, company, and host communities remain separate entities with unconsolidated and conflicting values. Attempts made to combat this conflict in South America saw the unification of various NGOs, indigenous communities and the international media in efforts to 'internationalise' the struggles of the indigenous population (Conklin and Graham 1995: 695). In Brazil this lead to the emergence of improved communication and negotiating discourses between industry operators and indigenous communities giving political clout to local populations within what Conklin and Graham refer to as "an arena of intercultural communication, exchange, and joint political action" (1995: 696).

Whilst media coverage of the lawsuit against Ok Tedi has certainly given political clout to Ok Tedi and Fly River residents (see Kirsch 2002), government interest in the socio-economic development of the region, post-mine, remains limited. Geographic isolation and inhospitable landscapes underscore the government's lack of interest in both Ok Tedi and Kutubu beyond extractive industry. Efforts to invest in education and training are limited (Parsons and Vincent 1991) and the

availability of wage labour to a largely unskilled and uneducated local population is minimal (see also Connell and Howitt's edited volume 1991; cf. Ferguson 2005). With inadequate focus on rural education and long-term welfare, effective sustainable development and medical programmes are negligible and when resources dry up and companies withdraw, the government upkeep of services is in no way guaranteed (cf. Zimmer-Tamakoshi 1993).

Isolation from operations, absence of government responsibility and lack of social and economic development programmes has meant that resource development has had a minimal overall effect on the livelihoods or potential economic sustainability of local populations in PNG (see Gilberthorpe 2007). Education and health service is poor, life expectancy and literacy are low, and female income and education achievements are far lower than males. This conflicts quite drastically with the supposed wealth of regions which are amongst the highest in PNG. But with much of the cash provided as benefits being absorbed into local economies of bridewealth and compensation payments, the likelihood of sustainable development remains low.

4. Conclusion

In PNG the development experience of its indigenous inhabitants has become inexplicably entwined with the resource extraction industry. Our aim in this project has been to locate NRRE within the broader sphere of development particularly within the new paradigm of sustainability. According to the Brundtland Report 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: the concept of 'needs', in particular the essential needs of the world's poor, to which overriding priority should be given; and the idea of limitations imposed by the state of technology and social organizations on the environment's ability to meet present and future needs" (UN 1987). So how do NRRE industries fit into this definition, and can a sustainability framework be incorporated into areas that not only fall outside the category of "the world's poor", but also where limitations are the result of inadequate communication, conflicting objectives and government neglect? Resource development projects continue to spread across the globe and the projects themselves continue to provide the framework for the 'development experience'. And yet the 'normal' principles guiding development (such as aid, capacity building and so forth) remain allusive, making sustainable development an unlikely offshoot of the industry. Certainly in PNG the 'needs' of current and future generations become lost in a smoke-screen of remittances and unachievable promises of development.

Whilst sustainability has been a buzzword in PNG's resource extraction sector since the internationalisation of the Bougainville crisis and the lawsuit against BHP (DoM 2003a; MMSD 2002), its application remains problematic. With limited incentive amongst local populations to stay in regions that have been ecologically devastated (Ok Tedi and Fly regions) or socially divided (Kutubu), combined with inadequate commitment from the government to maintain services (especially schools and medical centres) and communication networks, the practicality of imposing sustainable development programmes (see examples in PNGSDP 2007) at the end of NRRE projects needs to be questioned. So whilst sustainable development is central to the industry, is it enough and is it too late?

The probability of local populations returning to a pre-development life when extraction projects cease operating is, of course, unlikely. Along with ecological destruction dependency on cash, the influx of dangerous cult activity and the desire to seek wage labour in urban centres all factor in to the likelihood of post-extraction urban immigration. Spurred by the desire to seek employment in

urban areas, PNG's rural inhabitants continue to flock to urban centres. Urban immigration underlies the growing levels of poverty, deprivation, crime and unemployment in areas like Port Moresby, Lae and Mount Hagen (see Connell 1997b, 2000). As such the development community's focus remains in these centres. Due largely to the perceived wealth and assumed opportunities available to those hosting NRRE industries these areas are rarely susceptible to international development or humanitarian aid and remain external to development policies (particularly in areas where the industry has not been internationalised through media coverage).

What is needed for NRRE to prosper as a development strategy in PNG, rather than a mere divisive representation of modernity and precursor to urban immigration, is proactive policies that focus on grass roots integration at the construction phase of resource development. Rural social and cultural stability need to be at the heart of resource development agendas as it is in these areas and within these contexts that the majority of PNG's indigenous population experience and articulate development.

What we hope to have provided here is an informative and interactive package that will stimulate discourse on resource development within academic and corporate circles to foster policy development and better economic management in companies operating projects in 'Third World' locations. Besides the value of this project to anthropological discourse, it contributes to a growing collection of work carried out by social scientists in these environments in PNG and elsewhere that advocate the plight of indigenous populations experiencing short-term development (Kirsch 2002). The most significant contribution this project makes, however, is that it provides a voice for the underrepresented; here the need for cultural recognition and sustainable development comes, literally, from the horse's mouth.

Appendix A
Contributor Biographies
Kutubu:
Glenn Darnley-Stuart: OSL Field Operations Manager. Euro-Australian.

Jack Taylor: OSL Health, Safety and Environment Special Projects Coordinator. Grandson of renowned Australian government officer Jim Taylor and Solipena Sepeka of Kenemaro village in Bena, Eastern Highlands Province. Euro-Australian/Papua New Guinean.

Sarah Ekali: OSL Health, Safety and Environment, Environmental Specialist. Papua New Guinean – Samberigi.

Kapi Nato: Head-man of Fasu-Sanemahi clan. Owner – Kutubu Security Services. Papua New Guinean, Fasu.

Firo Kapi: Wife of Kapi Nato. Papua New Guinean from Erave, Southern Highlands Province.

William Kapi: Son of Kapi Nato. Papua New Guinean, Fasu.

Sere Kiate: Wife of Kiate Wakafu (Fasu). Papua New Guinean, Foi.

Ok Tedi:
Emma Kain: Wife of 'founder of Tabubil' Kain Bakoyeng (deceased). Papua New Guinean, Min (Faiwol) – non-landowner.

Bobby Kain: son of Kain Bakoyeng. Papua New Guinean, Min (Faiwol) – non-landowner.

Bronya Kumulgo-Kain: Wife of Bobby Kain. Tabubil high-school teacher. Papua New Guinean, Chimbu. Raised in Australia by Euro-Australian anthropologist.

Kiki: Elder. Papua New Guinean, Min (Faiwol) – non-landowner.

Borok Petalok: Counsellor. Papua New Guinean, Min (Wopkai) – landowner.

References Cited

Armstrong, K.

n.d. Environmental conservation and sustainable development in Papua New Guinea's rain forests. The oil industry: operating in sensitive environments. London: International Petroleum Industry Environmental Conservation Association.

Auty, R. M.

1990 Resource-based industrialization: sowing the oil in eight developing countries. Oxford: Clarendon Press.

1993 Sustaining development in mineral economies: the resource-curse thesis. London: Routledge.

Banks, G.

1999 The economic impact of the mine. In C. Filer (Ed.) 1999: 88-127.

2001 Papua New Guinea Baseline Study. London: International Institute for Environment and Development.

http://www.iied.org/mmsd_pdfs/png_baseline.pdf

2005 Globalisation, poverty and hyper-development in Papua New Guinea's mining sector. Focaal 46: 128-43.

Banks, G. and C. Ballard (Eds)

1997 The Ok Tedi settlement: issues, outcomes and implications. Canberra: ANU.

Ballard, C.

1997 It's the land stupid! The moral economic of resource ownership in Papua New Guinea. In P. Larmour The governance of common property in the Pacific region. RMAP. Canberra: ANU: 47-65.

Ballard, C. and G. Banks

2003 Resource wars: the anthropology of mining. Annual Review of Anthropology 32: 287-313.

Barth, F.

1971 Tribes and intertribal relations in the Fly headwaters. Oceania 41: 171-191.

1987 Cosmologies in the making. London: Cambridge University Press.

Biersack, A.

1999 Porgera: whence and whither? In C. Filer (Ed.) 1999: 260-79.

Brooksbank, J.

2003 Business development, training and employment. Department of Mining Working Paper 3. http://www.mineral.gov.pg/

Brumbaugh, R.

1990 Afek sang: the 'old woman' myth of the Mountain-Ok. In B. Craig and D. Hyndman (Eds) 1990: 54-87.

Brutti, L.

1999 On his Holiness' secret service: representations of Catholicism in contemporary evangelised Papua New Guinea. In C. Kocher Schmid (Ed.) Expecting the day of wrath: versions of the millennium in Papua New Guinea. PNG: National Research Institute: 44-56.

2000 Afek's last son: integrating change in a Papua New Guinean cosmology. Ethnohistory 47 (1): 101-111.

Bryce, R.

1996 Spinning Gold. Mother Jones September /October. http://www.motherjones.com/news/feature/1996/09/bryce.html

Burton, B.

1999 BHP admits Ok Tedi mine is environmental disaster. Asia Times Online (August 13). www.atimes.com/oceania/AH13Ah01.html

Burton, J.

2005 The anthropology of personal identity: intellectual property rights issues in Papua New Guinea, West Papua and Australia. RMAP. Working Paper 59. Canberra: ANU.

Busse, M., N. Araho and S. Turner

1993 The people of Lake Kutubu and Kikori: changing meanings of daily life. Port Moresby: PNG National Museum and Art Gallery.

Carrier, J. G. and A. Carrier

1989 Wage, trade and exchange in Melanesia. Berkeley: University of California Press.

Conklin, B. and L. Graham

1995 The shifting middle ground: Amazonian Indians and eco-politics. American Anthropologist 97(4): 695-710.

Connell, J.

Compensation and conflict: the Bougainville copper mine, Papua New Guinea. In J. Connell and R. Howitt (Eds) 1991: 55-76.

1997a Health in Papua New Guinea: a decline in development. Australian Geographical Studies 35 (3): 271-293.

1997b Papua New Guinea: The Struggle for Development. Routledge, London.

2000 Urbanization and Settlement in the Pacific. In Resettlement policy and practice in Southeast Asia and the Pacific: conference papers and proceedings. Asian Development Bank: 43-53.

Connell, J. and R. Howitt (Eds)

1991 Mining and indigenous peoples in Australasia. Sydney: Sydney University Press.

Craig B. and D. Hyndman (Eds)

1990 Children of Afek: tradition and change among the Mountain-Ok of Central New Guinea. Sydney: University of Sydney.

Crewe, E. and Harrison, E.

1998 Whose development? An ethnography of aid. London: Zed Books.

Crook, T.

1999 Growing knowledge in Bolivip, Papua New Guinea. Oceania 69 (4): 225-242.

Diamond, J.

1999 Paradise and oil. Discover March 1999: 94-102.

Dinnen, S.

2001 Law and order in a weak state: crime and politics in Papua New Guinea. Honolulu: University of Hawaii Press.

Dixon, P., J. Barr and P. Sillitoe

2000 Actors and rural livelihoods: integrating interdisciplinary research and local knowledge. In P. Sillitoe (Ed.) Indigenous knowledge development in Bangladesh: present and future. London: Intermediate Technology Publications: 161-177.

DoM (Department of Mining, PNG)

2003a Sustainable Development Policy and Sustainability Planning Framework for the Mining Sector in Papua New Guinea http://www.mineral.gov.pg/

2003b Papua New Guinea Department of Mining Information Booklet http://www.mineral.gov.pg/

Dorfman, A. and A. Mattelart

1975 How to read Donald Duck: imperialist ideology in the Disney comic. New York: International General.

DPE (Department of Petroleum and Energy, PNG)

2006 PNG 2006 licensing round guidelines. PNG: DPE.

http://www.png-licensinground.com/fugro_mcs/content/RoundDetails/LicensingGuidelines.pdf

2007 Government introduces new Incentive Rates for Petroleum Operations

http://www.petroleum.gov.pg/

Ernst, T.

1995 Incorporating Fasu clans. Research in Melanesia 19: 1-18.

1999 Discourse and entification in Onabasulu modernity. American Anthropologist 101 (1): 88-97.

Escobar, A.

1988 Power and visibility: development and the invention and the management of the third world. Cultural Anthropology 3 (4): 428-443.

1991 Anthropology and the development encounter: the making and marketing of development anthropology. American Ethnologist 18 (4): 658-682.

1995 Encountering development: the making and the unmaking of the third world. Princeton: Princeton University Press.

Ferguson, J.

1990 The anti-politics machine: "development", depoliticization, and bureaucratic power in Lesotho. Cambridge: Cambridge University Press.

1999 Expectations of modernity: myths and meanings of urban life on the Zambian copperbelt. Berkeley: University of California Press.

2005 Seeing like an oil company: space, security, and global capital in neoliberal Africa. American Anthropologist 107 (3): 377-382.

Filer, C.

1990 The Bougainville rebellion, the mining industry and the process of social disintegration in Papua New Guinea. Canberra Anthropology 13: 1-39.

1997 Compensation, rent and power in Papua New Guinea. In S. Toft (Ed.) Compensation for resource development in Papua New Guinea. Port Moresby: National Research Institute: 156-190.

1999 (Ed.) Dilemmas of development: the social and economic impact of the Porgera gold mine 1989-1994. Canberra: Asia Pacific Press.

Filer, C. and M. Macintyre

2006 Grass roots and deep holes: community responses to mining in Melanesia. The Contemporary Pacific 18 (2): 215-231.

Frank, A. G.

1967 Capitalism and underdevelopment in Latin America: historical studies of Chile and Brazil. London: Monthly Review.

Franklin, K. and C. L. Voorhoeve

1973 The linguistic situation in the Gulf district and adjacent areas, Papua New Guinea. In K. Franklin (Ed.) Pacific Linguistics Series C (26). Canberra: ANU.

Freund, P.J.

1977 Social change among the Kasua, Southern Highlands, Papua New Guinea. Unpublished PhD thesis. University of Iowa.

Gardner, D.

2004 Continuity and identity: mineral development, land tenure and 'ownership' among the Mountain Ok. In J. Weiner and A. Rumsey (Eds) Mining and indigenous lifeworlds in Australia and Papua New Guinea. Oxon: Sean Kingston Publishing: 101-124

Gardner, K. and Lewis, D.

1996 Anthropology, development and the post-modern challenge. London: Pluto Press.

Gilberthorpe, E.

2003 Field notes. Ok Tedi, PNG.

2004 The Fasu, Papua New Guinea: analysing modes of adaptation through cosmological systems. Unpublished PhD Thesis. University of Queensland.

2005 From the horse's mouth: perceptions of development from Papua New Guinea. Documentary Film. Darkwood Films, 55 minutes.

2007 Fasu solidarity: a case study of kin networks, land tenure and oil extraction in Kutubu, Papua New Guinea. American Anthropologist 109 (1):101-112.

2007b "It's raining money": anthropology, film and resource extraction in Papua New Guinea. Anthropology in Action 13 (3).

Forthcoming. Is poverty part of natural socio-economic human development?

In Press. Pathways to developmen: identity, landscape and industry in Papua New Guinea. In S. Heckler (Ed.) Local, traditional or indigenous? Traditional environmental knowledge from a multidisciplinary perspective. Oxford: Berghahn Books.

Goldman, L.

2004 NW Moran and SE Mananda: social impact assessment. Port Moresby: Oil Search Ltd.

2007   Incorporating Huli: lessons from the Hides Licence area. In J. Weiner and K. Glaskin (Eds) Customary land tenure and registration in Australia and Papua New Guinea: anthropological perspectives. ANU: Asia-Pacific Environment Monograph 3: 97-116.

Golub, A.

2006 Who Is the "Original Affluent Society"? Ipili "Predatory Expansion" and the Porgera Gold Mine, Papua New Guinea. The Contemporary Pacific 18 (2): 265-292.

Grillo, R.D.

1997 Discourses of Development: The View from Anthropology. In R.D. Grillo and R.L. Stirrat (Eds) 1997: 1-33.

Grillo R.D. and R.L. Stirrat (Eds)

1997 Discourses of development: anthropological perspectives. Oxford and New York: Berg.

Guddemi, P.

1997   Continuities, contexts, complexities, and transformations: local land concepts of a Sepik people affected by mining exploration. Anthropological Forum 7(4): 629-648.

Haley, S.

2004 Institutional assets for negotiating the terms of development: indigenous   collective action and oil in Ecuador and Alaska. Economic Development and Cultural Change 53(1):1–20.

Healey, A.

1964   The Ok language family of New Guinea. PhD Dissertation. ANU.

Hettne, B.

1995   Development theory and the three worlds (2nd edition). Harlow: Addison Wesley Longman Ltd.

Hilson, G. and B. Murck

2000   Sustainable development in the mining industry: clarifying the corporate perspective. Resources Policy 26: 227-238.

Hobart, M. (Ed.)

1993 An anthropological critique of development: the growth of ignorance. London: Routledge.

Hoben, A.

1997 Development. In T. Barfield (Ed.) The Dictionary of Anthropology. London: Blackwell: 113-114.

Hobsbawm E. and T. Ranger

1983 The invention of tradition. Cambridge: Cambridge University Press.

Hughes, P. and M. Sullivan

1989 Environmental impact assessment in Papua New Guinea: lessons for the wider Pacific region. Pacific Viewpoint 30 (1): 34-55.

Hutchinson, S.

1996 Nuer dilemmas: coping with money, war, and the state. Berkeley: University of California Press.

Hyndman, D.

1988   Ok Tedi: New Guinea's disaster mine. The Ecologist 18 (1):24-9.

1990 The Ok Tedi mining project: problems with the pot of gold in B. Craig and D. Hyndman 1990. (eds).

1994   Ancestral rain forests and the mountain of gold: indigenous peoples and mining in New Guinea. Boulder: Westview Press.

Hyndman, D. and J. Menzies

1990 Rain forests of the Ok Tedi headwaters, New Guinea: an ecological analysis. Journal of Biogeography, 17 (3): 241-273

Imbun, B.

1999 Industrial and employment relations in the Papua New Guinea mining industry. Waigani: University of PNG.

2006 Local laborers in Papua New Guinea: attracted or compelled to work? The Contemporary Pacific 18 (2): 315-333.

Jacka, J.

2001   Coca-Cola and Kolo. Anthropology Today 17 (4): 3-8.

Jackson, R.

1982 Ok Tedi: the pot of gold. Boroko: Word Publishing Co.

1991 Not without influence: villages, mining companies, and government in Papua New Guinea. In J. Connell and R. Howitt (Eds) 1991: 18-33.

1993 Cracked pot or copper bottomed investment? The development of the Ok Tedi project, 1982-1991, a personal view. Melanesian Studies Centre, Queensland: James Cook University.

2002   Capacity building in Papua New Guinea for community maintenance during and after mine closure. London: International Institute for Environment and Development.

2003 Muddying the waters of the Fly: underlying issues or stereotypes? RMAP Working paper 41. Canberra: ANU.

Jackson, R. and G. Banks

2002 In search of the serpent's skin: the history of the Porgera gold mine. Port Moresby, PNG: Placer Niugini.

Jackson, R. and T. S. Ilave

1983 The progress and the impact of the Ok Tedi project. Boroko: Institute of Applied Social and Economic Research.

Jorgensen, D.

1981   Life on the fringe: history and society in Telefolmin. In: The Plight of Peripheral People in Papua New Guinea, R. Gordon, ed., pp. 59-79. Cambridge (Mass.): Cultural Survival.

1990   The Telefolip and the architecture of ethnic identity in the Sepik headwaters in B. Craig and D. Hyndman 1990 (Eds): 151-160.

1996   Regional history and ethnic identity in the hub of New Guinea: the emergence of the Min. Oceania 66: 189-210.

1998 Whose nature? Invading bush spirits, travelling ancestors and mining in Telefolmin. Social Analysis 42: 100-116.

2004 Who and what is a landowner? Mythology and marking the ground in a Papua New Guinea mining project. In (Eds) A. Rumsey and J. Weiner Mining and indigenous lifeworlds in Australia and Papua New Guinea. Oxon: Sean Kingston Publishing: 68-100.

2005   Third Wave evangelism and the politics of the global in Papua New Guinea: spiritual warfare and the recreation of place in Telefolmin. Oceania 75:444-461.

2006 Hinterland history: the Ok Tedi mine and its cultural consequences in Telefolmin. The Contemporary Pacific 18 (2): 233-263.

Kaoyak, T.

Revelation of Min secrecy and power. Unpublished monograph.

Unavailable due to confidential documentation of Min secret knowledge.

Kassam, A.

2002 Ethnotheory, ethnopraxis: ethnodevelopment in the Oromia regional state of Ethiopia. In P. Sillitoe, A. Bicker and J. Pottier (Eds) 2002: 64-81.

Kennedy, D.

1996   Drilling Papua New Guinea: Chevron comes to Lake Kutubu. International Monitor 17 (3).

King, D.

The big polluter and the constructing of Ok Tedi: eco-imperialism and underdevelopment along the Ok Tedi and Fly Rivers of Papua New Guinea. In G. Banks and C. Ballard (Eds) 1997: 118-140.

Kirsch, S.

  Social impact of the Ok Tedi mine on the Yonggom villages of the North Fly,   1992. Research in Melanesia 19: 23-102.

    1996a   Acting globally: Eco-politics in Papua New Guinea. The Journal of the International Institute 3 (3): websource

http://www.umich.edu/~iinet/journal/vol3no3/kirsch.html

1996b   Cleaning up Ok Tedi: Settlement Favors Yonggom People. The Journal of the International Institute 4 (1): websource

http://www.umich.edu/~iinet/journal/vol4no1/oktedi.html#top

1997   Indigenous response to environmental impact along the Ok Tedi. In S. Toft (Ed.) Compensation for resource development in Papua New Guinea. Canberra: National Centre for Development Studies, ANU.

2002   Anthropology and advocacy: a case study of the campaign against Ok Tedi Mine. Critique of Anthropology 22 (2): 175-200.

2006   Reverse anthropology: indigenous analysis of social and environmental relations in New Guinea. Stanford: Stanford University Press.

2007   Indigenous movements and the risks of counterglobalization: tracking the campaign against Papua New Guinea's Ok Tedi mine. American Ethnologist 34 (2): 303-321.

Knauft, B.M.

1993 Like money you see in a dream: petroleum and patrols in south New Guinea. Oceania 64: 187-190.

Kurita, H.

1985 Who came first? The contact history of the Fasu-speaking people. Man and Culture in Oceania 1:55–66.

Larmour, P.

1991 Introduction. In P. Larmour (Ed.) Customary land tenure: registration and decentralization in Papua New Guinea. Monograph 29. Boroko: Institute of Applied Social and Economic Research.

Larrain, J.

1989 Theories of development: capitalism, colonialism and dependency. Cambridge: Polity Press.

Lohmann, R.

2001 Introduced writing and Christianity: differential access to knowledge among the Asabano. Ethnology 40: 93-111.

Long, N. and A. Long

1992 Battlefields of knowledge: the interlocking of theory and practice in social research and development. London: Routledge.

Macintyre, M.

2003   Petztorme women: responding to change in Lihir, Papua New Guinea. Oceania 74: 120-133.

Macintyre, M. and S. Foale

2004 Politicized ecology: local responses to mining in Papua New Guinea. Oceania 74: 231-251.

Mair, L.

1984. Anthropology and development. London, Macmillan Press.

Marru, I.

2002 Contemporary challenges on the use of customary corporations in petroleum development projects in Papua New Guinea'. South Pacific Land Tenure Conflict Symposium, University of South Pacific.

www.usp.ac.fj/landmgmt/SYMPOSIUM/

Marzano, M.

2006 Intercropping science and local knowledge in Sri Lanka: extension, rubber and farming. In P. Sillitoe (Ed.) Local Science versus Global Science. Oxford: Berghahn Books: 155-174.

May, R. and M. Spriggs (Eds)

1990 The Bougainville crisis. Bathurst: Crawford House Press.

McCoy, C.

1992 Good intentions: Chevron tries to show it can protect jungle while pumping oil – but Papua New Guinea tribes grow restless over pact for pipeline and a road. Wall Street Journal June 9th.

Meier, G.

1984 Emerging from poverty. New York: Oxford University Press.

Merlan, F.

2004 Development, rationalisation and sacred sites: comparative perspectives on Papua New Guinea and Australia. In J. Weiner and A. Rumsey (Eds) Mining and indigenous lifeworlds in Papua New Guinea and Australia. Oxon: Sean Kingston Press: 244-269.

Michaels, E.

1994 Bad Aboriginal art: tradition, media and technological horizons. Minneapolis: University of Minnesota Press.

MMSD (Mining, Minerals and Sustainable Development)

2002 Breaking new ground: mining, minerals and sustainable development. London: Earthscan.

Nash, J.

1979 We eat the mines and the mines eat us: dependency and exploitation in Bolivian tin mines. New York: Columbia University Press.

Nelson, H.

1976 Black, white and gold: goldmining in Papua New Guinea 1978-1930. Canberra: ANU Press.

Nelson, N. and S. Wright (Eds)

1995 Power and participatory development: theory and practice. London: Intermediate Technology.

O'Faircheallaigh, C.

1982 Mining in the Papua New Guinea economy 1880-1980. Port Moresby, UPNG Occasional Paper in Economic History, No.1.

Ogan, E.

1971 Nasioi land tenure: an extended case study. Oceania 42 (2): 81-93.

Okoko, E.

1999 Women and environmental change in the Niger Delta, Nigeria: evidence from Ibeno. Gender, Place and Culture 6 (4): 373-378.

OSL (Oil Search Limited)

      2007 Home Page

http://www.oilsearch.com/html/

OTML (Ok Tedi Mining Limited)

2005 CMCA environmental predictions update. PNG: OTML.

2007 Home Page

www.oktedi.com/

Owens, P.

n.d. All in a day's work, in the villages of Papua New Guinea. Electronic resource. http://www.alumni.utah.edu/continuum/summer97/anwar.html

Parsons, D. and D. Vincent

1991 High stakes: mineral and petroleum development in Papua New Guinea. Islands/Australia Working Paper 91(5). The National Centre for Development Studies. Canberra: ANU.

Paul, S.

2000 BHP battles two remaining headaches. Reuters, October 18th. Planet Ark. Electronic resource.

      www.planetark.com

Pearse, A.

1980 Seeds of plenty, seeds of want: social and economic implications of the Green Revolution. Oxford: Clarendon Press.

Pezzoli, K.

1997 Sustainable development: a transdisciplinary overview of the literature. Journal of Environmental Planning and Management 40 (5): 549-574.

PNGSDP (Papua New Guinea Sustainable Development Program Ltd.)

      2005 Annual Report.

    http://www.pngsdp.com/Publications/2005%20Annual%20Report.pdf

      2006 Ok Tedi Mining Ltd Operations

      http://www.pngsdp.com/oktedi.html

2007 Western Province Sustainable Development Program

      http://www.pngsdp.com/westernsdp.html

PJV (Porgera Joint Venture)

      2002 Porgera mine closure consultation document. Porgera : PJV.

Polier, N.

1994 A view from the "cyanide room": politics and culture in a mining township in Papua New Guinea. Identities 1 (1): 63-84.

1996 Of mines and Min: modernity and its malcontents in Papua New Guinea. Ethnology 35 (1): 1-16.

Robbins, J.

1995 Dispossessing the spirits: Christian transformations of desire and ecology among the Urapmin in Papua New Guinea. Ethnology 34: 211-224.

2004 Becoming sinners: moral torment in a Papua New Guinea society. Berkeley: University of California Press.

Robertson, A.F.

1984 People and the state: an anthropology of planned development. Cambridge: Cambridge University Press.

Robson, E.

1999 Commentaries on Eno Okoko's article: 'women and environmental change in the Niger Delta, Nigeria: evidence from Ibeno'. Gender, Place and Culture 6 (4): 379 – 390.

Ross, M.

1999 The political economy of the resource curse. World Politics 51 (2): 297-322.

2003 Resources and rebellion in Aceh, Indonesia. The Yale-World Bank Project on 'The Economics of Political Violence'.

Sagir, B.

2004 The politics of petroleum extraction and royalty distribution at Lake Kutubu. In A. Rumsey and J. Weiner (Eds) Mining and indigenous lifeworlds in Australia and Papua New Guinea. Oxon: Sean Kingston Publishing:145-156.

Sansom, B.

2002 A frightened hunting ground: epic emotions and landholding in the western reaches of Australia's top end. Oceania 72 (3): 156-194.

Schieffelin, E.

1991 The Great Papuan Plateau. In E. Schieffelin and R. Crittendon (Eds) 1991: 58-87.

Schieffelin, E. and R. Crittendon (Eds)

1991 Like people you see in a dream: first contact in six Papuan societies. Stanford: Stanford University Press.

Schieffelin, E. and H. Kurita

1988   The phantom patrol: reconciling native narratives and colonial documents in reconstructing the history of exploration in Papua New Guinea. Journal of Pacific History.

Sillitoe, P.

1998 An introduction to the anthropology of Melanesia: culture and tradition. Cambridge: Cambridge University Press.

 Beating the boundaries: land tenure and identity in the Papua New Guinea highlands. Journal of Anthropological Research 55 (3): 331-360.

2000 Social change in Melanesia: development and history. Cambridge: Cambridge University Press.

2002 Participant observation to participatory development: making anthropology work. In P. Sillitoe, A. Bicker and J. Pottier (Eds) 2002: 1-23.

Sillitoe, P., A. Bicker and J. Pottier (Eds)

2002 Participating in development: approaches to indigenous knowledge. London and New York: Routledge.

Simpson, G., L. Goldman, J. Brooksbank, A. Goie and M. Finlayson

1988a 'People and place' PNG gas project: social and economic impact study vol. I. Port Moresby: Chevron Niugini PTY. LTD.

1988b 'People and place' PNG gas project: social and economic impact study vol. II. Port Moresby: Chevron Niugini PTY. LTD.

1988c 'People and place' PNG gas project: social and economic impact study vol. III. Port Moresby: Chevron Niugini PTY. LTD.

Sinclair, J.P.

1988 Last frontiers: the explorations of Ivan Champion of Papua, a record of geographical exploration in Australia's Territory of Papua between 1926 and 1946. Queensland: Pacific Press.

Strang, V.

2004   Poisoning the rainbow: mining, pollution and indigenous cosmology in far north Queensland. In A. Rumsey and J. Weiner (Eds) Mining and indigenous lifeworlds in Australia and Papua New Guinea. Oxon: Sean Kingston Publishing: 208-225

Strathern, A. and P. Stewart

1998 Shifting places, contested spaces: land and identity politics in the Pacific. The Australian Journal of Anthropology 9 (2): 209-224.

2002 Remaking the world: myth, mining and ritual change among the Duna of Papua New Guinea. Washington: Smithsonian Institute Press.

Taussig, M.

1980 The devil and commodity fetishism in South America. Carolina: University of North Carolina Press.

Trigger, D. S.

1997 Mining, landscape and the culture of development ideology in Australia. Ecumene 4: 161-179.

UN (United Nations)

1987 The Brundtland report. Report of the world commission on environment and development: our common future. Oxford: Oxford University Press. (version available at) http://ringofpeace.org/environment/brundtland.html

2006 Human development report. http://hdr.undp.org/hdr2006/statistics/

Wallerstein, I.

1974 The modern world system: capitalist agriculture and the origins of the European world economy in the sixteenth century. New York: Academic Press.

Weiner, J.

1988 Introduction. In J. Weiner (Ed.) Mountain Papuans: historical and comparative perspectives from New Guinea Fringe Highland societies. Ann Arbor: University of Michigan Press: 1-38.

1998 The incorporated ground: the contemporary work of distribution in the Kutubu Oil Project Area, Papua New Guinea. Working Paper 17. RMAP. Canberra: ANU.

Williams, F.E.

1976 Natives of Lake Kutubu, Papua. In E. Schwimmer (Ed.) Francis Edgar Williams "The Vailala Madness" and other essays. London: C. Hurst and Co.

World Commission on Environment and Development

1987 From One Earth to One World: An Overview. Oxford: Oxford University Press.

World Bank

 Report on Ok Tedi Mining Ltd. Mine waste programme project risk assessment and supporting documents. World Bank.

2007 www.worldbank.org/

Zimmer-Tamakoshi, L.

1993   Bachelors, spinsters and Pamuk meris. In R. Marksbury (Ed.) The business of marriage. Pittsburgh: University of Pittsburgh Press: 83-104.

Notes

[1] The name, *From the Horse's Mouth*, distracts from stereotypical anthropological ethnographies and highlights the film's primary concern – to hear the opinions of those experiencing development.

[2] We use the term 'Third World' as a term of reference throughout this monograph, placing it within inverted commas to demonstrate the problems associated with such terms.

[3] In comparison to the UK (0.943), USA (0.948).

[4] See Merlan (2004: 248) for discussion of why resource development projects have been more accepted by the indigenous population of PNG than the indigenous population of Australia.

[5] As such, the Kutubu oil project has been recognised as "New Guinea's premier conservation area" (Diamond 1999: 102).

[6] 1.00 PGK equalled 0.17 GBP in 2007. Many thanks to John Brooksbank and Laurie Bragge of Oil Search Ltd for these statistics.

[7] As females are not recognised as group members, these signatures are restricted to males, and only literate males, greatly reducing the number of people who can actually access funds.

[8] Due to incomplete electronic records the accuracy of this number is questionable (Goldman 2004: 72) – there is also an issue of some overlaps in group registration.

[9] The administrative centre was unoccupied during World War II but re-established in 1945 after which time the majority of contact and subsequent censusing was carried out.

[10] The total loss of these remains contested, and a very strong fear of sorcery continues in the Kutubu region. Ceremonial dance has been fully reintroduced since the end of the 1990s (Busse *et al* 1993).

[11] Whilst the *aporo ira* is essentially a male institution females do consider themselves to be part of the *aporo ira* of their father or husband. When males are asked how many people there are in their *aporo ira*, however, the number given is the number of mature males only.

[12] BHP Billiton no longer uses the riverene tailings disposal method in any of their projects (Paul 2000).

[13] According to Kaoyak (2003) a number of ancestral and animal bones demarcate Min territory.

[14] Min genealogy and historical connectivity is complicated and diverse and due to limited space the extent of this cannot be ventured into in this monograph. As an example of the diversity, however, Kaoyak (2003) refers to Duwinim (Olsobip village) descent from two ancestors who were murdered by Afek, and their bones were scattered and worshiped by elders. In some factions then Afek is referred to as "the great prostitute, aggressor, witch and wanderer" (Kaoyak 2003: 4).

[15] These are no longer practiced. This is due largely to the impact that Christianity, and particularly the Christian Rebaibal, has had in the region.

[16] The aims of the Rebaibal were to break with the traditional past and realise a new Christianity. Initiation rites were stopped, cult artefacts destroyed and a new Christian knowledge revealed (see Jorgensen 1981 for a detailed outline of the aims and dynamics of the Rebaibal movement).

[17] Changes to local belief in the Ok Tedi region have been particularly influenced by a number of powerful movements, especially the Rebaibal and OJ movements. If the reader wishes to develop a better understanding of *sanguma* they are encouraged to consult some of the wealth of literature available on the subject in the Ok Tedi region. Amongst the best are Barth 1987; Brutti 1999; Jorgensen 1981, 2005; Lohmann 2001; Robbins 1995, 2004.