



This document contains the first chapter of the publication “Small-scale gold mining in the Amazon. The cases of Bolivia, Brazil, Colombia, Peru and Suriname”, published as a CEDLA Cuaderno publication and written in the context of the GOMIAM project.

GOMIAM is a comprehensive research project on small-scale gold mining and social conflict in the Amazon region. In GOMIAM, over twenty researchers from six different countries contribute to the collection and analysis of data on the role of nation states, local populations, miners, migrants, pollution of the natural environment, policies on different levels and conflicting claims to the access to the gold, in the social conflicts found in the Amazonian small-scale gold mining sector. This book is a first result of their efforts. GOMIAM is funded by the WOTRO program CoCooN: Conflict and Cooperation in Natural Resources in Development Countries.

For more information, see: [www.gomiam.org](http://www.gomiam.org)

SMALL-SCALE GOLD MINING  
IN THE AMAZON

THE CASES OF BOLIVIA, BRAZIL, COLOMBIA,  
PERU AND SURINAME

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## SMALL-SCALE GOLD MINING IN THE AMAZON

LEONTIEN CREMERS AND MARJO DE THEIJE

### **Introduction**

This publication is a result from the GOMIAM project, an ambitious research project building on the comparison of small-scale gold mining in five different Amazon countries: Bolivia, Brazil, Colombia, Peru and Suriname.<sup>1</sup> The project works on the development of an integrated social, political and technical approach of small-scale gold mining, with the aim to diminish social and environmental conflicts in the sector. In each project country, an interdisciplinary team carries out research, which is shared and discussed with a wider group of stakeholders in the region. By focusing on both social and technical aspects of gold mining, and giving a voice to miners' ideas and needs, the project wants to contribute to policies and interventions that benefit the small-scale miners and transfer small-scale mining into a more sustainable and socially just sector.

In this publication we present a panorama of small-scale gold mining in the Amazon. Using five country studies, we give an overview of the social, economic, environmental and political characteristics of small-scale gold mining in the Amazon region. Although the current document is by no means a complete inventory, it points out a number of key characteristics and issues that are important in the current day discussions about small-scale gold mining. The five project countries and case studies were chosen, because they represent a number of common features of small-scale gold mining in the Amazon, as well as some specific characteristics that are important to

consider and compare. Together, they give a good overall impression of the sector's appearance and the challenges it currently faces.

With small-scale gold mining we refer to mining that is labor-intensive, makes use of simple (including artisanal) technology and limited mechanization, is mostly informal, outside legal frameworks of nations and out of sight of national policies (ICMM 2010). This form of mining has been taking place for over centuries, providing a livelihood to many hundreds of thousands of mostly poor people. The extent of the activity fluctuates, responding to different factors, such as the international gold price and policy measures taken by national states that can stimulate, but also hamper the small-scale miners in their quest for gold. When the extent of the activities increases, the small-scale mining related problems increase accordingly. Most small-scale gold mining in its current form brings serious health and environmental hazards. It is characterized by disordered occupation of territories, chaotically organized mining operations, and dangerous working conditions. Gold mining causes deforestation, uncontrolled release of mercury, and the deterioration of soils and riverbeds (Bridge 2004). The full scale of these negative impacts is yet unknown.

With the expansion of the activity and its related problems, research and action are required. Previous research on small-scale gold mining in the Amazon has been done, focusing mainly on mono-disciplinary and technical research subjects, such as mercury impacts and deforestation, (see e.g. Akagi 1995, Malm 1998, de Kom et al. 1998, Grandjean 1999, Peterson and Heemskerk 2002, Hilson and Vieira 2007, Spiegel and Veiga 2007). Looking at the dynamic character of the sector and the rapid changes that are occurring, and the narrow focus of most of the research work done so far, we hope that our integrated and multidisciplinary approach contributes to the current day discussions and decision making processes.

As stated above, small-scale gold mining is an important livelihood opportunity in the entire Amazon region. Since most of the mining is done in informal spheres, exact numbers are not easy to come by. In the five countries of study however, we estimate there are currently more than 500,000 small-scale gold miners active (see table 1). This number does not yet include the number of people that depend indirectly on the small-scale mining sector by providing services to the miners. These are many hundreds of thousands more. For Suriname for example, it was calculated that small-scale gold mining supports the livelihoods of around 12 percent of the population (CASM 2009, Hammond et al. 2007). Worldwide, it is estimated that over 100 million people in more than fifty countries depend on small-scale gold mining, while 15 million are directly employed in it (Spiegel and Veiga 2007, Telmer 2008, cited in ICMM 2010).

**Table 1.** Estimation of the number of (small-scale) miners in the countries of study

Country	Small-scale gold miners
Peru	60,000
Brazil	200,000
Colombia	182,000*
Suriname	20,000
Bolivia	80,000
Total	542,000

\*This includes both small-scale and large-scale gold miners (based on Dane 2012)

Source: From GOMIAM research

Currently, gold mining -including both large-scale and small-scale- is one of the most important economic activities in the Amazon region. Peru is the world's fifth producer of gold, and Bolivia, Brazil, Colombia and Suriname are all in the top thirty. In table 2, we present some details on gold production. The production numbers include both large and small-scale gold production. In the last column we give an estimate of the contribution of small-scale mining in 2009, which is quite substantial.

**Table 2.** Gold production in project countries (2006 and 2009)

Country	World ranking	2006 Production	World ranking	2009 Production	Production small-scale mining*	%
Peru	5.	202,822 kg	6.	182,391 kg	23,500 kg	13%
Brazil	15.	40,075 kg	12.	60,000 kg	6,960 kg**	12%
Colombia	21.	15,683 kg	14.	47,837 kg	33,486 kg	70%
Suriname	26.	10,426 kg	25.	28,585 kg	16,487 kg	58%
Bolivia	28.	9,628 kg	34.	7,000 kg	3,550 kg	51%
Total		278,634 kg		309,421 kg	83,983 kg	26%

Source: based on data from Brown 2010 and Index Mundi 2012.

\*Estimates from GOMIAM country chapters.

\*\*Estimate from 2010.

Historically, gold extraction has played an important role on the Latin American continent. We will look into this more closely in the following paragraph. Currently, with the high world gold price, more actors have become interested in the gold sector. This concerns not only academia, but also the media and public authorities. They ask questions such as: Can small-scale mining be sustainable or environmentally friendly? Should small-scale miners be formalized or eradicated? Where can small-scale mining best take place? These questions are not easily answered and need profound knowledge of different disciplinary fields and local contexts. In this publication we want to contribute to this knowledge.

In this first chapter, we give an introduction on small-scale gold mining in the Amazon. There are some general issues that we consider important to deal with, before diving into the country cases. First, we give an historical sketch of gold and its significance throughout time. Then we explain into more detail how the rising international gold price has ignited a new gold rush. After this, we talk about the technology used in small-scale mining and how the conditions in the Amazon region determine certain types of mining. In continuation, we explain into more detail why it is important to look at social and cultural aspects of gold mining, as well as the trans boundary character of gold mining in the Amazon. Finally, we will introduce the five case studies. The specific features and developments in each country will be discussed by the authors in the chapters that follow.

### **History of gold mining**

People from many early cultures around the world valued gold, equating the shiny metal with power, beauty, and the cultural elite. Its use was ceremonial, a medium for advertising proximity to the gods (Bernstein 2000). Also in Latin America, gold mining goes back to pre-Columbian times. Around 1200 BC, the Peruvian civilization Chavín was making gold ornaments by hammering fine sheets of metal and decorating them with embossing. The technique of casting gold was developed by the Nazca people in the deserts of southern Peru before AD 500. The peak of technical skills came during the Chimú Empire between AD 1150 and 1450, when goldsmiths perfected lost wax casting, alloys, welding and plating (Bernstein 2000, Yenne 2011). This technique was adopted by the Incas, relatively shortly before they had to fight their battle against the Spanish hunger for the shiny metal during the invasion in the 16th century.

Here, two different worlds collided. One in which the use of gold was ceremonial and ornamental, confined to the use by the Inca nobility and to honor the Inca gods, and one in which it had a monetary value and was a very scarce good. One of the reasons for the Spanish crown to sponsor the Conquest of the New World, was the stories told about the riches of gold and silver that were used by the peoples on the New Continent (Yenne 2011). A well-known story is that of Inca Atahualpa being captured by the Spanish conqueror Pizarro and offering a room full of gold in return for his release. Once this was redeemed, the chamber contained many fine golden ornaments from royal palaces, temples and public buildings from over the entire Inca empire, together representing the equivalent of twenty years of production by the Peruvian gold mines. After shipping some of these treasures to the Spanish crown, Pizarro let the rest of the gold be



melted from adornments to money: in total 1,326,539 *pesos d'oro* (Bernstein 2000).

The rush for gold was repeated several times in different places on the Latin American continent. At first, during the feudal and colonial era, gold was a factor of accumulation in direct relation to coin and paper money exchange value. In the seventeenth and eighteenth centuries the Portuguese colonizers of Brazil brought many *bandeirantes* to a region that soon got the name *Minas Gerais* (Hemming 1978). By the end of the nineteenth century the Guianas attracted miners from the Caribbean, North America and Europe (De Theije forthcoming 2013). In the twentieth century, several Amazonian locations became the focus for the search for gold, in areas as remote as Brazilian Tapajós and Peruvian Madre de Dios (Cleary 1990). As our current day capitalist economies grew, the demand for gold increased accordingly and mining for gold remained a lucrative business. Although the direct link between gold and our monetary system was officially cancelled in 1971, the demand for gold as an investment has remained high, which together with other demands for gold, such as industrial applications and the growing demand for jewelry, let the world gold demand continue to increase.

Over time, large-scale, highly mechanized gold mining has gained importance in terms of gold production and revenues for governments and national and foreign companies. However, small-scale gold mining still remains an important livelihood opportunity for the local population and migrant miners, which appears in different forms. As we will see in the following chapters, in some scenarios, small-scale mining is an activity with a long historic trajectory, forming part of a diversified livelihood strategy in combination with agriculture and other income generating activities, for example tourism. In these cases, the impacts of mining are relatively low as we will see in the Colombia chapter, where the case of Chocó is presented. However, these experiences are scarce and have their own specific problems. We also see new mining activities introduced by large groups of migrant miners in more pristine areas of rainforest. In Peru for example, the new mining activities implicitly involve more drastic changes for both society and the environment in which it is taking place.

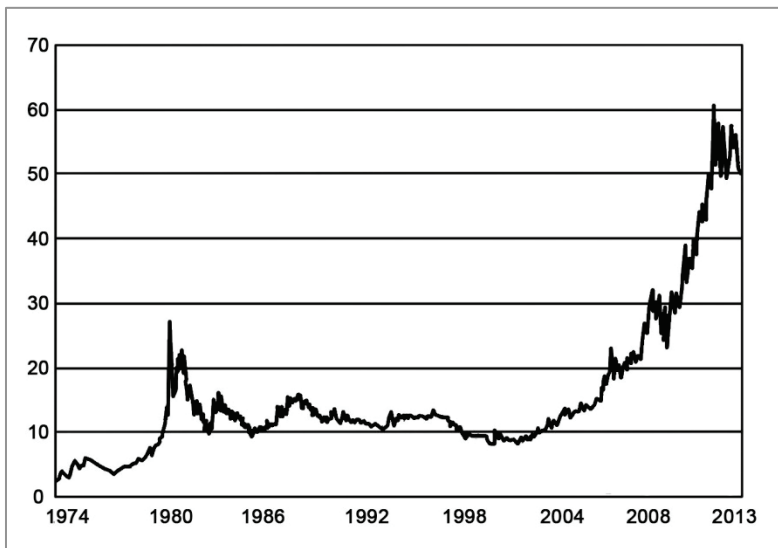
The expansion of small-scale gold mining over the centuries did not go without resistance and conflict. Also today, these conflicts between indigenous and local populations, miners and public authorities, and the effects on the natural environment get frequent media coverage.<sup>2</sup> The main message of these reports is that small-scale mining brings nothing but destruction and despair. Although we do not deny the problematic nature of the sector, we also assert that small-scale gold mining is an historical fact and it is not likely to disappear very soon. Tackling the problems of the sector will require policies to

address issues as varied as the conflicts themselves and putting them in an historical perspective.

### Increasing international gold price

Gold has attracted people throughout all times, because of its beauty and easy workability and as a symbol of wealth and prosperity. It is valued for a number of special characteristics: it does not rust or corrode, it is a very good conductor for heat and electricity and its high malleability allows it to be flattened into extremely thin sheets. This is why gold is used in many modern processes and appliances, for example cellular phones, computers and televisions, which all contain very small amounts of gold.<sup>3</sup> Since gold is a scarce resource and so highly demanded, it is costly. Over time, its value fluctuates, but in the last forty years it has dramatically increased, from around 500 USD/kg in the 1970s, to an astounding 60,000 USD/kg in 2011 (see figure 1).

**Figure 1.** Gold price per gram in the last 40 years in USD



Source: goldprice.org 2012.

Why did the gold price rise so much and why has the rise lately been so sharp? This is mainly attributed to the fast rising demand for gold, in combination with the limited availability of the metal over the last years. Demand is high, because people consider gold as one of the safest investments in times of financial crisis. Figure 1 shows that since the start of the credit crisis in 2008, the value of gold has skyrocketed. When the international bank sector was close to a collapse,

the first wave of unrest made people with savings resort to buying gold (Arnold 2011). Investors choose gold, because contrary to money, it preserves its value. If the amount of available gold is limited and central banks increase inflation by excessive money creation, then the gold price has to increase accordingly. There is an implicit assumption to this that the demand for gold, for example as jewelry or as dental filling, does not diminish (*ibid.*). The image of gold as stable in value needs some nuance however, since in real terms with inflation factored in – this was not done in figure 1 – the price of gold has been going down since the eighties and has only recently improved slightly. We could say that the motive for the demand for gold in times of crisis largely has a psychological character. One does not buy gold because of its intrinsic value, but because of the estimation that other investors will start buying gold, keeping demand, and prices, high (*ibid.*).

Besides the financial and economic crisis, another factor that has had effect on the demand of gold has been the growth of the economies in countries such as China and India in the past decade. These large industry-based economies consume increasing amounts of primary resources among which gold, not only for industrial processes, but also in cultural contexts such as wedding ceremonies. In combination with the uncertainties in the financial world, this will likely cause the gold price to rise even further in the time to come (Arnold 2011).

The rising gold prize makes it more attractive to start delving for this precious metal. More investments can be made in order to obtain the gold. Gold reserves that did not seem profitable, suddenly have become attractive to be mined. Global mining supply has therefore peaked in the last decade. The demand for gold still surpasses the actual production however.<sup>4</sup> That is why the price remains high. To meet the demand, the primary mined gold has to be complemented through recycling of gold from jewelry and waste and the sale of bank gold reserves.<sup>5</sup>

At the same time, more and more producers suffer from declining ore grades, meaning that all the easily mineable gold has been extracted and there are lower gold percentages in the remaining primary mined material. Also political obstacles have made it harder to open new mines or acquire mining permits. As a logical result, disputes and conflicts occur over territories and deposits. This involves small-scale miners who fight over the best places to find gold, but also small-scale miners against large-scale mining companies, for example when the latter acquires an official permission to mine the gold field where traditionally small-scale mining has taken place. This last example we will see in more detail in this book in the chapter of Suriname. Such conflicts affect the miners, their families, their

communities, but also the region and eventually also have an effect on the amount of gold produced in the country.

Overall, gold production is increasing on the Latin American continent. This is partly due to the opening of large-scale mines (e.g. Yanacocha in Peru, Gros Rosebel in Suriname) (British Geological Survey 2010). In 2009, the registered production of gold in the five countries of the project was over 300,000 kilograms of gold (see table 1), a figure in which a part of the gold produced by small-scale miners is probably not even counted, as it is produced by informal activities that do not take into account the formal rules and boundaries of state systems and borders. As the financial and economic crisis continues, the gold price is not likely to drop in the time to come and with that, it is likely that small-scale gold mining in the Amazon will only continue to grow further, making more attention from national and international levels indispensable.

### **Gold mining technology**

Gold mining is the process of collecting ore and separating the gold from the rest material. This basic principle is applied in many forms, using gold mining technology that varies from very simple, manual techniques to mechanized and more sophisticated mining processes. An important variable is the type of gold deposit, which can be primary or secondary. Primary gold deposits generally need more sophisticated machinery and higher investments to separate the gold from the ore. Small-scale gold mining takes place mostly in secondary deposits, which can be eluvial, colluvial or alluvial and contains gold in very small particles. These particles eroded from the primary deposit and were transported by gravity and/or water to its current position. Since gold is heavier than other materials, it accumulates at certain points, and these are the places that the miners look for. As Cleary (1990) indicates, in some cases, the miners will also mine the primary deposits where the fine gold particles came from, depending on the type of machinery they have and are able to transport to the mining site.

Traditionally, hand tools were used to do the extraction process. The gold pan, or *batea* in Spanish and *bateia* in Portuguese, is still a characteristic tool that is used by almost all small-scale miners, especially in the prospecting and final concentration phase. Nowadays, more modern equipment helps to make mining less arduous or mine in places where manual mining would not have been possible. For example, the primary gold in hard bed rock can be detached by using dynamite, after which crushers and mills break up the ore into smaller particles to extract the gold. Another example is the use of pumps and motors to 'push slurry' (the gold containing material

mixed with water from a high pressure hose). The gold rich effluent is carried over a longitudinal mat in a sluice box, where the gold is separated from the water, sand, stones and other minerals. The mechanized mining form may also entail excavators and bulldozers, but in that case the size and impact of the activity inclines more towards a medium sized gold mining operation.

Alluvial gold is also retrieved from river beds by means of a system of suction hoses on top of a raft, carrying the equipment to process the mined material and extract the gold. Depending on the size and level of technology used, these boats are called *balsas* or *dragas* (these are Spanish/Portuguese terms for resp. smaller and larger rafts). Often a group of these boats are tied together to collectively search the rivers for rich deposits.

As explained above, gold is mined on different scales, varying from artisanal mining to large industrial mines. With the term small-scale mining, we may think of a static form of gold extraction. However, in practice it should be seen as a gliding scale, from sporadic, entirely man-driven mining, towards a more permanent activity and more mechanized procedures in the different stages of the extraction process. Once a miner has started mining and saved some financial means, he or she will consider buying equipment to make it easier to mine larger quantities of material in less time and with less effort. The use of pumps, excavators and bulldozers is therefore more and more a common sight in Amazonian gold fields.

Mercury is traditionally used in small-scale mining to enhance the gold recovery. Gold binds with mercury to form a heavy amalgam. This way it is possible to collect the very small gold particles that would otherwise have washed away. Once the operation has ended, the amalgam is collected and the two materials are separated again by heating the amalgam with a torch, which vaporizes the mercury and leaves the solid gold. This process has potential health hazards, since mercury vapor is toxic and can cause various health problems related to the nervous system and internal organs. At the same time, the fluid mercury used in the operations is released into the environment and can turn into the more toxic methyl-mercury, which builds up in the food chain and causes severe malfunctioning in human beings in the long term.

The mechanization of the mining process means a higher rate of return for the miner but at the same time, it implies a higher impact on the surroundings, since much more forest is uprooted and larger volumes of sediment-rich water are discharged into the surrounding water bodies and not to forget the higher levels of mercury that is released into the environment.

The mechanization of the gold mining also has consequences for the organization of the mining process. Several persons have to work together to operate the different devices and share the work load. In

the Amazon region a variety of arrangements between individuals are at the basis of the work teams. In Colombia, communities work individually or in groups, using artisanal methods, such as *Mazamorreo*, *Zambuyidero* and *Cascajero*, which can mostly be done on an individual basis and need little additional organization. Often, women are involved in these activities. When the scale of the operations increases, the work is mostly done by men, since it involves heavier duties and the use of machinery. This shift in technology has an impact on the participation of women in the mining fields. Another form of organization can be found in Bolivia, where historical processes have created mining cooperatives. This organization form is becoming more important in the Bolivian mining field where they operate the *balsas* on the river, under increasing state pressure. The same goes for the Peruvian case, although the organization levels here are still less developed. In the Bolivia and the Peru chapters respectively, a mining cooperative and other miners' organizations working along the Madre de Dios river are described into more detail.

### **Social and cultural aspects of small-scale gold mining**

Technical and environmental aspects of mining generally receive more attention than the social and cultural context. Attempts to improve the mining conditions of small-scale miners have had limited impact. The intervention mechanisms are predominantly of a technical order and do not take into account the complex socio-political realities in gold mining areas. One of the principal fields of action has been the use of mercury in the process of gold extraction. The pollution of the environment with mercury can be limited, using a closed container to burn off amalgam. This device is called a retort and has been introduced to small-scale miners in the entire Amazon region. Nevertheless, it is not generally accepted or used. Miners provide a variety of explanations for this, from disbelief about the harming character of mercury, to distrust about the chemical process inside the retort, or the conviction that it only works with large quantities, and not with the volume of material small-scale miners often work with. Without taking such (cultural) beliefs into account, it will be impossible to change the routines of the miners.

Current public policies are inadequate to deal with small-scale gold mining in the Amazon countries under study. Small-scale gold mining is often considered illegal and informal, because national mining laws have no regulations for the artisanal and small operators in the business or fail to implement them. As a consequence, small-scale gold miners often lack legal rights and have to work and live in a situation of legal insecurity, that turns into a situation of social and

economic insecurity when they do not have titles to their mining areas. In the absence of functioning national regulations, customary laws or ‘miners’ law’ takes over, such as the agreements between traditional communities and migrant miners, but these might be overruled by national legislation anytime (De Theije et al. 2013). In situations of such insecurity, it is likely that the miners will not make long term investments in the gold fields. Small-scale gold miners are mobile and the communities they form are unstable. This is the complex situation of a sector where many poor people find a living, but that remains informal and is taking place in remote parts of most countries. National governments of Suriname, Peru, Colombia, Brazil and Bolivia, all encounter difficulties regulating small-scale gold mining activities within their borders.

Our comparison considers the existing (or not) legal frameworks of all countries and the way (or not) they are put into practice in the different countries. For example, in the case of Brazil there is an elaborated set of Federal and State laws and regulations on small-scale gold mining, but at the same time, miners also developed a sophisticated customary law. For example, the social consensus that the property rights on land and the mineral resource it holds, belongs to the miner who has first discovered the gold deposit and started its exploration (Cleary 1990: 61). Studying the interplay between these legal systems helps us to understand how mining cultures and efforts of authorities to manage small-scale mining, work out in practice.

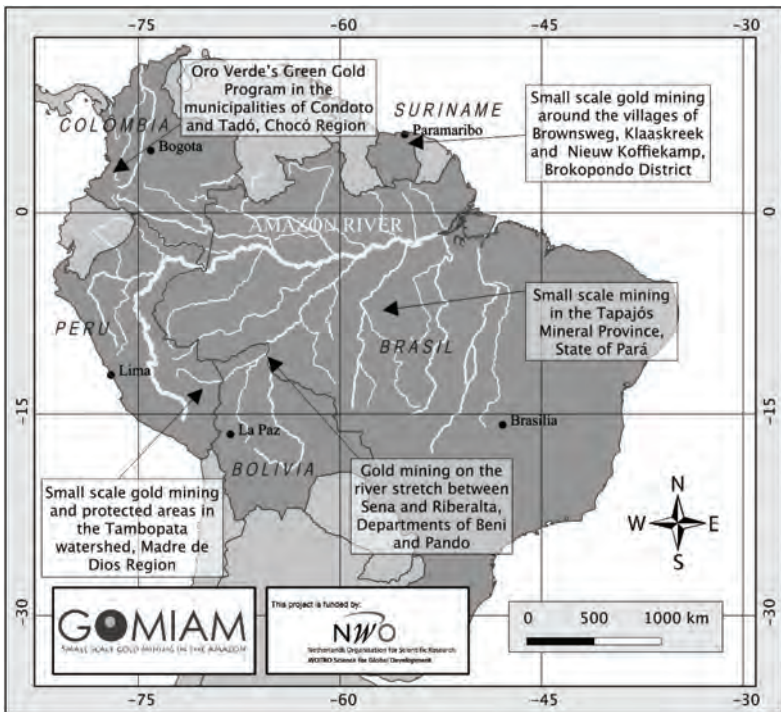
### **Cross boundary gold mining in the Amazon**

The comparative approach of the GOMIAM project is also important because small-scale gold mining is a cross border phenomenon. The mineral deposits are not hindered nor contained by the political frontiers between nations, and in many cases the same goes for the miners. As the gold fields are often located far away from the national power centers, in peripheral, densely forested and poorly accessible regions of the country, there is little border control to register the movements of persons and goods. Many small-scale miners in the Amazon are migrant miners. In Peru, the small-scale gold miners in the lowlands are all but few, migrants from the Andes region and in Colombia the Afro-Colombian artisanal miners in the Chocó have to compete with miners in their territory who come from other ethnic groups and elsewhere in the country. Proof of the fact that miners in the Amazon also cross national borders, is Suriname, where an estimated 75 percent of the miners are Brazilian (De Theije and Bal 2010).

Infrastructural works towards economic integration in the Amazonian region contribute to the mobility of miners. The Brazilian

miners going to Surinam used to cross the border by land, but nowadays just take the plane from Belem to Paramaribo (De Theije and Heemskerk 2009). The construction of the Inter Oceanic Highway, which connects Peru and Brazil by land, made the remote Peruvian Madre de Dios region more accessible. This has consequences for the mining activity taking place in the area, with a significant rise of the number of mines along the highway. At the same time, there have also been more control and interventions from the Peruvian government, trying to control the activity that is partly taking place in a protected National Park area. As mining takes place in and along trans boundary rivers in the Amazon, the problems of pollution, with mercury and sediments for example, go across borders as well.

**Figure 2.** Amazon region indicating the GOMIAM countries and the location of GOMIAM case studies



Map made by B. Peregovich 2012.

The presence of borders creates a lot of movement of goods and people between countries, some of it legal, but often also illegal. Mercury and gasoline is purchased at lower prices across borders and taken to the gold mining areas, and the mined gold is sold in places with the highest price. Of course, this smuggled gold leaves the country without paying taxes. This way, national borders also create economic opportunities that have to be taken into account for the development



of policies for small-scale gold mining in the Amazon (De Theije forthcoming 2013). Therefore, it is important to look at the small-scale gold mining activity from a regional perspective, instead of just a national one.

### **Research on small-scale gold mining in five Amazonian countries**

The five chapters that follow give a more detailed situation analysis of small-scale gold mining in five countries in the wider Amazon region. They result from baseline studies of the GOMIAM project, carried out in 2011 and 2012. Each chapter describes the socio-political and environmental situation of small-scale gold mining. The descriptions are ample and include the technical, economic, legal, historical, and policy aspects of the small-scale gold mining sector.

In chapter 2, we start with Bolivia, where the case study of the miners of the cooperative ASOBAL is discussed. This cooperative works on *balsas* and *dragas* on the Bolivian Madre de Dios river in the Northern Amazon region. Bolivian small-scale miners are principally organized in cooperatives, which makes their case stand out from the other countries. Recently, the Bolivian government started to develop attempts to exert more control on the mining activities by installing a national institute (EBO) as the only legal buyer of the gold from the miners.

In chapter 3, we review Brazil, which probably has the most elaborated set of formal policies and regulations for small-scale gold mining of the five countries under study. At the same time, due to its long tradition of small-scale gold mining, the informal miners' law is also widely accepted in Brazil. This regulatory system continues to organize large parts of social life between miners, as many still work without environmental and mining permits.

In Colombia, presented in chapter 4, the national conflict between FARC guerrilla, paramilitaries and the government appears to be closely linked to the gold mining in the Chocó region. Although the artisanal local miners have legal rights to their mining grounds, their position is contested by migrant miners, among which the FARC and paramilitary, who possess heavy equipment and the political and financial ability to influence local authorities to control the territory.

In Peru, reviewed in chapter 5, we look at small-scale mining in the Madre de Dios region, which takes place in a national arena that favors large-scale mining enterprises and in a regional area of high biodiversity and conservation initiatives. This makes the uncontrolled small-scale mining a highly contested activity. The chapter describes how there have been violent clashes between government troops and

miners in both 2011 and 2012, which resulted in measures aiming at an improvement of the situation by establishing a ‘mining corridor’.

In the final country chapter 6, the situation in Suriname is discussed. Here small-scale mining has boomed since the mid-1990s. In Surinam, small-scale gold mining is of utmost importance to the national economy and it plays an important role in social and political life. Since 2011, the Government of Suriname is interfering in the small-scale mining sector by registering miners and regulating licenses and taxation. In May 2012 however, the situation made it to the media headlines when thousands of small-scale miners were expelled from a National Park where they had been mining with consent from the park director.

## Notes

- <sup>1</sup> See <http://www.gomiam.org> and the funding programme and agency Co-CooN/NWO [http://www.nwo.nl/nwohome.nsf/pages/NWOA\\_78VD3R\\_Eng](http://www.nwo.nl/nwohome.nsf/pages/NWOA_78VD3R_Eng).
- <sup>2</sup> El Espectador Colombia 11-05-2012, El Comercio Peru 20-09-2012, Van der Waals in Vrij Nederland 14-01-2012, ILO TV 2010, Video The Real Price of Gold: Child Labour in Small-Scale Mining.
- <sup>3</sup> The average mobile phone contains about 24 mg of gold (Kaushal and Nema 2012:1)
- <sup>4</sup> 3,800 vs. 2,600 tonnes/year, see [www.galmarley.com](http://www.galmarley.com).
- <sup>5</sup> The development of urban mining is interesting in this context. See: [www.urbanmining.org](http://www.urbanmining.org)

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