

Mining and Natural Hazard Vulnerability in the Philippines

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Digging to Development or Digging to Disaster?

William N. Holden and R. Daniel Jacobson



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In memory of Eliezer “Boy” Billanes, 1962–2009

Of all those expensive and uncertain projects, however,
which bring bankruptcy upon the greater part of the people who
engage in them, there is none perhaps more perfectly ruinous
than the search after new silver and gold mines.

—*Adam Smith*

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LIST OF ACRONYMS

AMB	Alternative Mining Bill
AFP	Armed Forces of the Philippines
ASG	Abu Sayyaf Group
AO	administrative order
ARMM	Autonomous Region of Muslim Mindanao
ATM	Alyansa Tigil Mina (Alliance to Stop Mining)
BNPP	Bataan Nuclear Power Plant
BEC	Basic Ecclesial Community
CAFGU	Citizens Armed Forces Geographical Unit
CAR	Cordillera Administrative Region
CARP	Comprehensive Agrarian Reform Program
CBCP	Catholic Bishops Conference of the Philippines
CEC	Center for Environmental Concerns
CHR	Commission on Human Rights
CPA	Cordillera Peoples Alliance
CPLA	Cordillera People's Liberation Army
CPP	Communist Party of the Philippines
DAR	Department of Agrarian Reform
DENR	Department of Environment and Natural Resources
DILG	Department of Interior and Local Government

DOJ	Department of Justice
DTI	Department of Trade and Industry
ECC	Environmental Clearance Certificate
EIA	environmental impact assessment
EIS	environmental impact statement
ELAC	Environmental Legal Assistance Center
EMB	Environmental Management Bureau
ENSO	El Niño Southern Oscillation
FMR/DP	final mine rehabilitation/decommissioning plan
FTAA	Financial and Technical Assistance Agreement
GDP	gross domestic product
GIS	geographical information systems
GNI	gross national investment
HDI	Human Development Index
HMB	Hukbong Mapagpalaya ng Bayan (People's Liberation Army)
HUKBALAHAP	Hukbong Bayan Laban sa Hapon (People's Anti-Japanese Army)
JPICC AMRSP	Justice, Peace and Integrity of Creation Commission of the Association of Major Religious Superiors of the Philippines
MGB	Mines and Geosciences Bureau
MILF	Moro Islamic Liberation Front
MMTF	Mine Monitoring Trust Fund
MNLF	Moro National Liberation Front
MPSA	Mineral Production Sharing Agreement
NDFP	National Democratic Front of the Philippines
NEDA	National Economic Development Authority
NGO	nongovernmental organization

NIPAS	National Integrated Protected Areas System
NLSA	National Land Settlement Administration
NPA	New People's Army
OFW	overseas Filipino worker
PAWB	Protected Areas and Wildlife Bureau
PHIVOLCS	Philippine Institute of Volcanology and Seismology
pH	potential of hydrogen
PHP	Philippine peso
PKP	Partido Komunista ng Pilipinas
PNP	Philippine National Police
SCAA	Special CAFGU Active Auxilliary
SOCCSKSARGENDS	South Cotabato, Cotabato, Sultan Kudarat, Sarangani, General Santos City, and Davao del Sur
SOP	standard operating procedure
TVI	Toronto Ventures Incorporated
UN	United Nations
UNDP	United Nations Development Programme
USD	United States dollar
WMC	Western Mining Corporation

INTRODUCTION

Phenomenon under Study: Mining amid Natural Hazards

The last three weeks of November 2004 and first week of December 2004 were a tumultuous time for the Republic of the Philippines. From 14 November until 4 December 2004 the Philippines was visited by four serious weather events: Typhoon Yoyong, Tropical Storm Unding, Tropical Depression Violeta and Tropical Depression Winnie (Yumul et al. 2011). These weather events, and the resulting flash floods and landslides, inflicted havoc on the Philippines killing 1,068 people, injuring 1,163 and causing another 553 to go missing; collectively, these storms caused roughly PHP 7 billion (USD 125 million) worth of damage to crops and infrastructure and also threatened to disrupt the water supply of Metro Manila. When the final damage total was completed the overall damage of these storms was estimated at PHP 11.3 billion (USD 201 million).

On 1 December 2004, while these storms were ravaging the Philippines, the Philippine Supreme Court issued a historic ruling¹ and reversed a decision it had made on 27 January 2004. In its 27 January 2004 ruling, the Supreme Court had invalidated some crucial provisions of the Mining Act of 1995 which allowed foreign corporations to own 100 percent of a mine located in the Philippines. This decision had complicated the efforts of the Philippine government to use large-scale mining as a development strategy. With the 1 December 2004 ruling reversing the earlier invalidation of the Mining Act of 1995 the statute was, in effect, validated and the government felt it had cleared the final hurdle to embark upon an aggressive promotion of large-scale mining.

While the coincidence of these storms with the 1 December 2004 court case may appear to be unrelated, the simultaneity of these storms with a court case facilitating a mining-based development paradigm reveals a vitally important question: what are the difficulties inherent in attempting to pursue a mining-based development paradigm in a country beset by natural hazards?

1 *La Bugal-B'laan Tribal Association Inc et al. v. Ramos et al.*, G.R. No. 127882.

Mining is an activity with a substantial potential for environmental harm. Mining involves the use and creation of highly toxic substances and can have impacts upon both water quality and water quantity; mines, being limited by the location of ore deposits, cannot be moved once developed. The Philippines is a country subjected to numerous natural hazards (such as typhoons, earthquakes, tsunamis, volcanoes and El Niño-induced drought) and is inhabited by poor people engaged in subsistence activities who are highly vulnerable to any form of environmental degradation. Could these hazards interfere with mining, worsen the conditions of the poor and create disasters? Will a mining-based development paradigm generate development lifting the poor out of poverty or will it deprive them of their basic means of survival and generate disasters? As the title of this book asks, will this be an example of “digging to development” or will this be an example of “digging to disaster?”

Neoliberalism: A Controversial Paradigm

In recent years, with the ascendancy of neoliberalism, many developing countries have changed their legal systems in order to encourage foreign direct investment by multinational corporations (McCarthy 2007). An integral component of this has been a liberalization of mining laws to encourage mining by multinational mining companies (Bridge 2004, 2007). As this has occurred, there has been a tendency in much academic literature automatically to condemn neoliberalism (in general) and mining (in particular) as a failed method of accelerating development (Ward and England 2007). Wisner et al. (2004, 54) are highly critical of this tendency to automatically condemn mining and have articulated a view that any proper examination of mining’s efficacy requires a thorough examination of each developing country’s “particular historical and spatial specificities.” To answer a question properly, such as the one postulated here, there must be “thorough research that is locally and historically based” (Wisner et al. 2004, 54). This book addresses this question by examining the political economy of mining in the Philippines with political economy being defined as “the interrelationships between political and economic processes and their implications on resources and wealth” (Roque and Garcia 1993, 5). The book looks at the nature and structure of society in the Philippines wherein a small number of extremely affluent people have come to control society. Once this is established, attention turns to the environmental effects of mining and then juxtaposes these within the set of hazards and vulnerabilities present in the Philippines; what Mara and Vlad call “the cartography of risk areas” (2009, 968). It is ultimately argued that the power of those who control Philippine society is so immense – and the rewards they stand to receive from

mining so substantial – that the poor and marginalized are gravely threatened by locating mining amid the hazards and that little, if any, benefit will accrue to them from mining.

The Disciplinary Location of this Book: Geography

The four traditions of geography

In a seminal 1964 article published in the *Journal of Geography*, William D. Pattison outlined four traditions of geography.² The first tradition is the spatial tradition concerned with displaying where things are located and is apparent in geography's proclivity to use maps. The second tradition is the area studies tradition, best displayed by geography's subfield of regional geography which sums up and regularizes knowledge "of the nature of places, their character and their differentiation" (Pattison 1964, 213). The third tradition is the human-environment tradition, "a balanced tracing out of interaction between [humans] and environment" (Pattison 1964, 214). Finally, the fourth tradition is the earth sciences tradition, long revealed in geography's subfield of physical geography – which is "the study of the earth, the waters of the earth, the atmosphere surrounding the earth and the associations between the earth and sun" (Pattison 1964, 215).

While this book – to varying degrees – involves aspects of all four traditions,³ its main focus is on the relationship between humans and their environment; it clearly finds its home within the discipline of geography (in general)⁴ and within the human-environment tradition (in particular) as

2 Sluyter et al. (2006, 594) referred to Pattison's 1964 article as a "classic" while Gauthier and Taaffe (2002, 523) wrote that Pattison's four traditions "still provide a reasonably good description of the subject matter treated by geographers since 1900."

3 The first tradition is represented in an extensive use of maps, the second tradition appears in the discussion of the nature and character of the Philippines, and the fourth tradition clearly manifests itself in the discussion of the natural hazards present in the Philippines.

4 Indeed a highly geographic methodological approach was employed to capture the spatial specificities of mining in the Philippine context: the use of geographical information systems (GIS). Information on the location of mines was obtained from documents published by the Mines and Geosciences Bureau, of the Philippine government's Department of Environment and Natural Resources, and this information was then overlaid upon maps of natural hazard locations, the data for which was obtained from the website of the Manila Observatory. This approach was then combined with a series of interviews conducted with key informants (government officials, environmental activists, human rights activists and members of communities adjacent to mining projects) to provide insights into the particular social, historical and geographical characteristics of the Philippines in answering the question under examination.

“one of human geography’s core areas [is the relationship] between people and their environment” (Bednarz 2006, 243). As Gray and Moseley (2005, 10) wrote, “geography, with its long-standing human-environment tradition, has produced a prodigious amount of scholarship regarding the factors that influence resource management and human-environmental interactions” (2005, 10). Perhaps the most famous example of this tradition was the book *Man’s Role in Changing the Face of the Earth* (Thomas et al. 1956). This encyclopedic collection of essays examined the relationships between humans and their environment and still stands as a landmark of geographical literature.

Mining: A fruitful topic of geographical research

A subset of geography’s long tradition of examining human-environment relations is an examination of mining (Bakker and Bridge 2006; Coban 2004). *Man’s Role in Changing the Face of the Earth* contains a chapter entitled “Man’s Selective Attack on Ores and Minerals,” which discusses mining’s environmental effects (McLaughlin 1956). The inclusion of this chapter in a landmark compilation demonstrates that mining is very much a subject of concern to geographers. Every aspect of mining, from the location of ore deposits through to the sale of processed minerals in global markets, contains a geographical dimension and this reveals one of the classic themes in geography: the relationship between the local and the global (Swyngedouw 2004). Just as mining has constituted an essential component of human-environment relations, so has the study of conflicts about mining as these are often conflicts about “two different understandings of human-nature relationships” (Coban 2004, 454). Conflicts over resources “form the empirical heart of some of the most theoretically informed research by geographers in recent years: most often, however, this work flies under the flag of political ecology” (Bakker and Bridge 2006, 7).

Political ecology: A geography-based research field

Political ecology is a research field frequently – but not exclusively⁵ – found in geography that explores the political dimensions of human-environment interaction (Bryant and Bailey 1997). The term political ecology was first used by Wolf (1972) to demonstrate how power relations among humans mediate human-environment relations. Political ecology differs from traditional cultural ecology that focuses, in an apolitical manner, on the problems of adaptation to environmental change without examining structures of social

5 Many political ecologists are anthropologists (Bryant and Bailey 1997).

inequality occasioning environmental change (Biersack 2006). In contrast, political ecology shows how environmental analysis and policy can be reframed towards addressing the problems of the socially vulnerable (Forsyth 2008). Throughout this book the interplay of societal power relations and environmental change appears frequently, both in the sense of how power relations within society give rise to environmental change and in the more subtle sense of how environmental change impacts power relations within society rendering some weaker and others stronger.

The Demarcation of an Important Caveat

At the outset of this book the demarcation of an important caveat is in order: when this book discusses “mining” it is referring to large-scale mining carried out by corporations. In the Philippines it is the express policy of the government to encourage large-scale mining by multinational corporations and increasingly, in today’s world much economic activity is being conducted by such corporations; entities who have no real physical home and who operate worldwide responding to no single authority, accounting only to their shareholders and focusing only on their profitability. Accordingly, artisanal – or small-scale – mining is beyond the scope of this book. “Artisanal miners” are defined by McMahon et al. (1999, 3) as “very small miners with little or no mechanization.” These miners use simple tools such as sluice boxes, gravel pumps, bowl mills and air compressors (Tujan and Guzman 2002). The Philippines has a long tradition of small-scale mining, such as the Igorot pocket miners of northern Luzon, dating back earlier than the recorded history of the country (Broad and Cavanagh 1993). While small-scale mining does indeed pose challenges to the environment, its environmental effects are of a different degree and magnitude from those of large-scale mining. With this thought in mind, this book refrains from focusing on small-scale mining and directs its attention towards large-scale mining conducted by corporations.

The Outline of the Book

The book is laid out in the following manner: first, the reader is introduced to the Philippines, a land of extreme poverty dominated by a powerful oligarchy yet endowed with substantial mineral wealth. Then the efforts of the government to accelerate the economic development of the country by encouraging the extraction of minerals are discussed. This is followed by an explanation of the environmental effects inherent in modern mining; these effects are anything but minor and short lived. The natural hazards present in the Philippines are examined and the interaction of these hazards with mining

is discussed. Two highly technocratic solutions to the problems posed by mining amid natural hazards (the subjection of mining projects to an environmental impact assessment process and the mining industry's commitment to best practices in environmental management) are presented and critically examined, particularly in view of how modern humans live in a risk society wherein the greatest dangers to humans come not from what nature may do to us, but from what we may do to ourselves. Finally, the book concludes with a discussion of how, given the risks posed to mining by the natural hazards present in the Philippines, mining may be a flawed development paradigm and asks whether another world is possible to that offered by corporate driven neoliberal globalization as embodied by mining.

This book is primarily intended for readers interested in the political economy of mining in the Philippines, but it may also be of interest to those interested in mining in general and those interested in natural hazards. Accordingly, given a possible wide variety of readership, this book engages literature spanning several disciplines including: anthropology, development studies, economics, engineering, environmental science, geography, geology, history and political science. With several disciplines being engaged simultaneously, the authors have not assumed a substantial degree of specialization in any one discipline and this may lead to some sections seeming redundant. It is the authors' hope that this ensures that the book is informative to all.

Chapter One

MINING IN THE PHILIPPINES

The Philippines: A Developing Country in Southeast Asia

An introduction to the archipelago

The Republic of the Philippines is an archipelago of approximately 7,100 islands in Southeast Asia (Figure 1.1) located on the western side of the Pacific Ocean between latitude 20 degrees north and latitude 6 degrees south. The archipelago lies east of Vietnam, south of Taiwan and northeast of Borneo and consists of four distinct regions: the northern island of Luzon, the southern island of Mindanao, the long finger-like western island of Palawan and the central Visayan Islands. It has a land area of 300,000 square kilometers with approximately 65 percent of this being taken up by Luzon and Mindanao while only 500 of the 7,100 islands exceed one square kilometer in area (IBON 2002c). Located on the “Pacific Ring of Fire” – a belt of volcanoes running along the Pacific coasts of the Americas and Asia – the islands of the Philippines are mountainous and are frequently described as a series of “half drowned mountains” (IBON 2002c, 8). The majority of the land area of the archipelago consists of land over 350 meters above sea level with flat land remaining concentrated in river valleys or in small discontinuous strips of coastal plains backed by steep mountains (Newson 1999). Indeed, the topography of the Philippines could be described as an outcrop of mountains emerging from the sea with a small fertile coastal strip and a series of narrow interior valleys (Bankoff 2003a).

In 2011, the Philippine population stood at approximately 100 million people (United States Census Bureau 2011). As of 2007, approximately 50 percent of the population was living on the island of Luzon, 25 percent of the population was living on the island of Mindanao, and 19 percent was living throughout the Visayan Islands (National Statistical Coordination Board 2011). Like many countries in Southeast Asia, the Philippines has a large and rapidly growing capital city to which migrants from countryside move, and Manila houses almost 11 percent of the national population (National Statistical Coordination Board 2011). With a 2010 population growth rate of 1.9 percent per year, the population of the archipelago can be expected to double by the year 2047 (United States Census Bureau 2011).

A developing country

A member of the so-called “developing world,”¹ the Philippines is classified as a “lower-middle-income country” by the World Bank (World Bank 2009). In 2009, its gross national income (GNI)² per capita was USD 1,620, a number below average relative to other East Asian countries (USD 2,182) and other lower-middle-income countries (USD 1,905) (World Bank 2009). The Philippines, like many other developing countries, faces challenges such as low life expectancy, low levels of education and low levels of personal income. In this regard, the Human Development Index (HDI), a composite index taking into account life expectancy, education, and income can be a useful descriptive statistic. The HDI can range from a high of one down to a low of zero and, in 2010, the highest HDI score was Norway, at 0.938, while the lowest HDI score was Zimbabwe, at 0.14 (United Nations Development Programme 2011). The Philippines, with an HDI score of 0.638, ranked at 97 in the world, well behind number one ranked Norway and below the East Asia and Pacific average of 0.650 (United Nations Development Programme 2011). It must be stressed that this national HDI score of 0.638 does not reflect homogenous development throughout the archipelago and – as Figure 1.2 shows with its depiction of provincial HDI scores during 2006 – there are substantial variations in development from province to province, with Benguet having the highest HDI score of 0.787 and Sulu claiming the lowest HDI score of 0.326 (Human Development Network 2009).

A society dominated by an oligarchy

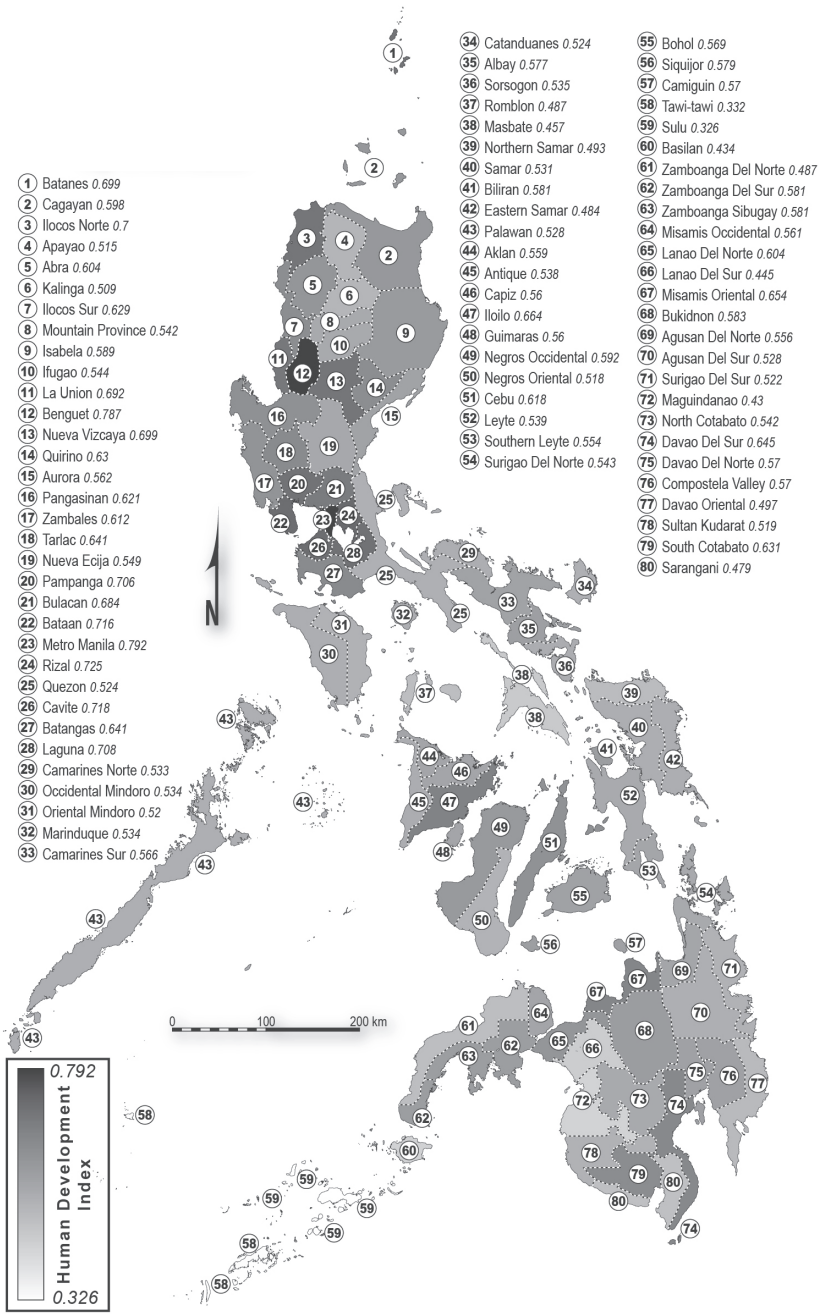
Inequality in the distribution of income is a prominent aspect of society in the archipelago. In the words of Tyner,

The Philippines is a country of haves and have-nots. It is a country of the super-rich and the abject poor. It is a land where the richest 10 per cent of the population hold over 40 percent of the total income, while

1 The authors realize that the term “developing world” is a controversial term. However, so are the terms “Third World” (a relic of the Cold War with a “First World,” the West, and a “Second World,” the Soviet bloc) and “Global South” (the Philippines is, in fact, in the northern hemisphere while Australia, a highly developed country, is in the southern hemisphere). Given the controversy surrounding these descriptive terms, to describe the poorer countries of the world the term “developing world” has been selected, albeit with certain reservations.

2 “Gross national income” is defined as gross domestic product plus net receipts of primary income from abroad (World Bank 2009).

Figure 1.2. Human Development Index by province



Source: Based on data from Human Development Network (2009).

the poorest account for less than two percent. Overall, nearly half of the population lives on less than US \$2 a day. (2009, 2)

To quantify the distribution of income, economists use a measure of income inequality known as the Gini coefficient, which can range from a score of zero indicating perfect income equality, to a score of 100 indicating perfect income inequality. From 2002 to 2008, the Philippines had an average Gini coefficient of 44; a number giving it a higher degree of inequality than such neighbors as China (42), Indonesia (39), Malaysia (38), Thailand (42), and Vietnam (39) had over this same time period (World Bank 2010). The disparity in the distribution of income is a manifestation of the domination of the Philippines by a powerful oligarchy. There are many writers who regard the tremendous power of this oligarchy as being an obstacle to any amelioration of the conditions of the poor (Hawes 1987; Putzel 1992). In the words of Bello et al. (2009, 79), “The national policies of the government have always favored economic and political elites, thereby entrenching poverty and social and economic inequality.” Attention now turns to an examination of the historical origins of this oligarchy.

Class structure in pre-Hispanic society

Prior to the arrival of the Spanish in the sixteenth century³ the population of the islands lived in small coastal villages consisting of 100 to 500 inhabitants; these villages were called *barangays* after the Malay term *balangay* (which were boats used by the original Malay settlers of the archipelago) and their inhabitants relied upon fishing for sustenance (Constantino 1975). At the time of the arrival of the Spanish, the *barangays* were already experiencing a process of rudimentary social stratification and were ruled over by a *datu* – or chieftain – and a group of *maharlika* – or nobles – with the vast majority of people consisting of a group of people known as *alpin* who were often held in a form of debt-bondage (Tyner 2009). However, it must be emphasized that the barriers between these classes were not rigid ones and there was no concept of individual freehold property in land (Putzel 1992).

The Spanish colonial period, 1568–1896

It was with the coming of the Spanish that the entrenchment of a powerful oligarchy began to emerge as a dominant feature of Philippine society; “The

3 The Spanish originally became aware of the Philippines when Ferdinand Magellan claimed it for Spain in 1521 but it was not until the expedition of Miguel Lopez de Legazpi in 1565 that the Spanish set about colonizing the archipelago.