



**5.0**

# Anticipating Social and Community Impacts of Deep Sea Mining

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Other chapters in this volume demonstrate that the mineral extraction potential of deep sea mining could be enormous, that economic opportunities are driving Pacific Island states' exploration of deep sea mining, and that deep sea mining – if approached from a holistic environmental perspective – might offer Pacific Island states economic means of achieving development goals. But what of the social and community impacts of deep sea mining? How might communities be affected or societies changed when the most socially disruptive aspects of mining shift offshore? How can such impacts be predicted, measured, and monitored? And will communities be able to register complaints successfully, exercise decision-making authority, or grant a social licence to operate to an industry operating not in their backyards, but in their equally prized and culturally important seas?

Discussion in this chapter is based on several key assumptions:

- that many of the common socio-cultural and socio-environmental concerns linked to terrestrial mining will also be relevant to deep sea mining, although perhaps to differing degrees;
- that deep sea mining, like onshore operations, will be subject to regulation that requires consideration, reporting, and redress of social impacts and formally lodged community complaints; and
- that the risks and negative impacts Pacific Island communities perceive as being associated with deep sea mining are just as important as the actual risks.

Finally, it is acknowledged that the term community is problematic, as it may appear to conflate or ignore existing diversity, divergences, hierarchies, and power relations (Banks 2002). Keeping this complexity in mind, the term is used here for ease of discussion.

Current knowledge suggests that deep sea mining will not directly impact local communities to the same degree as terrestrial mining. The central question then becomes: how significant is the impact from deep sea mining likely to be? The answer will lie, in part, with when and how issues are assessed and changes identified. At this early stage, all parties must focus on how anticipated or identified impacts are to be addressed and create processes that involve local communities in determining whether the balance between benefit and impact is satisfactory (Gibson 2000).

## 5.1

# The usual case for mining: economic and development imperatives

Mining is frequently associated with negative social and environmental impacts on communities and environments. Nevertheless, strong cases are made for the continuation and expansion of the mining industry, even in places where mining has previously resulted in social or environmental catastrophes. Besides the dependence of contemporary civilization on mined products, perhaps the most common argument in support of terrestrial mining is its historical position as a lucrative industry. As a new industry, the extent to which deep sea mining can deliver similar (or any) economic benefits is yet to be determined.

In the case of onshore mining, economic benefits usually flow to government in the form of taxes and royalties paid at a local and national level. In certain situations in Pacific Island states, such as on Lihir Island in Papua New Guinea, compensation payments to the local community also comprise a significant part of economic benefits (Bainton 2010). Such funds can have extraordinary effects on local and national infrastructure, amenities, and services, especially in developing nations. Economic gains from mining have the potential to fund community development, to boost education access and quality, and to improve health and healthcare services. Compensation payments, when invested well, can improve livelihoods, build small, local businesses, and generate greater community wealth. Other substantial economic benefits of mining may include, but are not limited to, employment, local procurement, downstream processing, investment in infrastructure, and local business opportunities (Esteves and Vanclay 2009).

Mining-company-funded corporate social responsibility programs are also increasingly common, with the major multinational miners distributing hundreds of millions of dollars each year. A range of voluntary initiatives specific to mining or its primary products also shapes companies' approaches to so-

cial responsibility. Such frameworks include the influential Global Reporting Initiative's *Mining and metals sector supplement* (GRI 2010), the United Nations Global Compact, and the International Council for Mining and Metals. Other initiatives aim to encourage responsible mining practices through supply chain pressure. EARTHWORKS' "No dirty gold" campaign, for example, targets jewellery companies, asking them to agree to source gold that is mined in an ethical manner, aligned with the initiative's 10 Golden Rules (EARTHWORKS 2010).

However, and importantly, mining's economic benefits are not all benign. A growing number of studies suggests a negative relationship between mining and economic indicators of development (Davis and Tilton 2005). Some economics writers now recognize that local communities often bear the brunt of negative social impacts while the rents realised by the country flow elsewhere (Davis and Tilton 2005). Especially in countries where corruption is rife or in which strong financial governance or business ethics are lacking, mining-derived wealth can be a curse for local communities (Auty 1993). Monies intended to support social initiatives, improved infrastructure, or health campaigns can end up in the pockets of individual leaders, and mining companies may be complicit in these exchanges, either wittingly or unwittingly. Legislation, such as the recent Dodd-Frank Act in the United States, and mechanisms, such as the voluntary Extractive Industries Transparency Initiative (EITI), can counteract financial corruption and help to ensure that mining profits reach intended beneficiaries. Much work remains to be done, however, before local communities in many developing countries reap the benefits of extracted resources. Even where strong regulation is in place, the economics of mining require close examination and planning to ensure that mining benefits host countries, regions, and communities, and to identify and address the social costs of mining.

## 5.2 Common social impacts of mining

Predicting the impacts of mining on society is a complicated task (Vanclay and Esteves 2011) that will differ from site to site and will depend upon a range of factors, including project scale, point of project life cycle, location, associated industries, economic benefits and benefit distribution, cultural norms and expectations, project alternatives and opportunity costs, related environmental impacts, regulation, and the perspectives or philosophies of both the commissioning company and the assessor.

Understanding and addressing social impacts is further complicated by the fact that mining and other resource developments are often polarizing, both for those impacted and for those assessing the impacts. There is an emerging, but still limited, move away from traditional, tick-the-box assessment (Nish and Bice 2012) towards more community-focused approaches, creating space for community voices and frequently involving long-term, in-depth community engagement. This approach can offer insights and opportunities unavailable through one-off engagements by academics or impact assessment practitioners.

The social impacts commonly identified with terrestrial mining operations can be organized into the 11 research-tested categories listed in Figure 5.1 (Bice 2011). Impacts can be both positive (such as socio-economic development or provision of health-care) or negative (such as loss of land access or conflict).

Current proposals for seabed mining in the Pacific Islands region appear to involve little or no onshore presence, and so the direct social impacts may well differ from those that have been seen with terrestrial mining projects. However, as deep sea mining exploration and development proceed, it will be important for all parties involved to create an environment open to investigation and reporting. This environment will enable continuous prediction and assessment of benefits and negative impacts to ensure that related plans – including impact assessment and mitigation, community relations plans, and closure/rehabilitation plans – take into account the considerable range of issues that may be associated with mining projects.



*Communities learning about deep sea mining. Photo courtesy of Nautilus Minerals.*

<b>Economy, employment, and work practices</b>
Those impacts that can be directly related to the mine, involving changed economic and employment circumstances that subsequently affect other aspects of social life, such as direct employment, contracting, wages, and housing affordability. Includes issues related to shift and fly-in/fly-out (FIFO) work.
<b>Family and home life</b>
Includes changes to family structures, traditional family practices, living arrangements, and impacts on local housing and accommodation (e.g., availability).
<b>Community identity</b>
Those impacts that cause changes in the ways in which community members understand their culture, practices, intrasocial relationships, and unique community characteristics.
<b>Insiders and outsiders</b>
Those effects that result from the introduction of new people (often via FIFO workforces) into communities that are relatively isolated (geographically or culturally), and the changes that occur amongst community members as a result.
<b>Land use, ownership, and access</b>
Those impacts that occur across the mine life cycle, from exploration to rehabilitation, including community engagement and other interactions that consider issues of ownership, and can result in land use agreements, or that dictate how land is accessed and used. Water use agreements and access to bodies of water must be considered with deep sea mining.
<b>Gender and human rights</b>
Those impacts that may have distinct ramifications for women or for gender roles in the community. Impacts that may influence the ability of individuals within the community to realize their human rights, as defined under the UN Universal Declaration.
<b>Indigenous populations</b>
Considers a range of effects that have unique and material impacts on the livelihoods, status, rights, roles, and situations of indigenous or tribal people.
<b>Community health</b>
Includes impacts related to diseases/illnesses that may affect both the local community and the mine's operations. Includes impacts of disease that might be introduced by mining operations (e.g., sexually transmitted infections) and healthcare initiatives (e.g., mining-company-funded malaria eradication program).
<b>Infrastructure, services, and social amenity</b>
Considers pressures and changes related to increased population and traffic, including service provision, social amenity (e.g., parks, gardens, community space) and infrastructure.
<b>Socio-environmental</b>
Includes social impacts related to environmental concerns, such as noise, dust, chemical use, and water pollution.
<b>Conflict and protest</b>
Includes any violent interactions, protests, or armed conflicts that are directly or indirectly related to the mine's presence or operations. Also includes non-violent protest linked to mining or mining-related issues.

### 5.2.1 Social changes commonly associated with terrestrial mining

It is vital to acknowledge that with mining comes change. This is especially the case where there has been little development before, or where mining has the potential to dominate economic, political, cultural, or social life. Figure 5.2 summarizes the types of change commonly associated with onshore mining projects (Franks 2011) and categorizes these changes

according to the social impact categories defined in Figure 5.1. Impacts and changes brought by deep sea mining may differ from the historical experience with terrestrial mining and will not be felt by all stakeholders or felt at the same time. Considering Figure 5.2, for example, it appears that the impacts listed under Community Identity, Infrastructure, Services and Social Amenity, Insiders and Outsiders, Community Health, and Family and Home Life will be less applicable for deep sea mining than for terrestrial mining.

<b>Type of Change / Areas Affected</b>	<b>Social Impact Category/Risks, Benefits</b>
<b>Political, Social, and Cultural Change</b>	
<b>Insiders and outsiders</b>	
Population and demographics	In-migration, out-migration, workers' camps, social inclusion, growth or decline of towns, conflict and tensions between social groups
Crime and social order	Corruption, domestic violence, sexual violence, substance abuse and trafficking, prostitution, change in social norms, pace of change for vulnerable communities
<b>Community identity, family and home life</b>	
Culture and customs	Change in traditional family roles, changing production and employment base, effects of cash economy, reduced participation in civil society, community cohesion, sense of place, community leadership, cultural heritage
<b>Infrastructure, services, and social amenity</b>	
Social infrastructure and services	Demands on and investment in housing, skills (shortages and staff retention), childcare, health, education, and training
<b>Community health</b>	
Community health and safety	Disease, vehicle accidents, spills, alcohol and substance abuse, pollution, interruption to traditional food supply, awareness and treatment programs
<b>Economy, employment, and work practices</b>	
Labour practices	Health and safety, working conditions, remuneration, right to assemble, representation in unions, labour force participation for women
<b>Employment and competition</b>	
Political	Pacific Island state government focus and resources on deep sea mining, opportunity cost for other development options
<b>Conflict, gender, and human rights</b>	
Human rights and security	States overriding community self-determination, suppression of opposition and demonstrations, targeting of activists, rights awareness programs
Gender and vulnerable groups	Disproportionate experience of impact and marginalization of vulnerable groups (e.g., women, disabled, aged, ethnic minorities, indigenous, and young), equity in participation and employment
<b>Economic Change</b>	
<b>Economy, employment, and work practices</b>	
Distribution of benefits	Employment, flow of profits, royalties and taxes, training, local business spending, community development and social programs, compensation, managing expectations, equitable distribution across state/regional/local/ethnic/family groups, cash economy
Industry	Change in industry composition, dominance by foreign entities in a high-tech industry
<b>Family and home life</b>	
Inflation/deflation	Housing (ownership and rents), food, access to social services
<b>Infrastructure, services, and social amenity</b>	
Infrastructure	Demands on and investment in ports, power, communications, and related infrastructure

Type of Change / Areas Affected	Social Impact Category/Risks, Benefits
<b>Socio-Environmental Change</b>	
<b>Socio-environmental</b>	
Pollution and amenity	Terrestrial, coastal (port and transport), surface (spills and transport), and deep-water (associated with mining activity) pollution
<b>Community identity</b>	
Resettlement	Consent and consultation for resettlement, compensation, ties to land, adequacy of resettlement housing and facilities, equity, post-settlement conditions, livelihoods
Disturbance	Disruption to economic and social activities (including by exploration), consultation for access, frequency and timing, compensation
<b>Land use, ownership, and access</b>	
Resources (access/ competition)	Marine resources, subsistence fishing, cultural practices, scarce infrastructure
<b>The Process of Change</b>	
Community engagement	Consultation, communication, participation, empowerment, access to decision-makers, transparency, timing, inclusiveness (particularly for vulnerable and marginalized groups), respect for customs and authority structures, reporting
Consent	Cultural use of terrestrial and marine areas (free, prior, and informed consent), community consent
Participation	Planning, development of programs, monitoring, selection of alternatives and technologies, operational aspects
Remedy	Grievance and dispute resolution, acknowledgment of issues, compensation, mitigation
Agreements	Equity, timely honouring of commitments, issues with delivery, duress, clarity of obligations, capacity, and governance (including government capacity to respond to and manage change)
Community development	Participation, adequacy, appropriateness, capacity to facilitate, consistency, prioritization

**Figure 5.2** Common changes induced by mining activities that can lead to social impacts and risks, adapted from Franks (2011) and Bice (2011).

## A life cycle approach to deep sea mining's social impacts

The deep sea mining life cycle is potentially a long one, in which the early phases – marine research, exploration, feasibility studies, and fund raising – have already been in progress for decades in certain areas. Figure 5.3, below, outlines three key phases of the life cycle and shows that social impacts and changes may apply to all phases in varying degrees and to different stakeholder groups, at household, local, regional, national, and international scales (Hajkowicz *et al* 2011).

Although deep sea mining is in the early phases of development, it is important to be aware of issues related to scales of impact. These issues are frequently controversial, as local communities may disagree with national or regional governments about such concerns as customary usage, cultural rights, ownership, and authority. The concerns become even

more complex in a marine environment, where ownership may be unclear or vary depending on exact seabed location, and may also be subject to traditional, national, and international norms, laws, and agreements. Here, the network of interested or potentially impacted stakeholder communities expands to include other coastal communities, national governments, neighbouring states, researchers, industry, and civil society. With deep sea mining, even where there are no identified resource owners or communities suffering direct impact, the minerals are located in areas than many consider part of a global commons. As such, these resources may be viewed as national property in which every citizen has an interest, further complicating processes of consultation, usage, and ownership. The uncertainty of these boundaries will likely make it difficult to define and agree upon who the impacted communities are.

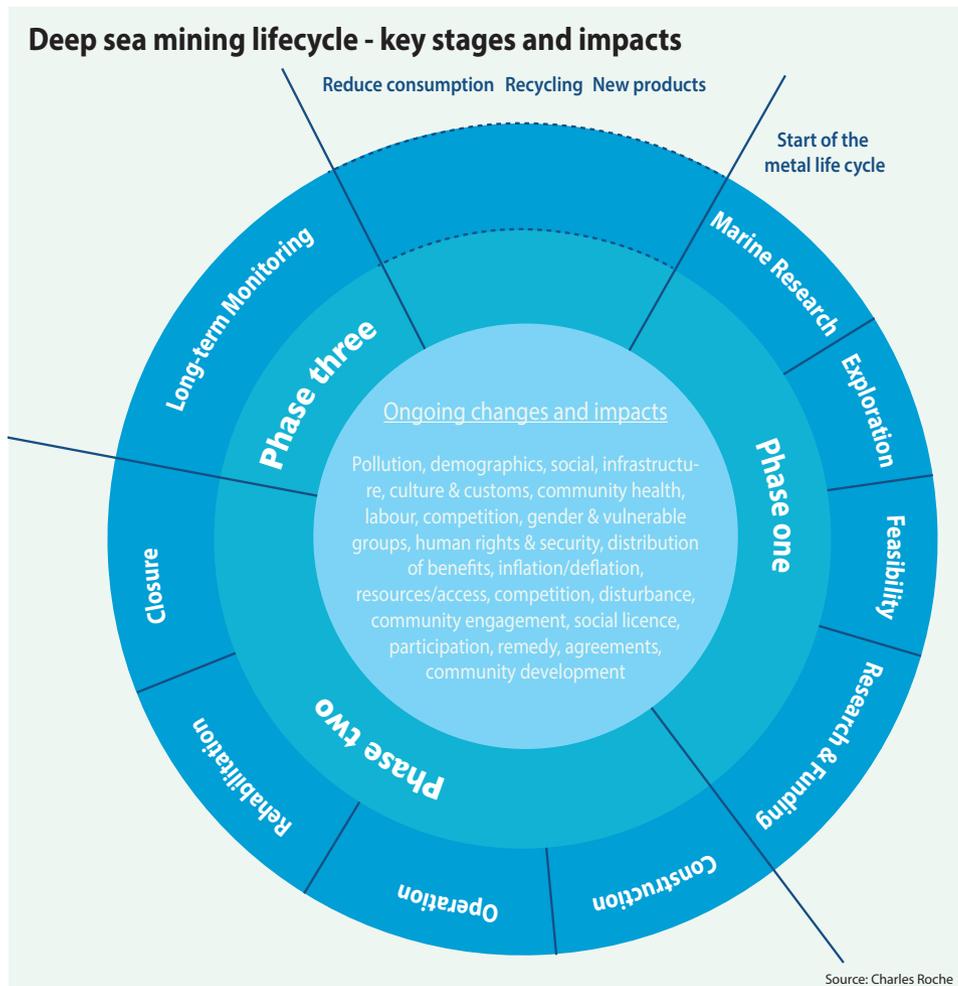


Figure 5.3 Deep sea mining life cycle

## Valuing community perceptions of risk

The depth, breadth, likelihood, and potential severity of the social impacts of deep sea mining are as yet unknown, and proposals to mitigate environmental impacts remain untested. It is this very lack of experience and data related to the impacts of deep sea mining that is perhaps the biggest concern for communities. Moreover, a general lack of public understanding about the deep seabed and its ecosystems (Littleboy and Boughen 2007; Boughen *et al* 2010) means that misinformation has appeared in public debate and fears abound. Research suggests that the risks community members perceive as being associated with a particular sector or

operation may be as important in their impact on the community as the actual risks supported by scientific data (Haines 2011). For the communities fearing such risks, the stresses are real and inform their responses to industry and practice.

Communities' perceptions of risks and impacts are greatly informed by prior experiences and knowledge of terrestrial mining operations. It is, therefore, helpful to review the history of terrestrial mining in Pacific Island states. This survey (Section 5.3) provides a foundation for analysis of relevant deep sea mining impacts later in the chapter.



*Mixed Community, Lau Ridge. Photo courtesy Chuck Fisher.*

## 5.3 Pacific Island states' experiences of terrestrial mining

Papua New Guinea, Kiribati, Nauru, and New Caledonia have historically had greater exposure to mining than other Pacific Island states, and their histories colour understanding of and approaches to future mining (Filer and Macintyre 2006). Past relationships between mining companies and Pacific Island communities have been characterized by extraordinary complexities, interdependencies, tensions, and contradictions. If the lessons of the past are to inform the future, it is crucial that such factors inform decisions about deep sea mining.

Mining in the Pacific Islands has earned a notorious reputation over the years. Operations like Ok Tedi, Panguna, Bougainville, and Freeport (West Papua) evoke images of environmental dam-

age, community disputes, and legal wrangling. While there is considerable debate about the causes (Banks and Ballard 1997; King 1997; Hyndman 2001; Banks 2002; Filer and Macintyre 2006), it is clear that there is a complicated and interconnected relationship among mining, the environment, and social impacts.

### 5.3.1 Lessons for offshore mining from onshore mining

The complexities of historical terrestrial mining impacts show that predicting and mitigating impacts of a new deep sea mineral industry will require a whole-of-system or ecological approach (Banks 2002). Using such an approach, researchers,

#### Some impacts of mining in Papua New Guinea

Many of the most visible and damaging impacts related to terrestrial mining have been socio-environmental impacts related to water, especially in Papua New Guinea. There, riverine tailings disposal has had devastating effects on traditional lifestyles, relations to land and water, and sustainable livelihoods (Banks 2002). River pollution has led to conflicts between communities and raises important questions about which stakeholders must be considered and included in mining company planning, consultations, and decision making.

In Papua New Guinea, downstream communities were historically not included in consultations. Later, however, they became those most affected by mining operations (Banks 2002). At Papua New Guinea sites, such as Lihir, where riverine tailings disposal was not used, submarine tailings disposal – encompassing all aquatic disposal of tailings – has affected traditional fishing practices and caused local alarm (Macintyre and Foale 2004). Even where scientific studies have shown submarine tailings disposal to be within specifications, locals remain concerned about sediment plumes and their effects on fish and the health of the marine environment (Macintyre and Foale 2004).

Social impacts related to community identity have also played a major role in the experiences of onshore mining in Pacific

Island states. Community concerns about environmental degradation associated with mining are frequently in conflict with strong, collective desires for development (Filer and Macintyre 2006). Especially in Papua New Guinea, an almost spiritual desire for development has arisen since the 1970s (Macintyre and Foale 2004), with the communities of Lihir seeing development as their destiny (Bainton 2010). Beyond material goods, monetary wealth, and access to quality schools and health-care, development may take on mythical proportions (Macintyre and Foale 2004). The Maimafu of Papua New Guinea, for example, recount visions of a golden man spreading wealth across their lands, while Lihirians envisage a destiny in which Lihir becomes the New York of the Pacific (Bainton 2010).

Desires for development and socio-cultural hopes for wealth and improved livelihoods have been known to outweigh environmental concerns. Even at Ok Tedi, site of perhaps the most infamous environmental catastrophe, certain communities have called for further exploration and mining development in hopes of achieving the wealth and status associated with mining (Filer and Macintyre 2006). Where Pacific Island communities or governments express support for deep sea mining, such positions should be understood within a cultural context that often prizes idealized notions of development, at times above other significant impacts.

companies, communities, and governments situate responses to mining within social, political, cultural, and economic contexts (Banks and Ballard 1997).

Deep sea mining developers can learn from terrestrial experiences, which demonstrate that legal limits and scientific benchmarks may not be aligned with community expectations and standards. Even where scientific evidence to support a mining practice is available, communities may approach such data with suspicion or even outright disbelief.

Social changes may, in fact, be largely indirect and are likely to be political, with Pacific Island governments' focus on deep sea mining limiting opportunities for alternative developments and industries. Economically, issues related to the distribution of benefits from deep sea mining are probable, especially with regard to flow of profits, royalties, and taxes. Concerns are also likely to arise regarding compensation and equitable distribution of economic gains across Pacific Island societies. The growth of the deep sea mining industry signals a change in Pacific Island industry composition, with consequent concerns about foreign ownership in a high tech industry.

The history of Pacific Island states' experiences with terrestrial mining suggests that socio-environmental concerns related to pollution and environmental amenity will be especially important. These might include issues linked to the use of coastlines (such as for ports, transport, or mooring of mining-related

ships and equipment) and any deep-water pollution or disturbance associated with mining activity.

Issues related to land use, ownership, and access will be highly relevant to deep sea mining. Concerns may be raised about subsistence or other local fishing operations or disruption of cultural practices.

Government institutions will be fundamental to the process, as will their competence to acknowledge and regulate negative social impacts of mining and their willingness to balance environmental preservation against economic gain.

Negative long-term outcomes are not the result of poor governance alone. Corporate governance and genuine commitment to corporate social responsibility and transparency are also vital to getting the balance right. Effective institutions, governance, and even constitutions (Andersen and Aslaksen 2008) are essential if a balance is to be achieved between impacts and benefits, and it is critical that such mechanisms are established before the deep sea mining industry develops further.

Pacific Island leaders and commercial operators have the opportunity to establish a new marine mining industry that is steeped in the hard lessons learnt from terrestrial mining, that values genuine corporate responsibility and sustainable development, and that includes communities in informed decision-making processes.

## 5.4 Early Pacific Island state responses to deep sea mining

While responses to deep sea mining are coloured by experiences with terrestrial mining, the new offshore sector has been approached enthusiastically by Pacific Island governments. Support is evidenced by media reports and participants' and official responses at events such as the 2012 SPC-EU Deep Sea Mineral Project meetings (McClean 2011; Tawake 2012). Communities appear less convinced, but, with little independent research into the views of Pacific Islanders on deep sea mining, this perspective is difficult to assess. Important questions about the impacts and perceived risks of deep sea mining remain, and appear to shape community concerns. Certainly, anecdotal evidence (including recent examples from the Cook Islands and Papua New Guinea) indicates the same tensions identified with onshore mining – between potential environmental degradation and likely economic gain, and between social harm and economic development – also shape the current deep sea mining debate.

### Cook Islands

The Cook Islands government is an enthusiastic supporter of deep sea mining. Scientific surveys suggest the sea floor within the islands' Exclusive Economic Zone (EEZ) is rich with manganese nodules (Lynch 2011). At the time of writing, the Cook Islands is also the most legislatively-prepared nation among Pacific Island states. In 2009, the legislature passed the Seabed Minerals Act (Cook Islands 2009). Subsequently, a natural resources advisor was hired to assist in the development of the industry in the Cook Islands EEZ (Parnis 2012). A Seabed Minerals Authority, led by a Seabed Minerals Commissioner, has been set up, and an advisory board of community representatives has been appointed. These initiatives represent a significant investment in deep sea mining and demonstrate legislative and regulatory leadership.

The draft planning documents released thus far (Cook Islands Government 2012) and the announcement of a one-million-square-kilometre marine park provide a strong indication that the government of the Cook Islands is committed to implementing principles of corporate social responsibility, community participation, environmental protection, and prudent financial management.

This approach is matched by the positioning of its political leaders. In March 2012, the Minister for Minerals and Natural

Resources, the Hon. Tom Masters, outlined a “wide and proactive approach” to deep sea mining consultations. Stakeholder consultations in 2011 incorporated traditional leaders, non-governmental organizations, and churches, with further and more comprehensive consultations planned (Masters 2012). While it appears that such consultations may have been aimed at encouraging positive community sentiment towards deep sea mining, research suggests that public attitudes remain hopeful but cautious, with a large part of the population viewing deep sea mining negatively (Lynch 2011).

The Te Ipukarea Society, an environmental non-governmental organization and a member of the International Union for Conservation of Nature (IUCN), is representative of such concerns. For example, in September 2010, the Te Ipukarea Society warned against seabed mining on Radio New Zealand International. In March 2012, the Society identified a series of concerns about deep sea mining in its newsletter, including sustainability, research, sedimentation, and processing (Cook Islands News 2012). Motion M-105 (IUCN 2012), sponsored with the Agence des Aires Marines Protégées and co-sponsored by 20 other organizations, was submitted to the September 2012 World Conservation Congress. The Motion identified a range of concerns noted in previous IUCN resolutions and called for:

- research into impacts of deep sea mining on biodiversity;
- establishment of protected areas prior to mining;
- strategic environmental assessment;
- environmental, social, and cultural baseline and impact studies; and
- the application of an ecosystem-based precautionary approach to deep sea mining.

The motion and related issues mark an important step by a civil society group to formalize community concerns about deep sea mining on a global scale.

While government legislation and activities like those of Te Ipukarea – before any licence for seabed mineral activity (even exploration) has been granted within Cook Islands' waters – indicate a precautionary approach to deep sea mining in the Cook Islands, concerted social scientific research is needed to understand the extent and character of public sentiment towards deep sea mining.

## Papua New Guinea

The situation in Papua New Guinea is more advanced and complex than in the Cook Islands. In 2011, Nautilus Minerals Inc., a Canadian-owned company, received the first mining lease to explore massive sea-floor sulphide deposits at the Solwara 1 site, located in Papua New Guinea's internal waters between New Britain and New Ireland provinces (Nautilus Minerals 2013b). Exploration drilling has occurred since 2007, with project commencement originally slated for 2013. At the time of writing, however, Nautilus had put its sea-floor production system on hold due to an unresolved dispute with the Papua New Guinea

government concerning project development costs (Nautilus Minerals 2012). Even with the project on hold, deep sea mining in Papua New Guinea represents the most advanced stage of development of this industry in any country.

Despite this relatively advanced stage of exploration, independent social scientific research is lacking. One independent review of Nautilus Minerals' stakeholder consultations, conducted as part of the requirements for the project's environmental impact statement, is publicly available (Coffey Information Systems 2008). Nautilus Minerals held stakeholder consultations at many sites or villages – some repeatedly – through its



*Community meeting, Dyual Island, Papua New Guinea. Photo courtesy of Charles Roche*

Nautilus CARES corporate responsibility program, and it reports that more than 5000 people were consulted (Nautilus Minerals 2013a). Nautilus has also set a new standard for transparency in Papua New Guinea in relation to the public release and availability of scientific studies, adding significantly to our understanding of the natural environment.

Despite Nautilus's consultation process and scientific transparency, criticism of the project appears to be growing, especially through social media. Mainstream media coverage, private and public Facebook pages (for example, <http://www.facebook.com/deepseaminingpacific>), the Stop Ocean Crime Now Twitter account (<https://twitter.com/NoDeepSeaMining>), and issue-specific web pages (such as <http://www.deepseaminingoutofourdepth.org/>), all reflect growing public concern about deep sea mining.

Without scientific studies, it is impossible to quantify or reliably articulate the volume, specifics, or intensity of Papua New Guinea community views regarding deep sea mining, let alone the views of international observers and stakeholders. Yet a growing online and media presence indicates strong community interest. Such concerns are further reflected in high community attendance at Nautilus's consultations (Coffey Information Systems 2008) and the formation of community activist groups, such as The DSM Campaign, with international campaign partners that include Oxfam Australia, Mining Watch Canada, and Friends of the Earth Australia (DSMC 2013).

The collective action of the Bismarck-Solomon Sea Indigenous Peoples Council (BSSIPC) further illustrates the concerns of Papua New Guineans about deep sea mining. BSSIPC formed in 2008, following a meeting of 80 people from five different Papua New Guinea provinces, representing a number of different areas and community groups (Shaffner 2008). While BSSIPC does not represent all affected communities, its breadth of membership suggests that its position, aiming to represent the environmental and sustainability concerns of coastal indigenous peoples regard-

ing the exploitation of the Bismarck-Solomon Sea region (Figure 5.4), may be reflective of diverse communities from throughout the country (Steiner 2009). For example, BSSIPC asserted indigenous peoples' rights to free, prior, and informed consent over deep sea mining through its Karkum National Seabed Mining Forum Statement of 2008 (MPI 2008). BSSIPC also presented at the Madang Conference in 2008, made a submission to the Mining Wardens court hearing for Solwara 1 in March 2009, and commissioned an independent review of the Solwara 1 environmental impact statement by the council's science advisor.

The Karkum Statement (MPI 2008) presented a clear articulation of the many concerns the community has about the potential impact of deep sea mining. The statement identifies the lack of protection and conservation for the Bismarck-Solomon Seas area and details concerns regarding inadequate research, consultation, legislation, regulation, assessment, and monitoring of the proposal. Through the statement, BSSIPC claimed rights under customary law, the Papua New Guinea constitution, the principle of free, prior, and informed consent, and the UN Declaration on the Rights of Indigenous Peoples. In affirming their rights to protect and benefit from the area, BSSIPC specifically withheld consent for any deep sea mining in the Bismarck and Solomon Seas.

The BSSIPC, supported by an independent review of the environmental impact statement, recommended the formation of a citizens' advisory council to represent the views of impacted communities and to enable effective engagement and consultation (Steiner 2009). This recommendation has not been taken up by the Papua New Guinea government or Nautilus.

As these brief examples reveal, Pacific Island states' perceptions of deep sea mining appear divided to date, with great variance between government and community stakeholders. Although targeted social science research would be required for a more accurate interpretation, evidence suggests a great deal of tension around the deep sea mining industry's "social licence to operate".



**Figure 5.4** Bismarck-Solomon Sea region.

## 5.5 A social licence to operate and free, prior, and informed consent

The push to employ deep sea mining to contribute to economic development in the Pacific is occurring at the same time as rights-based reform is slowly gathering momentum in the international mining industry. The International Finance Corporation's *Environmental and Social Sustainability Performance Standards*, for example, recognize the need to include marine aquatic resources within assessments as important ecosystem services for local people (IFC 2012). If any resource venture is to gain the support of communities in the Pacific, it will require a process that supports the right to community self-determination at multiple scales. Such considerations are increasingly being incorporated into international frameworks guiding environmental and social sustainability. (An example is the recent EU-SPC DSM Project workshop on Public Participation and Social Impacts, Vanuatu 2013; see also SPC (2012) *Regional Legislative and Regulatory Framework*.) Specifically, concepts of a social licence to operate and obtaining free, prior, and informed consent from resource owners or indigenous peoples directly impacted, offer important approaches to ensuring stakeholders are properly consulted and participate in decisions that affect their communities and environments.

### 5.5.1 Social licence to operate

In recent years, mining companies and affected communities have invoked a social licence to operate (that is, ongoing approval for a project from the local community and other stakeholders) as a means of representing the importance of identifying and addressing onshore mining's social impacts and consequent social changes (Joyce and Thomson 2000). Indeed, the loss of a social licence has been ranked among the major risks for mining operations in recent years (E&Y 2012). Despite its widespread usage in the mining industry, the social licence to operate remains a fiercely debated concept (Joyce and Thomson 2000). Some scholars have begun to raise important questions about its utility for communities and the differentiation between approval, a lower standard of acceptance, or even resignation (Owen and Kemp 2012). Nevertheless, it remains widely employed, and certain communities are also adopting the concept as a means of asserting authority in relation to mining developments. Although it is a voluntary and informal construct, such widespread usage supports discussion of the

social licence to operate as a relevant and potentially powerful model in relation to deep sea mining.

Current studies suggest the social licence is closely related to notions of social capital: that is, the levels of trust, listening, and promise keeping between key parties affected by resource extraction (Thomson and Boutilier 2011). Although it remains unclear exactly how a social licence is granted, there appears to be general agreement among researchers, mining companies, and communities that a social licence must be earned and maintained by the mining company through attention to legitimacy, credibility, and trust (Prno and Slocombe 2012). Social licence requirements run the gamut from worker safety to cultural sensitivity, and the degree of social licence proffered by a community may range from withheld/withdrawn through to assimilation of a firm within the community fabric (Figure 5.5).

Experiences to date suggest that the following issues will affect the deep sea mining industry's social licence in the Pacific:

- marine oil and gas extraction;
- management of Pacific fisheries;
- governance standards;
- transparency and corruption;
- targeted minerals;
- processing and waste disposal; and
- community interest/action and engagement.

Given the experience and existing concerns in the Pacific, it is likely that any deep sea mining development will be significantly impacted by existing views, thus affecting the industry's or individual operator's ability to gain and maintain a social licence. While further research is required, potential proponents of deep sea mining will have to overcome a range of factors if the industry and individual projects are to achieve a social licence to operate in the Pacific.

Earning and maintaining a social licence is a dynamic process, requiring negotiations about impacts and benefits to communities throughout the life cycle of the mining project. There is no single approach that facilitates a social licence. Rather, each site and community requires unique engagements that foster continuing, mutually beneficial relationships. For example, studies concerning a potential deep sea mining industry for Australia define a

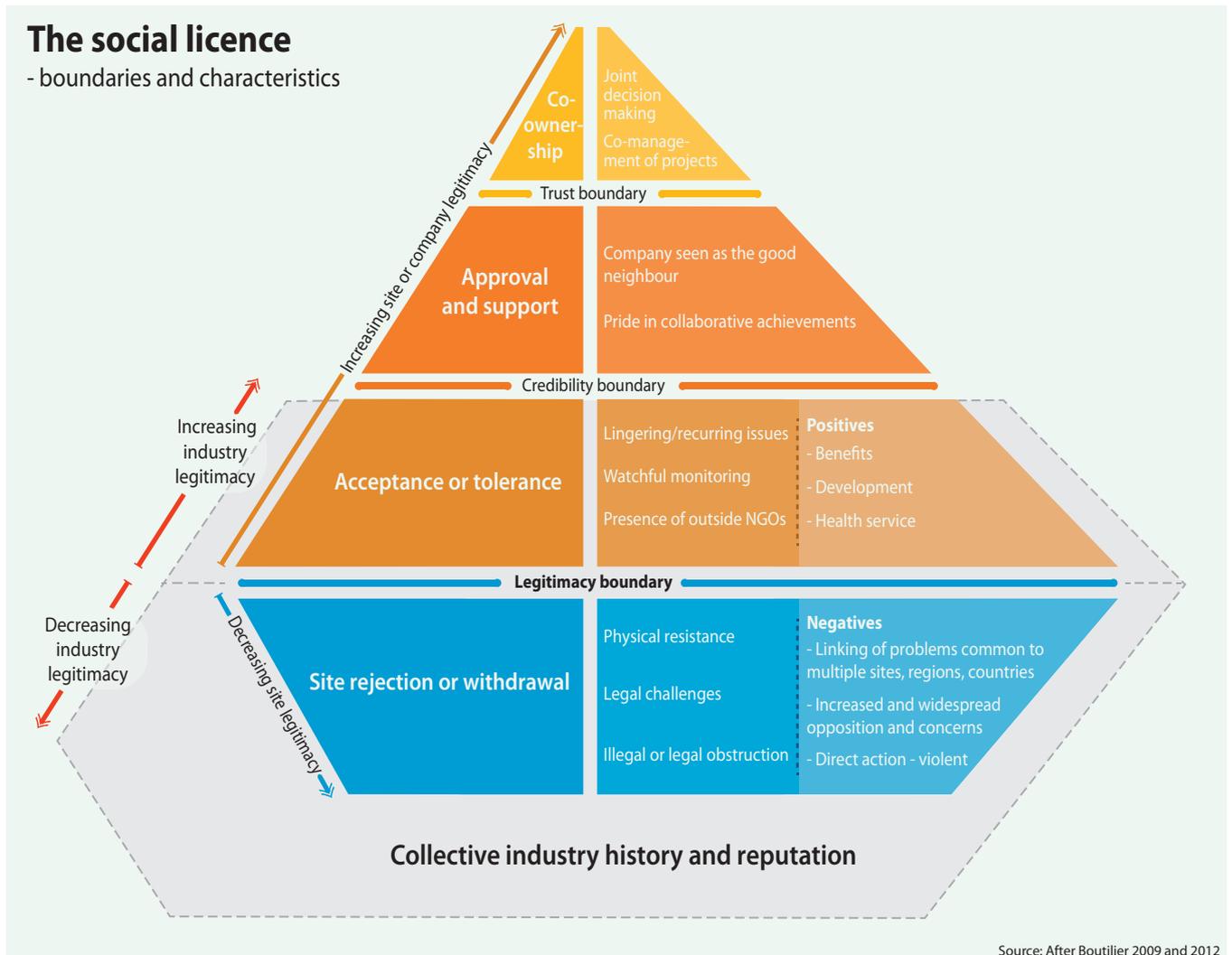


Figure 5.5 Model of a social licence to operate: levels granted by community.

social licence for deep sea mining as comprising two central components. First, the benefits of any deep sea mining operation must outweigh the potential short-term and long-term negative impacts. Second, stakeholders must have trust in the systems and regulations established to monitor and control the deep sea mining industry to ensure that the information they receive is accurate, comprehensive, and unbiased, and that community interests will be prioritized as the industry develops (Boughen *et al* 2010). Regardless of the location of deep sea mining activities, communities benefit through being involved in decisions about their future, while industry benefits from increased community support for approved operations, which can reduce business risk from social impacts (Herz *et al* 2007; Herbertson *et al* 2009).

### 5.5.2 Free, prior, and informed consent

The notion of free, prior, and informed consent is often discussed alongside, or as a prerequisite to, obtaining a social licence to operate in relation to terrestrial mining, where resource owners are identified or indigenous people's land or property will be affected by government and mining company decisions and actions. While definitions vary, consent incorporates a right of veto, and the main components of free, prior, and informed consent include community consultations that are free from coercion or pressure by any company or state and that ensure equal participation by women and minority groups (Hill *et al* 2010). For free, prior, and informed consent to be realized, such consultations

must occur before any major decision about a project by government or industry and before any impacts on environment or community (Rumler 2011). In order for consent to be informed, affected people must have access to all relevant information. This requires mining proponents and government to be transparent in all interactions and to present both positive and negative potential impacts. Project alternatives must also be considered and presented. Information must be presented in appropriate, easy-to-understand language and be informed by independent experts. The capacity of communities to participate in the decision-making process is also crucial to true free, prior, and informed consent. This includes the provision of uncontrolled funds to allow communities to secure independent advice, where necessary (Lehr and Smith 2010). Where all of the above happen in an open and inclusive way, free, prior, and informed consent may be possible. However, communities must retain the ability not only to grant consent, but to withhold it. This ability to accept or reject projects and any related outcomes should be supported in legislation (Bridge and Wong 2011). Figure 5.6, below, outlines the basic steps in the free, prior, and informed consent process.

In theory, free, prior, and informed consent presents a strong and inclusive approach to stakeholder relationships. It builds communities' capacity to make informed decisions and empowers community members with the right to refuse projects that they believe, based on objective evidence, will cause more harm than good. In practice, free, prior, and informed consent is much more difficult to realize. While a growing number of mining companies espouse free, prior, and informed consent ideals, very few companies institute the practice in its fullest sense. Instead, they lean towards free, prior, and informed "consultation", in which ideals of transparency and strong community engagement are upheld, but where the decision about whether a project proceeds rests outside of community control (MacKay 2004). A notable exception is the acceptance by Rio Tinto of Traditional Owner veto or power of consent over the development of the Jabiluka uranium site in the Northern Territory of Australia (Trebeck 2009).

Although widespread implementation of an idealized free, prior, and informed consent process has not yet been achieved, the concept has some support: it was recently incorporated

within the 2007 UN Declaration on the Rights of Indigenous Peoples (UNDRIP: UNGA 2007). However, this is a non-binding instrument, which has been signed by only 3 of the 15 Pacific ACP states – and not Tonga, Fiji, or Papua New Guinea (or any other leading proponent of deep sea mining).

### **5.5.3 Application of free, prior, and informed consent to deep sea mining**

For the right of free, prior, and informed consent to apply, it is generally accepted (IFC 2012) that the project in question will:

- involve the relocation of indigenous peoples;
- have impact on land or natural resources that are subject to traditional ownership or customary use;
- significantly impact cultural resources that are critical to the identity of indigenous peoples; or
- use cultural resources or practices for commercial gain.

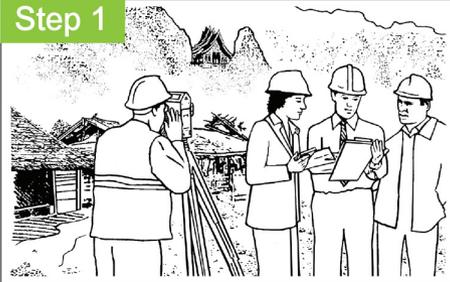
Whether these factors will be found in relation to deep sea mining projects, particularly those occurring far offshore in a country's outer EEZ, remains to be seen.

### **5.5.4 Adopting and implementing social licence and free, prior, and informed consent for deep sea mining**

The deep sea mining industry has an opportunity to pioneer approaches to community engagement that foster local understanding of projects, value two-way communication, and devolve certain decision-making powers and accountability to communities.

Such concepts present important approaches to respecting communities' self-determination, assisting governments and mining companies in identifying and addressing potential impacts, and providing greater certainty for all through a rigorous and inclusive consultative process. Pioneering actors in the deep sea mining industry, including Pacific Island governments, now have an opportunity to embed within legal and operating frameworks a more meaningful version of social licence to operate, to ensure that community concerns and meaningful consultations are an inherent component of industry practice and government decision making.

Step 1



Find out who is developing the planned project

Step 2



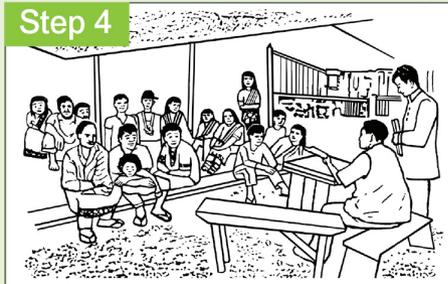
Request information from the project developers

Step 3



Hold discussions within your community

Step 4



Community negotiations with the project developers

Step 5



Seek independent advice

Step 6



Make decisions as a community

Step 7



Ongoing communications with the project developers

Figure 5.6 Community guide to free, prior, and informed consent (after Hill et al 2010).

## 5.6 Conclusion: anticipating social impacts of deep sea mining

This chapter has explored research-identified social impacts and changes associated with on-shore mining to inform approaches to deep sea mining. The importance of addressing communities' perceived risks with the same seriousness as scientifically identified risks was highlighted, as was the need to accommodate the potential scales of impact associated with an industry where boundaries may be contested. The concepts of a social licence to operate and free, prior, and informed consent were introduced as vital components to a contemporary and holistic approach to deep sea mining's social impacts. Clearly defining the terms and conditions of the deep sea mining industry's social licence to operate and implementation of full-scale free, prior, and informed consent, in which communities are empowered with the ability to reject a project based on accurate and transparent information, are necessary steps to achieving best practice.

The social impacts most relevant to deep sea mining will likely be associated with several key social changes, presented below in no particular order. First, in relation to economy, employment and work practices, it is likely that changes linked to employment competition will come into play, especially related to potential competition for leading Pacific Island scientists and other related experts to join the deep sea mining industry, foregoing roles with Pacific Island government agencies or other industries. If Pacific Island governments' focus disproportionately on deep sea mining, this could also constrict the opportunity for the development of other industries. There may also be issues surrounding the distribution of benefits from deep sea mining, especially in relation to the flow of profits, royalties and taxes, and compensation and equitable distribution of economic gains across Pacific Island societies. The growth of the deep sea mining industry could signal a change in industry composition in Pacific Island states, with consequent concerns about foreign ownership in a high tech industry.

Secondly, in relation to human rights impacts, the deep sea mining industry will need to address issues of self-determi-

nation amidst a growing public awareness of rights. This can be achieved partly through effective and comprehensive implementation of social licence to operate and free, prior, and informed consent approaches.

Thirdly, the history of Pacific Island states' experiences with terrestrial mining suggests that socio-environmental impacts related to pollution and environmental amenity will be especially important to prioritize. This may include concerns linked to usage of coastlines (e.g., for ports, transport, or mooring of mining-related ships and equipment) and any deepwater pollution or disturbance associated with mining activity.

Finally, issues related to land use, ownership, and access will be highly relevant to deep sea mining. This may include use of and access to marine resources, implications for subsistence or other local fishing operations, disruption of cultural practices or damage to culturally important coastal or deep sea sites.

It is difficult to predict the timing, extent, or type of social impacts that will flow from development of deep sea mining in the Pacific. What is certain, however, is that where mining occurs, whether onshore or offshore, communities will be affected. The deep sea mining industry in the Pacific states stands at an unprecedented crossroads. Government and industry leaders have the opportunity to choose a mining industry which is steeped in the hard lessons learnt from terrestrial mining, which values genuine social responsibility and sustainable development, and which includes communities in informed decision-making processes. For deep sea mining companies, the alternative risks protests, drawn-out negotiations, loss of profits, and even conflict. For communities, the alternative risks a potentially irreversible loss of cultural heritage and environmental amenity. As the test case for deep sea mining globally, and in the face of such options, the deep sea mining industry in the Pacific holds great responsibility to model a new best practice for an emergent and potentially revolutionary industry.

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