

DISCUSSION PAPER



Deep Seabed Mining

Treasure chest or another Pandora's box?
In focus: the Pacific

MISEREOR
● IHR HILFSWERK



Deep seabed mining in the Pacific – a concern for MISEREOR

For many years MISEREOR has been working on the issue of extractive industries and the problems caused by the ruthless exploitation of natural resources among poverty-stricken peoples in developing and emerging countries. More than 50 countries of Asia, Africa and Latin America are rich in crude oil and natural gas or have valuable mineral resources. Many people in these countries had hoped that the exploitation and export of these resources would help them to overcome poverty and bring development for the benefit of many. Yet in all but a few cases, the opposite has been the case. As a rule, the profits generated by oil extraction and mining are distributed unjustly. For the most part they are pocketed by corrupt elites or end up in the foreign accounts of powerful companies. People living in the areas of the oil and mining ventures, already stricken by poverty, are left with polluted waters and soils, skin and respiratory conditions, the expropriation of their land without adequate compensation, expulsion, and the destruction of long-existing social structures and cultures. Old conflicts between ethnic groups, communities and families, and conflicts within them, are inflamed and new ones ignited. Those who fight with peaceful means to have their economic, social and cultural rights respected and protected, along with the right to adequate food, clean water, health, housing, education and decent work, are politically persecuted. They can be subject to arbitrary detention, trumped-up charges or intimidation; in the

worst case they can be threatened with death, made to ‘disappear’ or even extrajudicially executed.

For many of MISEREOR’s partners in Asia, Africa and Latin America, these negative impacts of the industrialised world’s hunger for raw materials are what they struggle with. For many years now, MISEREOR has joined its partners in attempts to ensure that the exploitation of natural resources is carried out in moderation and, most importantly, in a way that benefits the peoples of the regions concerned. This means the people have to be involved from the beginning, and in appropriate ways, in decision-making about matters that affect their lives and could even change them forever.

Germany is one of the largest consumers of raw materials in the world. ‘Germans are among those at the top of the scale, with a daily consumption of raw materials of 200 kilograms per person’, according to a media release of Germany’s Federal Environment Agency (UBA), published on 12 November 2012.¹ If Germany did not import raw materials, its industry could not survive, let alone be competitive. In other words, the conditions of extraction of the raw materials we consume is something we all need to care about, as is the fate of the people affected by their extraction.

Globally, the demand for resources is growing, and supplies of raw materials are being depleted. More and more states and companies, therefore, are striving to exploit mineral resources found in almost inaccessible locations. Enormous deposits lie in the depths of our oceans. The significance of deep seabed mining has been steadily growing over the years; more and more licences are being granted worldwide to explore these deposits. Not only industrial nations such as Japan, Germany and Australia, but also emerging nations such as China and India are securing the most promising mining sites in the oceans for themselves and investing in the development of new extractive techniques. Deep seabed mining is still in the early stages of its development. Up to now the only licences granted have been for exploration, meaning that the seabed is being examined for potential deposits. As yet there has been no industrial extraction of minerals from the ocean depths.

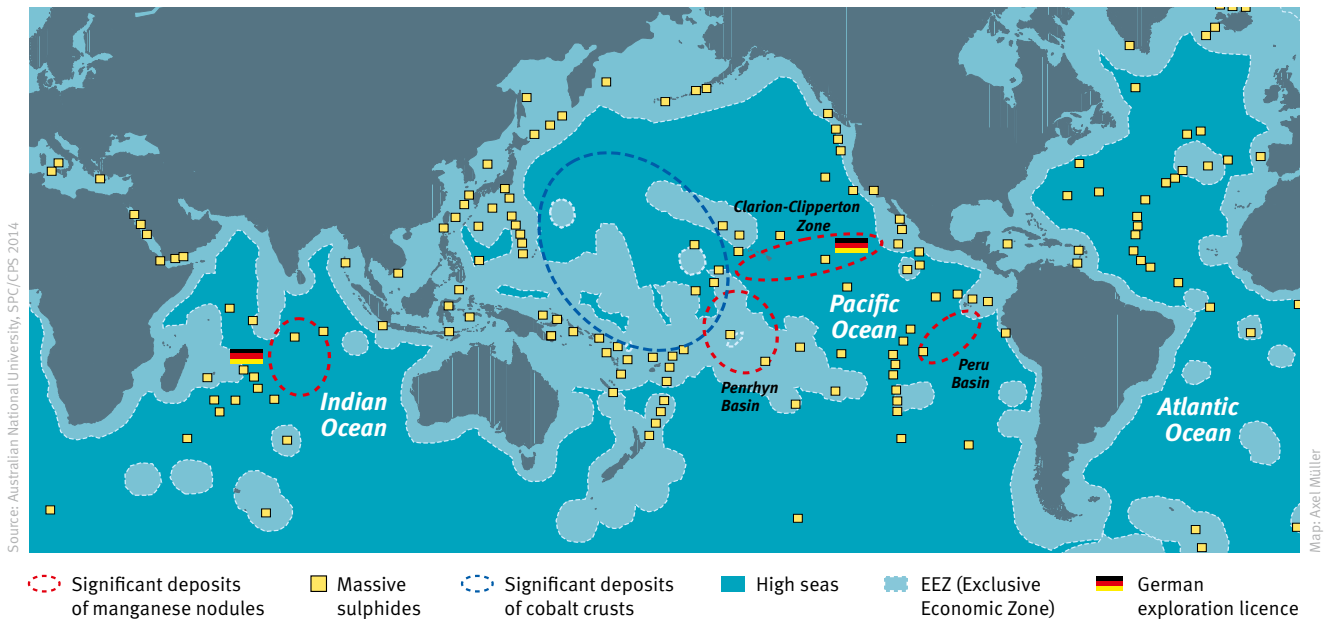
The seas around Pacific island countries are at the centre of interest for deep seabed mining. Papua New Guinea (PNG) will probably be the first country to see this kind of activity, with Canadian firm Nautilus Minerals Inc. beginning commercial deep seabed mining off its coast in 2017 or 2018. Other island states in the Pacific could soon follow, despite many still unanswered questions surrounding the anticipated effects on people and the environment and regardless of the growing protests of the region’s inhabitants.



Photo: Corinna Broeckmann / MISEREOR

¹ English translation by G.H./MISEREOR.

Fig. 1 Significant sites of marine mineral resources deposits



The oceans: new reservoirs of raw materials

➤ The focus is on three marine mineral resources: manganese nodules, cobalt crusts and massive sulphides. All three are found at a depth of several kilometres beneath the surface of the oceans, where all three were formed over millions of years.

Manganese nodules are black lumps the size of potatoes found lying unattached on the floor of the ocean at a depth of 4 000-6 000 metres. These nodules are especially valuable to industry because of their manganese content, but they also contain metals such as copper, nickel, cobalt, lithium, molybdenum and titanium. Economically interesting sites are located predominantly in the Clarion-Clipperton Zone (CCZ) in the Pacific Ocean, and in the Indian Ocean. Six billion tonnes of manganese are estimated to be located

in the CCZ. This is ten times the land-based reserves of the mineral.²

Cobalt crusts are found mainly at depths of between 1 000 and 3 000 metres. They develop primarily on the slopes of the seamounts³, with which they are tightly fused. The crusts contain, among other things, manganese, iron, cobalt, platinum and tellurium. Most of the potential extraction sites are in the western Pacific.

Massive sulphides are layers of sulphurous metal ores that form on the sides of the so-called black smokers.

² Maribus gGmbH (ed.), 'Rohstoffe aus dem Meer – Chancen und Risiken' [Raw materials from the ocean – opportunities and risks], *World Ocean Review* 3, <http://worldoceanreview.com/wor-3-uebersicht/> [in German], 2014, (accessed 12 February 2016).

³ Seamounts are underwater mountains 1 000-4 000 metres high, whose peaks do not reach the surface of the ocean. They are the result of volcanic activity and are found in all the oceans.

Table 1 Riches of the seabed

Resource	Depth (metres)	Potential deposit sites	Metals	Usage
Manganese nodules	4 000 - 6 000	Clarion-Clipperton-Zone (CCZ), Peru Basin, Penrhyn Basin (Pacific), Indian Ocean	Manganese, iron, copper, nickel, lithium, molybdenum, zinc, titanium, cobalt	Steel, vehicles, batteries, light-emitting diodes (LEDs), electronics
Cobalt crusts	1 000 - 3 000	Western Pacific	Manganese, cobalt, nickel, iron, platinum, rare earths, tellurium	Steel, cars, rechargeable batteries, LEDs, jewellery
Massive sulphides	1 000 - 4 000	Mid-ocean ridge (Pacific), Red Sea	Gold, silver, cadmium, zinc, copper, platinum, lead, bismuth, tellurium, germanium	Jewellery, solar cells, smartphones, rechargeable batteries, cars

These are ‘chimneys’ through which water escapes at a temperature of up to 400 °C, washing ores out of the sea floor around the hot springs. Massive sulphides develop above all at the plate boundaries in depths of between 1 000 and 4 000 metres. They, too, are fused with the bedrock. Precious metals such as gold and silver, and other metals, including copper, zinc, platinum and lead, can be found in the layers of ore (see Table 1 on page 3).

All three types of raw materials contain valuable base metals and precious metals in concentrations significantly higher than those found in land-based reserves. These materials are indispensable to mechanical engineering, electronics and high-tech industries. They are found, for example, in smartphones, laptops, flat screens, wind turbines and cars.

The legal framework

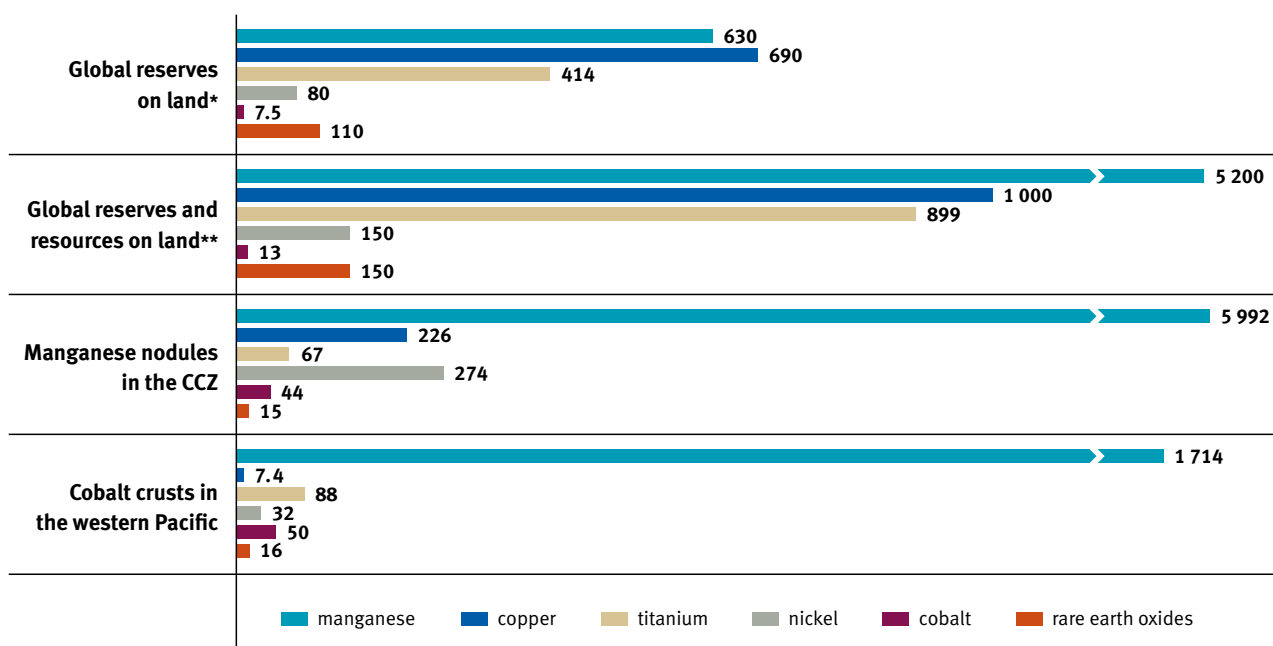
➤ The United Nations Convention on the Law of the Sea (UNCLOS) divides the oceans into a number of jurisdictions. The legal foundations for the exploration and possible extraction of the deposits vary depending on where they are located. The convention came into force in 1994 and is seen as the ‘constitution of the oceans’. It defines the oceans as the ‘common heritage of mankind’, saying they must be protected. It is UNCLOS that governs the many activities that take place in the oceans, including fishing, shipping, marine scientific research and environmental protection, the laying of cables and pipes, oil and gas production – and deep seabed mining.

By April 2015, 166 of the altogether 193 member states of the UN, as well as the European Union, had joined UNCLOS. Among them are many Pacific countries, including PNG and Fiji. Unfortunately, a number of politically influential states such as the USA have not yet joined, and neither have a number of developing countries rich in natural resources such as Peru. The reasons for countries not signing the convention are varied. Some of these countries are involved in disputes over rights of use and territorial issues.

The exploitation of mineral resources in international waters, on the high seas, is governed by the rules of UNCLOS for all its member states. In 1994, when UNCLOS came into force, the International Seabed Authority (ISA) was established to govern the potential commercial exploitation of mineral resources in international waters. The ISA is based in Jamaica. It manages the valuable resource stocks and grants exploration licences for deep seabed mining in these waters. It is also the role of the ISA to ensure that the profits of maritime mining enterprises are distributed justly across all countries, especially to landlocked developing nations.

Since 2001 the ISA has granted 26 seabed exploration licences for marine mineral resources to countries such as Japan, Russia, France, China, India and Germany. In a number of these cases, only a signature needs to be added to the official contract for exploration to go ahead. Once all of these have been formalised, licences will have been granted covering a total area of 1.2 million square kilometres, which can now be explored by individual states, or by international companies acting on the state’s behalf or with government approval. Each licence is valid for 15 years and can be ex-

Fig. 2 Metal content in millions of tonnes (manganese nodules and cobalt crusts)



* Reserves are deposits that have been proven to exist and that can be extracted in an economically viable way using currently available technology.

** Resources are deposits that have not yet been unequivocally proven to exist or for the extraction of which the economic and technological pre-conditions are not yet given.



Photo: Corinna Bloeckmann/MISEREOR

tended by five years. The first licences will run out in 2016. Some of these can be renewed for five years or converted into a seabed mining licence. Once an exploration licence has been extended for five years, it must be converted into a seabed mining licence to retain its validity; otherwise, the company has to re-apply.

The ISA has developed a set of rules governing the exploration phase, prescribing a number of protection measures. A country applying for a seabed exploration licence, for example, must commit itself to leaving part of the area covered by the licence untouched in the case of future resource extraction. With this stipulation the ISA intends to set up protected areas that can provide the starting point for the regeneration of ecosystems after the cessation of industrial activity. Additionally, the ISA has designated protected areas in the CCZ that are completely out of bounds for deep seabed mining.

As yet, however, there is no set of rules governing the extraction of the three types of resources found in the ocean depths. The ISA hopes to approve a regulatory framework in 2016 or 2017, thereby establishing international standards for the protection of the oceans before the start of industrial resource exploitation in international waters.

Many deep seabed deposits, however, especially deposits of massive sulphides and cobalt crusts, are not found in international waters but within the Exclusive Economic Zone (EEZ) of particular countries. The EEZ stretches for 200 nautical miles (about 370 kilometres) into the sea and is very often identical to the continental shelf, the sea floor that falls away gently or steeply from the coast. The continental shelf is of immense economic significance, since oil, gas and other natural resources can be located in this zone. While the EEZ is not part of the territory of the country in question, coastal countries have exclusive right of access to energy resources and mineral resources in this zone, as well as the marine flora and fauna – above all, fish stocks.

Under certain geological circumstances the EEZ can be extended to 350 nautical miles (approximately 648 kilo-

metres). This is highly significant for the economies of many countries, and more than 50 countries have so far lodged applications for such an extension with the UN Commission on the Limits of the Continental Shelf (CLCS).⁴ No doubt more will follow.⁵ Altogether, EEZs cover approximately one-third of the global marine area. It is the respective nation states that grant exploration and mining licences within the EEZs, meaning that national governments are responsible for environmental protection, not the ISA.

When a state ratifies or accedes to UNCLOS, its national legislation has to fall into line with the rules of the Convention. Yet it is evident that the governments of many developing and emerging countries are unable or unwilling to protect their national waters from pollution and their people from its impacts. This is clear from experiences with petroleum extraction both offshore and on land, and from other cases of land-based mining.

If the government of a particular state does try to protect its people, such as through new or better laws, it can be faced with claims for considerable damages lodged by international companies. If during the life of a project the company is faced with additional costs, e.g. through the tightening of environmental regulations, in many cases it can sue the state in a court of arbitration. Ecuador is a case in point. Ecuador was sued 14 times in the World Bank's International Centre for Settlement of Investment Disputes (ICSID). Petroleum company Chevron filed at least three lawsuits for investment protection with different arbitration courts. The reason for one of these lawsuits was the action of thousands of Ecuadorian citizens, who had filed a collective compensation claim against Chevron in a national court on the grounds of serious damage to their environment and health and the destruction of the environmental foundations of their survival. They claimed that the destruction had been caused by a petroleum extraction project of the company. Their claim was successful, whereupon Chevron mounted a counter-claim based on the allegation that Ecuador was breaching an investment protection agreement. In 2010 the UN Commission on International Trade Law (UNCITRAL) sentenced the state of Ecuador to pay USD 700 million, which was equivalent to 7.3 per cent of the country's annual income.⁶

Even these few examples demonstrate the enormous responsibilities and risks Pacific island countries will face, since a large number of the deep sea mineral deposits are located in their EEZs.

⁴ The Commission on the Limits of the Continental Shelf is an institution of the UN Convention on the Law of the Sea (UNCLOS). Its role is to decide on extensions to the EEZ.

⁵ D. Dehmer and R. Knauer, "Welche Zukunft haben die Meere?" [What is the future of the oceans?], *Der Tagesspiegel*, 10.02.2013, www.tagesspiegel.de/politik/ozeane-welche-zukunft-haben-die-meere/7759984.html [in German], (accessed 12 February 2016).

⁶ Brot für die Welt, Misereor, ECCHR, "Beispiel Ecuador" [The example of Ecuador], *Transnationale Unternehmen in Lateinamerika: Gefahr für die Menschenrechte?* [Transnational corporations in Latin America: a threat to human rights?], 2011, p. 25.



Photo: Schwarzbach/MISEREOR

Deep seabed mining: more strain on human and marine life

A pristine natural world in jeopardy

➤ At the depths in which the three kinds of deposits are found, conditions are extreme: extremely high pressure, complete darkness and very low temperatures. Thus, the envisaged extraction of manganese nodules, cobalt crusts and massive sulphides represents not only a great technical challenge but also a severe ecological risk. The impacts of deep seabed mining on the fragile and comparatively unknown ecosystems of the deep are still largely unexplored, and many questions remain unanswered.

Environmental experts nevertheless agree that deep seabed mining will seriously intervene in the ecosystems of the oceans. According to knowledge available at this stage, the following negative impacts are to be expected:

- Extraction of the deep seabed deposits will cause long-term degradation of the seabed, irrevocably damaging its unique flora and fauna with its largely unknown diversity of corals, sponges and other creatures.
- Enormous plumes of sediment will form in the extraction of raw materials from the seabed and the return of waste water containing overburden. Driven by currents, these

sediment plumes will cause widespread damage and spread to distant regions.

- The use of platforms and ships will create pollution and waste that will place even greater strain on the oceans. Additionally, the increase in sea traffic will heighten the risk of accidents and collisions, heightening the danger of ecological catastrophes.
- Gigantic remotely controlled equipment, some of it weighing 250-310 tonnes, will have to be employed on the seabed, causing noise and vibrations that will do untold damage to marine life, especially to large sea mammals such as whales and dolphins.

In contrast to the impacts of deep seabed mining, the effects of land-based mining are generally visible and are very often highlighted by the activities of civil society organisations. Environmental organisations fear that the potential damage to the oceans, on the other hand, will remain hidden for long periods and will be very difficult for civil society organisations to expose.

The oceans are already suffering the negative effects of industrial activities such as shipping, overfishing and the extraction of oil and gas. Deep seabed mining will only increase the existing stresses and ecological damage.

Furthermore, the ecological systems of the oceans recover much more slowly than those on land. According to the German Center for Marine Biodiversity Research (DZMB), in

Germany's keen interest in deep seabed mining

► For several reasons, the German government and German companies are extremely interested in deep seabed mining:

- The sector has huge potential as a source of raw materials and could secure Germany's access to strategic resources in the long term.
- Because many deep sea deposits, especially manganese nodules, are found in international waters, Germany could procure its own licences for accessing them, thus becoming less dependent on the import of raw materials from other countries such as China.
- The development of new technologies for deep seabed mining could be an economically attractive field of activity for German companies in the future.

Germany is therefore intensively involved in the development of deep seabed mining. For some years now, the Federal Ministry for Economic Affairs and Energy (BMWi) has been giving political and financial support to initiatives of industry and is establishing key markers for the further development of the sector.⁷ In 2006 the federal government purchased an exploration licence from the ISA to search for manganese nodules in two areas of the central north-east Pacific. Since then the Federal Institute for Geosciences and Natural Resources (BGR), a higher technical and scientific authority in the sphere of the BMWi, has been investigating sites there over an area of approximately 75 000 square kilometres (both areas). This is an area about four times the land area of Fiji. In 2014 Germany secured a further exploration licence in the Indian Ocean, 1 000 kilometres south-east of Madagascar. The licence covers 10 000 square kilometres. Here the BGR is to investigate the resource potential of the massive sulphide deposits that line the black smokers. In early May 2015 a licence agreement for this exploration was signed between the ISA and the BMWi, attracting media attention. 'The signing of this agreement is an important milestone for the further exploration of marine mineral resources on the deep seabed,'⁸ said a spokesman of the Ministry.

Along with the BGR, a number of German research institutes and companies are involved in the research and development of exploration and extraction technologies for deep seabed mining, and of suitable metallurgical processing techniques. These institutes include prestigious universities such as the RWTH in Aachen and the TU Clausthal (Clausthal University of Technology), as well as Fraunhofer. German research and development also focuses on the environmental risks of deep seabed mining and ways to avoid these or reduce them to a minimum. As yet, the potential social impacts of deep seabed mining have not been on the research radar.

Other factors also drive Germany's interest in the field of deep seabed mining. One of them is the goal for German industry to become the global technological leader in the sector. A policy document of the Federation of German Industries (BDI) published in May 2014 reads: 'Should Germany succeed in

integrating the environmentally responsible extraction of marine mineral resources into an overall economic process, one day even leading the field with regard to the technology, it would enable German industry to occupy a unique position in the international race for raw materials.'⁹ What is still missing, says the BDI, is a tried and tested overall system. According to the BDI, Germany already commands recognised expertise in certain components, including mining and materials handling technology, underwater technology and special purpose shipbuilding. One development in 2015 attests to this expertise: Nautilus Minerals awarded a contract to Siemens's wholly owned subsidiary, Siemens International Trading (Shanghai) Ltd, for delivering the complete electrical installation for a special purpose vessel to be used in Solwara 1, off the coast of Papua New Guinea.¹⁰ As planning stands, Solwara 1 will – if realised – be the first commercial deep seabed mining project worldwide (see also the box 'Deep seabed mining in Papua New Guinea – First licences against the will of the people?' on page 12).

Support from the EU

► In recent years not only Germany, but also other EU member states and the EU itself, have repeatedly positioned themselves in favour of deep seabed mining. The EU supports a range of research projects both politically and financially. Since 2011, in the context of its Deep Sea Minerals Project (DSMP),¹¹ the EU has been helping the Pacific island countries and Timor-Leste to develop legal frameworks for deep seabed mining. DSM project funding amounts to EUR 4.4 million. As the regional body of Pacific states, the Secretariat of the Pacific Community (SPC) is the EU's partner in negotiations. Back in 2007 the EU negotiated an Interim Partnership Agreement with Papua New Guinea (PNG) and Fiji, which was signed by the EU and PNG in 2011 and in 2014 by Fiji. Now the EU is negotiating a comprehensive economic partnership agreement with all 14 Pacific countries.

⁷ A number of other ministries are involved in various aspects of deep seabed mining, including the Federal Ministry for Education and Research (BMBF), the Federal Foreign Office (AA), and the Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety (BMUB).

⁸ 'Die Vertragsunterzeichnung ist ein wichtiger Meilenstein für die weitere Erkundung von marinen mineralischen Rohstoffen in der Tiefsee.', Hermann Pfeiffer, 'Im Rohstoffrausch vor Madagaskar', TAZ online, 5 May 2015 (English translation by G.H./MISEREOR), <http://www.taz.de/15009486/> [in German], (accessed 12 January 2016).

⁹ 'Sollte es Deutschland gelingen, die umweltschonende Förderung von marinen Rohstoffen in einem wirtschaftlichen Gesamtprozess abzubilden und eventuell sogar die Technologieführerschaft zu erlangen, würde dies der deutschen Industrie im internationalen Wettbewerb um Rohstoffe zu einer besonderen Stellung verhelfen.' BDI, Positionspapier. Die Chancen des Tiefseebergbaus für Deutschlands Rolle im Wettbewerb um Rohstoffe, p. 7 (English translation by G.H./MISEREOR), http://bdi.eu/media/presse/publikationen/energie-und-rohstoffe/BDI_Positionspapier_Tiefseebergbau.pdf [in German], (accessed 12 January 2016).

¹⁰ Papua New Guinea Post Courier, 23 April 2015.

¹¹ <http://gsd.spc.int/dsm/>, (accessed 10 February 2016).

the sensitive ecosystems of the deep, ‘all processes take about 25 times longer than on the surface’.¹² As yet there have been very few scientific investigations of the possible long-term damage apart from those carried out in the context of exploratory expeditions.

At current levels of knowledge, the extent to which the ecological impacts of deep seabed mining will affect people in the region is still completely unclear. Factors such as the dimensions of the activity, the methods of extraction, the distance from coastal communities, and tides and ocean currents will no doubt determine the scale of the impact of deep seabed mining, as will provisions governing the protection of the oceans and the degree to which these are implemented.

Threats to human life

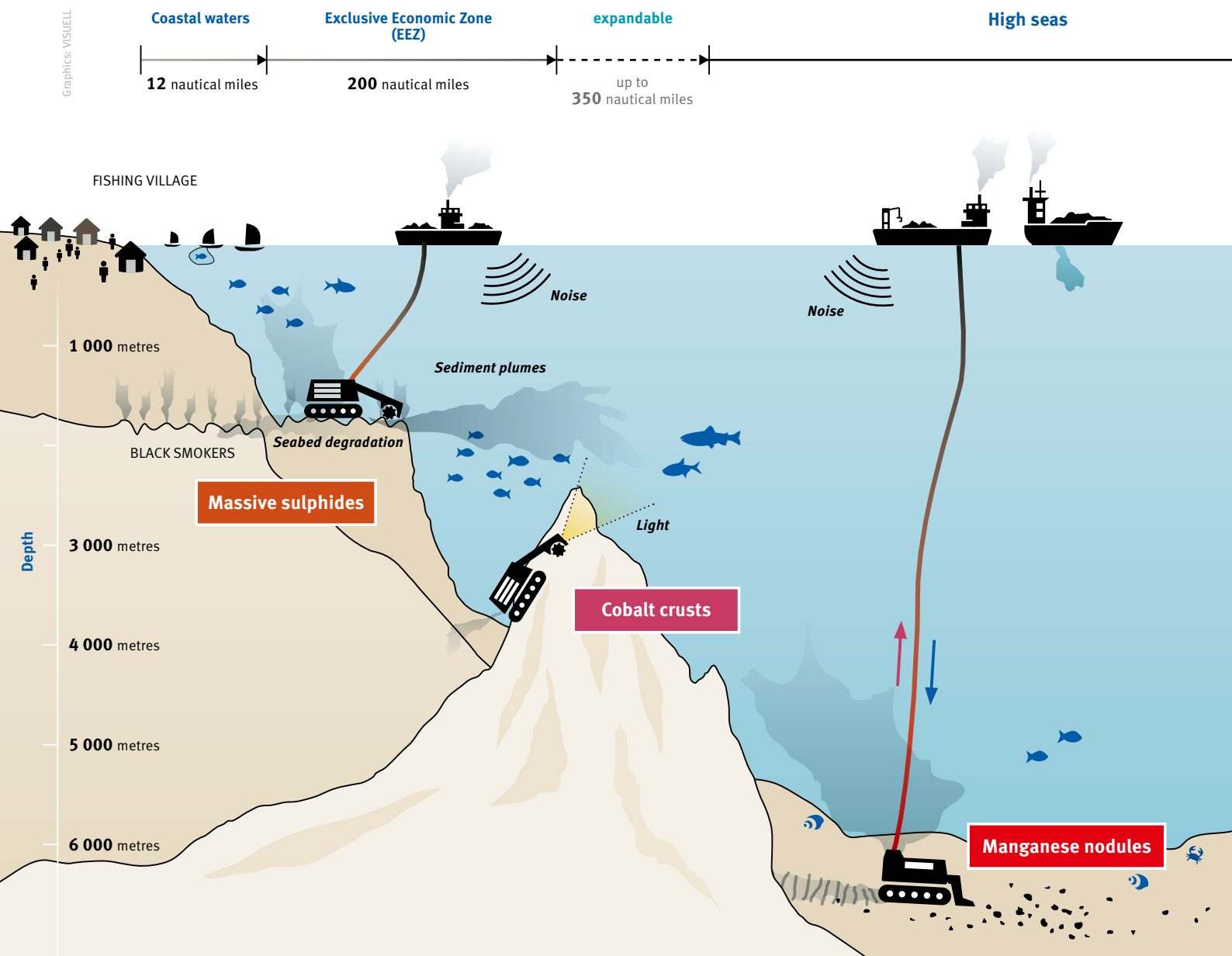
➤ Extractive activities several hundred or even thousand kilometres from the mainland will presumably have little

or no direct effect on human life, though the long-term impacts can hardly be foreseen. What is certain is that deep seabed mining undertaken in direct proximity to the coast – and this could well be the case within the EEZs of the many small Pacific island states – will create very concrete risks for coastal communities.

The expected destruction of flora and fauna on the seabed, the sediment plumes, and the noise and vibrations, will have negative impacts on the region’s fish stocks, threatening the environmental asset base of many people who still live from fishing. Processing plants on land for the mechanical and metallurgical processing of the raw materials would represent a further threat. If toxic residue

¹² ‘... alle Prozesse [laufen] etwa 25-mal langsamer ab als an der Oberfläche’ (English translation by G.H./MISEREOR), S. Zierul, ‘Der Schatz in der Tiefsee’ [Treasure in the deep seas], ZEIT Wissen no. 2, 2011, http://www.senckenberg.de/root/index.php?page_id=752 [in German], (accessed 10 February 2016).

Fig. 3 Deep seabed mining



Graphics: VISUELL

from the processing seeps into coastal waters, this too will have negative impacts on the health of the area's inhabitants. Experience with conventional mining shows that even if standards of environmental security are high, such impacts cannot be completely ruled out. Environmental destruction of this nature could impact negatively on tourism, which represents an important source of income beyond the subsistence economy for many people in the Pacific.

All these impacts add up to the violation of a range of human rights at the one time, among them the right of every person to an adequate standard of living. This right implies further rights, including the right of an individual and their family to the highest attainable standard of health and the right to food. These rights were written into the Universal Declaration of Human Rights (Article 25) and have been repeated and clarified in subsequent covenants and conventions of the United Nations. Deep seabed mining also violates the collective right of all human beings to a healthy

environment. Whenever the environment suffers long-term damage, there are direct and indirect impacts on a wide range of other human rights.

The Pacific

➤ The Pacific Ocean is the largest ocean in the world, spanning many islands, island groups and island chains. In a political context the 'Pacific' generally means the islands in the Pacific Ocean situated to the north and east of Australia (Fig. 1). The region encompasses the three culturally distinct subregions of Polynesia, Melanesia and Micronesia and is also referred to as Oceania. Together these regions include approximately 7 500 islands with a land area of almost 1.3 million square kilometres and a sea area of around 70 million square kilometres. Over 2 000 of the islands are inhabited by a total of more than 15 million people. The islands of the South Pacific, often referred to as the South

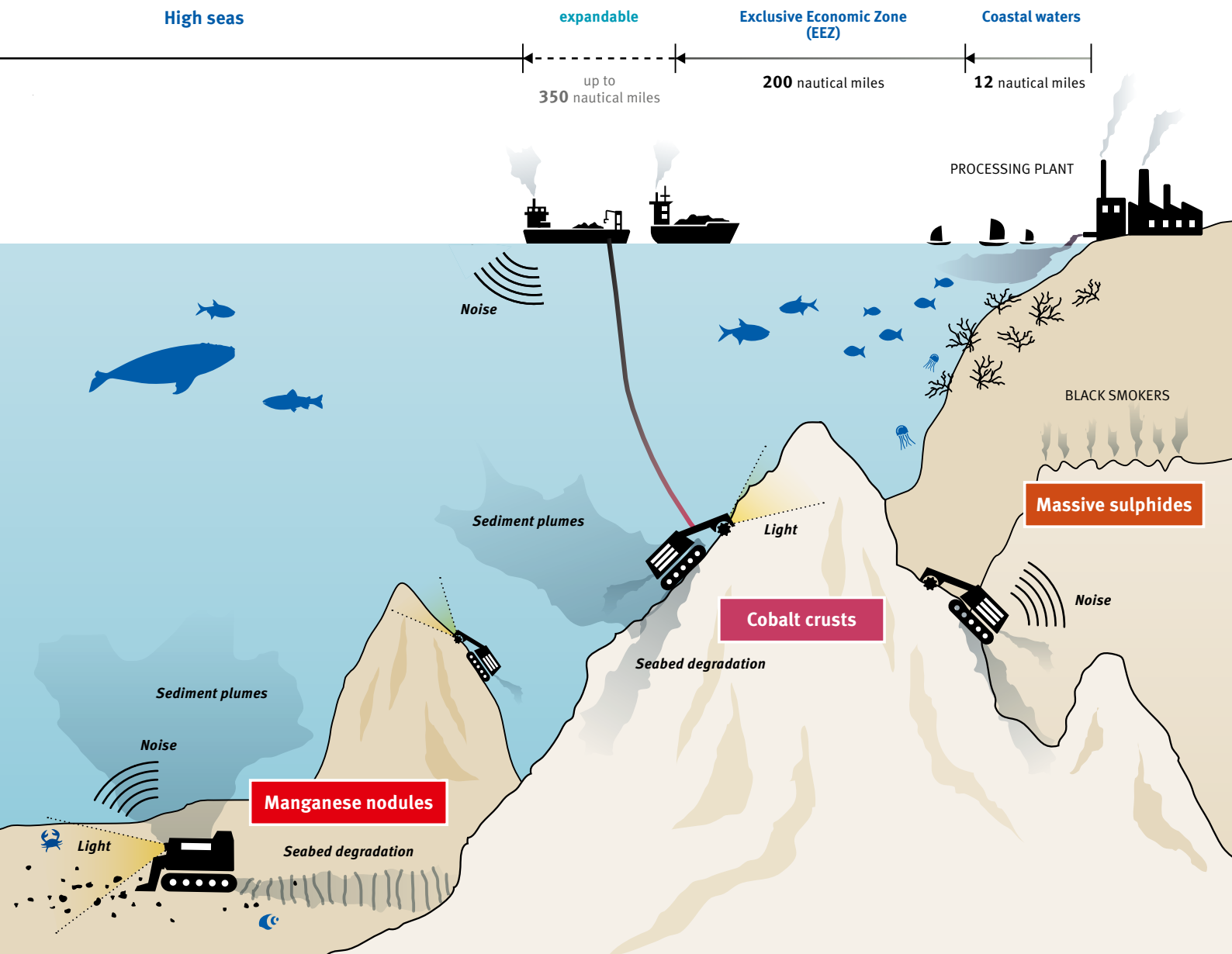




Photo: Meissner/MISEREOR

*‘People think that we are separated
by the sea. You could say that’s
true, but it’s also false.
People have always used the sea
to communicate with each other ...
The ocean is the link ...
The Pacific is our “liquid continent”.
We are larger than all the earth’s
land masses put together.’*

Rev. François Pihatae

*General Secretary of the Pacific Conference of Churches (PCC)*¹³

Seas, are seen to be a holidaymakers’ paradise due to the hospitality of their people and the incomparable beauty of their still largely unspoiled natural world.

At the same time, the Pacific is one of the regions of the globe most drastically affected by climate change. In March 2015 the world’s attention was again drawn to the Pacific when Cyclone Pam raged through the South Pacific island state of Vanuatu, leaving a trail of destruction. In a media release of 18 March 2015, the Director General of MISEREOR, Pirmin Spiegel, emphasised the existential threat posed to the inhabitants of the South Pacific by increasingly damaging and more frequent cyclones occurring in the region, in addition to sea level rise. Many small island states lie just above sea level, and a further rise in sea level would flood many islands, making them uninhabitable.

As early as 2009, on 17 October, the government of the Maldives, an island group in the Indian Ocean to the west of Sri Lanka, staged a spectacular feat to draw attention to the future their country anticipates as a result of climate change: the president and members of the cabinet held their meeting under water. At a depth of six metres – using waterproof pens and a white board – they signed an appeal to the international community calling for the curbing of carbon dioxide emissions.

A number of the affected island states are seriously looking for places to which their population can be relocated when their territories, or parts of them, are slowly swallowed by the ocean. Many people in the Pacific are already all too familiar with the term ‘climate refugee’. The fact that in 2014 New Zealand decided to grant people from Tuvalu refugee status also demonstrates the seriousness of the threat.

If deep seabed mining began, as planned by some, in the not-too-distant future, Pacific islanders, many of whom still make their living from fishing, could be faced with further existential problems. Deep seabed mining could destroy more than their livelihood. Culturally, the sea is highly significant to many coastal communities. Despite cultural differences and conflicts between different ethnic groups, people in the Pacific are united by living from and with the ocean. A serious intervention in the marine environment such as deep seabed mining could spell the loss of tradition and culture for many indigenous peoples of the Pacific.

¹³ Brot für die Welt (Bread for the World), *A New Voyage: Pacific People Explore the Future They Want – The second consultation of Bread for the World partners in the Pacific*, 2013, https://www.brot-fuer-die-welt.de/fileadmin/mediapool/2_Downloads/Fachinformationen/Dialog/Dialog_11_a_new_voyage.pdf, (accessed 12 February 2016), p. 9.

Political background and economic situation

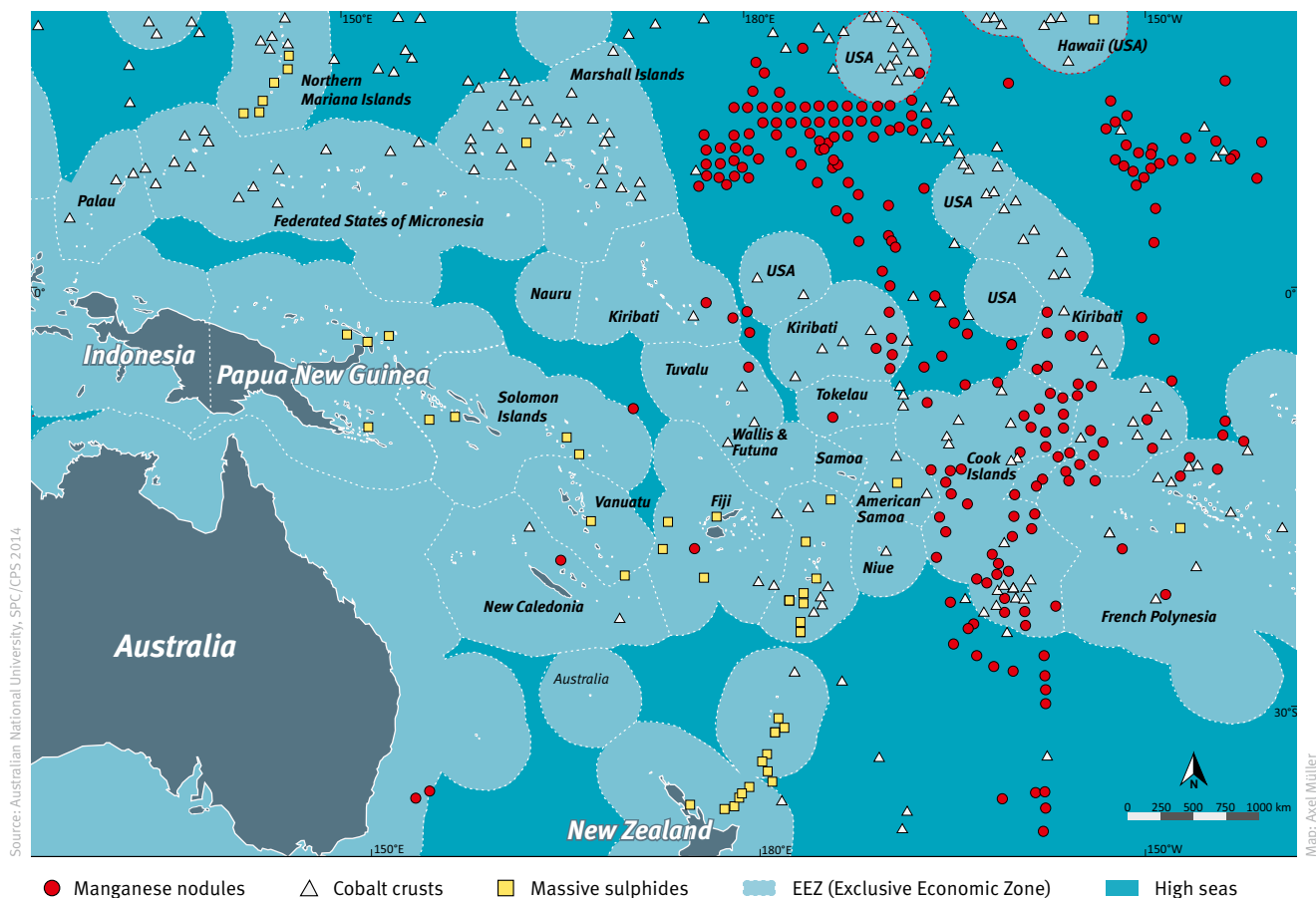
Most Pacific island states are former colonies of European powers and did not gain independence until after the Second World War. A small number are still protectorates of a colonial power. Unlike in many other countries, decolonisation happened peacefully in the Pacific islands. Officially, most Pacific countries are now parliamentary democracies. Yet political parties continue to play only a limited role. Though there are considerable regional differences, many Pacific island countries have in common democratic forms of government combined with traditional hierarchical structures and decision-making systems. Now, as in the past, family and ethnic identity are politically important. The integration of indigenous cultures and social structures into Western-style parliamentary democracies has only partially succeeded. The political landscape of some Pacific island countries is still marked by prejudice against immigrants and disputes between different indigenous peoples. Mining ventures that are planned and implemented with insufficient participation of the local people exacerbate existing conflicts and create new ones, especially if the conflicts revolve around equitable access to land and other vital resources.

The status of human rights is precarious in some Pacific countries. Independent and critical reporting is often not possible, since many media outlets are run or controlled to varying degrees by the state. Although the countries of the Pacific are members of the United Nations, they have ratified only a few of the 18 key international human rights conventions. A number of Pacific states, including Fiji, the Federated States of Micronesia (FSM) and Kiribati, have not even ratified one or both of the two most important UN conventions, the International Covenant on Civil and Political Rights (ICCPR) and the International Covenant on Economic, Social and Cultural Rights (ICESCR), just as they have not yet ratified the UN Convention against Torture.

Many Pacific island states are also plagued by poverty and underdevelopment (see Table 2 on page 13). Corruption is widespread. Papua New Guinea, for example, occupies 145th place out of 175 countries listed in Transparency International's 2014 Corruption Perceptions Index. In 2013 it was in 144th place but in 2012 in 150th place.¹⁴ In other words, a slight improvement can be detected over the past five years, even though PNG is still near the bottom of the scale.

¹⁴ Transparency International, *Corruption Perceptions Index – CPI for 2012, 2013, and 2014*, <http://www.transparency.org/research/cpi/overview>, (accessed 6 January 2016).

Fig. 4 Manganese nodules, cobalt crusts and massive sulphides in the Pacific



Most national economies of Pacific countries are characterised by dependency on international donors such as Australia, the USA, China, the EU, the World Bank or the International Monetary Fund (IMF). As a result, in past years a number of island states were forced to implement internationally imposed economic structural adjustment programmes. The pressure to invest in mining projects and to open the door to deep seabed mining in the future is very great – despite all the known risks.

Growing resistance to deep seabed mining

The governments of Papua New Guinea, the Cook Islands, Tuvalu, Solomon Islands, Tonga and Fiji look to deep seabed

mining as a potential engine for growth and a chance to generate income. Because many of the potential deposits are located within their EEZs, more and more island states are granting exploration licences to international mining companies. Currently there are more than 300 exploration licences governing the EEZs of this region.

The risk of negative impacts is particularly high in the Pacific because many island states – with the exception of Tonga and the Cook Islands – have not yet passed effective legislation for the protection of the environment and the ocean. For this reason, many people living in coastal communities are becoming increasingly worried about the risks of deep seabed mining. The negative effects of land-based mining have already been felt by local communities. Those already impoverished are most vulnerable. In many cases, environmental degradation and damage to health have been the result. Yet mining has not brought prosperity to these poverty-stricken people, for most of them have little or no share in the proceeds.

Conflicts arising from unequal access to, and the unequal distribution of, these resources have begun or flared up, even to the point of civil war – as in Bougainville, where the decade from 1988 to 1998 saw the deaths of 20 000 people.

Many people in these island states refuse to believe that everything will be better with deep seabed mining. On the contrary: some fear that the islands of the Pacific are once more to be ‘test cases’ for the trialling of new technologies. People on remote islands still have terrifying memories of the nuclear tests carried out by the USA and France in the 1940s and 1950s, and up to the 1990s – tests that rendered some islands uninhabitable even until today. ‘Indeed, seabed mining has never been undertaken anywhere in the world; if pursued now in the Pacific, our nations will once again be the “testing ground” in much the same way as they were for the nuclear industry.’ This is how representatives of three Pacific NGOs put it in a joint declaration in Bremen in May 2014.¹⁵

For a number of reasons, NGOs, grassroots organisations and civil society networks are very critical of the granting of exploration licences by Pacific countries. They point out that their governments are unable to predict the consequences of deep seabed mining and are downplaying the risks. Moreover, local communities and civil society organisations are not being adequately informed about proposals for deep seabed mining and have no part in key decisions on matters that can and will change their lives profoundly. As a result, resistance is growing in the Pacific – in Papua New Guinea, for instance, where many people reject plans for deep seabed mining on their doorstep. The colonial and missionary history of most Pacific

Deep seabed mining in Papua New Guinea: First licences against the will of the people?

► *The Canadian firm Nautilus Minerals Inc. owns over 100 exploration licences in the EEZs of Pacific countries, covering an area of approximately 500 000 square kilometres. That is about the area of Spain and more than that of Papua New Guinea (462 840 square kilometres). Nautilus is concentrating its exploration activities on the massive sulphides in Papua New Guinea (PNG), exploring in particular an area in the Bismarck Sea approximately 50 kilometres north of Rabaul, in the province of East New Britain. This area is known as Solwara 1. Massive sulphides containing high concentrations of gold, silver and copper are said to be found here at depths of 1 700 metres. Within a timeframe of 3-5 years Nautilus hopes to mine 2.3 million tonnes of ore over an area of 11 000 square kilometres.*

From the start, however, coastal communities and civil society organisations have protested against Nautilus’s planned undertaking. They say the government lacks the know-how and is totally incapable of predicting the consequences. Civil society organisations say the environmental impact assessment carried out by Nautilus is flawed. Moreover, both the government and the company, they say, have failed to inform communities about the project or involve them in planning.

As a result, a broad coalition of fishermen, coastal inhabitants, NGOs and church bodies has formed; all of its members reject plans for deep seabed mining in Papua New Guinea. By means of peaceful protests, petitions and campaigns they are trying to prevent the start of mining for marine mineral resources. The Canadian company is pressing on regardless with preparations for mining the massive sulphides. If all goes according to plan, industrial extraction could begin in Solwara 1 in 2017 or 2018.

For further information, see www.deepseaminingoutofourdepth.org/in-the-news/.

¹⁵ Bismarck Ramu Group, Pacific Conference of Churches and the Pacific Network on Globalisation, *Pacific, CSO statement of concern on accelerated seabed mining developments within the Pacific Islands territorial waters and associated links to the role of European Union development assistance*, 2014, https://info.brot-fuer-die-welt.de/sites/default/files/blog-downloads/pacific_csso_statement_of_concern.pdf, (accessed 6 January 2016).

Country	2011 (out of 187 countries)	2012 (out of 186 countries)	2013 (out of 187 countries)	2014 (out of 188 countries)
PNG	153	156	157	158
Solomon Islands	142	157	157	157
FSM	116	124	124	123
Kiribati	122	121	133	137
Tonga	90	k.A.	100	100
Fiji	100	88	88	90

Table 2 Human Development Index

island countries means that Christianity is widespread, so the churches have an important role and responsibility in shaping and supporting the activities of civil society (see ‘Deep seabed mining in Papua New Guinea’ on page 12).

Fiji: resource-rich, conflict-prone

Fiji is an island archipelago situated north of New Zealand and east of Australia. Fiji consists of around 330 islands covering an area of 18 270 square kilometres. Of these islands, 106 are inhabited. The main islands of Viti Levu (10 429 square kilometres) and Vanua Levu (5 516 square kilometres) make up almost nine tenths of the total land area. Approximately 57 per cent of the nation’s population are indigenous Melanesian Fijians. Around 37 per cent of Fijians are, or are descended from, Indian migrant workers. The British colonial power originally brought Indians to Fiji as cheap labour for the sugar cane plantations. Even today, attacks and violence occur sporadically between these two groups.

Approximately six per cent of the population belong to other ethnic groups; most of them are from neighbouring countries (e.g., Solomon Islands, Wallis and Futuna) or from China. Of the approximately 900 000 inhabitants of Fiji, around 64 per cent are Christian, 28 per cent Hindu and six per cent Muslim. Other small religious minorities include Sikhs and Bahá’í.¹⁶

Fiji became independent in 1970 and has been a republic since 1987. The possible scope of political action in Fiji is crucially determined by the country’s complex inter-ethnic balance of power. Fiji has suffered four coups since 1987. The coups staged in 1987 and 2000 had profound impacts on inter-ethnic and intra-ethnic relations, and on relations between the Christian churches. To some extent the conflict was played out at a religious level; the Christian faith was misused to legitimise communalist political positions¹⁷ and to demonise adherents of other religions.

As most Pacific countries, Fiji is undergoing rapid socio-economic and cultural change. The shift from a sub-

sistence-based agriculture to commercial agriculture has further marginalised large parts of the rural population. Distribution of the country’s resources is extremely inequitable. Indigenous Fijians own 87.9 per cent of the land, yet only 40 per cent of it is used for production. Low levels of productivity are coupled with a lack of access to land even for indigenous Fijians themselves. Frequent conflicts about land titles, disputes about borders and specific traditional rights of usage are partially responsible for this situation.

It is estimated that almost a third of Fiji’s population is still living below the poverty line.¹⁸

Youth unemployment is high. The human rights situation is problematic. In its annual report for 2014/2015, Amnesty International (AI) accuses the government of Fiji of fundamentally violating the right to freedom of expression and freedom of assembly. Even peaceful protesters risk being criminalised and politically persecuted – as workers with some of MISEREOR partner organisations found out after organising public events on the theme of democracy and human rights: they were subject to police investigations and criminal prosecution. Amnesty International has also documented cases of torture and ill-treatment. According to AI, the perpetrators usually escape prosecution, and even in court most victims are not granted justice, let alone compensation for what they have suffered. While with respect to economic, social and cultural rights,¹⁹ a recent report published by AI has noted improvements in Fiji, civil and political rights – including the prohibition of torture and the right to freedom of expression and freedom of the press – are still not sufficiently respected and implemented, AI says.²⁰

Like other Pacific countries, Fiji is keen to see deep seabed mining in its EEZ and has to date granted 18 exploration licences to foreign companies to explore massive sulphide deposits. The government is hoping that industrial extraction can begin in the next few years. Yet in Fiji, too, many people do not want this kind of mining; they wish to protect their natural habitat from its negative impacts.

If Fiji is to take steps toward long-term sustainable development, there has to be a balance between economic

16 Fiji Bureau of Statistics, http://www.google.com.au/url?sa=t&rc=j&q=&escr=s&source=web&cd=1&ved=0ahUKEwisKPV_5jKAhVlnqYKHQpFAzcQFggcMAA&url=http%3A%2F%2Fwww.statsfiji.gov.fj%2Findex.php%2Fdocument-library%2Fdoc_download%2F1311-fiji-facts-and-figures-2014&usq=AFQJCN-GeOBibuF156BkuAVEjl2jIDYSXbA, 2014, (accessed 10 January 2016).

17 The aim of such a political stance was, and is, to define the social and political order according to people’s adherence to a particular ethnic and/or religious group, not according to the rights and interests of individual citizens regardless of the communities to which they belong.

18 Fiji Bureau of Statistics, *Fiji Facts and Figures – 2014*, 2014.

19 These human rights encompass, among other things, the right to health and to an adequate standard of living (including the right to adequate food and the right to education).

20 Amnesty International, Fiji, *Amnesty International Report 2014/15*, <https://www.amnesty.org/en/countries/asia-and-the-pacific/fiji/report-fiji/> and www.amnesty.org/en/documents/asa18/1257/2015/en/ (accessed 8 January 2016).

Building bridges – promoting understanding – defending rights

➤ MISEREOR currently supports three partner organisations based in Fiji:

Social Empowerment Education Programme (SEEP) uses campaigns of information dissemination and awareness-raising to promote ‘good governance’ and democratic structures, and to strengthen civil society and its participation in political decision-making processes. The organisation works primarily in and with rural communities on the two largest islands of Fiji, Viti Levu and Vanua Levu. SEEP cooperates closely with the media and incorporates local and national authorities, as well as other civil society organisations, in its activities. SEEP aims to bring about improved interaction and cooperation between the various actors, the sustainable use of resources and the peaceful co-existence of the different ethnic groups in Fiji.

The majority of provinces in which SEEP operates have succeeded in improving relations between the poverty-stricken local people and the local authorities, and people in rural communities have gained the capacity to better articulate their interests and needs. For the local people, improved re-

lations with local authorities means they have been, and are, more involved in decision-making about matters that impact on them, making them capable of more effectively defending their legitimate interests and rights.

The Fiji-based **Pacific Conference of Churches (PCC)** focuses its efforts on strengthening ecumenical cooperation in the Pacific, thereby contributing significantly to harmonious relations between the many religious communities in the region. Additionally, PCC supports people as they deal with the problems that have arisen, and continue to arise, as a result of climate change.

The **Citizens’ Constitutional Forum (CCF)** advocates above all for democratic reforms, transparency and good governance in Fiji. Especially in the light of the challenges and risks posed by deep seabed mining, it is important that its opponents are able to voice their criticism without fear of persecution, and that criticisms are taken seriously. Having structures that are based on the rule of law is a key prerequisite for ensuring that people can exercise their right to freedom of expression and be involved adequately in decision-making.

growth and environmental compatibility. Moreover, the needs and demands of indigenous and non-indigenous communities, especially regarding access to, and ownership of, land, must be taken into account and reconciled. If this is to succeed, those immediately affected must be involved in decision-making processes to a greater degree than has so far been the case. The rule of law needs to be strengthened so that the critics of land-based mining and deep seabed mining can voice their opinions freely without risking life and limb. This is where MISEREOR’s partner organisations in Fiji come in (see ‘Building bridges – promoting understanding – defending rights’).

Recommendations for decision-makers in politics and the economy

➤ The extraction of ores and the production of oil and gas on land continue to do irreversible ecological damage and inflame conflicts, and in many cases they are associated with serious human rights violations. MISEREOR appeals to those with political and financial responsibility to consider and implement the following demands and recommendations so as to ensure that the negative impacts of land-based mining are not repeated with deep seabed mining:

- The precautionary principle needs to be applied: as long as there is insufficient scientific knowledge about the natural environment of the deep sea, and of the long-term effects of deep seabed mining on the environ-

ment and human life, this form of mining should not be pursued and certainly not commercially initiated. There is still insufficient independent data to guarantee that the sensitive marine environment will be protected, that deep seabed mining will not result in grave violations of human rights for people affected by it, and that it will not cement structural injustice or contribute to the escalation of conflicts.

The basic questions of whether, or to what extent, deep seabed mining is really necessary, or whether it can be undertaken without irreversible damage to human and natural life, have not yet been answered. At the same time there is a dearth of scientific evidence. Notwithstanding these fundamental gaps, the following precautionary measures should be put in place now, to prevent a worst-case scenario:

- As a matter of urgency, the International Seabed Authority (ISA) should devise a comprehensive legal framework to effectively protect marine ecosystems.
- Deep seabed mining should be completely prohibited in ecologically sensitive areas, and these need to be given special protection.
- Nation states should, as a matter of urgency, write, approve and consistently implement legislation to protect coastal communities and their environments.
- Companies engaged in deep seabed mining should be bound by mandatory legal provisions not only to uphold human rights and protect the environment, but also to disclose cash flows and information on social and environmental matters. Liability needs to

be clearly defined, both on the high seas and in national waters.

- Investors in this sector must adopt the principle of ‘Do no harm’ and adhere strictly to international environmental and human rights standards. This applies not only to the implementation stage but also to the licencing and exploratory stages. To this end, related independent impact assessments have to be carried out beforehand.
- It should be mandatory for governments and companies to conduct not only environmental impact assessments but also independent assessments of the probable impacts on human rights. This applies in particular to projects located close to the coast. Affected communities and civil society organisations need to be adequately involved in performing these assessments. The results of the assessments should be published in a format that is easily understood. They should be continually monitored during the project’s term. Any subsequent impacts after this time should also be monitored if necessary.
- Coastal communities need to be acknowledged as stakeholders and informed about every stage of the project from the start. They must participate in decision-making, in line with the internationally recognised principle of free prior informed consent (FPIC) for indigenous people. Government and international organisations such as the UN or the EU need to participate actively in the development of concrete and feasible strategies for implementing the FPIC principle. They should also apply the FPIC principle to non-indigenous communities affected by deep seabed mining.

Notwithstanding all the possible safeguards on deep sea mining, it must be emphasised that the world’s hunger for raw materials is unsustainable. Germany and the EU far exceed a globally sustainable level of resource consumption. This unbridled use of finite raw materials not only leads to environmental destruction, human rights violations, violent conflict and impoverishment. It is also what drives deep seabed mining, which could degrade the last untouched regions of the world, with almost incalculable consequences for the environment and human life. Ultimately, the most environmentally and socially responsible type of mining is mining that does not take place.

The world – above all the industrialised countries – must, therefore, drastically reduce its resource consumption. All relevant actors in the large industrialised countries, and also in emerging countries – coming from politics, industry, financial institutions, science, the churches, trade unions and civil society - bear common but differentiated responsibility. The first and foremost responsibility lies with governments, business and finance institutions to provide impulses for, and implement, change processes. They must develop incentives and support measures aimed at totally reducing the consumption of raw materials through recycling, increasing resource efficiency, ‘urban mining’ and ‘cradle to cradle’²¹ processes. Consumers, too, however, should rethink their consumer behaviour to cut their use of resources and energy.

²¹ ‘Urban mining’ refers to the fact that a densely populated city can be seen as a huge ‘mine’ of ‘raw materials’. A number of materials have been ‘mined’ for a long time: ‘new’ metals are retrieved through the recycling and reprocessing of scrap metal, for example. Resources for construction are extracted from the waste materials of previous construction, and glass, paper and plastics are recycled. The ‘cradle to cradle’ concept aims to develop closed production circuits, totally preventing the generation of waste.

Further reading:

Bismarck Ramu Group, Pacific Conference of Churches and the Pacific Network on Globalisation, *Pacific CSO statement of concern on accelerated seabed mining developments within the Pacific Islands territorial waters and associated links to the role of European Union development assistance*, 2014, https://info.brot-fuer-die-welt.de/sites/default/files/blog-downloads/pacific_cso_statement_of_concern.pdf, (accessed 12 February 2016).

Brot für die Welt [Bread for the World], *A New Voyage: Pacific People Explore the Future They Want – The second consultation of Bread for the World partners in the Pacific*, 2013, https://www.brot-fuer-die-welt.de/fileadmin/mediapool/2_Downloads/Fachinformationen/Dialog/Dialog_11_a_new_voyage.pdf, (accessed 12 February 2016).

Bundesanstalt für Geowissenschaften und Rohstoffe [Federal Institute for Geosciences and Natural Resources], ‘Marine mineralische Rohstoffe der Tiefsee – Chance und Herausforderung’ [Marine mineral resources of the deep sea – opportunities and challenges], *Commodity Top News* no. 4, 2012, http://www.bgr.bund.de/DE/Gemeinsames/Produkte/Downloads/Commodity_Top_News/Rohstoffwirtschaft/40_marine-mineralische-rohstoffe-tiefsee.pdf?__blob=publicationFile&v=3 [in German], (accessed 12 February 2016).

CESifo Gruppe, ‘Kurz zum Klima: Schatzsuche im Ozean – liegt die Zukunft des Bergbaus am Meeresgrund?’ [Climate notes: treasure hunt in the ocean – Does the future of mining lie on the ocean bed?], *ifo*

Schnelldienst 66 (12), 2013, [in German], <http://www.cesifo-group.de/ifoHome/publications/docbase/details.html?docId=19094689>, (accessed 12 February 2016).

Deep Sea Mining Campaign, *Physical Oceanographic Assessment of the Nautilus EIS for the Solwara 1 Project*, 2012, <http://www.deepseaminingoutfourdepth.org/wp-content/uploads/EIS-Review-FINAL-low-res.pdf>, (accessed 12 February 2016).

Maribus gGmbH (ed.), ‘Rohstoffe aus dem Meer – Chancen und Risiken’ [Raw materials from the ocean – opportunities and risks], *World Ocean Review* 3, 2014, <http://worldoceanreview.com/wor-3-uebersicht/> [in German], (accessed 12 February 2016).

Stiftung Asienhaus (ed.), *Tiefseebergbau: Fakten und Schlussfolgerungen* [Deep seabed mining – facts and conclusions], 2015, <http://www.asienhaus.de/publikationen/detail/tiefseebergbau-fakten-und-schlussfolgerungen-1/> [in German], (accessed 12 February 2016).

Wissenschaftlicher Beirat der Bundesregierung Globale Umweltveränderungen [Scientific Advisory Committee of the Federal Government – Global environmental changes], *Welt im Wandel – Menschheitserbe Meer* [Changing world – the oceans as world heritage], 2013, http://www.wbgu.de/fileadmin/templates/dateien/veroeffentlichungen/hauptgutachten/hg2013/wbgu_hg2013.pdf [in German], (accessed 12 February 2016).

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