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GOLD LAUNDERING

THE DIRTY SECRETS OF THE GOLD TRADE – AND HOW TO CLEAN UP

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WHY WRITE THIS BOOK?

I have spent the last 25 years working in the field of international regulation to keep corruption, money laundering and organised crime at bay. As an academic working at a Swiss university, I could of course not help realising that my native country played a very special role not only in banking and commodity trading, but also in refining and trading precious metals.

In contrast to other products, precious metals are imported and re-exported after refining. The sheer magnitude of the turnover is mind-boggling: up to 3,000 t of gold per year, amounting to 50–70 percent of the world's gold refining. So Switzerland is obviously confronted with considerable environmental and human rights risks – adding to the risks from its involvement with financial services (money laundering, kleptocracy, tax evasion and the like), commodity trading (corruption), arms exports, international sports organisations, and more.

I was, and still am, shocked at the general lack of awareness about these risks. I am equally dismayed at the lack of political will to implement regulations to improve the lives of the millions of people involved

in or affected by gold mining worldwide. It is obviously not a problem only for Switzerland. But you would think we had learnt our lesson from the past.

I decided to give international efforts to regulate the gold supply chain, including soft law and self-regulation, a critical look based on my experiences in the fight against economic crime. As this book will show, we have not yet achieved credible protection of essential human rights in this area – and given our fast-growing hunger for other rare metals and rare earth elements, the implications of this go far beyond gold.


BIENVENIDOS A
LA RINCONADA

TWO SIDES OF THE COIN //



01 //

LA RINCONADA

In a world of rocks and glaciers 5,100 metres high in the Peruvian Andes, 60,000 miners, shopkeepers, bartenders and prostitutes jostle for space in a town that, 25 years ago, housed barely five families.[1]

In La Rinconada, the world's highest permanent settlement and largest gold-mining shanty town, vultures do the garbage disposal and stinking human waste hardens on the infertile ground. Alcohol and coca leaves are the only protection against the altitude and brutal climate, which sees temperatures dropping to minus 20°C.

Like the conditions, people are merciless. Entertainment takes the form of fighting, robbing, raping and murdering.[2] And there is nobody to stop this because the police officers and teachers have all turned to mining, preferring to endure the hazardous conditions at the rock face than to live off their meagre salaries.

Without state authority, the miners exert their own justice. Suspects are known to have been strung up.[3] Most miners are armed. Guns are easily available in the closest town, Juliaca, with or without ID. In a recent TV documentary, the place was called a "no-man's-land".[4]



As La Rinconada has no functioning infrastructure, trash piles up everywhere

Mining is done underground, in some places by digging into the glacier with chisels and hammers. In areas where licensed companies run the mine,[5] methods are slightly less makeshift and the miners work with electric drills and explosives.

Even where mines are formalised, the *cachorreo* system under which miners are employed[6] is informal. Depending on the arrangement, miners work 27 or 28 days per month for the mine in order to get two or three days for themselves. A regular shift is four hours. On the days when they work for themselves, they are allowed to take all they can carry in their bare hands or a bag, which usually isn't much. They get no regular salary, no insurance and no pension. Employment conditions have not changed much since the days of the Incas and the Spaniards.

Strikingly though, many miners themselves claim to prefer the cachorreo system to regular employment according to labour laws.[7] They believe in their luck, just like the bounty hunters caught up in the famed Klondike Gold Rush.[8]



The path to the entrance of the mine leads across frozen mud, ice and rock



Gold and guns, a dangerous combination

KLONDIKE GOLD RUSH

In 1896 two prospectors, Robert Henderson and George Washington Carmack, were fishing in a stream flowing into the Yukon River in the Klondike region of northern Canada when they found gold. What followed was one of the most feverish and desperate gold rushes in history. Of the close to 100,000 bounty hunters who set out, only about 30,000 made it to Dawson City, the centre of the gold rush. Very few made a fortune. Charlie Chaplin managed to make brilliant comedy out of these events in his 1925 film *The Gold Rush*, but the harsh and murderous reality was surely not very funny for those involved.

What the individual informal miner takes out of the mine in this lottery-like system is usually crunched in a *quimbalete,* a primitive mill powered by men moving heavy stones. It is not so different from methods used in ancient Egypt or Rome.

The miners use large quantities of hazardous mercury – about 10 grams of mercury for one gram of gold – to separate the gold from the ore in a process called *amalgamation*.[9] Mercury is subject to progressive bans all over the world due to its disastrous impacts on human health, plants, animals and entire ecosystems.[10] In La Rinconada and other such mining communities, it is freely sold close by and handled without any protection by bare hand.

A slightly more modern process of gold extraction involves concentrators. Here, ball bearings crunch the sand in a type of washing machine before the mercury is added.

Next, the amalgam of gold and mercury is taken to little shops called *entables,* where women torch off the mercury. As you might imagine, there are no closed-circuit retorts to keep the poisonous substances from escaping.[11] Instead, the mercury fumes simply float up through a little chimney into the open air.

Measurements in a similar environment, Antioquia in Colombia, have shown that the air outside such entables can easily reach 1,000 times the World Health Organization air quality guideline for mercury.[12]

Since mercury does not kill immediately, miners are frequently unaware of its dangers and of the serious health problems awaiting them later in life.[13] Citizens in the nearby village of Putina say that children "do not grow" in La Rinconada due to the mercury contamination of air and water.

The role of women in such places is difficult. Due to the superstitious belief that they will arouse the jealousy of Mother Earth, women are not allowed into the mines.[14] So-called *pallaqueras* are, however, allowed to search for traces of gold in the *tailings*, the rock left over after the gold is extracted. The tailings are often contaminated with hazardous chemicals.

Other women work in bars and brothels as prostitutes. Southern Peru, especially the region of Madre de Dios northeast of La Rinconada,[15] is



Miners crushing gold ore with primitive stone mills (“quimbaletes”)



Mercury outlet operated by women without gloves or masks in La Rinconada



Powered “quimbaletes”



Street scene from La Rinconada



"Pallaqueras" searching for traces
of gold in rubble left behind by miners

a hotspot for hijacking and forced prostitution. Girls, frequently from neighbouring Bolivia, are the victims of violence by frustrated and jealous miners.[16] Studies by relief organisations talk of 4,500 women forced to offer sexual services in La Rinconada.[17]

Locals, including priests working in adjoining parishes, claim that miners occasionally still perform human sacrifice in La Rinconada to "pacify the devil controlling the mountain".[18] From outside, these accounts are difficult to confirm.



Corpse of Susy Delgado Quispe,
murdered in La Rinconada

THE WORLD OF GLAMOUR

Half of the world's gold production goes into jewellery and watchmaking. Until very recently, the watch and jewellery trade fair Baselworld[19] was the place to go for the industry. Large watchmakers like Swatch spent up to CHF 50 million on presenting their brands at one of the annual events. Even smaller companies would easily invest CHF 1 million and above.

Glamour at the fairground and wining and dining outside were pushed to the extreme. Hotels and restaurants in the region earned millions in just one week.

Up until recently, 1,500 watch and jewellery companies from 40 countries would present their newest products at this fair. Since the market leaders participated, all the others simply had to be present and make use of the hype.

Lately, the fair has experienced a tremendous exodus of annoyed companies. At first it was the smaller companies, who found it difficult to pay for the excruciatingly high rents at the fair and the side costs such as hospitality. Shortly afterwards, however, they were joined by market leaders, who claimed that fairs were outdated in the time of the internet.[20] It must be assumed that the "bazaar of vanities" simply overdid it – too lush, too expensive and too arrogant?

What remained an absolute side issue in the temple of luxury was the question of where the gold came from that filled the show rooms. The courage to raise this question was left to NGOs like Human Rights Watch (HRW).[21] HRW spokesperson Juliane Kippenberg stated that most of the watch and jewellery companies that they surveyed as part of a study did not know where their gold and diamonds were sourced from. Some simply refused to participate in the study.



Baselworld Watch and Jewellery Show



Hostesses at Baselworld 2016

At first sight, Chopard sets a significant contrast. In a press conference in March 2018, the Co-Presidents of Chopard, Caroline and Karl-Friedrich Scheufele, announced that 100 percent of the gold used in their production would come from sustainable sources. This news was welcomed as a major step by the media.[22] NGOs remained more reserved: Kippenberg acknowledged the sourcing from *Fairmined*-certified small-scale mines, but expressed disappointment that the rest of the supply chain continued to lack transparency. Indeed, the announcement that the company would source either from Swiss Better Gold Association (SBGA)-accredited or Responsible Jewellery Council (RJC)-certified sources leaves a lot open to interpretation. We will see in CHAP. 5 that RJC certification is far from convincing.

GOLD LAUNDERING

For over 6,000 years, mankind has been fascinated by gold. What makes it so irresistible? On the surface, this indestructible, shiny element seems of little practical use but to show off status and look good in buildings and artworks. Yet people from all countries, cultures and centuries have trusted it as a kind of world currency, allowing the exchange of goods where national currencies are distrusted. Only in recent times have industrial uses been developed, with gold now regularly used in electrical contacts, semiconductors, mobile phones and medical devices.

A quick look back at history in CHAP. 2 shows that the value of gold goes far beyond its properties as a metal or even its use in trade. Greed for gold drove the brutal Spanish conquest of Latin America and wars between European nations whose consequences are still felt today. Waves of gold rushes in California (1848), Australia (1851), South Africa (1886) and Canada (1896) generated sufficient quantities to start basing national currencies on gold – what we call the gold standard. Gold has profoundly influenced our modern banking and financial systems, and still does.

For all the excitement and fabulous wealth associated with gold, the process of mining it, supplying it and refining it (CHAP. 3) has brought incredible misery to many people. People like informal miners and their families, struggling to survive and often battling helplessly against multinationals granted licences to take over their land. Slaves, from the convicts and prisoners of war used by Egyptian pharaohs to those working under conditions of forced labour in the eastern Democratic Republic of Congo. The hundreds of thousands of black labourers toiling in South African mines under apartheid, in wretched conditions and with their meagre salaries falling in real terms. Employees of large mining companies, in the past and unfortunately often still in the present.

Despite all the advances in industrial technologies, processes and standards, CHAP. 4 shows that the gold industry still faces formidable challenges. There is growing concern about environmental degradation

caused by gold mining through deforestation and the use of toxic substances. Gold plays a significant role in organised crime, money laundering and tax fraud. But the most visible and shocking risks in the gold supply chain are human rights violations: working conditions, the dispossession of indigenous populations, child labour, violence against women and many more.

How can anyone not see the risks? How is it possible for NGOs and industry players to debate whether gold is really problematic or whether everything is actually okay? Sure, there are laws, standards and initiatives that should serve to kick the gold supply chain into shape. CHAP. 5 sets out a comprehensive picture of them all. Or perhaps we should call it a patchwork, not a picture, because the regulations are still pretty patchy and weakly enforced.

So are the regulations working at all? Turn to CHAP. 6 to find out, but the short answer is "not really". Here we look more closely at some individual gold refineries, because they are the gatekeepers of a responsible supply chain. Although all of us – regular citizens, NGOs, governments, international bodies, industry associations, mining companies, traders, banks – can play an important role in cleaning up the gold industry, refineries are the key. The complex refining process transforms the rough, raw metal into what we think of as gold, washing off any dirty secrets about where the gold came from and who suffered along the way. Hence the title of this book: Gold laundering.

Some of those working in gold refining openly recognise the risks in the supply chain. The owner of one of the biggest refineries in the world has even said that "[i]n this industry it is impossible to refine clean gold […]".[23] But others close their eyes. As you will read in CHAP. 7, Switzerland, the world centre of gold refining, is only just starting to see some of the problems – and to recognise that it has the power to solve them.

By the time we reach CHAP. 8, we have swept through the history, processes, risks and regulations around gold, looking at what works and what doesn't. So we are in a good position to suggest some sensible reforms that can make a real difference to the lives of people working at all

levels of the gold industry, all over the world. And hopefully, by the time you get to CHAP. 9, you'll already know some things you can do to help clean up the shady value chain that lies behind our shiny gold jewellery and the components in our mobile phones.





THE HISTORY OF GOLD //

02 //

ANCIENT EGYPT

Gold already played an essential role in ancient Egypt[1] and Mesopotamia.[2] As early as 5000 BC, settlers along the Nile found nuggets at the bottom of seasonal rivers called *wadis*. They found that by hammering it into leaf form, they could make primitive jewellery, later found in tombs.[3] Metallurgical skills advanced rapidly in Egypt in the time around 3500 BC,[4] even before the dynasties of the pharaohs.

Under the pharaohs, gold gained a high religious significance.[5] It was considered the Sun God's metal and was put under exclusive control of the pharaoh. Treasuries at temples kept stock of deliveries.[6] Gold was systematically prospected, helped by green stains on the rocks that indicated the presence of gold.[7]

Gold mining in ancient Egypt peaked at the height of its empire, around the time of Thutmose III (1479–1425 BC).[8] The famed tomb of Tutankhamun (1323 BC) contained over 110 kg of pure gold, testifying to its significance.[9] Mining gold developed into a highly organised activity. Scholars estimate that during the pharaonic times, seven tonnes of gold were mined[10] and that wherever gold deposits could be mined, they were.[11]



The funerary mask
of Tutankhamun

Gold was not used for coinage in ancient Egypt, which had a barter economy. The pharaoh did, however, organise an exchange of gold for ebony from sub-Saharan Africa.[12] Gold coins were a much later development, with the use of modern-style bimetallic coinage first recorded between 560 BC and 546 BC under Croesus, king of Lydia (western Anatolia in modern-day Turkey).[13] Croesus, by the way, was so fabulously wealthy that we still talk about being "as rich as Croesus".

The Egyptians first started prospecting for gold in the Eastern Desert, part of the Sahara east of Aswan. Later, after the conquest of Nubia, it was mined in the Nubian Desert as well,[14] a vast area stretching down through what is now northern Sudan. In fact, the hieroglyph for gold read "Nub".[15]

Alluvial gold – tiny flakes or particles of gold found in low-flowing rivers or dry river beds – was gathered at open pits in the desert.[16] That wasn't enough to meet the demand, so the Egyptians started mining underground by cutting trenches into hills and digging shafts.[17] Excavation tools were primitive, basically a hammer and chisel.

The mining process stayed pretty much the same throughout pharaonic times, except for the introduction of bronze tools.[18] On the other hand, archaeological evidence found at hundreds of old mining sites prove that concentration techniques advanced as Egyptian imperial power grew. Crushing the ore was initially done with large hammers, later with a battery of mortars like a modern-day stamp mill.[19] The resulting mix of gold and quartz *gangue* (the valueless bit of the ore) was then reduced in mills to powder.[20]

Thanks to the 1st-century BC historian Diodorus Siculus, as well as tomb decorations[21] and other archaeological evidence, we have an insight into separation methods. The powder was washed on slanted stone tables covered with sheep skin. Some say the myth of the "golden fleece" of the Argonauts originated from this practice.[22] The skin would trap the sharp and heavier gold particles. This method reminds us of "modern" separation methods used as an alternative to dangerous extraction using mercury or cyanide, such as the technologies discussed in CHAP. 8. The skin would then be burned in order to recover the trapped gold.[23]



Tomb of Rekhmire depicting artisans casting metal

The next stages to refine the gold again remind us of methods still in use today, such as *cupellation*, in which heat is used to separate gold and silver from other elements. According to ancient accounts, the raw material was mixed with lead, tin and barley bran in a heat-resistant earthen container (a *cupel*). The mixture was then heated, with a strong current of air helping the oxidation process. Other metals would be absorbed by the porous walls of the cupel,[24] leaving gold and silver.

As today, more difficult was separating gold from silver. It seems, as Diodorus Siculus claims, to have been done by *cementation*. This process involves heating the gold and silver amalgam together with salts. After a few days, the silver combines with the salts and separates from the gold.[25]

At this stage of the process, the gold was finally ready for casting or any other form of working by goldsmiths. According to modern tests, the purity of Egyptian gold varied considerably, between 70 and 90 percent.[26]

It is incredible to think that this complex process, including many elements which look similar today, was carried out between 6,000 and 3,000 years ago. The concept of human rights may not have been talked about back then, but the horrific abuses against human beings were plain for all to see. Miners were slaves and convicts, and their lives did not count[27] – an attitude that, sadly, persisted in gold extraction in the centuries to come.

THE ROMAN EMPIRE AND MIDDLE AGES

In ancient Egypt, the pharaoh held the monopoly over gold. Bartering with gold to acquire goods from other countries in Africa or the modern-day Middle East was a sovereign prerogative. The Ptolemaic invaders of Egypt and then the Roman Empire adopted an entirely different attitude: they transformed gold into currency and minted gold coins for high-value money.[28]

Ancient Egypt's energetic mining efforts were not really resumed in the Middle Ages. Newcomers, especially the Arabs from roughly 640 AD on, concentrated on reactivating some of the known mining sites and looting graves.[29] Production remained low.

Nevertheless, the Middle Ages inherited gold currency from the Romans. Quality was of course an issue. The magnificently named Worshipful Company of Goldsmiths (now The Goldsmiths' Company) based at the exquisite Goldsmiths' Hall in London, started to assay precious metal (evaluate its composition) and hallmark it (mark it with a quality guarantee) in 1300.[30] Rapidly though, known mines in Europe were



Common coins of the Roman Empire

exhausted, leading to a shortage of precious metals during the 14th and 15th centuries now known as the Great Bullion Famine.[31]

Throughout the Middle Ages, alchemists sought to satisfy the constant hunger for precious metals by searching for the so-called philosophers' stone – a material that could turn base metals artificially into gold or silver.[32]

The bank cheques that many people still use today saw their precursors in the late Middle Ages. Times were rough. Former military men and desperate people displaced from their homes were living lawless in the woods. It became increasingly dangerous for merchants to travel to fairs carrying sacks of gold and silver with them – much nastier characters than Robin Hood were lurking behind every tree.



"The Alchemist", 16th-century engraving attributed to Philip Galle after Pieter Bruegel the Elder

Some enterprising early bankers therefore started to offer certificates known as bills of exchange. They would keep the merchant's gold in their vault and supply him with a certificate that would be recognised by a correspondent banker at the fair, who would then pay out the required sum to the merchant. The merchant would pay back once at home from his holdings at the bank, including an additional fee. This private guarantee system became the basis of public currency as time went on.[33]



A goldsmith in his shop,
painting by Petrus Christus (1449)



A bill of exchange from 1873 England

THE AGE OF DISCOVERY

The discovery of the Americas by Columbus in 1492 was timely in more than one way. It ended the gold famine and it also provided the Spanish monarchs with the means to finance their wars and build a fleet.[34] Since this profoundly changed the course of world history, let's have a look at what happened and the important role of gold.

THE SPANISH CONQUEST OF LATIN AMERICA

By the 15th century, Portuguese and Dutch sailors had already discovered new frontiers, especially when sailing along the coast of Africa and beyond to Asia. Spain had been held back by La Reconquista, its centuries-long fight to "reconquer" the south of Spain from the Muslim Moors.

When they succeeded, the so-called "Catholic Monarchs" Isabel I and Fernando II were finally persuaded to fund an expedition by Italian explorer Christopher Columbus to look for the west passage to India.

Columbus's original goal was, like that of Vasco da Gama of Portugal, to open trading routes. It was only when he returned from the Caribbean with gold and pearls that he sparked the greed of the monarchs, as well as the realisation that they could use the gold to fund wars at home. Rapidly the paradigm changed from trade to conquest. This is the context in which King Fernando II sent out expeditions of *conquistadores* – from the word for "conquer" – rather than mere explorers. "Get gold", he ordered. "Humanely if you can, but at all costs get gold".[35]

Depiction of "Christopher Columbus landing on Hispaniola" by Theodor de Bry





Depiction of "Amerigo Vespucci at the continent" by Theodor de Bry

The early seafarers were greeted with presents on the Antilles, but the atmosphere rapidly changed once it became clear that the conquerors had come to rob and to kill.

One of the worst killers was Alonso de Ojeda, a lowly but ambitious nobleman who had joined Columbus's expedition as one of the King's surveyors. He began his own series of expeditions in 1499. His aim was to rob as many goods for the King and for himself as possible. A companion of more famous conquistadores including Francisco Pizarro, he was moderately successful in finding gold. But he found his true calling as a brutal killer.[36]

It is amazing that those small and ill-equipped armies managed to conquer huge empires in such a short time. It took Spanish conquistador Hernando Cortés just a couple of years and a few hundred soldiers to

conquer the Mexican Aztec Empire,[37] which came under his control in 1521. A few years later in 1533, the Inca Empire fell to Pizarro in modern-day Peru.[38] The story goes that Pizarro faced 80,000 Inca troops with just over 100 sick and weary foot soldiers and 62 horsemen. Tricking Atahualpa with the offer of a friendly encounter, he locked him up and slaughtered his entourage.

Whatever the truth, huge quantities of gold, silver and precious stones were looted in the aftermath. In fact, legend has it that the captured Incan leader Atahualpa even agreed to fill a large room with gold to secure his release. True to form, the Spaniards waited until the gold was delivered and then publicly executed Atahualpa anyway.[39]

This gold booty, sent home to Spain via the southern port of Seville, marked the beginning of a long procession of Spanish shiploads draining

Gold artefact exhibited at the Larco Museum in Lima, Peru



Latin America of its gold and silver. It has been estimated that 185 t of gold and 16,000 t of silver arrived in Seville during that period.[40] A fifth of the spoil – a *quinto* – belonged to the King.[41]

It may be hard for us to imagine this today, but gold had no value as currency to the indigenous Latin American peoples who had extracted it. Like in ancient Egypt, it was instead mostly used for ornamental and religious purposes. In addition to the death and destruction caused by this raid on Latin America's gold, it is sad to think of these beautifully crafted artefacts being melted down into bars by the Spaniards.

THE REACTION OF RIVAL EUROPEAN NATIONS

Since the leaders of Spain and the Holy Roman Empire were using the gold to pay for their European war efforts, the bonanza endangered the position of other major European nations, in particular England, France and the Netherlands. This explains in part why Elizabethan England embarked on an aggressive attack on Spanish interests. The academic Barbara Fuchs talks of "a rather desperate willingness to attack Spain in the Elizabethan years".[42] The main difficulty of Queen Elizabeth I was, though, that England had no organised navy at that time – and only a weak army, as became painfully clear when the Spanish invasion was imminent shortly afterwards.

The Queen's adviser, the magician John Dee, suggested that she "rein in the pirates and profit from their ability".[43] Pirates who were ready to work for their country as "privateers" would receive an official mandate to attack ships of a hostile nation and were allowed to keep up to 50 percent of the bounty.[44]

What a brilliant idea, thought the Queen. England organised 13 expeditions into the Caribbean between 1570 and 1577.[45] Other naval powers like France and the Netherlands caught on and pursued a similar policy.

The privateers – a direct result of countries' greed for gold – were notoriously daring and their activities changed the course of European



The English privateer
Sir Francis Drake

Replica of the Golden Hind
in Brixham, UK

history. Sir Francis Drake, one of the best known privateers, raided the Spanish port of Cadiz in 1587. Within a year, open war broke out and the Spanish Armada set sail in an attempt to invade England. Their catastrophic defeat in the English Channel was a huge setback to Spanish interests and helped Britain rise to become the leading naval power. In fact Spain, despite its massive gold bonanza, turned out to be bankrupt at the end of the 16th century.

While privateers acting in defence of their country were at first glorified,[46] they became an embarrassment as soon as Spain and England agreed a peace treaty under James I in 1604. Rapidly expanding international commerce and larger colonial efforts led to a radical change in attitude towards piracy.[47]

The Virginia Company and the East India Company, emerging large trading houses wishing to preserve their monopolies, were particularly opposed to piracy. Even though villages in western England and Ireland lived for some time off trade with privateers, i.e. handling stolen goods in today's terms, the larger interests of the emerging British Empire prevailed. The navy defended the merchant fleet.[48] In a raid in the Caribbean in 1710, 500 pirates were allegedly killed by the British.[49]

SIR WALTER RALEIGH

Sir Walter Raleigh's life story illustrates England's shifting social and political attitudes in the 16th and early 17th centuries. He grew up as a landed gentleman. As an adventurer, sailor, poet and courtier he explored and claimed what is now the US state of Virginia for the English Queen. At the time of the war with Spain he was a heroic figure and one of the key players close to Queen Elizabeth I, acting as both privateer and soldier.



Portrait of Sir Walter Raleigh
by Nicholas Hilliard (1585)

For all his closeness to the Queen, her successor James I disliked him and threw him into prison. He was pardoned to search for El Dorado, a rumoured "city of gold" in South America. When his men attacked a Spanish fort in violation of the 1604 peace treaty between England and Spain, however, he was again arrested and brought back to England, where he was promptly executed by James I at Spain's request.[50]

THE EFFECTS OF THE GOLD AVALANCHE ON THE ECONOMY

Despite the best efforts of rival nations to prevent it, gold was flowing into Spain through the port of Seville. The Spanish monarchs contented themselves with a fifth of this, their quinto, to further develop their imperial policies in Europe and Latin America. So what happened to the other four fifths of the bounty?

The Spanish economy at that time was by no means able to digest the inflow of such large quantities of gold. Spain was an impoverished rural country that had, for religious reasons, just expelled the Jewish and Muslim populations who had acted as financiers. Foreign bankers, especially from Italy and the Netherlands, struggled to step in. Rightly, Hart says that the gold and silver was not helping the Spanish economy.[51] Instead, the influx of gold spilled out and helped the entire European economy to grow in the early times of industrialisation.

The use of bills of exchange instead of physical transportation of gold helped foster the banking world. Bankers would mutually accept each other's paper bills. This practice, which had evolved gradually since late medieval times, now became a public matter. Sovereign states took on the task of issuing paper money against gold they held in storage. From private promises, banknotes became official currency.

Gradually, the concept of the gold standard emerged, meaning that paper money was now exchangeable for gold and vice versa. Sir Isaac Newton, Master of the British Royal Mint among his many other roles,

Bank of England one pound promissory note of 1802



introduced the gold standard de facto in 1717 by setting a fixed rate for the pound against gold.[52] It is no coincidence that the first central banks were created virtually at the same time: the Amsterdam Wisselbank (1609), Bank of England (1694) and Banque générale de France (1716).[53]

GOLD RUSHES

For all the gold pouring in from Latin America, however, there was still not enough in Europe to support the currencies in the phase of the colonialist expansion and through industrialisation. More widespread adoption of the gold standard had to wait until the supply of gold was drastically increased yet again.[54]

A series of so-called "gold rushes" did the trick. In 1848, John Marshall discovered gold flakes while building a sawmill for John Sutter near the Sacramento River in California. Even though the two men tried to keep it secret, news leaked out and in a matter of months 40,000 diggers devastated Sutter's land. Soon, more gold was found in the hinterland. California, until then an undeveloped, underpopulated area that the US was just acquiring from Mexico, suddenly saw an influx of a rough population. Ninety percent of the newcomers were male and desperate to get rich really quickly.[55]

Similar gold rushes followed in Australia in 1851, South Africa in 1886 and Canada in 1896.[56] Rumours of gold finds even today typically lead to a rapid influx of poor, desperate and mostly unexperienced bounty hunters. The Peruvian shanty town of La Rinconada that we saw at the beginning of this book is a vivid example.

In South Africa, the gold reef dipped deep into earth and was inaccessible to individuals hoping to get rich quick. Instead, the discovery attracted powerful companies hoping to profit by cracking open the earth with large machinery and exploiting local labour.



Panning for gold during the California Gold Rush

THE GOLD STANDARD

BRITAIN

We have seen that London's role as the world's main gold market started early, with the Worshipful Company of Goldsmiths providing assaying services from the 13th century and Goldsmiths bankers mutually accepting each other's paper promises in the 17th century.[57] During the 18th and 19th centuries, gold continued to play a key role in stabilising the British economy. Although Newton had already linked the pound to gold

from 1717, the formal step of introducing the gold standard only came 100 years later, after the defeat of Napoleon in 1816.[58]

The gold standard in the UK lasted until 1914, when Parliament had to stop convertibility due to rapid losses of the Bank of England's gold reserves. In 1925 the UK, under Winston Churchill in his role as Chancellor of the Exchequer at the time, returned to gold.[59] This lasted until Parliament lifted convertibility again in 1931, during the Great Depression.[60]

UNITED STATES

Gold and the US dollar have had a similarly eventful relationship. The US adopted the dollar as its currency in 1785, two years after the American Revolutionary War. According to the 1792 US Coinage Act, the new currency was based on a bimetallic system, gold and silver.[61]

During the Civil War, the US found it difficult to maintain the dollar's convertibility. It issued the so-called greenback, slang for the US paper dollar, and from 1873 changed from bimetallism to a purely gold currency. Several other countries followed suit, giving up silver as a currency standard. Even though the US Federal Reserve Bank had experienced serious gold drainage as a consequence of the Civil War and further crises, the US stuck to the gold standard.

In 1933, President Roosevelt, for similar reasons as the UK, had to suspend gold convertibility of the dollar. His measures were radical: he got Congress to give him the power to regulate ownership of bullion (i.e. gold bars or ingots) and decided that all privately owned gold had to be handed in, with only a few exceptions. It became a crime for individuals to possess gold.[62] Suspicions that the gold price was manipulated by the state at the time may well have been right.[63]

In the last phase of World War II, 730 delegates from 44 countries gathered at the Mount Washington Hotel in the US state of New Hampshire for the now-famous Bretton Woods Conference. Stretching over

the first three weeks of July 1944, the gathering is famous for sparking the establishment of the International Monetary Fund and International Bank for Reconstruction and Development.

The Bretton Woods delegates also found time to talk about gold. They decided that since the US had 75 percent of known gold reserves, it would continue to base the dollar on gold. Other countries would base their currencies on the dollar. The exchange rate of the dollar to gold was fixed at USD 35 per ounce.

Key central banks – the US, UK, France, Germany, Italy, Belgium, the Netherlands and Switzerland – agreed in 1961 to support this fixed gold price with the help of the London Gold Pool. The idea was for these countries to pool their gold reserves and coordinate the buying and selling of gold to control market forces. The London Gold Pool only lasted a few years, collapsing in 1968 after France left a year earlier.

After 1968, the market gold price floated up to USD 43, eight dollars above the price fixed at the Bretton Woods Conference. This opened the so-called US "gold window": since the US was selling gold at an official rate lower than the market price, currency dealers were making money from the difference. In 1971, President Nixon closed the "window"[64] in a famous televised speech and announced the end of convertibility of the US dollar to gold.

Despite this, many economists believe that the stubborn commitment of the US to buy and sell gold at USD 35 an ounce was a crucial condition for the stability of the world's financial system.[65] Since then, the gold price has been floating according to market forces.

FINANCING THE NAZI WAR EFFORT

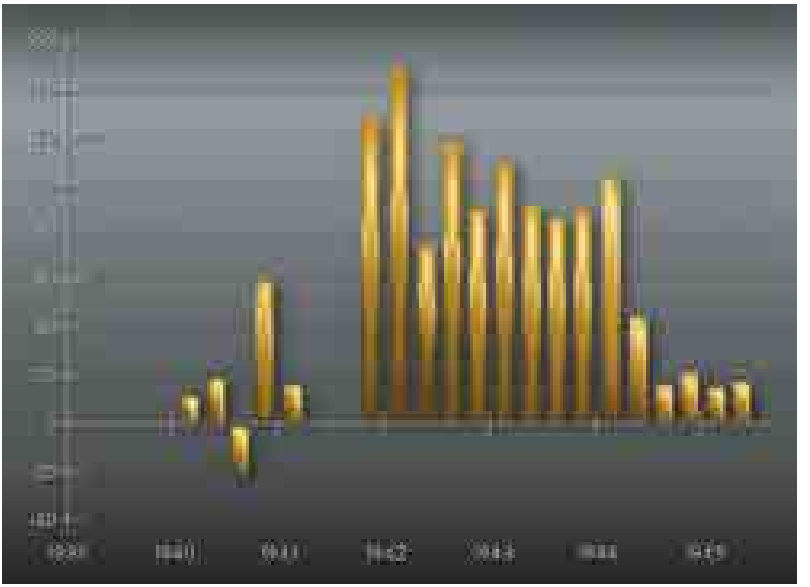
We have seen what a troublemaker gold has been throughout history, fuelling major wars and colonial brutality. The role of gold in financing World War II is similarly dismaying and it is surprising how few people know about it.

During World War II, neutral Switzerland acquired large quantities of gold from both Allied and Axis powers. It exchanged the gold for Swiss Francs, the only freely convertible currency at the time apart from the US dollar. US and Swiss studies[66] after the war show that Switzerland acquired 79 percent of all German gold delivered to foreign countries. 87 percent of this went to the Swiss National Bank (SNB), partly because the SNB had specifically asked the German Reichsbank (RB) in 1942 to deliver the gold exclusively to it.[67] The remaining 13 percent ended up in Swiss commercial banks.

The gold trade with Switzerland was particularly valuable to the German war effort, since countries providing essential commodities to Germany, like oil and tungsten, demanded to be paid in hard currency.[68] And they refused German gold. A further driver of Swiss gold imports was direct payments for arms and machinery manufactured for Germany by Swiss companies.[69] Jean Ziegler states that from 1940 on, Switzerland effectively became part of the Axis's war economy.[70]

Only after the war did it emerge with brutal clarity that by 1939, Germany had already used virtually all its pre-war gold reserves to acquire arms and was basically bankrupt.[71] So Germany had been forced to rely on selling foreign gold, first the gold it obtained by annexing Austria and then gold plundered from the reserves of conquered countries, in particular Belgium, the Netherlands and Norway. According to SNB statistics, it is believed that Swiss banks bought 1.7 billion Swiss Francs'[72] worth of Nazi gold.[73]

It has been established[74] that as well as being robbed from the reserves of conquered countries, some of this gold had been confiscated from private individuals or directly taken off victims in death camps



Graphic 1 Gold purchases of the SNB from the German Reichsbank, 1939–1945 per quarter (in million Swiss Francs)

(rings, gold teeth, etc.). It was melted down by German companies like Preussische Münze or Degussa[75] on behalf of the RB and backdated to the mid-1930s.[76]

US attorney and diplomat Stuart E. Eizenstat, during his time as US Undersecretary of Commerce for International Trade, summarised the role of Switzerland during World War II as follows: "the Swiss were the principal bankers and financial brokers of the Nazis, handling vast sums of gold and hard currency".[77]

Obviously, in the aftermath of the war there was heated debate about what the SNB and the commercial bankers knew at the time. The independent expert commission of historians created by the Swiss Parliament in 1996[78] concluded that the SNB knew from 1941 that the RB had received large quantities of stolen gold.[79] What is more, the Directorate

of the SNB itself considered re-founding gold bars acquired from Germany in 1942.[80] The full report expresses doubt that they actually did so[81] but there can be no certainty. Again Stuart Eizenstat is scathing in his judgement: "Neutrality collided with morality; too often being neutral provided a pretext for avoiding moral considerations".[82]

From 1943 a "safe haven programme" was created by the Allies.[83] Its aim was not only to uncover conspiracies with the enemy by neutral countries, but to prevent Germany "from maintaining the assets, skills and research necessary for the conversion of Germany to a war basis at an appropriate future date".[84]

What was meant was action to prevent Germany from re-militarising after the war. That this risk was not unrealistic follows from the secret conference of German industrialists with high-ranking SS personnel in Strasbourg on 10 August 1944, discussing the secret shifting of Nazi assets abroad to offshore accounts.[85]

Immediately after the war, Switzerland and other neutral countries had to explain their positions and offer reparation to Allied countries. It appears from the reports that Switzerland had not understood the position it was in. After tough negotiations, Switzerland got away with a reparation payment of CHF 250 million.[86]

In a side agreement, the Swiss delegation promised "to identify dormant accounts which were heirless". Eizenstat criticised in 1997 a "lack of attention to the letter and spirit of this side agreement".[87] Under President Bill Clinton, millions of documents were declassified and made available to Members of Parliament, historians, the World Jewish Congress and others.[88] The role of Switzerland and others as bankers of the Nazis became evident and large-scale searches for dormant accounts finally set in over 50 years after the end of World War II.[89]

SUPPORTING THE APARTHEID REGIME

THE EARLY HISTORY

Like in California and Australia, the South African story of striking gold is also one of random chance. A farmer digging up his land for stones to build his home hit a specific formation of firmly packed white pebbles. The farmer, George Harrison, had been a miner in Australia and recognised that he had hit a gold-bearing reef. This chance discovery in 1886 came only a few years after the detection of diamonds in 1867.

Whereas California had alluvial gold – nuggets that could be panned – the South African deposits made heavy mechanised mining necessary. What is more, the reef plunged deep into the ground, without leaving much gold near the surface.[90] Expensive investment in underground operations was necessary from the outset.[91]

The diamond miners, known as Randlords,[92] had the advantage of being already present and having cash to invest. So they moved quickly to take control of gold mining in South Africa. Large companies such as Rand Mining and Gold Fields, led by powerful industrialists including Cecil Rhodes and Charles Rudd, directed the early development.[93]

By 1910, gold already made up 60 percent of South Africa's exports. In those early days, an entire row of gold fields from Johannesburg to the Orange Free State was detected and gradually developed. A new generation of entrepreneurs became essential to the development, especially Ernest Oppenheimer of Anglo American from 1917, who also held strong interests in diamonds.[94] Those early industrialists had to take a gamble to develop a mine, sometimes going down several miles[95] following a narrow reef based on a simple prospection on the surface. They must have had nerves of steel to risk hundreds of millions of dollars merely to get to the production stage. Even at the fixed exchange rate at the time, USD 35 per ounce, it was clearly still a risk worth taking.

South Africa rapidly became the biggest global exporter of gold. In the 1980s, 50 percent of the world's production originated from South

Africa.[96] It stayed the world's largest producer until 2007, when it was overtaken by China.[97]

RECRUITING THE NECESSARY WORKFORCE

Underground mining is extremely labour intensive. The South African gold mining industry in 1980 alone employed 472,000 workers, 44,000 of whom were white and 428,000 black.[98] Rather than attracting farmers to the mines by paying adequate salaries, the Randlords used a trick from 18th-century England. Seeking workers for the new era of industrialisation, English noblemen enacted land acts barring sheep farmers from using the commons and effectively forcing them into factories.[99] Similarly, the ruling whites dispossessed the non-white population of



Soweto uprising and massacre in 1976

South Africa with a series of laws and new taxes, including on housing and land. A government report of 1903 did not hide the intention of the new taxes to force the "aboriginal population" to the cities and mines. In 1913, government policy became yet more explicit with the Natives Land Act, which severely restricted black South Africans' ability to farm.[100]

A shortage of black South African workers meant that workers from other African states were drafted into the mines.[101] They lived in hostels while working there. The salaries of black workers fell in real terms until they were earning less in 1969 than in 1911.[102] The discrepancy between the miners' salaries and the profits of the mine owners could not have been greater.

Many observers see a direct connection between gold mining and the emergence of the apartheid system in South Africa.[103] The formal concept of apartheid was developed after 1948[104] and brutally implemented in the face of protests from the 1950s. The massacre of Sharpeville alone left 60 dead and 186 wounded.[105] The policy of denaturalising the black population into so-called homelands sparked decisive international protest. The UN stepped up its sanctions policy in the 1980s.

WILLING HELPERS OF THE APARTHEID REGIME

The South African apartheid regime could only survive against the growing international protest and boycott movement by trading its gold. It was therefore crucial to find a reliable trading partner.

When the London Gold Pool folded in 1968,[106] three commercial banks in Zurich (UBS, CS and SBV) quickly stepped in to create the Zurich Gold Pool. What has been referred to as the "South African coup"[107] involved these banks convincing South Africa to market its production through Zurich. The Zurich bankers also managed to attract Soviet gold.[108] In the 1980s, Switzerland played a key role for South Africa. In addition to arms exports,[109] it marketed the internationally isolated country's gold and diamonds. In 1985-6, Swiss bankers led by

the former Chairman of the SNB Fritz Leutwiler even engaged in restructuring South Africa's public debt, preventing its bankruptcy.[110]

The Swiss government and Parliament repeatedly refused to implement international sanctions,[111] claiming neutrality[112] and replaying the behaviour shown as bankers of the Nazis. Officially, Switzerland claimed it had expressed its public disagreement with the apartheid policy. However, it continued to secretly foster exports to South Africa with export credits.[113] Overall, the Zurich Gold Pool marketed between 60 and 80 percent of South Africa's gold production in the 1980s.[114]

The commercial banks forming the Zurich Gold Pool each acquired their own gold refinery.[115] Some of the refining was done at Neuchâtel, the centre of watchmaking. But the golden triangle of refineries was then, as now, near the southern border town of Chiasso, close to the northern Italian jewellery industry.[116] According to the Swiss government's National Research Program 42+ on "Relations between Switzerland and South Africa", close to 80 percent of the gold imported from South Africa during the 1980s was re-melted and stamped with a Swiss quality seal by Swiss refiners.[117]

It seems likely that the Swiss government cooperated in this cover-up as its experts were responsible for ascertaining the quality of precious metals. Furthermore, South African gold did not show up in Swiss trade statistics. Fears that Swiss commercial entities would be called to account for their support of apartheid led Switzerland to stop publishing official trade statistics on gold from 1981 and to block access to relevant archives. Gold statistics were only published from 2014 on.[118] Even researchers have been denied access to archives relating to Swiss connections to South African apartheid for fear of legal action.[119]

It appears that commercial banks and officials in Switzerland were acting as gold launderers during one of the most delicate and morally dubious times in history.





THE SUPPLY CHAIN //

03 //

THE SIZE OF THE GOLD TRADE

Turning from history to the modern supply of gold, we first need to get an understanding of the dimensions of supply and demand.

Since gold serves as a store of value, it is believed that virtually all gold ever mined is still present in some form, mostly as bullion, coins or jewellery. Authors often talk of a cube measuring 20 by 20 by 20 metres and containing the equivalent of 190,000 t[1] of gold worldwide. Around 49 percent is said to be used for jewellery, 20 percent for investment purposes, 17 percent for official purposes such as currency reserves, and 12 percent for industrial purposes.[2]

The current stock is not to be confused with the worldwide production and consumption per year. Statistics on the annual production of gold are rather unreliable, since mines and refineries don't like to publish their business figures. The 71 certified refineries in the London Bullion Market Association (LBMA) collectively refined 4,200 t in 2013 and just over 5,000 t in 2015.[3]

To add to the complication, the amount of gold being refined is not the same as the amount of gold being mined. First, a quarter to a third



Graphic 2 Gold supply 2018

of the gold supply is generated by recycling.[4] If demand for gold is high, refineries also receive more "grandfathered" gold (gold investment products created before 1 January 2012) and gold from stock (hedging or official sales by central banks).

According to the World Gold Council 3,347 t of gold were mined in 2018.[5] Added to this is 1,173 tonnes of recycled gold.[6] In total, almost 4,500 t of gold are currently processed each year. This figure is not far away from the annual demand figures: 4,159.9 t for 2017 and 4,345.1 t for 2018.[7]

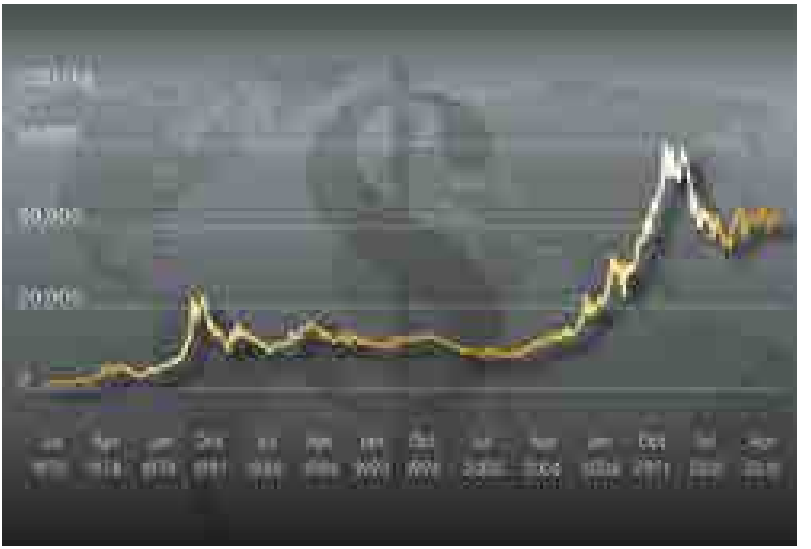
The sales figures by sector for 2018 are as follows:

- 50.6 percent of the gold refined went into jewellery, including watchmaking;
- 26.7 percent went into investment, including gold exchange-traded funds (ETFs);
- 15 percent went to central banks;
- 7.7 percent was used in technology.

Trading figures for London are immense. On an average day in 2012 at the London Bullion Market, it is reported that 2,600 transactions took place and a total of 561 t of gold changed hands.[8] Figures for the Zurich Gold Pool are not published. Equally, it is not known how much gold is traded in the souks or markets of Dubai, Mumbai, Hong Kong and Singapore.

Graphic 3 Gold demand 2018





Graphic 4 Gold price development

These figures are subject to change and serve merely as a general indicator. They depend on the gold price, particularly for the investment segment. And the gold price is volatile. It has steadily risen over time, peaking between 2010 and 2012 after the main turmoil of the financial crisis. Reports about the revival of world economies has caused the price to dip again and enter a rollercoaster of ups and downs. Clearly, the gold price depends on interest rates and share prices.

WHERE DOES GOLD COME FROM?

It might surprise you to learn that gold comes from a variety of sources. Industrial or large-scale gold mining (LSM or sometimes LSGM) has little in common with artisanal or small-scale gold mining (ASM or ASGM) or dredging. The gold in your earrings or watch may also have come from recycling or the re-melting of old "grandfathered" gold stocks. Let's look at each source in turn.

LARGE-SCALE GOLD MINING

Large-scale mining involves powerful multinational corporations and huge sums of capital – up to USD 2 billion before production can even start in a single mine. The complicated preparations can take up to 15 years. The lifecycle of a large-scale mine involves four phases:

- Exploration and acquisition of mining rights
- Mine design and construction
- Production: extraction and on-site processing
- Decommissioning and post-closure activity

Exploration and acquisition of mining rights

Exploration can be highly profitable when it is successful, but it is also highly risky. Roughly 95 percent of all exploration efforts fail,[9] although exploration companies desperately do all they can to prove that a particular area will yield high returns.[10] Their desperation may be because they frequently work on a shoestring, relying on funding from "exploration shareholders" – modern-day bounty hunters who don't like to get

their own hands dirty.[11] It is not uncommon for exploration companies to cheat mining companies.[12]

Since exploration does not use in-depth probes, the specialist development companies[13] who come in to conduct feasibility studies in the next stage have to base their profitability calculations on imprecise estimates.[14]

Once the mining company is convinced that exploitation is worthwhile, it needs to obtain the rights to the mine and the mining licence. Since most gold-mining sites are in the Global South, in many cases in unstable countries,[15] corruption and extortion are a high risk.[16] In several cases, large mining corporations have been known to use a "friend" of the president of the relevant country to further their cause. Rio Tinto is said to have employed a close collaborator of the President of Equatorial Guinea in order to procure a mining licence.[17] Similarly, Glencore is alleged to have collaborated closely with the "corrupt businessman" Dan Gertler,[18] an ally of President Kabila of the DRC, in order to obtain the mining licence for the Katanga mine and to keep the royalties low (up to USD 400 million have allegedly been saved).[19] These examples are not taken from the gold industry, but they illustrate the huge potential corruption risks involved in obtaining mining licences.

Surface mines

Preparations before mining starts are different for surface and underground mines.

Surface hard rock mines apply open-pit methods, digging deep with huge equipment. Preparations could involve removing a mountaintop,[20] digging trenches into mountains[21] and/or creating an open pit. Surface mines can be huge, as can the environmental risks. The mines destroy the landscape, require large amounts of chemicals during the processing phase and generate massive piles of tailings.



Twin Creeks gold mine, Nevada, US

Underground mines

The method of underground mining chosen depends on aspects such as the properties of the bedrock[22] and the slant of the vein, or reef.[23] South Africa has developed strong experience in underground mining, since the ore there dips deep into the ground. Some of the deepest mines plunge three[24] or even four kilometres[25] into the earth, making a complex and energy-intensive cooling system necessary.[26]

VISIT TO MPONENG GOLD MINE, THE DEEPEST POINT IN THE WORLD

In the town of Carletonville, 65 km southwest of Johannesburg, the search for gold has led human beings to advance further into the earth than anywhere else on the planet. In Mponeng Gold Mine, operated by the mining conglomerate AngloGold Ashanti, thousands of miners drill and blast their way forward at around 3,800 metres below the earth's surface. The object of desire is a reef that is only 50 centimetres wide but that yields some 30 kg of *doré* (raw gold containing impurities like silver) per day.

The main entry and exit point to the mine is a two-sectioned elevator that transports miners, materials, ore and tailings in and out. When descending underground, you might expect a sharp temperature drop as the elevator cage travels further away from the sunlight. But the opposite is true. Due to the earth core's geothermal energy, the tunnels (or *stopes* as the miners call them) reach 65°C, which would make it impossible to stay there, never mind do hard manual labour. AngloGold therefore operates an ice-producing plant on the surface, which pumps 265 t of icy slush every hour into the mine's cooling and ventilation system. As a result, the temperature becomes just about bearable.

The elevators race down the shaft at 15 metres per second. After only a couple of minutes, the first elevator stops at roughly 2 km below the surface. A few wobbly steps in steel-toe boots take you to the second elevator, which drops another kilometre towards the earth's core. At 3 km below the surface, you might imagine feeling intimidated at the thought of millions of tonnes of heavy rock and dirt looming over your head like the sword of Damocles.

But down there, people are going about their work in a professional way, amidst an elaborate system of 3.7-metre-wide tunnels that spider out for thousands of metres into the gold-bearing Ventersdorp Contact Reef. The walls are secured with sprayed concrete, iron grids and armouring irons up to 6 metres long. The tunnels also house an impressive infrastructure of chairlifts, carts and trains that enable miners and materials to reach their destinations.

Around 3,500 workmen and women descend into the mine each shift. Their main tasks include securing the shaft after blasts, preparing waste rock and ore for transport to the surface and drilling new blast holes. Before the evening hours, all miners must return to the surface, as heavy blasts take place then. The blasts are followed by a waiting period of several hours in which the ventilation system clears the toxic fumes of the explosives. The night shift then re-enters the mine to carry on the work. The blasts contribute to problems with already high seismic energy. Despite the efforts to ensure workers' safety, earthquakes have led to so-called "fall of ground", which, as you can imagine, is one of the main safety concerns for anybody within the corridors of Mponeng.[27]



Miners with heavy equipment

Handbooks of underground hard rock mining distinguish between bulk and selective mining. Bulk mining follows a "take it all" approach that may include block caving or blasthole methods. The blasthole technology is exactly what you're imagining – drilling a hole or ring into the surface of the rock, stuffing it with explosives and detonating it. This method might be crude, but it enables the miners to quickly reach and exploit the gold ore.[28] In the block caving method, "columns of rock are undercut wide enough to cave under the weight of the column".[29]

With selective methods, miners closely follow the ore and fill in excavated areas with waste rock. As you might guess, bulk mining is by nature imprecise and dilutes the ore body. But it is usually cheaper than selective mining.[30]

Deep sea mining

Despite the popular image of dusty, rocky mines, not all mining takes place on land. Some companies are now experimenting with submarine mining. In cooperation with AngloGold Ashanti, for example, De Beers is prospecting the profitability of gold mining in the Atlantic.[31] Nautilus has obtained a licence for offshore gold and copper mining in Papua New Guinea.[32]

On-site processing

As we saw in CHAP. 2, ancient Egyptians were already processing extracted ore at their mining sites. Archaeological field studies have detected over 250 such mining sites with the remains of mortars and mills.[33]

Not much has changed except the technical jargon. After extraction comes *comminution*, crushing and grinding to reduce the extracted material to powder and release the gold particles.[34] Large concentrators prepare the powder for *beneficiation*, the process of separating the valuable gold and other metals from the valueless gangue.

In large-scale mining, the use of mercury in this process has been gradually replaced by cyanide ever since Scottish chemist John Stewart MacArthur, together with doctors Robert and William Forrest, invented cyanide leaching.[35] Cyanide solutions containing carbon and nitrogen bond with gold, silver and other metals, extracting them from the gangue.[36]

In modern large-scale mining, the crushed sand is mixed with water in a tank and low quantities of cyanide are added to leach the gold from the ore. Chips of carbon are added to trap the gold. The gold solution is transformed into a dried "cake" with the help of electricity. Finally, the cake is melted into blocks of doré, an alloy of gold, silver and possibly other metals like platinum or palladium. The doré blocks are sent, usually by air freight, to specialised refineries abroad for further processing.

CYANIDE OR MERCURY?

Cyanide is highly poisonous: a teaspoon of 2 percent cyanide solution can kill a person. Yet it is preferred – if we can use such a positive word – to mercury because mercury is non-biodegradable, with serious long-term consequences for human beings and biodiversity.[37] Although cyanide kills immediately, it degrades in the long run when exposed to oxygen and sunlight.

The main challenge of cyanide leaching is that due to the huge amounts of ore treated, basins with hundreds of thousands of tonnes of cyanide-contaminated water threaten the local environment. Accidents contaminate major rivers and have deadly consequences. Alternative non-poisonous methods are available, such as those described in CHAP. 8, but they have so far only exceptionally been used on an industrial scale. It is unclear why.



Graphic 5 Gold mining - from ore to doré

Mining companies

There are said to be approximately 230 large-scale mines across the globe,[38] but there are relatively few companies with the cash and power to run them. Recently a series of mergers has reshuffled the market.[39] The main gold mining corporations are currently:[40]

- Newmont Mining Corporation (US)
- Barrick Gold Corporation (Canada)
- AngloGold Ashanti Ltd. (South Africa)
- Kinross Gold Corporation (Canada)
- Newcrest Mining Ltd. (Australia)
- Polyus (Russia)
- Agnico Eagle Mines Ltd. (Canada)
- Freeport-McMoRan Inc. (US)

Major challenges of large-scale mining

We will look in detail at the risks and challenges of mining in the next chapter. But since some refineries and other players further down the value chain believe that using gold mined only by industrial companies will keep them out of trouble, let's take a quick glance at some of the biggest issues around large-scale mining.

It is probably clear by now that large mines are vulnerable to major environmental problems. While operating, toxic chemicals may spill into rivers and contaminate the drinking water of surrounding communities and their livestock.[41] Thousands of tonnes of tailings may pose risks, as much of this debris rock and slurry contains toxic substances.[42] In South Africa, abandoned mines have flooded over the years. It is said that in underground basins west of Johannesburg, some 20 million litres of contaminated water flow out of flooded mine shafts every day into rivers and surrounding farmland, threatening aquatic life, animals and

agriculture. Known as "acid mine drainage", this water is contaminated with sulphides, uranium and acids.[43]

Local communities also suffer. Central governments may hand out licences allowing prospecting and mining on the traditional farmland of indigenous communities. Some of the problems this causes are described in CHAP. 8. Such licences may have been acquired through corruption.[44] A particular problem is that mining companies typically obtain concessions for huge stretches of land.[45]

Conflicts between mining companies, authorities and private security on the one hand, and the local population on the other, are likely to erupt. During such conflicts, the human rights of indigenous population have been seriously violated.[46] Where local communities have traditionally exploited gold resources, they are even more likely to conflict with official mining corporations who brand them as illegal miners.[47]

Countries like Peru, which is the largest exporter of gold in Latin America and the fifth-largest producer worldwide, are acutely aware of the difficulties. Large-scale mines in Yanacocha in the Cajamarca region[48] and Pierina in Jangas,[49] both owned by two of the largest international mining corporations, have sparked conflicts with local rural communities, even if nearby cities may have profited financially.[50]

We could have hoped that modern large-scale mining would at least guarantee safe labour conditions, but it does not. Trade unions have repeatedly criticised unsafe conditions in South Africa.[51] Furthermore, miners working underground are at risk of falling ill of silicosis and tuberculosis. In South Africa, this happens to between 3,000 and 7,000 workers per 100,000.[52]

ARTISANAL AND SMALL-SCALE MINING

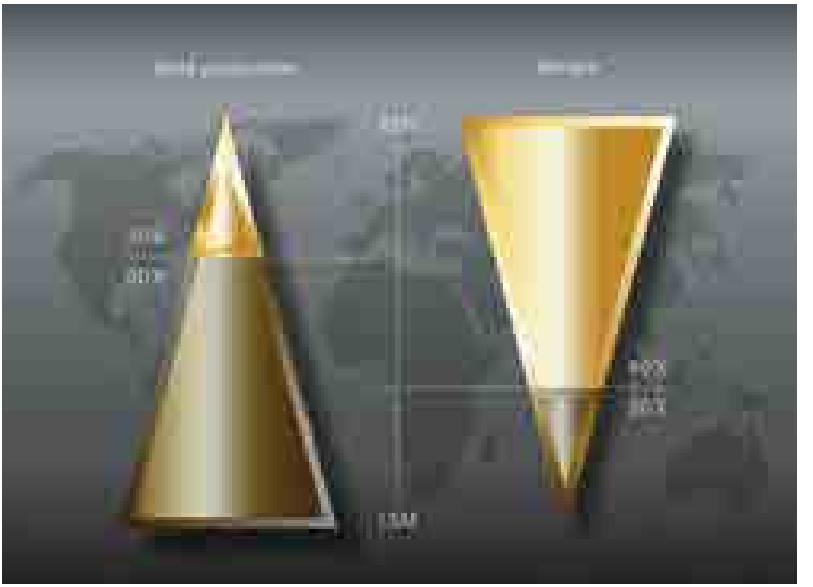
In its texts on responsible mining and the formalisation of artisanal mining, the Swiss Agency for Development and Cooperation says: "ASGM is usually a spontaneous self-organising social system […] Artisanal miners engage in mining to earn a living […]".[53]

In fact, artisanal mining is either a traditional activity of local communities, for example farmers in between planting and harvesting crops, or driven by poverty.[54] It can be a permanent or a seasonal activity, or it can happen during a gold rush.[55] Artisanal mining is usually basic and dangerous, as the example of La Rinconada in CHAP. 1 shows, but can involve powered vehicles such as trucks and caterpillars.

Some anthropologists have equated artisanal with informal mining.[56] This terminology doesn't necessarily match regulatory distinctions made by governments and development agencies, but rather emphasises the self-organisation of the community[57] and on-the-job training.

Some authorities, such as in Peru, prefer to distinguish between *illegal*[58] activities and *informal* operations. Illegal activities involve criminal organisations and operations in protected areas, as well as disregard for the natural environment and human rights.[59] In contrast, informal activities are not in the hands of criminal organisations,[60] but instead unlicensed operations or activities that have not yet been formalised.

In our interview with Peruvian Prime Minister César Villanueva, he indicated that one of his primary aims was to eradicate illegal gold mining. Coming himself from the coca-growing area of San Martín, he suggested that step-by-step formalisation with the help of incentives was preferable to prohibition.[61]



Graphic 6 The 80:20 rule in gold mining

Dimensions

Gold industry insiders talk of the 80:20 rule (or sometimes the 90:10 rule). Around 80 percent of miners work in the artisanal sector and generate a mere 20 percent of the world's gold. For large-scale mining, it is the opposite.[62] In concrete terms, whereas large-scale mining generates roughly 2,800 t of gold per year, artisanal miners extract 400 t per year. Nevertheless, artisanal mining has to be taken seriously, since the livelihood of about 15 to 20 million miners and a total of about 100 million people directly or indirectly depend on it.[63]

Surface mines

Before the time of the pharaohs in ancient Egypt, hunters and farmers looked for alluvial gold in riverbeds. The technique of choice was panning, exploiting the fact that gold is heavier than sand.

Many of the techniques for gathering alluvial gold that were first developed in ancient Egyptian and Roman times are still used in some places today.[64] This is usually where rivers have washed gold particles from the rock bed and carried them to sediments below the mountains. One such place is the plain of Ananea at 4,700m, below the Cordillera close to La Rinconada in Peru – the shanty mining town we visited in CHAP. 1. Here, caterpillars load trucks that haul the mixture of rock and sand to steep slides called *chutes*.

With the help of a strong water hose, the rocks are pushed over the edge. Whereas the larger boulders tumble down to a place where they are collected and dumped, finer sand containing small quantities of gold falls through a grid, from where it slides sideways over a slower slide.

A felt carpet and another grid slow the process in a similar way to the fleece on the Egyptian washing table. Workers concentrate the fine sand with water and shovels until they end up with a small bag of potentially gold-laden sand.



A forty-niner at the American River during the California Gold Rush

VISIT TO ORO PUNO[65]

Oro Puno SA runs a small-scale, open-pit gold mine in Ananea, a town in the Andean highlands of southern Peru. The drive to the mine site begins in Juliaca, a city of approximately 250,000 residents, and takes you through a vast tundra with scarce vegetation and little more to see than the occasional sheep or alpaca herd. The mine lies roughly 4,600 metres above sea level. At such heights, the air is cold and very thin and foreigners are well-advised to take preventive anti-altitude sickness pills. But even with the medication, you have to walk carefully in order to avoid sudden light-headedness and shortness of breath.

Gold mining has a long tradition in the region and still dominates the local economy. As indigenous culture is also deeply rooted in the region, miners often designate certain parts of the mine for the offering of donations to higher spirits. There are 25 employees searching for gold in Oro Puno's mine. Overall, the gold extraction is carried out in a surprisingly simple way, as it requires little more than an excavator, a dumper truck, a slide, lots of water and a hose. Oro Puno's mine is Fairmined-licensed and produces "ecological gold", meaning mercury may not be used at any stage of the production process.

The small mine produces roughly 1.5 kg of gold per month, sold directly to buyers through Fairmined. However, in order to extract this relatively small quantity of gold, hundreds of tonnes of dirt and stones are moved, leaving behind moon-like landscapes.



Excavator loading truck at
Oro Puno's gold mine in Ananea, Peru

Here the processes go off in different directions. Ecologically certified gold (see CHAP. 5) earns a special premium but has to be produced without mercury amalgamation. By using the gravimetric concentration technique, sand and precious metals are separated on a vibrating table with the help of water. The heavier metal goes to the deeper end. The process is slower than mercury amalgamation but ultimately equally thorough.

Unluckily, in many parts of the world, artisanal surface mining has not reached these ecological standards. Even Fairtrade or Fairmined certifications do not guarantee that miners are working without mercury or following international standards on working with cyanide.[66]

Frequently, artisanal mining also goes hand in hand with deforestation and serious pollution of rivers. Among the worst situations is the deforestation and pollution of virgin forests in Peru's Madre de Dios region, but examples could be given from all continents.



Truck unloading dirt on top of chute,
while miners splash it with water



Miners scraping the gold-bearing
black sand off the lower slide



Miners gathering the black sand



Entrance to an artisanal mine,
Essakane, Burkina Faso

Underground mines

In underground mining, the technological differences become most visible. In Africa, in particular in Burkina Faso or the DRC, thousands of simple shafts have been driven into the ground. They are extremely dangerous, as they may easily collapse due to flooding, earthquakes, explosions or simply because the rock is not strong enough to support the tunnelling.

In some cases, children are used as miners in order to keep tunnels small, or sent down with compressor masks to dig up sand from the bottom of muddy caves. In CHAP. 4, we will see some other horrifying examples of child labour in the industry. Even where the extraction technology is more advanced, the mix of official miners working alongside unofficial miners and bounty hunters can lead to problematic situations.

MADRE DE DIOS: BETWEEN HEAVEN AND HELL[67]

Madre de Dios is a vast area of Peru covered with virgin forests and waterways feeding into the Amazon River.[68] There are some legal mines, but 97 percent of gold mining here is said to be "informal".[69] Much of this "informal" mining fits the definition of illegal mining:[70] the presence of organised crime groups, deforestation, forced labour, smuggling and money laundering.

Deforestation is escalating rapidly. Studies claim that 50,000 hectares have already been illegally cleared[71] – more than the size of Barbados. Every year, up to 2,000 further hectares are chopped down and in 2016, the authorities had to announce a state of ecological emergency due to mercury contamination.[72]

Wild camps have sprung up in the forest and crime is rampant.[73] Studies talk about forced labour and so-called lightning recruitment, in



Effects of illegal mining in the protected forests of the Tambopata National Reserve, Peru

which unemployed people are approached at markets in Cusco and Puno and promised huge salaries if they immediately board a bus to Madre de Dios. They receive a down payment, but not told that it is a loan and that they are going to be trapped until they have paid off their debts.[74]

Sexual exploitation is ubiquitous. Like the male miners, women are attracted with false promises. Their IDs are taken from them and they are forced to work in so-called *prostibares* in jungle camps like Delta 1,[75] where 2,000 sex workers are allegedly "employed" in 100 brothels. Sixty percent are said to be minors.[76]

The gold mined in Madre de Dios is smuggled out[77] and laundered.[78] Media claim that much of this gold is being refined in Switzerland.[79] The refiners named in the media publications claim that they do not (or no longer) source gold from Madre de Dios.

DREDGING

Dredging has been used for over 100 years. It basically consists of digging up river silt, mechanically sifting through it on a raft with the help of conveyer belts and applying gravity separation methods.

In the DRC, in particular in the Shabunda region, artisanal suction dredges are used. Divers, breathing through air hoses connected to the raft, dive to the river bed with suction pipes[80] and suck up the sediment. Larger outfits work with bucket chains.[81]

Gold miners in Shabunda face two major challenges: firstly that large Chinese companies are said to control dredging operations with the help of bribes to authorities, and secondly that informal taxes are levied by armed militia.[82] What seems on the surface like a less harmful way of exploiting gold resources in the DRC has rapidly turned into a new version of conflict gold.[83]



Dredging for gold



Gold mining along the
Madre de Dios River in Peru



Floating dredge on the
Madre de Dios River in Peru

In a similar way, dredging is used in Latin America in the Amazonas region of northern Peru, as well as in Colombia. Small floats called *balsas* compete with much larger equipment, *dragas* or *dragones*.[84] These change the natural balance of entire rivers, even where no poisonous substances are used, by filling the water with silt and preventing sunlight from getting through – one of several environmental challenges discussed in more detail in CHAP. 4.

INTERMEDIARIES IN DORÉ

One of the reasons for a lack of transparency in the gold supply chain is that gold is rarely traded directly from the mine to the customer. Traditionally – even in a formalised supply chain – small local traders buy from artisanal miners and sell on to big national exporters, so-called collectors. These in turn sell to regional and global buyers[85] and refineries.

Alongside official intermediaries, informal and illegal channels exist. The US Government Accountability Office (GAO) talks about informal miners in the DRC selling to an informal supply chain running in parallel to the formal chain.[86] Formal and informal chains usually meet at the level of the global buyers. Case studies by the Swiss NGO Society for Threatened Peoples illustrate how gold from Sudan, the DRC and Liberia ends up with traders in the UAE and ultimately with refineries in Dubai.[87]

Another high-profile example comes from the Third Congo War, where gold extorted from the mining area known as Concession 40 was physically picked up by gold trader Dr. Kambale Kisoni and exported to Uganda. From Uganda it travelled via Jersey to Switzerland, where it was refined and its problematic history was washed away.[88] In this case, the illegal intermediaries and smugglers earned most of the money.

A similar pattern can be found today in Madre de Dios, where smugglers and money launderers control operations.[89] Four companies are accused of systematically buying gold in Madre de Dios.[90] The Peruvian press claims that they export their gold primarily to Swiss refineries.[91]

RECYCLING

Between a quarter and a third of the world's gold production comes from recycling[92] of either high-value gold or industrial gold.

High-value gold recycling makes up roughly 90 percent of recycling.[93] It is by far the easier form to work with and it can be done close to the place of consumption[94] by jewellers or local refineries. The same figure holds true anecdotally: jewellers in the upper-class suburbs of Paris, for example, assured me that close to 90 percent of the gold they use for their new creations comes from recycling inherited jewellery. The attractiveness of recycling fluctuates with the price of gold. When the gold price boomed after the financial crisis of 2007–2008, cash-for-gold merchants sprung up everywhere. The Financial Action Task Force (FATF) has

Cash-for-gold shop in Basel, Switzerland



warned that the cash-for-gold system has a strong appeal to organised crime groups looking for new ways to launder money.[95]

Industrial recycling is far more challenging, as the traces of gold and other precious metals have to be released from their environment – printed circuit boards, mobile phones, computers, etc.[96] The process typically starts with chemical stripping before the metal components are melted down. They are then separated with electrolytic procedures, as in regular refining.[97]

This issue is becoming so important that the EU has enacted a Waste Electrical and Electronic Equipment Directive (WEEE). There is even talk of recycling silver and gold from sewage plants, since industrial waste contains considerable quantities of precious metal.[98]

GRANDFATHERED STOCK

"Grandfathered" gold is not simply old gold that can be re-melted, but a special term introduced by the OECD in its system to control conflict minerals. It refers to existing stocks of refined gold held in bank vaults, central banks, etc. with a verifiable date prior to 1 January 2012. Under the OECD *Due Diligence Guidance*, traders are not required to determine the origin of "grandfathered" gold unless "supplier red flags" trigger additional due diligence.[99] More on this in CHAP. 5.

REFINING

WHAT DO GOLD REFINERIES ACTUALLY DO?

If you ever have the chance to visit a gold refinery, you might be surprised that it looks quite like a workshop – albeit a highly specialised metallurgic workshop. Refineries look far more like SMEs than the "chokepoint"[100] of the world's gold supply chain. However, an exclusive club of refiners is responsible for the vast majority of gold refining activities,[101] and over 40 percent of the world's gold is refined in Swiss refineries.[102]

What goes into the refinery may carry the traces of its (possibly problematic) origin. What leaves the refinery is clean and pure, or at least 99.5 to 99.99 percent pure, depending on customer requirements.

Refineries generally do not buy the metal themselves, but act as agents for their customers.[103] Sometimes they buy and sell on the same day. Only exceptionally do they offer hedging services.[104] Refineries claim that the profit margin in gold refining is minimal in comparison to the value of the product.

Maybe they're right. Let's do the sums based on one figure given, that of a refiner charging CHF 40 per kilogram of gold for the entire refining process. With a production of 1,000 t per year, the gross revenue of one of the big refineries would be CHF 40 million per year. From this, we need to deduct labour costs and the costs of the procedures, machinery, electricity and legal/compliance services. The profit margin may indeed be slim. But this is no excuse for the industry to dispense with sound supply chain due diligence.

THE WORLD'S LARGEST REFINERIES AND THEIR ESTIMATED CAPACITY PER YEAR[105]

- Argor-Heraeus (Switzerland): up to 1,300 t[106]
- Cendres+Métaux (Switzerland): unknown[107]
- Emirates Gold (UAE): 130 t[108]
- Italpreziosi (Italy): over 100 t[109]
- Kaloti (UAE): 400 t[110]
- Metalor Technologies (Switzerland): 650 t[111]
- MKS PAMP (Switzerland): 550 t[112]
- PX Précinox (Switzerland): 60 t[113]
- Rand Refinery (South Africa): 600 t[114]
- Tanaka Kikinzoku (Japan): over 500 t[115]
- Valcambi (Switzerland): 1,600 t[116]

THE PROCESS

Gold refining involves a complicated sequence of procedures.

Arrival, weighing, measuring

Doré bars usually arrive by air freight, in Switzerland through Zurich or Geneva airports. In South Africa, gold is helicoptered from the mines to Rand Refinery. Speed is of great importance, as the gold price is highly volatile.

The material is weighed and measured, first wet, then dried. The refinery opens a customer account to which the extracted gold is credited.



Doré bars

The doré bars need to be homogenised as they usually contain an uneven mix of metals. They are melted and transformed into a tile-like shape.

During this process typically three samples are taken. One sample is for the supplier or the mining company, represented at the refinery by an observer. The second sample is for the refiner and the third is stored for arbitration in case of disagreement. The refinery sends its sample off to an internal laboratory to test its composition and especially the gold content.

If the doré's gold content is below 60 percent, it needs to undergo chemical treatment in an acid basin to separate the gold from other metals. Swiss refineries use saltpetre acid to separate silver and gold. The gold leaves the basin in the form of dark brown mud, comparable to



From doré bars shaped anodes
for the electrolytic refining

the ancient Egyptian "cementation" we saw in CHAP. 2. Silver remains in the solution.

If the doré contains more than 60–65 percent gold, the tile undergoes electrolysis. Following the so-called Wohlwill process, the doré is bathed in an electrolytic solution of hydrochloric acid and gold chloride. An electric current makes the gold migrate to a negatively charged electrode (the cathode), where it sticks to a titanium plate. The plates are removed from the bath and the gold knocked off the plate with a rubber hammer. The solution is further treated to extract silver and other metals.



Drilling samples to test the gold content

Smelting and founding

Next, the gold is heated to a liquid form and then poured into cold water, where it forms sand-like pebbles.

These pebbles are weighed and fed into a ceramic cup in order to heat the gold again to melting point, when it is poured into moulds.

The final products of this process are usually bars ranging from 1 g to 12.5 kg. Alternative processes allow bars or coins to be minted. Some refineries specialise in industrial uses,[117] while others produce components used in watchmaking and jewellery.[118]

Various procedures are used to picture-code or scan the products leaving the refinery.[119]



Gold grain



Molten gold



Gold for melting and refining

Blockchain

Many companies are currently developing ways to encode and track items as wide-ranging as seafood, pharmaceuticals or diamonds through blockchain technology. The main purpose is to track ownership and ensure compliance with international supply chain standards. The blockchain is a way to store records with various types of information. Thanks to cryptographic algorithms, data in the blockchain is resistant to fraudulent modification. The most prominent example of an application of blockchain technology is the digital currency Bitcoin.

In the case of Bitcoin, the blockchain records all transactions between users and thereby creates a complete history of ownership. Similarly, gold could potentially be tracked securely from the moment it leaves the

mine. The LBMA is currently seeking ways to apply blockchain technology to modernise the still predominantly paper-based gold trade.[120] The Swiss Federal Council has stated its interest in working together with the LBMA to investigate blockchain solutions to prevent illicit gold from entering world markets.[121]

So far, however, there are few concrete applications in existence. A current solution is the Emergent Technology platform that seeks to track gold from the mine to the refinery and ultimately to a vault. The platform operates the so-called G-Coin, which is a digital certificate of title equal to one gram of gold. G-Coin can be bought as an investment and is traded on a blockchain. At the time of writing, roughly USD 250,000 worth of G-Coin exist. However, the trading volume of the coin is minimal and its value appears to be far below the gold price.[122]

Valcambi has adopted Emergent's blockchain solution and a Valcambi Green Gold kilobar was used to produce the first 1,000 G-Coins in 2017.[123] Other than that, little is known about the provenance of G-Coin gold.[124]

TRADING IN GOLD

From Goldsmiths banks to the London Gold Pool,[125] London has long been the prime trading centre for gold worldwide. The international gold price is still fixed daily in London by a select group of representatives in a procedure known as the Gold Fix.[126] On an average working day at the London Bullion Market in 2012, as much as 561 t of gold changed hands in 2,600 transactions.[127]

Competing market places have emerged, including the Zurich Gold Pool from 1968, whose role in the South African apartheid regime is discussed in CHAP. 2. In cities known for their jewellery markets, such as Mumbai, Hong Kong, Dubai and Istanbul, it is the bazaars, souks, traders and shops who control the gold markets.

BUYERS

THE CHANGING ROLE OF CENTRAL BANKS

The gold standard has been given up worldwide.[128] However, it is understood that part of central bank reserves remain in gold. European central banks agreed in 1999 to limit sales of gold to 500 t for the following five years.[129] Central banks reduced gold reserves in the 1980s and 1990s, but returned to buying from 2009. Transition countries have been particularly intense buyers, as gold was seen as a symbol of strength and sovereignty. Accordingly, these movements have had an influence on the gold price.

INVESTORS

Capitalists aiming to maximise return on investment generally dislike gold. Over the last 50 years, the return on investment stayed below 1 percent, compared to shares with an average of 5 percent and above.[130] However, gold should be seen as an addition to the regular portfolio, a kind of insurance policy for bad days. This is a concept that was developed long ago in the Middle East and India, where gold is traditionally given as a dowry.[131]

In practical terms, investors have moved from acquiring physical bars and coins to gold certificates.[132] Certificates can be "allocated", i.e. specifically represented by numbered bars in a safe storage place, or "unallocated", i.e. a kind of private reserve banking. As they are not tied to a specific object of value, unallocated certificates may be risky if the issuer of the certificate goes bankrupt. In addition to banks, specialised companies now offer safe storage facilities.[133]

According to World Gold Council statistics, the demand for so-called gold ETFs (exchange-traded funds)[134] is highly volatile. They may make

up a quarter or even a third of investment one year and drop to a sixth the next year.[135]

JEWELLERS AND WATCHMAKERS

Roughly 50 percent of the world's demand for gold is for jewellery and watchmaking. This use of gold has its roots in history. In ancient Egypt, the Inca Empire of Peru and the Ashanti Empire of Ghana alike, gold was considered a prerogative of the rulers and their close entourage. It had a religious significance and was a symbol of power. Anthropologists have analysed the interplay of both showing off and concealing gold as a means of power, arguing that hidden wealth serves to mystify it and exerts more power than openly visible wealth.[136] This observation, made for the Ashanti regime up to the 19th century, can be seen today in modern India.[137]

In the Middle East, gold has a particular significance as the dowry and property of the bride. According to Islamic law, she is free to use it as she wishes, even if social practice may "diverge from legal doctrine".[138] In a similar way, Indian women are compensated for their unequal treatment in land ownership with gold jewellery. The gold serves as both adornment and investment. The owner will, however, find herself under pressure to use her jewellery as a family resource if needed. She may have to pawn the objects or use them as collateral for a loan in the interest of the family or even her husband's business.[139] It is not surprising that gold plays such an integral part in personal finances in India given that until recently, few Indian households had a bank account.[140] In both the Middle East and India, wearing gold jewellery at marriages and other public events conveys personal and family prestige.

It is therefore not surprising that the main consumer countries for gold are China (33 percent in 2017) and India (29 percent in 2017), closely followed by the Middle East (including Turkey).[141] Local markets have specialised areas for gold merchants and for goldsmiths, such as the

Zaveri Bazaar in Mumbai[142] and the Gold Souk in Dubai, that serve this huge "gold craze".[143]

A growing number of jewellers now work with so-called ethical or green gold,[144] but the segment remains a niche.[145] This may also be observed in refineries, where maybe one in 10 machinery parks are reserved for green gold.[146] A major problem seems to be that demand exceeds supply.[147] This may be partly a consequence of large suppliers of watches and jewellery, including Tiffany & Co[148] and Chopard,[149] now turning entirely to "clean" gold.[150] In contrast, small, high-end jewellers based in areas with affluent clients tend to receive sufficient quantities of old gold to produce modern jewellery entirely through recycling.

Large buyers in China and India, however, do not seem overly concerned about the origin of their gold. This may be a reason why Degussa, at the time of writing, does not offer Fairtrade products at all[151] and why Rolex and Swatch, market leaders in Eastern Asia, refuse steadfastly to talk about their sourcing of gold[152] and their supply chain due diligence.




PROBLEM GOLD

04 //

Every link of the gold supply chain carries risks, and every person and company involved is faced with dilemmas about how to address them. A major challenge for the industry is getting stuck in a formal "tick the boxes" attitude without fully understanding the supply chain risks.

The list of problem areas addressed in this chapter is not exhaustive and the following examples are necessarily selective.[1] They each illustrate a typical risk and are taken from different parts of the world. Furthermore, we will see that the different challenges are frequently intertwined, for example environmental challenges going hand in hand with corporate crime.

ENVIRONMENTAL CHALLENGES

Environmental challenges are sometimes seen as the least problematic of issues linked to mining. That's strange, because you don't have to look too closely to see how serious the problems are.

The Amazonas region and the area between the Andes and the Amazon basin, for example, are suffering serious deforestation due to mining.[2] From an environmental point of view, massive surface clearing in Colombia affects the country far more than coca production.[3] Both large-scale and small-scale mining is to blame, with deforestation in Peru and Colombia in particular linked to gold rush-style artisanal mining.[4] The word deforestation sounds abstract and technical, but the effects are real: virgin forests are lost forever, erosion sets in and the landscape soon turns into a moonscape.[5]

Large-scale mining poses additional risks apart from the huge impact on the landscape: the millions of tonnes of tailings remain a permanent hazard to the population.[6] German media outlet *Der Spiegel* claims that to produce a gold wedding ring, 20 t of highly toxic waste[7] are created.

Toxic substances, especially mercury and cyanide seeping into the water, endanger the local population and their livestock. Mercury contamination is primarily, although not only,[8] a consequence of artisanal mining. Traditional methods applied by Afro-Colombian communities enable the extraction of gold without harmful chemicals,[9] but mercury is still frequently used.

Even when not contaminated by toxic substances, river water is affected by dredging[10] as the sediments make the water cloudy and reduce the amount of sunlight that can get through. The quality of drinking water suffers.[11]

Large-scale mining works predominantly with highly poisonous cyanide[12] contained in basins. However, the construction of these basins is not always above board, as the Baia Mare accident in Romania demonstrated.

BAIA MARE

The cyanide pool of the Romanian-Australian gold mine Aurul contained a solution with 50 to 100 t of pure cyanide. In January 2000, the temperature had been below freezing for weeks and up to 70 cm of snow had gathered on the frozen surface. The dam was made of sand and a plastic foil. It gave way under the added pressure, releasing thousands of tonnes of cyanide solution. The toxic substance poisoned the water of a sequence of rivers until it reached the Danube, killing over 1,000 t of fish on its way to the ocean. The company responsible did what companies frequently do in such cases: declared bankruptcy.[13]

Artisanal miners in Colombia have been observed searching for gold in the sand of a river called La Cianura ("cyanide-carrying river") below a factory owned by Canadian corporation Gran Colombia Gold in Segovia, Antioquia.[14]

Another major environmental challenge only becomes obvious after the mine is decommissioned. In South Africa in particular, rainwater has gradually filled disused mines and surfaces containing toxic and radioactive substances, endangering aquatic life in surface water around the mines and beyond. The technical term for this is toxic mine drainage.[15]

As you can see, environmental problems related to mining are serious, often deadly and destined to affect future generations. Nevertheless, international and industry standards appear to consider environmental concerns a secondary issue and they do not currently hamper the supply chain. Certified ecological gold may earn the miner an additional premium, but even the dirtiest of gold finds a buyer.

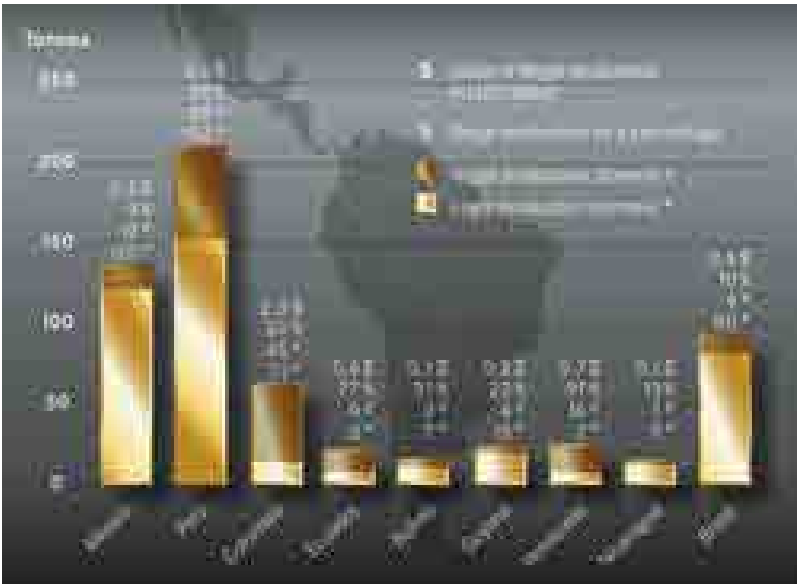


A contaminated lagoon in Ananea, Peru

ORGANISED CRIME, MONEY LAUNDERING AND SMUGGLING

We have already seen, in CHAP. 3's section on artisanal and small-scale mining, that governments are struggling to distinguish between informal and illegal mining. The following chart is shocking at first glance, as it seems to indicate that 80 percent of the value of gold production in Colombia stems from illegal mining. In Ecuador, the figure is 77 percent and in Venezuela it is a staggering 91 percent.

This is too simplistic as it equates illegal mining with lack of a formal licence, missing the fact that much of the informal artisanal mining is done by traditional communities.[16] As we discussed earlier, genuinely illegal mining is an entirely different matter: organised criminals and other armed groups force miners to work for them[17] or they extort illegal taxes from miners.[18]



Graphic 7 Value of illegal gold production

THE CASE OF COLOMBIA

Colombia illustrates the difficulties in separating informal mining from illegal gold production hijacked by organised crime. At the time of writing, only 17 percent of gold production in Colombia stems from official permit holders. The reason is that indigenous communities and Afro-Colombians (especially in the Chocó, Antioquia, Cauca and Valle del Cauca departments) have traditionally mined artisanally alongside their occupation as farmers.[19] These artisanal diggers find themselves lumped together with illegal agents.[20]

This approach has been exacerbated by a problematic government policy expressed in the 2001 Mining Code[21] opening the door wide to foreign mining companies while declaring all non-formalised miners

illegal. In fact, artisanal miners have frequently experienced foreign companies claiming their ancestral land, even though they had a right to be asked prior to any mining operations starting.[22] Only from 2013 on did the government's attitude towards artisanal mining start to change and efforts were made to help artisanal miners to formalise.[23]

From drugs to gold

The main problem, though, lies elsewhere. Colombia is just coming out of a 60-year civil war that cost over 260,000 lives.[24] Guerrilla groups are disarming. Yet many criminal organisations are still armed, including former guerrilla groups, paramilitaries and newly formed criminal organisations such as Urabeños (also called El Clan del Golfo), Aguilas Negras and Rastrojos. These *bandas criminales* are sometimes collectively referred to as BACRIM.[25]

Juan Manuel Santos, then President of Colombia, warned in 2015 that "today, criminal mining brings more money to criminal groups, to guerrilla groups, to mafias […] than drug trafficking".[26] And this is exactly what is happening. Former drug traders are turning to gold with less risk and more gain.[27]

Illegal mining has little to do with the traditional mining of the Afro-Colombian and indigenous communities. As we saw in the example of Madre de Dios in CHAP. 3, the miners are forced to hand over part of their gold or to pay illegal taxes. Sometimes they are kidnapped and have to earn their ransom.[28] The presence of armed groups goes hand in hand with high figures of displacement, human trafficking and intense deforestation with large machinery.[29] Reports of murders, sexual assault and other violent crimes abound. Traditional artisanal miners in Colombia, especially in Chocó, are trapped between armed militia, large-scale mining and government interests.[30]

Colombia may be in the process of transitioning from war to peace, but it is by no means a peaceful country yet and gold is associated with the activities of its organised criminals.



Miners looking for gold in
the open mines of Chocó, Colombia



Woman panning for gold in Chocó, Colombia

Money laundering and more

Closely linked to illegal mining are smuggling, corruption and money laundering. The OECD[31] refers in particular to "trade-based money laundering". This means the launderers use commercial activities that nominally give transactions an economic justification, but misrepresent the price, quantity or quality of imports or exports. One such mechanism has been discussed in official documents[32] and media reports[33] about Colombia: narcotraffickers buying gold abroad with ill-gotten gains and asking gold traders in Colombia to report purchases from non-existent suppliers or inflate the amount of gold received from artisanal mining. Supposedly, the gold in this case was then re-exported to the US for refining.

The money laundering chain in Colombia is, however, extremely difficult to prove. It starts with gold refineries and traders in the city of Medellín, with players who have moved from the drugs trade into gold.[34] As with any form of money laundering, a smokescreen is created with the help of offshore companies and bank accounts in financial centres with little readiness to cooperate, typically organised by lawyers and fiduciaries hiding behind professional privilege.[35]

All this gets international very quickly. Even if shell corporations are incorporated in financial havens in the Caribbean, such as the British Virgin Islands, Bahamas or Panama, there will be little more than stooges there to sign the documents (the gardener in the case of Mossack Fonseca in the Panama Papers scandal).[36] The real players are in Miami, Geneva or London.[37]

FORCED LABOUR, CHILD LABOUR AND HUMAN TRAFFICKING

Gold mining is extremely risky, even under the best of conditions. As we have seen, the risk of accidents even at large-scale mines is high[38] and health hazards are significant, including silicosis and tuberculosis.[39] The challenges are much higher in disorganised environments, with cases of rockfalls in underground artisanal mines in La Rinconada, as well as lack of oxygen, dangerous gases[40] or flooding of underground mines near rivers in Colombia.[41]

FORCED LABOUR

Forced labour comes in different shapes and sizes. The NGO Verité talks of various forms of debt bondage to organised crime groups in Colombia, who demand their "tax", and to mine operators in Arequipa, Peru, who tricked miners into accepting "loans".[42] Outside observers have considered the Andean system of cachorreo, described in CHAP. 1, as a form of exploitation.[43] Whereas this example may remain ambiguous in the culture of informality and the goal of becoming rich as quickly as possible, probably the most striking example of forced labour comes from Bisha Mine in Eritrea.

Bisha Mine in Eritrea



BISHA MINE

Forty percent of Bisha Mine belongs to the autocratic regime of Eritrea through the Eritrean National Mining Corporation (ENAMCO) and 60 percent to a Canadian mining company called Nevsun Resources. The companies hired a South African subcontractor to prepare the infrastructure for the mine. The unskilled workers were provided by Segen, another state-owned Eritrean company.[44] Workers who managed to escape explained that they were army conscripts sent to the mine.[45] They said they had received next to no salary and hardly any food and drink, and that they were forced by armed security guards to work in 45°C in the desert.[46] Several former workers initiated legal action in Canada against Nevsun.[47] Nevsun, which had exported CHF 400 million worth of doré to Swiss refineries between 2011 and 2013,[48] said that they were not aware that the workers were conscripts. Nevsun claimed that they had a screening process to ensure that no conscripts worked in the mine and if this prohibition had been breached, Segen was to blame.[49]

SEXUAL EXPLOITATION

Reports about mining in the Andean countries of Latin America talk about large numbers of women and girls being lured by false advertisements for jobs as cooks, shop attendants or waitresses to remote mining places like Madre de Dios or La Rinconada in Peru. There, their IDs are confiscated and they are forced to offer sexual services.[50] The figures given in the reports are staggering: 2,000 women forced into sex work at Delta 1, an illegal mining camp in Madre de Dios, and 4,500 Peruvian and Bolivian girls at La Rinconada.[51] Over 50 percent of the women are allegedly minors, some as young as 12.[52]

CHILD LABOUR

In a 2017 report on child labour in the minerals supply chain, the OECD starts off by stating that "not all work by children is child labour, and not all child labour falls under the internationally recognised legal definition of the 'worst forms of child labour'".[53] However, the report immediately goes on to say that many of the activities defined as "hazardous work" occur in mining: working underground and underwater, using dangerous machinery and tools, carrying heavy loads and doing things that require exposure to hazardous substances.

The International Labour Organization (ILO) Convention 182 of 1999 defines the "worst forms of child labour" in Article 3 as comprising:[54]

> (a) all forms of slavery or practices similar to slavery, such as the sale and trafficking of children, debt bondage and serfdom and forced or compulsory labour, including forced or compulsory recruitment of children for use in armed conflict;
> (b) the use, procuring or offering of a child for prostitution, for the production of pornography or for pornographic performances;

(c) the use, procuring or offering of a child for illicit activities, in particular for the production and trafficking of drugs as defined in the relevant international treaties;
(d) work which, by its nature or the circumstances in which it is carried out, is likely to harm the health, safety or morals of children.

Reports by the ILO and various NGOs make it clear that these risks are horribly real and that the "worst forms of child labour" applies to many child miners. Estimates suggest that one million children are working in mines worldwide, digging shafts, crushing rocks, carrying them[55] and amalgamating the powder or sand with toxic mercury.[56] Long working hours and unsanitary conditions add to the health hazards. HIV exposure, alcohol and premature pregnancies are real risks.[57] Children are frequently threatened by violence and sexual abuse. Their salary is meagre[58] and food inadequate.

The situation of children in mining communities varies, however, depending on whether they work together with their family members (as in traditional Afro-Colombian communities)[59] or whether they have been "sold" to a third person.[60] Arguably, using children as slave labourers is even more despicable than putting your own children to work.

Child labour is frequent in all areas of artisanal mining worldwide: Africa, Asia and Latin America. International organisations and NGOs identify African countries as particularly exposed. According to ILO estimates, 30–50 percent of artisanal miners in Burkina Faso and Niger are under 18, of which 70 percent are under the age of 15 (under the minimum age for employment according to ILO Convention 138).[61] The picture is similar in Ghana, where 10,000 children between 10 and 18 years are reported to be working for minimal wages in mines, building trenches, carrying ore, washing, amalgamating, etc.[62] In Côte d'Ivoire, the ILO reports slavery-like working conditions, long working hours, minimal pay, bad nourishment and drug abuse. It is said that girls as young as five years old are sent down narrow pits.[63]



Child labour

In the Democratic Republic of Congo, the ILO reports that thousands of children were abducted and forced to become child soldiers. When they were not fighting, they were forced to work in mines.[64]

The problem is not confined to Africa. There are gruesome reports about young boys sent into underwater caves in the Philippines with compressor masks – as you might imagine, an extremely dangerous activity.[65]

LAND GRABBING AND DISPLACEMENT

We have already talked about the risks that indigenous and Afro-Colombian communities face when armed guerrillas, paramilitaries and organised crime groups grab their mining sites. Frequently, they have been displaced. In fact, at the time of writing Colombia has the largest number of displaced persons after Syria worldwide. Many of these people have lost their homes in centres of gold mining.

Different forms of eviction take place wherever governments try to attract foreign investment by granting mining licences on indigenous land. Frequently, conflict arises between large-scale and artisanal mining operations where such concession areas cover vast spaces, including traditional mining or farming zones. Multinationals typically have far more clout with governments and the judiciary, even if they don't resort to outright corruption.[66]

For a few examples, just look at reports from Papua New Guinea[67] and Ecuador, where mining on all land was declared "in the public interest" and the result was involuntary displacement.[68] The case of Ghana is another powerful illustration.

LAND GRABBING IN GHANA

Ghana, the old "gold coast", is still the second biggest gold producer in Africa.[69] Ghana has an estimated 500,000 artisanal miners, of which only about 20,000 are formalised.[70] The IMF and the World Bank encouraged the government to adopt a more welcoming stance towards international mining companies in order to foster development in the 1990s.[71]

The government responded by lowering taxes dramatically.[72] Particularly large concession areas and long concession durations – 30 years on average – were agreed by government agencies.[73] Farmers were disowned and evicted.[74] Compensation was insufficient or not paid[75] and their land was covered with mountains of tailings from the huge open-pit mines.[76] Even the World Bank[77] had to admit failure: hardly any of the riches remained in the country but were instead syphoned off by the multinational corporations through offshore constructions.[78]

A blatant imbalance arose between corporate and community interests[79] – in a country that used to be the poster child of Africa. Many traditional artisanal miners have been pushed into illegality and now occupy a grey area between informal mining and theft. This is so common that it even has a specific term: *galamsey,*[80] from the Ghanaian phrase for "gather and sell".

CONFLICT GOLD

Undoubtedly the most serious challenge in gold production is conflict. Official armies and non-state actors, like militia and rebel groups, finance their war efforts with looted gold or extorted levies. In many cases, the expectation of being able to generate funds from mineral extraction is the reason for protracted civil war.

This was certainly the case in the Democratic Republic of Congo (DRC), where three wars and ongoing strife killed an estimated 5.4 million people in less than nine years, from August 1998 to April 2007.[81] At the macro level, both international players[82] and neighbouring states got involved, all pursuing their own agendas.[83] At the micro level, warlords and their followers committed gruesome massacres and other crimes against humanity. The UN Security Council[84] and individual countries (in particular the US)[85] eventually intervened – although rather too late.

If only the DRC were an exception. Sadly, it's far from being the only conflict area. Traders and refiners need to be particularly aware of gold from Sudan, another hotspot where gold production is caught up in regional conflict in a comparable way to the role of cocaine in Colombia.

A few details of both cases follow to give a flavour of how the thirst for gold can drive brutal conflict and vice versa. They might leave you with a nasty taste in your mouth.

THE DRC

Serious human rights violations have a long history in the DRC, not even counting the slave trade. In 1885 the Belgian King Leopold II made the country his private colony[86] and named it (presumably with rather dark humour) the Congo Free State. It was made an official Belgian colony in 1908, allegedly after human rights violations got totally out of hand.[87]

The decolonisation process in 1960 was "ill-prepared".[88] Mineral-rich Katanga split off next to immediately. The magnificently named Mobutu Sese Seko Kuku Ngbendu Wa Za Banga, born Joseph-Désiré Mobutu, ousted Prime Minister Patrice Lumumba and had him killed in a coup that was allegedly sponsored by the US.[89]

Mobutu stayed in office for roughly 30 years and introduced an autocratic kleptocracy, stealing billions from the state, with much of the looted funds generated by minerals.[90] Swiss banks seemed happy to help him hide his bounty. As late as 2009, Switzerland handed back over USD 6 million to the Mobutu family on the grounds of insufficient co-operation from the DRC in mutual legal assistance.[91] Knowing the files, we might want to ask why the Swiss Office of the Attorney General had been inactive for over 10 years, even though it had jurisdiction over the case, until the action was time-barred.[92]

The Congo wars

During the First Congo War, Mobutu was driven out of office by an invasion of Ugandan and Rwandan troops in 1996–97. Congolese figurehead and former gold smuggler Laurent Kabila took over as president, but shortly afterwards broke ties with his allies and sought help from Zimbabwe and Angola. When he was assassinated in 2001, his son Joseph Kabila stepped into his shoes. The Second Congo War dragged on meanwhile, lasting from 1998 to 2003. These first two wars cost an estimated 3.9 million lives.[93]

Pillage and genocide

During the Second Congo War, the war aims of Rwanda and Uganda appeared to shift to pillaging in eastern Congo, in particular in the gold mines.[94] In 2005,[95] Human Rights Watch gave a detailed account of how Ugandan troops forced miners to work in the Durba Mine in Haut-Uélé

Province, and how their primitive techniques (destroying existing mines with dynamite) led to the loss of many lives.[96]

When Rwanda and Uganda withdrew from 2002 on, their local proxy forces immediately occupied the terrain. They were partly split by ethnicity, Hema or Lendu. Between 2002 and 2003 they took turns killing people of the other ethnicity[97] in the areas of Mongbwalu and Kilo town.[98] Jérôme Kakawave Bakonde, Commander of the People's Armed Forces of Congo (FAPC), changed allegiances repeatedly but remained consistent in one point: he is known to have ordered executions, arrests, torture and forced labour in gold mines, particularly Durba Mine.[99]

The list of human rights violations is long, including random killings, sexual violence,[100] forced labour, recruiting of child soldiers and child labourers, extortion and pillaging of gold.[101] Incidents are reported where "miners" had been sold by their chieftains to the militia, taken away in chains by recruiters and made to work unpaid in the mines under gruesome conditions, with bare feet and no safety equipment, hardly any tools and with a gun pointing at them.[102]

The murderers and pillagers may have found willing helpers. Human Rights Watch claimed that multinational companies involved in large-scale mining helped one of the militias, FNI, with logistics in order to form a relationship.[103] One of the companies accused, AngloGold Ashanti, disputes the reports.[104]

Traders and refiners

Traders are known to have been active in the nearby towns of Bunia, Butembo, Ariwara and others. In particular, the relationship between the FNI militia and Dr. Kambale Kisoni, a gold trader and owner of both the Congocom Trading House and Butembo Airlines, is well researched by the UN Group of Experts on the DRC[105] and their investigator Kathi Lynn Austin.[106] The chain of documents found by the investigation prove that the pillaged gold was sold on to various regional traders in Uganda, in particular Uganda Commercial Impex, Machanga and Bhimji.[107] From

there, the chain of sales went on to Jersey-based Hussar Services Limited, owned by Neil Jonathan Graff, a former business partner of commodity trader Marc Rich.

Rand Refinery, offered the conflict gold, had recently upgraded its due diligence procedures and refused it.[108] It went on to Argor-Heraeus in Switzerland instead,[109] causing the refinery to become the subject of an investigation by the Swiss Office of the Attorney General into money laundering and aiding and abetting in pillage as a war crime. See the section on Argor-Heraeus in CHAP. 6 for more details on that investigation.

The DRC's problems are not over

Sadly, the problems in the DRC are far from over. The country has roughly 800,000 artisanal miners, of which up to 450,000 are involved in gold mining[110] at between 1,000 and 1,600 sites.[111] Official export statistics report an average of only 280 kg per year between 2010 and 2016.[112] This is an incredible figure given estimates of 8 to 14 t of unofficial exports of gold from artisanal mining in eastern Congo.[113]

The DRC is a highly disorganised country. The Resource Governance Index 2017 rates it as a "failing state".[114] Many of the warlords and their troops have been "absorbed"[115] into the national army, the FARDC, which has driven out informal troops in many areas, merely to replace them as occupation forces in the mines of eastern Congo.[116] The level of militarisation rose drastically in the mines again between 2009 and 2014[117] and interference is widespread.[118] And again forces are breaking up, in particular through the M23 rebellion of Sultani Makenga.[119]

Even if the DRC is no longer facing an all-out civil war, the situation has not yet turned a corner.[120] To replace the intermediaries on the UN Sanctions List, new traders have sprung up and the two neighbouring countries continue to harbour the smugglers.[121] The African Gold Refinery[122] in Uganda, owned by Belgian dealer Alain Goetz, seems to be Uganda's answer to UN sanctions on gold exports from the DRC. Goetz is protected by the Ugandan President, even though he features extensively

in the UN Group of Experts report[123] and the operation has been heavily criticised by the Group.[124] According to Ugandan newspaper the *Daily Monitor,*[125] the Executive Director of Research of Uganda's National Bank stated: "It is not our job to know the source of the gold". Recently, Goetz is said to have entered into a partnership with the Rwandan state to open a further refinery, possibly competing with the facilities in Uganda.[126]

DRC officials are said to participate in the smuggling[127] and in the production of fake certificates.[128] Reports reiterate that the primary destination of the gold is nowadays Dubai,[129] not only the Gold Souk but also its refineries, which deliver in particular to India. You may not be surprised to learn – as we come back to in CHAP. 6 – that there are occasional large influxes from Dubai to Switzerland, including to refineries on the Good Delivery List of the London Bullion Market Association (LBMA).[130]

SUDAN

Not all relevant stories can be told here. Conscientious refiners, however, should note that there are various trouble spots and that the risk of being used to launder conflict gold is high.

You have surely heard about the war in Darfur, the breaking apart of North and South Sudan and renewed bloodshed and displacement of large parts of the population in a dry and inhospitable area. Looking closer, we see a familiar pattern: much of the conflict is about the control of minerals.

The most recent conflict has to do with the discovery of gold in the Jebel Amir mountains of North Darfur. In a nutshell, the traditional land owners, the Beni Hussein tribe, came under pressure from their nomadic rivals, the Rizeigat tribe. The government border guard intervened to restore order but then itself dissolved into ethnic fractions and allegiances to changing warlords. The warlords fought each other as well as the government.

It seemed that shortly afterwards everybody was fighting over control of the mines, to the detriment of the civilian population. Officials turned rebels and rebels made pacts with the government.[131] The chaos of conflict makes it easier to illegally exploit natural resources and traffic arms, which in turn helps to fuel the conflict. So in the end, the Sudanese people have been caught up a (very) vicious circle.

The Society for Threatened Peoples claims, based on files obtained by whistle-blowers, that the conflict gold was acquired by Sudanese and Emirati traders and then processed by refineries in the UAE.[132]

WASHING THE PROBLEMS AWAY?

For all its appeal, gold has throughout history been extracted at the cost of horrible human suffering. Many factors and many people from all walks of life have played a role, from despotic rulers to democratic governments, mining companies to local chieftains, bankers and traders to wheeling-dealing criminals. But one group of people play a key role and must accept the corresponding responsibility.

Refineries, the point where the gold is "laundered" and loses the traces of its problematic past, are the ones who decide whether to accept this gold or not. They are the gatekeepers to the nice world of clean gold, the world of jewellery, big finance and reserve banks. The refineries have duties and many have failed to live up to them in the past, in a similar way as banks have offered themselves to launder the proceeds of crime.

As we look to the future and anticipate the rise in demand for other rare metals and minerals, we can't keep letting refineries wash the problems away.





CREATING A RESPONSIBLE SUPPLY CHAIN //

05 //

REACTIONS TO THE DRC GENOCIDE

When the first reports of the UN Group of Experts on the DRC that we have just discussed, and those of Human Rights Watch,[1] were published, the extent of abuse around the gold supply chain became obvious. The wider public reacted with shock.

The UN Security Council rapidly enacted a sanctions system. The global community realised that extractive industries and the gold industry in particular needed to be drastically overhauled. Responsible sourcing became the buzzword of the time. Law enforcement action was taken against certain refineries sourcing from conflict areas.

Above all, international organisations and industry groups drafted due diligence guidance, building on earlier soft law regulations for business entities. Since this guidance affects how individual companies do business, we will look at the relevant texts now.

BUSINESS RESPONSIBILITIES TO RESPECT HUMAN RIGHTS

INTERNATIONAL REGULATION AGAINST ECONOMIC CRIME

After the fall of the Berlin Wall and the dismantling of the former Soviet Union, a new type of international regulation evolved to prevent and combat money laundering. Although initially focused on international drug trafficking and organised crime, these regulations were key for the emergence of due diligence in the mineral supply chain. This is because they required banks and other financial institutions to apply a risk-based approach with their clients, upstream as well as downstream. Banks and other financial institutions were obliged to identify clients and beneficial owners, and to apply increased due diligence in unusual and suspicious circumstances, based on red flags. Regulators invented the approach of risk mitigation or escalation to financial intelligence units and law enforcement, strategies useful in the responsible sourcing of minerals.[2]

Likewise, anti-corruption rules rapidly emerged after 1990. A mix of international hard and soft laws defined awareness concepts, preventive measures, offences and sanctions.[3] Again, very rapidly an entire industry emerged to help exporters and investors introduce anti-corruption due diligence programmes.[4]

These regulations against economic crime can be considered forerunners to rules around the protection of human rights. The difference is that they are enforced through rigorous country evaluations by influential bodies including the Financial Action Task Force, the OECD Working Group on Bribery and the UNCAC Conference of State Parties.[5] The implementation of policies to protect human rights, however, remains soft, flabby and uncertain in comparison.[6]

REGULATION OF BUSINESS CONDUCT TO PROTECT HUMAN RIGHTS

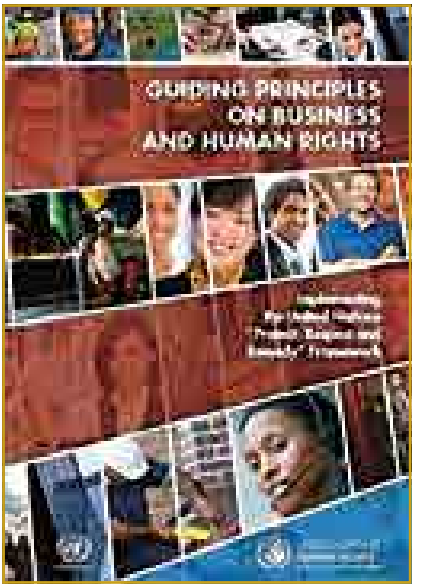
There is no doubt that business conduct can seriously harm human rights. Here are just a few examples:

- A leak from an insecticide tank in the Indian city of Bhopal killed around 25,000 people – a case of corporate manslaughter.[7]
- Abusive labour conditions and the faulty construction of a textile factory in Bangladesh killed over 1,000 people when the building collapsed.[8]
- Companies are known to have hired thuggish security attacking local villagers.[9]
- A French cement corporation is facing trial in France for the financing of terrorism, accused of having paid off terrorist group Islamic State to allow it to continue to produce during the civil war in Syria.[10]

UN Guiding Principles

Corporate disrespect for human rights led the UN to commission a study known as the "Ruggie Principles"[11] in preparation for its *United Nations Guiding Principles on Business and Human Rights* of 2011.[12] The fundamental approach of both texts relies on three words: "protect, respect and remedy".[13] The UN *Guiding Principles* contain three sections. The first recommends elements that Member States should make mandatory.[14] The second contains rules for business enterprises.[15] The third focuses on securing remedies for victims of human rights violations.[16]

It is significant that businesses are tasked with monitoring the behaviour of "business relationships" (in particular downstream business partners). Obviously, the official commentary differentiates according to the "enterprise's leverage over the entity concerned".[17]



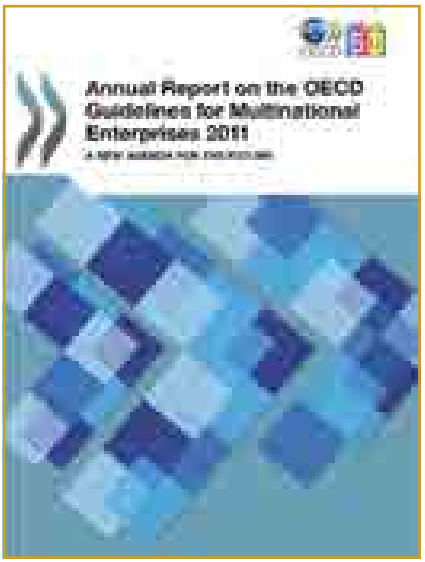
The principles have been met with great interest worldwide, but they remain soft law. As we shall see in CHAP. 7, the fierce opposition of Swiss industry to the Responsible Business Initiative shows how strongly they are trying to resist efforts to declare elements of the UN *Guiding Principles* mandatory.

OECD Guidelines for Multinational Enterprises

The OECD *Guidelines for Multinational Enterprises* go back to the 1970s, when developing nations (the G77) were attacking multinational enterprises and accusing them of exploitation. The OECD attempted to pre-empt regulations being enacted by the UN General Assembly by itself defining a more business-friendly ethical standard.

The third edition of the OECD *Guidelines* appeared in 2011.[18] They now address the protection of human rights,[19] labour conditions[20] and corruption[21] more directly and they recognise responsibilities in the supply chain.[22] Like the UN *Guiding Principles*, the OECD *Guidelines* have a high level of abstraction and are not binding. The difference is that the OECD *Guidelines* have introduced a network of mediation bodies in Member States, the National Contact Points (NCPs).[23]

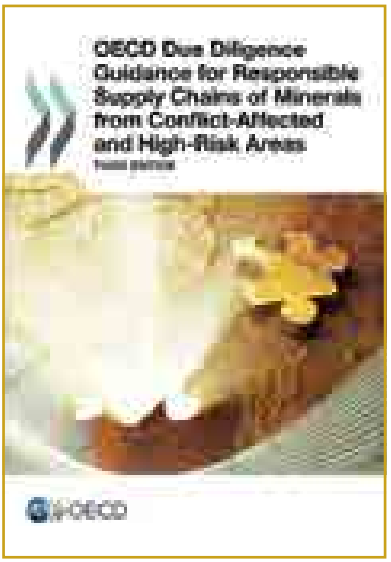
Even though these two texts are rather unspecific and enforcement is weak, they introduce key concepts like the responsibility of companies to respect human rights in their area of influence, including the supply chain, and the notion of due diligence.



OECD DUE DILIGENCE GUIDANCE

The OECD *Due Diligence Guidance for Responsible Supply Chains of Minerals from Conflict-Affected and High-Risk Areas* was first adopted by OECD Ministers on 25 May 2011. This text is directly linked to the abuses in eastern Congo. It refers to the UN Security Council Resolution 1952 (2010) "taking forward the due diligence recommendations contained in the final report of the United Nations Group of Experts on the Democratic Republic of Congo".[24]

The OECD also sought the close cooperation of African countries forming the International Conference on the Great Lakes Region (ICGLR).[25] The text was amended twice by the OECD Council and the current version is the third edition of 2015/16. It contains a short political "Recommendation" agreed unanimously by all Member States of the OECD and a bundle of Annexes, primarily the Guidance.



The OECD *Due Diligence Guidance* clarifies that due diligence is a flexible concept and that cooperation amongst competitors and within the supply chain would help lower costs, in particular since the rules apply to all companies, big and small.[26] The only difference made in the area of artisanal mining is between "enterprises" and individual miners.[27]

The text also defines "conflict-affected and high-risk areas". There is no distinction between international and domestic conflict (civil war) and the definition includes risks emanating from non-state actors and official armies alike. The concept of "high-risk" goes well beyond acute armed conflict into organised crime, militarised mines and failing states.[28]

The Guidance has three Annexes. Annex I proposes a Five-Step Framework for Risk-Based Due Diligence in the Mineral Supply Chain.[29] It asks companies to:

1. Establish strong company management systems.
2. Identify and assess risk in the supply chain.
3. Design and implement a strategy to respond to identified risks.
4. Carry out an independent third-party audit of supply chain due diligence at identified points in the supply chain.
5. Report on supply chain due diligence.

Annex II contains a model supply chain policy and, crucially, a detailed description of the risks faced by members of the supply chain. Annex III suggests ways to mitigate risks while continuing to source from risky areas.

OECD SUPPLEMENT ON GOLD

On 17 July 2012, the OECD Council added a *Supplement on Gold* to the text and amended the Due Diligence Guidance to reference it.[30] This document is the most relevant regulation in the area of supply chain due diligence for gold, even though it is not legally binding, like all the other texts we have mentioned. It translates the "Five Steps" into great detail for each level of the supply chain.

The overall concept of the *Supplement on Gold* is to ask all members of the supply chain to introduce a "strong company management system" (referring back to Annex II of the Guidance).[31] This would be communicated and integrated into supplier contracts and make it possible to determine whether they are facing risks of the kind covered by the term "conflict-affected and high-risk areas".[32] The specific risk is seen (in line with the Ruggie Principles) in "direct or indirect support" to non-state armed groups or public or private security forces, who illegally control mine sites or illegally tax or extort miners or traders.[33] The risk assessment closely follows practices developed in the financial industry according to the risk-based approach. The *Supplement on Gold* offers "red flags" for increased risk:[34]

Increased risk triggers an in-depth analysis, from open-source analysis to on-site inspection of upstream operators. If the risk remains high, ways of dealing with the risk need to be developed.[35] These range from mitigation (e.g. allowing for remedial action) to suspending relations temporarily to disengaging permanently.[36]

The OECD insists that identifying higher risks should not automatically mean disengaging. The organisation criticises companies and industry programmes for being overly risk-averse instead of implementing risk mitigation measures. Frequently, commercial considerations lead refiners to disengage rather than invest in increased due diligence with "on-the-ground" assessment.[37]

Step 4 recommends carrying out independent third-party audits of refiners' due diligence practices.[38] This recommendation recognises that

Red flag locations of gold origin and transit:



The gold originates from or has been transported through a conflict-affected or high-risk area.



The gold is claimed to originate from a country that has limited known reserves or stocks, likely resources or expected production levels of gold (i.e. the declared volumes of gold from that country are out of keeping with its known reserves or expected production levels).



The gold is claimed to originate from a country through which gold from conflict-affected and high-risk areas is known or reasonably suspected to transit.



The gold is claimed to originate from recyclable/scrap or mixed sources and has been refined in a country where gold from conflict-affected and high-risk areas is known or reasonably suspected to transit.

In each of these location-based red flag considerations, the risk is increased when anti-money laundering laws, anti-corruption laws, customs controls and other relevant governmental oversight laws are weakly enforced; informal banking systems operate, and cash is extensively used.

Supplier red flags:



Suppliers or other known upstream companies operate in one of the above-mentioned red flag locations of gold origin and transit, or have shareholder or other interests in suppliers of gold from one of the above-mentioned red flag locations of gold origin and transit.



Suppliers or other known upstream companies are known to have sourced gold from a red flag location of gold origin and transit in the last 12 months.

Red flag circumstances:



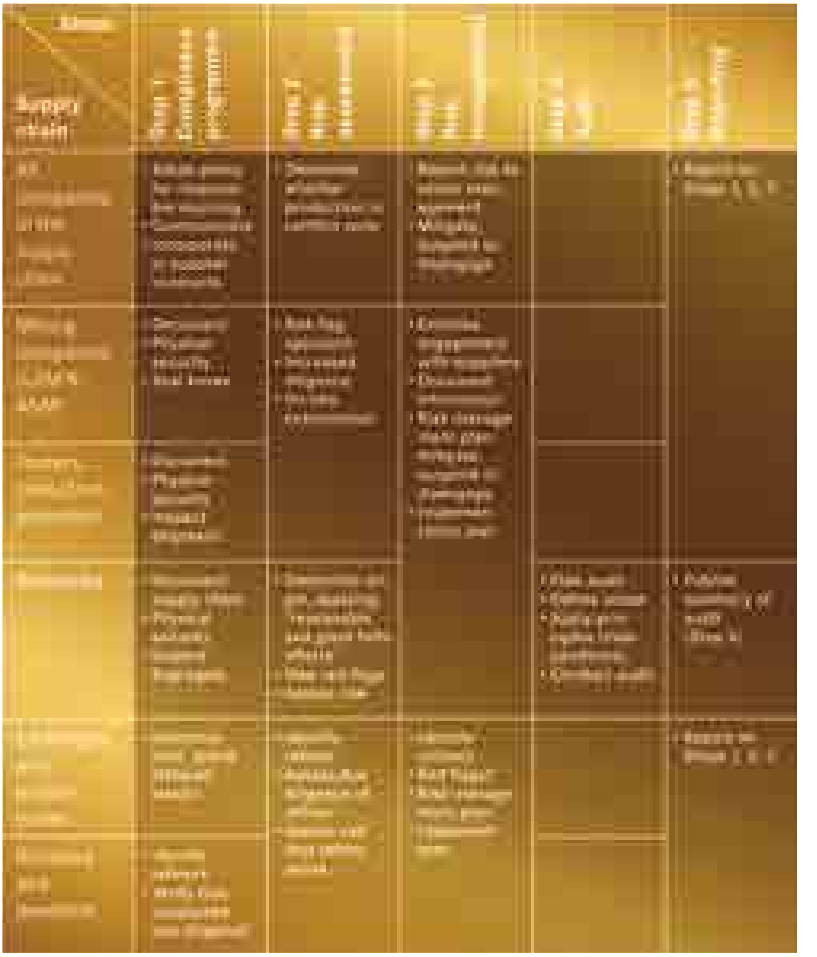
Anomalies or unusual circumstances are identified through the information collected in Step 1 which give rise to a reasonable suspicion that the gold may contribute to conflict or serious abuses associated with the extraction, transport or trade of gold.

"Red flags" in the OECD Supplement on Gold

refineries are the real gatekeepers between the upstream and downstream parts of the supply chain. It is fundamental for sound sourcing that they introduce and apply credible "upstream due diligence practices".[39]

Step 5 requires all relevant players, upstream and downstream, to report annually about their supply chain due diligence for gold from conflict-affected and high-risk areas.[40]

The details of the system are complex, but crucial for the audits at the relevant stages (e.g. mines, refineries). They are summarised in the following chart and will be revisited when we discuss private industry regulation below.[41]



Graphic 8 OECD Supplement on Gold: due diligence summary chart

REGIONAL AND DOMESTIC RULES

US DODD-FRANK ACT 2010

When the US legislature enacted its Dodd-Frank Wall Street Reform and Consumer Protection Act in reaction to the banking crisis, it was influenced by the UNSCR 1952 (2010) on the DRC. The legislators added a section (1502) on disclosure and reporting obligations of US companies relating to the use of "conflict minerals" (especially tin, tungsten, tantalum and gold)[42] mined in one of the 12 countries of the Great Lakes region in Africa.[43]

The Act required the State Department, in consultation with USAID, to submit a conflict minerals strategy. The US Securities and Exchange Commission (SEC) had to promulgate disclosure and reporting regulations regarding the use of conflict minerals from the DRC and adjoining countries by April 2011.[44] The US Government Accountability Office (GAO) had to report on the effectiveness of the SEC rule.

The Act did not actually prohibit the use of specific minerals associated with armed conflict by US-registered or listed companies. Instead, they were obliged to introduce a compliance programme and to file reports on their compliance efforts with the SEC annually. The Act basically introduced a mandatory *transparency* concept.

The GAO issued regular reports. In its report of April 2017 it examined company disclosures filed in 2016. NGOs including Amnesty International and Global Witness considered section 1502 of the Dodd-Frank Act a piece of "landmark legislation"[45] but they felt US companies were "only scratching the surface on conflict minerals reporting". 80 percent of the companies who filed their inaugural reports, they said, "failed to do the minimum required by the law".[46] The official GAO reports were less critical but agree that in 2016, 55 percent of the companies – after conducting due diligence – still could not confirm the source of the minerals mentioned in Dodd Frank in their products, compared to 67 percent in 2015.[47]

Far more dramatic than these difficulties in implementation turned out to be Donald Trump's election as President of the US. His administration and the Republican Congress repealed essential parts of the Dodd-Frank Act,[48] including section 1502, with Trump calling it "the worst law of the year".[49] As a replacement for the Dodd-Frank Act, including section 1502, the House of Representatives passed a new bill called the Financial CHOICE Act[50] in June 2017. To date, Senate ratification is still open.

Lobbyists from the mining industry, as well as downstream companies that use gold, subjected section 1502 to heavy criticism and prepared the ground for the repeal. It was said that the administrative cost was disproportionate compared to the effect. Furthermore, critics suggested that it had embargo-like effects on local communities in the DRC.[51] They cast doubt on the link between armed groups and artisanal mining.

In light of the description of the situation in the DRC in the "Conflict gold" section of CHAP. 4, these statements are rather unconvincing. If Apple complains that it has difficulties reconstructing its supply chain for gold, since it uses over 200 suppliers and 242 smelters,[52] it could simply adopt a more focused and reliable sourcing strategy. Apple has in fact announced that it will – as far as possible – reduce its use of conflict minerals.[53]

However, we will have to wait and see what happens in the US. The EU and China have moved ahead in the meantime.

EU CONFLICT MINERALS REGULATION

The EU enacted a Conflict Minerals Regulation in 2017 (EU Regulation 2017/821) that is due to go into effect on 1 January 2021. Its aim, like the OECD *Due Diligence Guidance* and the Dodd-Frank Act, is to protect mine workers and their communities from being abused.[54] The Regulation closely follows the Five-Step Framework of the OECD *Due Diligence Guidance*. It will, however, become binding law to be implemented by Member States.

The EU Conflict Minerals Regulation takes the approach of the OECD by involving "everyone" in the trade in tin, tantalum, tungsten and gold. It uses the OECD's definition of "conflict-affected or high-risk areas", going well beyond a specific area of the world and actual armed conflict to include fragile post-conflict areas, areas with weak or non-existent governance and security (failed states) as well as areas with widespread and systematic violations of human rights.

Looking at our narrative of problem gold in CHAP. 4, this definition covers all cases of conflict gold (DRC, Sudan, etc.) and most areas riddled by activities of organised crime (like Colombia and Madre de Dios in Peru). It would also extend to areas where forced labour and the worst forms of child labour are rampant.

The Regulation defines due diligence requirements in line with the OECD.[55] The aims are to ensure that upstream and downstream companies establish the provenance of the minerals and to prevent the funding of armed groups. The Regulation will apply neither to imports below a certain threshold nor to recycled or grandfathered stock.[56]

CHINESE DUE DILIGENCE GUIDELINES

China, together with the OECD, launched the *Chinese Due Diligence Guidelines for Responsible Mineral Supply Chains* in December 2015. The aim is to align Chinese company due diligence with international standards. On the Chinese side, the China Chamber of Commerce of Metals Minerals & Chemicals Importers & Exporters (CCCMC) was in the driving seat. The Guidelines, which closely mirror the OECD *Due Diligence Guidance* and their Five-Step Framework, apply to all Chinese companies extracting or using mineral resources at any point in the supply chain. The Chinese Guidelines[57] are voluntary, like the OECD text.

PRIVATE SECTOR INITIATIVES

Reacting to the rapidly changing regulatory environment, and in particular the mandatory rules enacted by the US and the EU, the private sector has developed its own self-regulatory tools. Their common denominator is that they are voluntary. Some of the standards rely on independent third-party audits[58] or on certification.[59] Others try to reduce the uncertainty in the supply chain by offering detailed company self-assessments.[60]

LONDON BULLION MARKET ASSOCIATION

Established by the Bank of England in 1987, the London Bullion Market Association (LBMA) took over the job of maintaining the Good Delivery List. Described as "the only globally accepted accreditation for the bullion market",[61] the Good Delivery List had been set up by the Bank in 1750 to ensure gold bars traded in the London market reached a certain standard. In particular, the standards require a minimum purity of 995 parts out of 1,000, known in the trade as a "chop and good" appearance.[62]

Since its foundation, the self-regulatory powerhouse has certified over 70 gold refineries (melters and assayers) who meet the Good Delivery standards. Five of these refineries have the status of Good Delivery Referees.[63]

The Good Delivery specifications have been gradually upgraded to include supply chain considerations.[64] Refiners must now comply with the LBMA's *Responsible Gold Guidance,*[65] which integrates the aim of ensuring a responsible supply chain into a traditional quality standard.[66]

Responsible Gold Guidance applies to gold bars. Other products are not mentioned in the scope. The refineries submit to an independent

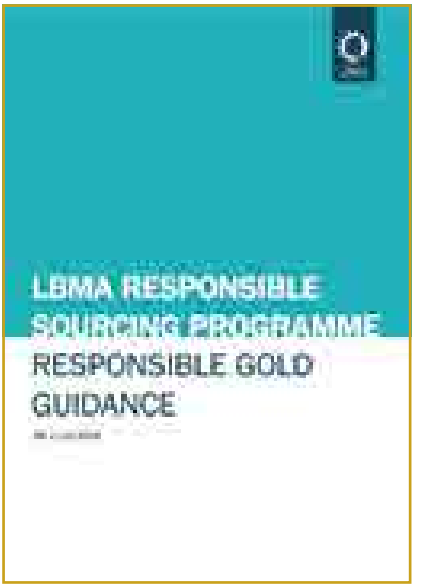
audit to become accredited. A *Third Party Audit Guidance* (TPAG) – in its current version of 2018 – details what an (initial) full audit means: an audit according to the ISAE 3000 standard.[67] The full audit has to be repeated every three years; on a yearly basis an "audit review" is sufficient ("limited assurance" as opposed to "reasonable assurance" under the ISAE 3000).[68] The difference between the audit approaches is basically the intensity of assessment of risky customer relations and transactions, in particular the number of files assessed. Obviously, conscientious refiners can submit to the full audit on a yearly basis.

Responsible Gold Guidance basically replicates the OECD *Due Diligence Guidance*, in its 2018 version more fully than initially.[69] The auditors assess whether the refineries have introduced compliance programmes (Step 1) and whether they are assessing their risks (Step 2). This is based on paper files, as auditors do not normally visit suppliers, either traders or mines. The auditors then assess how refineries react to the risks (Step 3).[70]

Even though the LBMA very closely followed the OECD process and participated in consultation, the OECD Alignment Assessment 2018 – a kind of voluntary monitoring – remains critical of the implementation. The OECD is doubtful as to whether LBMA refineries go far enough down the supply chain, or simply stop their due diligence with the immediate (tier 1) supplier.[71]

Furthermore, the refineries seem to rely on audits by other bodies, some of them substandard. In some cases they dispense with due diligence altogether, for example when working with banks and other refiners. Overall, many refineries do not really go into the detail of risk management (Step 3). Rather, they take "a risk-averse approach to sourcing", by cutting out sourcing from artisanal mines altogether[72] or by introducing an "internal embargo" for African countries.[73]

The OECD Alignment Assessment was particularly critical of independent audit practices in the LBMA context (Step 4). It suggested that auditors lacked the technical competencies necessary. In one case, LBMA supervisors had to step in to de-list a refinery and de-accredit the auditors.[74] The OECD doubted the necessary rigour.[75]



Heavily criticised was also the publication practice (Step 5). The OECD found that "the information in most refiners' reports" was "very generic, lacking detail and specificity and programme auditors did not focus sufficiently on checking the quality of reports".[76] In a more general comment directed at the LBMA governance, the OECD felt that the "LBMA tends towards being too lenient when perhaps they could/should push refiners harder to address non-conformance findings".[77]

RESPONSIBLE JEWELLERY COUNCIL

The Responsible Jewellery Council (RJC) is a not-for-profit organisation promoting "responsible ethical, social and environmental practices, which respect human rights, throughout the Diamond, Gold and Platinum Group Metals Jewellery supply chain, from mine to retail".[78] With this broad focus, it has close to 1,000 members.[79] The RJC relies on certification based on independent audits. It certifies against two standards: its *Code of Practices* (CoP) and its *Chain of Custody* (CoC).

The RJC *Code of Practices* is mandatory for all members, but they are granted two years to comply with the standard after joining the RJC, benefitting from the reputation in the interim.[80] About a third of the membership was not compliant in 2017. The *Code of Practices* does not reference the OECD *Due Diligence Guidance* explicitly, although there is some overlap.

The *Code of Practices* is criticised by both the OECD and NGOs. It relies on pure pledges by suppliers[81] and there is no need for jewellers and other downstream players to have traceability of the gold they use.[82] Critics mention in particular that a company can join at "any level of their operations", allowing it to comply with a small part of its operations. Likewise there is an opt-out possibility for facilities in which the company has less than 50 percent control.[83] The *Code of Practices* does not require public reporting, even of summary audit reports.[84]

The second standard, the RJC *Chain of Custody*, is more ambitious. It is, however, voluntary and until early 2018 only 6 percent of the RJC's member companies had adopted it.[85] What is even more problematic is that while the refineries are typically CoC-certified,[86] the other members of the supply chain, especially mines and traders, are missing. It is therefore difficult to establish a closed chain of custody.[87] According to the analysts, refiners typically rely on declarations of suppliers and frequently do not know the actual mine of origin.[88]

Particular criticism has been directed at RJC auditing. The procedures are said to lack depth.[89] Companies receive certification based on a mere visit of limited operations.[90] Mines are only visited if the mine itself





seeks certification. Again, even summary reports are not made public.[91] What may be even more problematic is that the RJC itself only receives the summary of the audit report and has to determine whether to certify the entity on the basis of this summary.[92]

Overall, Human Rights Watch calls the RJC "a weak assurance".[93] This could be particularly problematic where standard setters use the RJC standards for cross-recognition, i.e. relying on RJC certification for recognition or for concrete due diligence in their own supply chain evaluation.[94]

WORLD GOLD COUNCIL

The third major industry standard, the *Conflict-Free Gold Standard*, was enacted in 2012 by the organisation of the biggest large-scale gold mining companies in the world, the World Gold Council (WGC).[95] Its goal is a little different from the other standards. It recognises that gold mining to a large part takes place in conflict zones and weak states. For the purpose of risk mitigation and in order to help WGC members (especially large industrial corporations in the US) to meet the Dodd-Frank reporting obligations, the standard includes detailed assessment tools. Their aim is to "operationalise" the OECD *Due Diligence Guidance* and to "provide assurance that their gold has been extracted in a manner that does not cause, support or benefit unlawful armed conflict or contribute to serious human rights abuses or breaches of international humanitarian law".[96]

The text goes into great technical detail on specific risk dimensions, describing conflict assessments, company assessments, commodity assess-



ments and externally sourced gold assessments. It culminates in a "management statement, whereby the management expresses its view that the company has the appropriate systems and procedures in place […]". The company is in conformance with the standard if it "believes it has the appropriate systems and processes in place".[97]

The Management Statement of Conformance is provided to the next participant in the chain of custody, but does not have to be published. Independent third-party auditing is foreseen, but it is up to the company if it wants to even publish a summary.[98] Complaints should be directed to the company, which is free to determine how it will address complaints. What we are talking about is simply a very elaborate form of self-assessment.

DUBAI MULTI COMMODITIES CENTRE

Dubai is a major gold refining and trading centre with growing significance. As early as 2002, the government created the Dubai Multi Commodities Centre (DMCC) to act as a regulator with a dual role: supervision and promoting trade. UAE-based refineries are certified by the DMCC rather than the LBMA.

The DMCC put a first standard in place in 2012, the *Practical Guidance for Market Participants in the Gold and Precious Metals Industry*.[99] The standard attempted to implement the OECD *Due Diligence Guidance* but clearly missed the target.[100] A new DMCC Review Protocol was added in 2016 and the two documents are now collectively referred to as the DMCC *Rules for Risk Based Due Diligence in the Gold and Precious Metals Supply Chain*.[101] These rules – along with the new *Market Deliverable Brand* accreditation initiative – come far closer to the OECD text, at least on paper.[102]

The texts focus primarily on refineries and do not really regulate the growing trading hub, the Dubai Gold Souk, nor the important Free Zones.[103]

Reputational breakdown

The amendments were also driven by a dramatic compliance and reputation breakdown in 2013. While auditing several refineries in Dubai on their activities in 2012, EY found serious breaches with the Kaloti refinery and initially rated its performance as "Breach of Review Protocol and Zero Tolerance". It rated the second refinery, Al Etihad, "Non-compliant – High Risk" in September 2013.[104]

The accusations about Kaloti were leaked by a whistle-blower and you can read about them in the next chapter. What is important to note here, however, is that Global Witness claims the DMCC changed the rating and its publication rules for audits as soon as it saw the initial EY reports, describing this as "moving the goalposts".[105] The initial EY reports were not published, but instead new reports were written, rating both refineries "fully compliant" in November 2013.[106]

The DMCC vigorously denies having concealed instances of non-compliance or having sought to influence EY and "utterly rejects any suggestion that it has acted in any way improperly […]".[107]

Evaluation of the DMCC Rules

DMCC submitted to the voluntary OECD Alignment Assessment 2018. The OECD credits Dubai for moving far closer to the OECD *Due Diligence Guidance*[108] but highlights issues relating to Step 2 that recommend all Annex II risks to be addressed[109] and in cases of increased risk to take the obligation of an "on the ground risk assessment" more seriously.[110]

Finally, the OECD is equally unimpressed by current audit practices – just as it is unimpressed by the RJC and LBMA audit practices. Auditors frequently lack the necessary competencies and do not dare to challenge deficiencies. In some cases they even had the wrong training – they were financial auditors.[111] On reporting, the OECD identifies "a lack of transparency".[112] Many of these abstract statements become particularly significant in light of the criticism by Global Witness mentioned above.

DO INDUSTRY STANDARDS WORK IN PRACTICE?

Overall, these industry standards theoretically put the private sector in a good position to implement the OECD *Due Diligence Guidance*. However, they are primarily driven by the interest to "provide assurance", in the words of the World Gold Council,[113] for downstream clients and stakeholders. As the analysis has shown, industry practice – even if audited – does not always meet the high standards set on paper.

MULTI-STAKEHOLDER INITIATIVES TO CERTIFY AND FORMALISE ARTISANAL MINING

In contrast to industry guidelines and self-appraisal, multi-stakeholder initiatives aim to support the sustainable development of artisanal mining communities. There are three main approaches:

1. Certify responsible mines.
2. Help artisanal miners formalise in their domestic environment.
3. Offer incentives and open access to international markets for artisanal mine operators.

Let's see how they fit into the bigger picture.

CERTIFICATION

In 2009, the Alliance for Responsible Mining (ARM) and Fairtrade International collaborated to launch a single label certifying gold mines producing gold according to their standard. The partnership was discontinued in 2013 due to concerns over a lack of demand[114] and the label split into two new labels, Fairmined and Fairtrade. Now each of the founding partners runs its own label in direct competition with one another.

The Fairmined Standard

The *Fairmined Standard for Gold from Artisanal and Small-Scale Mining, including Associated Precious Metals* is managed by the Alliance for Responsible Mining. It focuses on supporting community-based mining operations, engaging in formalisation, and promoting environmental awareness and respect for labour and traceability requirements.[115]

Mines that meet the requirements of the Fairmined Standard are guaranteed a gold price of at least 95 percent of the London Gold Fix as well as a "Fairmined Development Fee" that is regularly updated by the ARM. The additional fee is meant to cover operational costs and contribute to sustainability. It is paid by entities who have obtained Fairmined's permit to trade. These entities may purchase gold directly from certified mining organisations.

Mining companies submit to an independent audit of compliance with the Fairmined Standard's requirements. There are two types of standard. Fairmined Gold promotes responsible mining but does not forbid toxic chemicals such as mercury and cyanide. Fairmined Ecological Gold guarantees that no toxic substances were used in the extraction process.

The ultimate aim is to help companies improve, so Fairmined offers training programmes and the possibility of pre-audits. The mining organisation bears the cost of the audit and must make certain investments and efforts to achieve compliance with entry-level requirements of the standard to obtain the label.

The Fairtrade Standard

The *Fairtrade Standard for Gold and Associated Precious Metals for Artisanal and Small-Scale Mining*[116] is run by Fairtrade International and sub-licensed national Fairtrade Organisations. In Switzerland, it is better known as the Max Havelaar Foundation.[117]

The standard states that artisanal and small-scale mining needs to be formalised and organised in an ASM organisation that respects labour regulations, women's rights and health and safety regulations.

On environmental matters, the text is ambiguous. CHAP. 3.2 introduces a progressive approach. The requirements for certification focus on minimising the hazards of toxic substances (mercury and cyanide). Specific provisions introduced in 2015 (3.2.1–3.2.32) prioritise rules on the protection of vulnerable workers, on amalgam recovery, etc. Artisanal mining organisations who go beyond this and pledge not to use mercury or cyanide are eligible for an additional Ecological Premium.[118]

Fairtrade guarantees a gold price of 95 percent of the London Gold Fix, plus a premium of USD 2,000 per kilogram. An additional 15 percent on top of the guaranteed minimum price is offered for ecological gold.[119]

DO THE FAIRTRADE AND FAIRMINED STANDARDS WORK?

The challenges of both high-end certification models are identical: few entities are ready to undergo the arduous process and the two labels compete unnecessarily. Based on field visits, there is also a question mark over whether the certified entities stick to the high standards outside the ordinary audits.

When we visited the formalised, Fairmined-certified CECOMIP mine in Ananea in the Puno region of Peru, an example of the Swiss Better Gold Initiative,[120] the company refused to let us see on-site processing. After a while, they admitted that amalgamation with mercury was still used. We were unable to see whether protective measures were applied.

THE BETTER GOLD INITIATIVE

The Swiss-sponsored Better Gold Initiative (BGI) brings together refiners, watchmakers, jewellers and banks organised in the Swiss Better Gold Association (SBGA)[121] with the Swiss State Secretariat for Economic Affairs (SECO). The goal of this public-private partnership is to help develop artisanal and small-scale mining communities. The initiative is not in itself a certification scheme. It builds on the Responsible Jewellery Council's *Code of Practices* and *Chain of Custody* guidelines, plus the Fairmined and Fairtrade standards.[122]

The initiative supports formalised miners in getting certified, as well as certifying the work of certifiers and governments. Its main thrust, though, is to increase demand for certified gold. One of the BGI's key ambitions is to cut out intermediaries, who usually cream off a large part of the earnings, by encouraging direct purchase.[123] The aim of the BGI is to reduce poverty by "establishing a more sustainable value chain".[124] Retailers pay a premium of USD 1 per gram to the BGI, out of which 20 percent go to BGI overheads, 10 percent to help non-certified artisanal and small-scale mines to get certified and 70 percent towards community projects.[125]

The advantage of the BGI is its focus on the demand side. Its disadvantages are the so far small group of certified mines, even if there

are plans to widen this.[126] It also inherits the shortcomings of the initiatives upon which it is based, in particular the problems with the RJC's texts that we have already seen in the above section on the Responsible Jewellery Council. Finally, it may seem incongruous that some member refineries embargo the artisanal mining segment altogether in their own commercial practice while participating in the BGI.[127]

DEVELOPMENT INITIATIVES

Whereas neither the certification initiatives nor the Better Gold Initiative are mainly concerned with helping artisanal mines to formalise,[128] the thrust of development assistance is primarily on fostering formalisation. The scene is very complex, as every international and national development agency pursues its own policy. One example of many is the Swiss Development Agency's focus on helping artisanal and small-scale mines in Peru, Colombia and Mongolia to obtain formalisation and on finding technical solutions to reduce or replace mercury.[129]

WHAT VALUE DO MULTI-STAKEHOLDER INITIATIVES PROVIDE?

We have just looked at how different multi-stakeholder initiatives aim to support artisanal and small-scale mining communities in different ways. Whereas development assistance agencies focus on fostering formalisation, certification bodies want to motivate it with a premium. The Better Gold Initiative is primarily oriented towards opening world markets to artisanal and small-scale miners and cutting out intermediaries.

All of these initiatives miss the negative side effects of illegal or informal mining camps. Development and formalisation are not really relevant to these camps because the mining community itself is hijacked

by organised crime. Here, support for trafficked miners, women and children as victims becomes a key issue and here is where development organisations need to do better.[130] Instead of shifting the responsibility to the respective state, they should have the strength to focus on this themselves.

RESPONSIBLE SOURCING?

Let's have a quick recap. Under the shock of the genocide in the DRC and its close links to the extraction of minerals, in particular gold, international organisations enacted rules. The most relevant here is the OECD *Due Diligence Guidance for Responsible Supply Chains of Minerals from Conflict-Affected and High-Risk Areas*. The US legislature followed suit with the Dodd-Frank Act of 2010, which originally included a provision (section 1502) requiring US issuers to report for certain minerals and specific geographical areas. Before section 1502 was repealed by Donald Trump, it was a binding legal obligation. The forthcoming EU Conflict Minerals Regulation will therefore be the only binding text in this area. The other international standards are voluntary.

The business community reacted with their own series of standards. Some of the industry initiatives are specifically focused on large-scale mining (World Gold Council) and some on refineries (London Bullion Market Association). Some attempt to cover the supply chain for downstream clients (Responsible Jewellery Council). Their common denominator – even if they closely replicate the OECD *Due Diligence Guidance* – is above all to "provide assurance" to suppliers and clients, simplifying the task of supply chain due diligence.

Some companies, especially the refiners, find themselves in a similar situation to banks confronted with the risk of money laundering. As gatekeepers, the onus is very much on them to establish responsible sourcing.

Adding to the picture are recent multi-stakeholder initiatives around artisanal mining, including the competing Fairmined and Fairtrade certification standards, the Swiss Better Gold Initiative and numerous standalone projects run by development assistance agencies.

Having described this complex puzzle of standards, our task in the next chapter is to examine what works and what does not.





WHAT WORKS AND WHAT DOESN'T?

06 //

THE ATTRACTION OF VOLUNTARY STANDARDS

Many observers consider the OECD *Due Diligence Guidance* the "Emerging […] Global Standards, which should help multinationals with a presence in multiple jurisdictions that require supply chain due diligence […]".[1] The LBMA's *Responsible Gold Guidance* was developed in close alignment with the OECD *Due Diligence Guidance* from the outset. It has been considered a gamechanger, in particular because it renders the OECD *Due Diligence Guidance* "mandatory" for refineries and other companies in the supply chain seeking to be on the Good Delivery List.[2] In a similar way, large-scale mining corporations have come together to support the World Gold Council's *Conflict-Free Gold Standard* ("Our board of directors represents the whole of the World Gold Council membership […]").

So it may not surprise you that the world's biggest refineries rushed to become members of all major standards and to acquire all possible certificates.



Graphic 9 Which refineries have signed up to which standards?

It is fair to say that international organisations and business associations have worked hard on standard setting. But most standards are voluntary and implementation remains patchy. The OECD puts it diplomatically: "Industry programmes have played a major role in driving the process. At the same time, however, international organisations, monitoring groups and media outlet have reported weaknesses in company sourcing practices, including amongst those participating in industry programmes".[3]

This raises the question of how seriously the industry takes its risks.

HOW SERIOUSLY DOES THE INDUSTRY TAKE THE RISKS?

There is a marked difference between industry and civil society perceptions.

Representing the world's biggest mining corporations, the World Gold Council claims that "the proportion of newly-mined gold that is tainted by involvement in conflict is very low".[4] It goes a step further and questions whether there are links between gold sourcing and "unlawful armed conflict". The corporations speak of "potential" links.[5]

Lobbyists representing large-scale mining companies in the US that are subject to the Dodd-Frank Act cast their doubts even more explicitly. They talk of the "*assumed* causal relationship between extractive industries and armed conflict".[6]

Likewise, Swiss refineries state that the quantities of problematic gold in their supply chain are "very small", even if the risk "can never be excluded completely".[7]

These statements contrast fundamentally with statements and findings of NGOs and the media. They also diverge from the opinion of an intimate connoisseur of the challenges. Dr. Heraeus, whose family business owns Argor-Heraeus (one of the world's leading refineries), said in a recent interview: "in this industry it is not possible to refine clean gold […]".[8] In a drastic way he echoes the diplomatic statement of the OECD in the section above.

ARE REFINERIES AS CLEAN AS THEY CLAIM?

LIVING WITH CRITICISM

When you follow up on the OECD's statement that "international organisations, monitoring groups and media outlets have reported on weaknesses in company sourcing practices", an entirely different world from the industry perspective opens up.

It is understandable that no respectable company wants to see its name tarnished. Some of the criticisms voiced by NGOs may refer to the past and no longer reflect current practices.[9] Some may be generic or anecdotal. However, if we want to make a difference in the future, we can no longer accept paper compliance[10] and opaque and superficial audit reports.[11] The challenges that refineries face are real and they need to be addressed in real life.

We will now look at what NGOs and international organisations have been saying about the supply chain due diligence of some of the most important refineries and confront these reports with the reactions of the refinery and, if available, of the auditor. You will see that all too frequently, refineries confronted with critical reports refuse outright to comment or leave it at more or less forcefully expressed denials.[12] As we see when we examine "What is wrong with due diligence standards?" below, convincing public reporting is sorely lacking, including details of due diligence practices and information on sourcing regions – even generic information.[13]

Even if refineries do not accept the criticisms, they should take them seriously as they have a reputation to defend.

ARGOR-HERAEUS

Argor-Heraeus is one of the "big four" Swiss refineries, originally owned by one of the major Swiss banks (Union Bank of Switzerland, now UBS). After an interim ownership, it is now fully in the hands of the German family business Heraeus.[14] It is said to have 1,300 t of annual refining capacity across the Group.[15] Its plants outside Switzerland are in Chile and Hong Kong.

Problems in the DRC

We have already mentioned, in the "Conflict gold" section of CHAP. 4, the very serious allegations of participation in pillage and money laundering in the context of the genocide at the end of the Second Congo War in eastern Congo. The case was opened by the Swiss Office of the Attorney General in 2013, based on a complaint by the NGO TRIAL International and material delivered by the UN Group of Experts on the DRC.[16] The refinery was investigated for aiding and abetting in pillage as a war crime (Art. 264*g* s. 1 al. c Swiss Criminal Code) and for money laundering (Art. 305bis Swiss Criminal Code). The Attorney General found that the objective facts contained in the denunciation by TRIAL International were overall correct: Argor-Heraeus had at the time of the genocide in eastern Congo refined several tonnes of gold from the supply chain.

Having established the objective supply chain from criminal sources to the refinery, the Attorney General found that, although Argor-Heraeus *should have* known the origin of the gold, it did not have *actual* knowledge. It was well known in the business sector that the officially declared origin, Uganda, had next to no gold of its own, but was a major smuggling station for DRC gold.[17] Nevertheless, the case was closed in 2015.[18]

The decision was in the view of many observers politically influenced, as a "should have known" standard easily tips into "turning a blind eye", a form of knowledge.[19]

Problems in the present?

From a current perspective, it is probably more significant that Argor-Heraeus sees itself as one of the protagonists of due diligence in the gold supply chain.[20] The Congo case has served as a wake-up call by demonstrating that instead of a tick-the-boxes attitude to due diligence, a genuine risk-based approach is crucial.

So what does this look like in practice? PWC has acted as an auditor for Argor-Heraeus.[21] The published reports are slim and formulaic, which recalls what the OECD says about LBMA audits being "very generic, lacking detail and specificity".[22] PWC even refused an interview on general methodology.[23] This is particularly problematic as this audit company is not only conducting audits in Swiss refineries, but also in Africa. If Argor-Heraeus really wants to be a protagonist of due diligence, it could start by improving its transparency and reporting.

METALOR

Another big Swiss refinery, Metalor in Neuchâtel, was originally founded by the Swiss Bank Corporation (another bank later merged to form UBS).[24] After a period of private ownership[25] the refinery was acquired in 2016 by the Japanese refinery company Tanaka.[26] It runs four precious metals refineries in Switzerland, Hong Kong, Singapore and the US.[27] The Group is reported to have a refining capacity of 800 t per year.[28]

According to the competitor refineries we interviewed, Metalor is considered a "risk-taker".

Problems in Peru

Metalor's major trading partner in Peru is Minerales del Sur. Also known as Minersur, the company's speciality is to collect gold from artisanal miners in southern Peru at a rate comparable to one of the country's large-scale mines such Yanacocha, run by Newmont Mining, or Pierina, run by Barrick Gold.[29] It is assumed that Metalor receives most of the gold Minerales del Sur collects, which was estimated at 15 t in 2016.[30]

As we have seen in CHAP. 1 and CHAP. 3, a large proportion is produced in the province of Puno, either in the plain of Ananea or in the shanty mining town of La Rinconada. Here, some of the larger mines are allegedly formalised, even if the miners themselves work totally outside any labour laws, on the basis of the ancient cachorreo system. As you will remember, this means workers get only two or three days a month to dig for gold for themselves, with the rest of their time spent working for the mine with no fixed salary, no insurance and dangerous working conditions. Other mines are entirely "informal".

There is some dispute as to whether Metalor has also sourced from the province of Madre de Dios, which as we saw is overrun by illegal mining and organised crime. The company denies it,[31] but Minerales del Sur has four officially licenced mines in Madre de Dios, including one just outside a national park. Metalor is said to have sourced many tonnes of gold through Minerales del Sur, beyond the official production figures for Puno. The Society for Threatened Peoples claims the difference in 2016 was 3.55 t alone.[32]

It is hard to explain this away. As NGOs conclude, either part of the exports from Puno is unofficial or some of the gold that ends up in Switzerland comes from Madre de Dios.[33] The refinery claims the difference is due to discrepancies between formalised and informal sources.[34]

Doré traded by Minerales del Sur has been seized by SUNAT, the Peruvian tax administration, several times in the past. Yet Metalor continued to source from Minerales del Sur, indicating that these cases were closed.[35] SUNAT's 2018 seizure of close to 91 kg of doré at Minerales del Sur,[36] destined for Metalor, raised louder questions. How can a company



Gold bars confiscated by the Peruvian authorities

insistent upon clean sourcing maintain relations with a trader continuously under public investigation for illegal mining, smuggling, money laundering and the like? Maybe the pressure finally got too strong. Metalor communicated that from March 2018 it has put on hold business relationships with collectors in Peru.[37]

VISIT TO MINERALES DEL SUR IN JULIACA

We had written to Minerales del Sur without receiving a response.[38] At their "head office" in Juliaca I was only reluctantly admitted into a building in a row of ruined buildings while my companions had to wait outside. Sitting together with indigenous miners from La Rinconada, selling what they had earned under the cachorreo system, I was told that the manager unluckily could not find time over the next three days to speak to me. The email that I then asked for proved to be the correct email address I had used to send my query well in advance. A very reliable business partner indeed.

Problems in Colombia?

Metalor USA does not deny having – as has NTR Metals in the US – imported gold from refiners and traders based in Medellín, Colombia (Goldex[39] and Escobar[40]). Colombian law enforcement claimed that the companies were involved in large-scale money laundering schemes, basically acquiring foreign gold with narco-dollars from Colombia and declaring the gold as artisanally produced in Colombia.[41] The claim was that the traders based in Medellín had invented "front traders in mining municipalities to purchase gold from illegal sources, including mines controlled by FARC and mines directly controlled by the Urabeños" organised crime group. They allegedly used fake identification numbers.[42] Media reports also name Engelhard Corporation, MKS and Kaloti in this context.[43]

Metalor stated in a March 2015 press release that it had received written confirmation from the Colombian authorities that the Goldex case had been dropped for lack of evidence, but that in any case the company had decided to terminate relations.[44]



Ruined buildings near
Minerales del Sur's "head office"

Problems in Eritrea

As we saw in CHAP. 4, Bisha Mine in Eritrea has been cited as one of the most gruesome examples of forced labour in current times. Reports indicate that the doré mined in Bisha was sent to the Swiss refinery Metalor. Swiss politicians from all sides have expressed horror and outrage.[45] In 2012, Metalor stated that it had "only one Eritrean client which is jointly owned by the local government and a listed company. This company has a majority stake of 60 percent in the mining company".[46] This fits the description of Bisha exactly.[47]

In the same 2012 statement, Metalor responded to a previous critical media report by saying that "the due diligence file on the mining company was analysed and approved by the Metalor's Internal Compliance Committee" and that the "audit performed on this same file" "confirmed its full compliance" with Swiss anti-money laundering legislation. Metalor indicates that even after "additional investigations" it is maintaining the business relationship, since "the article contains false allegations and inaccuracies".[48] In 2018, Metalor's auditor, Mazars, did not answer requests for an interview even on its generic methodology.[49]

Problems in Ghana?

Human Rights Watch reported in 2015[50] that "refiners may benefit from children's hazardous work in artisanal gold mines". The report names several major refineries as potential recipients of the gold in question, including Metalor as well as MKS PAMP, Kaloti, Emirates, Kundan and Rand. It remains unclear whether Metalor is a minor player in the Ghana gold market and whether their share of artisanal gold is "irrelevant".[51] It remains similarly uncertain whether the local exporters could be trusted.[52]

It would be easier to believe Metalor's claims that it is "the leading gold refiner worldwide for its efforts on conflict gold and improvement of artisanal mining where conflict, social and environmental problems



METALOR AND ERITREA – ETHICAL AND RESPONSIBLE REFINING OF PRECIOUS METALS

COMPANY POLICY

[…]

DOING BUSINESS IN ERITREA

RESPONSE FROM METALOR

Metalor Technologies SA

Metalor press release regarding corporate policies and Eritrea, 7 August 2012

arise"[53] if it adopted a policy of full transparency. In light of these allegations, the published summary of the audit report is little more than what lawyers might call a *non valeur*.[54]

MKS PAMP

Produits Artistiques Métaux Précieux (PAMP) was founded in 1977 in the Swiss town of Chiasso, on the Italian border.[55] It is part of the Geneva-based MKS PAMP Group.[56] As well as its Swiss refinery, MKS PAMP also operates a refinery in New Delhi as part of a joint venture with MMTC, a large state-owned Indian trading company.[57] The MMTC-PAMP refinery is the only Indian refinery on the LBMA's Good Delivery List. MKS PAMP also has roughly 14 offices around the world, including in Dubai and Singapore.

MKS PAMP is different from the other three big Swiss refineries in two key aspects: firstly, it was never owned by a bank and secondly, it has a trading room for buying and selling gold. All transactions are hedged so there is no price risk, and MKS PAMP also offers hedging services. Its annual refining volume is 450 t,[58] less than its estimated capacity of over 550 t of gold.[59]

MKS PAMP prides itself of being one of the protagonists of LBMA and the reform of *Responsible Gold Guidance*[60] and is pioneering authentication "track and trace" technology (Veriscan).[61] MKS PAMP occasionally appears in media and NGO publications in relation to problem sourcing (cf. Kaloti and Al Etihad in Dubai, discussed later in this chapter) but vehemently denies allegations of sourcing from these refineries.[62] Earlier reports had linked MKS to gold from UMT,[63] a Peruvian company then under investigation for money laundering. The company response is not known.

MKS PAMP has managed to stay out of major scandals. The leakage of internal EY correspondence demonstrates, however, that the OECD is right in its criticism of audit practices. It has been reported that the

Dubai refineries, both audited and marked down by the local EY team for serious due diligence lapses, complained that the Swiss EY team had given MKS PAMP top marks ("fully compliant"). Internal quality control conducted in 2013 by members of EY UK levelled serious allegations against their Swiss colleagues. The Society for Threatened Peoples summarised a leaked email as follows:

> "A) the wrong and an unqualified team carried out the audits in Switzerland;
> B) the results of the audits were inaccurate;
> C) this process led to problems for the Dubai team, as the refineries complained".[64]

An interview with the current EY representative in Geneva responsible for the audits indicated that EY Geneva has since handed over the task to bank auditors, charged by the Swiss financial supervisor FINMA with conducting delegated mandatory audits on anti-money laundering standards. The arrangement ensures that the auditors understand risk management.[65]

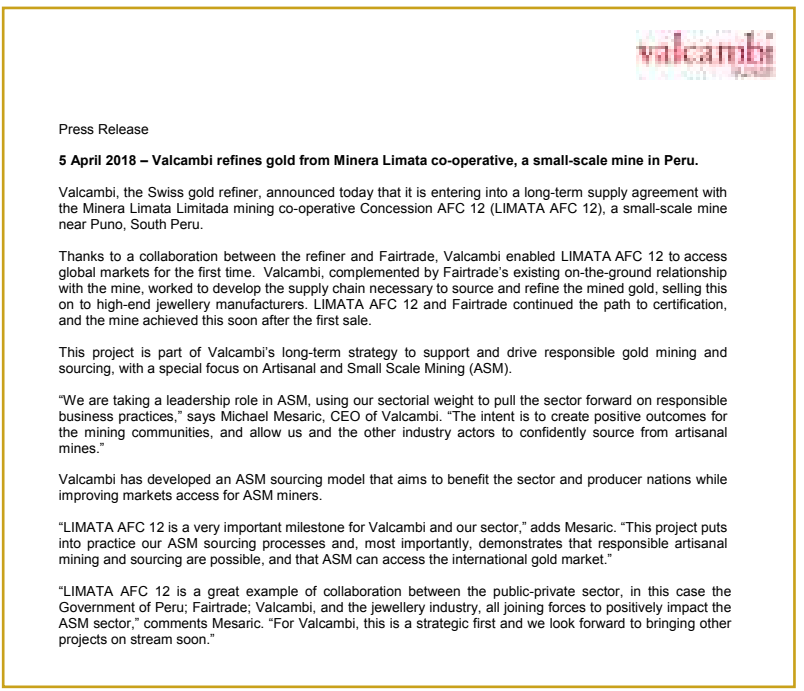
In contrast to anti-money laundering audits, however, LBMA audits remain voluntary and non-transparent. There is no real supervisor to whom the auditor has to report, beyond the company paying for the audit. LBMA staff do not assess the audits in detail.[66] We will look in more detail at the rigour of audits in the section on "What is wrong with due diligence standards" later in this chapter.

Unlike other Swiss LBMA-listed refineries, MKS PAMP has asked EY for a "limited" instead of a "reasonable" assurance, reducing the number of files checked. This procedure is formally in conformity with LBMA standards, but falls below the standard of "reasonable" assurance.[67]

VALCAMBI

Valcambi was established in 1961 under the name of Valori & Cambi SA.[68] There is little information about the identity of the founders.[69] Soon after establishing its first refinery building, the forerunner of Credit Suisse (Schweizerische Kreditanstalt) bought the majority of Valcambi's shares and from 1980 to 2003, Valcambi was a fully owned subsidiary of Credit Suisse.[70] In 1968, Valcambi was put on the LBMA's Good Delivery List for gold and silver.[71] After Credit Suisse sold its stake in 2003, Valcambi was co-owned by the US-based gold-mining corporation Newmont and a group of Swiss investors through a holding company, European Gold Refineries SA.[72] Since 2015, Valcambi has been owned by the Indian company Rajesh Exports Ltd, the world's largest gold jewellery manufacturer.[73]

Valcambi employs a workforce of around 170 and has a total precious metal refining capacity of approximately 2,000 t per year.[74] Although



valcambi

Press Release

5 April 2018 – Valcambi refines gold from Minera Limata co-operative, a small-scale mine in Peru.

Valcambi, the Swiss gold refiner, announced today that it is entering into a long-term supply agreement with the Minera Limata Limitada mining co-operative Concession AFC 12 (LIMATA AFC 12), a small-scale mine near Puno, South Peru.

Thanks to a collaboration between the refiner and Fairtrade, Valcambi enabled LIMATA AFC 12 to access global markets for the first time. Valcambi, complemented by Fairtrade's existing on-the-ground relationship with the mine, worked to develop the supply chain necessary to source and refine the mined gold, selling this on to high-end jewellery manufacturers. LIMATA AFC 12 and Fairtrade continued the path to certification, and the mine achieved this soon after the first sale.

This project is part of Valcambi's long-term strategy to support and drive responsible gold mining and sourcing, with a special focus on Artisanal and Small Scale Mining (ASM).

"We are taking a leadership role in ASM, using our sectorial weight to pull the sector forward on responsible business practices," says Michael Mesaric, CEO of Valcambi. "The intent is to create positive outcomes for the mining communities, and allow us and the other industry actors to confidently source from artisanal mines."

Valcambi has developed an ASM sourcing model that aims to benefit the sector and producer nations while improving markets access for ASM miners.

"LIMATA AFC 12 is a very important milestone for Valcambi and our sector," adds Mesaric. "This project puts into practice our ASM sourcing processes and, most importantly, demonstrates that responsible artisanal mining and sourcing are possible, and that ASM can access the international gold market."

"LIMATA AFC 12 is a great example of collaboration between the public-private sector, in this case the Government of Peru; Fairtrade; Valcambi, and the jewellery industry, all joining forces to positively impact the ASM sector," comments Mesaric. "For Valcambi, this is a strategic first and we look forward to bringing other projects on stream soon."

Valcambi does not publish its gold refining capacity, sources estimate it to average approximately 1,600 t per year.[75]

In its 2015 Sustainability Report, Valcambi states a daily refining production of 3.8 t of gold. Given a five-day working week and assuming 250 working days, the annual gold refining turnover should be approximately 950 t of gold – well below its maximum capacity.

Apart from the main refinery lines, Valcambi established a "Green Gold" line in 2008 for gold sourced ecologically and refined separately from the other production lines.[76] Valcambi has also been confronted with several sourcing challenges, however.

Interestingly, Valcambi – a BGI member – has opted to open up an alternative channel for Andean ASM gold. In April 2018 it announced that it would purchase gold directly from an ASM mine in the same region in which the BGI operates.[77]

Problems in Peru

As a subsidiary of Newmont Mining, Valcambi sourced from the biggest large-scale mine in Latin America, Yanacocha in Peru. Intense conflicts with local citizens and environmentalists arose over an enlargement of the mine known as the Conga Project. In July 2012, five people were killed during protests.[78] Shortly afterwards, local farmers were dispossessed to enlarge the mine.[79] Other reports talk about mercury spills on main roads. The CEO of Newmont at the time, Wayne Murdy, had to apologise publicly.

How Newmont Mining was able to meet the World Gold Council's *Conflict-Free Gold Standard*, which was adopted just around that time, is questionable. The creation of the Yanacocha mine is in itself problematic, as it goes back to the times of President Fujimori and his intelligence chief Montesinos.[80] Valcambi is said to have refined 60 to 70 percent of the gold produced by Yanacocha up to 2014[81] and even more in 2015.[82]

Problems in Burkina Faso

When the Swiss government authorised the publication of the first gold import statistics in 2014,[83] astonishing details became apparent. Large imports from Togo were listed,[84] but Togo does not produce any gold to speak of (less than one tonne per year).[85] The NGO Public Eye claims that at least seven tonnes were smuggled in 2014 from Burkina Faso to Togo, depriving Burkina Faso of an estimated USD 6.5 million in export taxes. What is more problematic is what we saw in CHAP. 4 when discussing child labour in the gold-mining industry: according to International Labour Organization figures for Burkina Faso, between 30 and 50 percent of miners are juveniles or children.

Following up on this suspicion, Public Eye drew up a complex chain of transactions that illustrates just how tricky it is to trace the true origin of gold. The NGO suggests that the local trader SOMIKA sold the artisanal gold of Burkina Faso,[86] produced heavily with the help of the worst kinds of child labour,[87] to Wafex Sàrl, a company of the Lebanese Ammar Group.[88] They in turn are said to have exported the smuggled gold from Togo to Geneva,[89] destined for MM Multitrade SA, Geneva (another Ammar Group company, now liquidated).[90] From there, the gold purportedly went on to Valcambi for refining.[91]

Public Eye confronted Valcambi with a long list of questions[92] but Ammar Group and Valcambi declined requests for meetings and did not respond to the questions.[93] The LBMA auditor of Valcambi, KPMG, referred the NGO back to the refinery.[94] In an interview, the CEO of Valcambi suggested that Public Eye's report contained erroneous information, that the pictures of child labourers were taken from a different context and that the auditor – mistakenly – did not set the record straight.[95] In a statement given to a media outlet, Valcambi emphasised that its entire supply chain is audited by independent observers and that the report by Public Eye is "unsubstantiated and wrong". It further stated that it is working with NGOs to "protect miners and their family members and to improve their working conditions and salaries".[96]

The Public Eye report triggered a parliamentary intervention in Switzerland[97] and ultimately led to the Swiss government preparing a Gold Report in 2018. We will examine this in CHAP. 7.

Problems with Dubai?

Valcambi is the only major Swiss refinery declaring openly that it works closely with the Dubai-based refinery Kaloti.[98]

Imports from Dubai to Switzerland fluctuate wildly. In 2012 and again in 2016, Switzerland imported 380 t of gold from Dubai, worth over USD 15 billion in each year.[99] It must be assumed that a large proportion went from Kaloti to Valcambi for further refinement.

The imports beg questions. Since Kaloti did not have international certification, was Valcambi opening the world market of respectable bullion to Kaloti? Assuming that Dubai is an international collecting point for gold of questionable origin,[100] this sourcing practice by Valcambi raises further questions. Is Valcambi able to assess the chain of custody?

KALOTI

Kaloti Precious Metals was founded in Dubai in 1988 as a small jewellery wholesaler and soon began buying gold.[101] Starting at the turn of the millennium, Kaloti purchased bullion and entered into a partnership with Valcambi.[102] In 2010, Kaloti says it obtained the Dubai Good Delivery status from the DMCC. It then lost it in 2015 after failing to meet conflict-free sourcing standards.[103]

The reasons why Kaloti was marked down emerged after a whistleblower started talking and published supporting documents.[104] Global Witness and Society for Threatened Peoples listed the problems, which were in essence:

- suspicious cash transactions (overall USD 5.2 billion, or 45 percent of the refiner's transactions in 2012);
- over USD 100 million worth of gold transactions without proper due diligence on suppliers;[105]
- red flags pointing towards provenance from conflict areas ignored, especially in dealings with Sudanese suppliers;[106]
- sourcing from intermediaries based in conflict areas, including companies known to be closely linked to warlords in the DRC;[107]
- failure to conduct enhanced due diligence on "over-the-counter" transactions in cash with so-called "call customers" (hand-delivered gold, potentially from high-risk areas);[108]
- the reports also alleged that Kaloti classified mined gold as scrap or recycled gold;
- finally, EY's original audit apparently found that silver-coated gold bars had been imported from Morocco using falsified documentation.[109]

The Society for Threatened Peoples published spreadsheets in 2018 with detailed information on Kaloti sourcing from Sudan, the DRC and Liberia, including details of cash transactions with problematic companies.[110] The publication does not prove that Kaloti actually sourced conflict gold, but rather that the refinery apparently saw no difficulties in running high risks. This includes sourcing from Yogesh Jewellery, said to be the official trading partner of Silver Minerals, exporter from militarised mines in the DRC.[111] In a letter to the NGO in January 2018,[112] Kaloti indicates that for confidentiality reasons it is not able to share "client and counterparty information".

Overall, these items reflect a high risk of money laundering, smuggling and sourcing from conflict areas. They do not show the due diligence procedures of the company in a good light. The challenges have the potential to seep out and contaminate other actors in the gold industry. Refineries that receive gold from Kaloti in order to refound it into their own products, for example, could find themselves caught up in problematic supply chains as well.

RAND REFINERY

Rand Refinery is described in the specialised media as "arguably the most famous gold refinery in the world" as "since it first opened in 1921 it has refined over 50,000 t of gold, which is nearly 30 percent of all the gold that has ever been mined".[113] The refinery's smelting, refining and coin- and bar-manufacturing facilities lie near Johannesburg in the Witwatersrand gold mining district. The refinery is known for the Krugerrand gold bullion coin, which it has been producing since 1967.

Rand was founded by company members of the Transvaal Chamber of Mines and from 1993 was an "affiliate company of the Chamber of Mines of South Africa".[114] It is today owned by five of the largest South African mining companies.[115] Due to the decline in gold output in South Africa, the company has turned to other sources. 75 percent of all gold mined in Africa is now refined at Rand.[116] Downstream clients include in particular Chinese companies.

Rand Refinery obviously played an important role in South African history, as the place where the apartheid regime (discussed in CHAP. 2) refined its gold. Furthermore, it refined gold from the DRC before the genocide became obvious. Due to a compliance system enacted in 2004, Rand refused to continue sourcing from eastern Congo through Uganda.[117]

The current risk exposure of Rand is ambiguous. Whereas sourcing from the major commercial mines in South Africa poses relatively low risks,[118] the influx of gold from other African countries may require increased due diligence.

Rand Refinery participates in all major due diligence efforts and is one of the five LBMA Good Delivery Referees. A media search has not pointed to any recent sourcing problem, although there are reports that Rand struggled with "accounting irregularities" in 2012–2013 and that it stopped publishing annual reports as a consequence.[119]

WHAT IS WRONG WITH DUE DILIGENCE STANDARDS?

If only half of what the media and NGOs report is correct, current due diligence standards and especially their implementation need to be seriously reviewed.

Considering what could go wrong in the system of "responsible sourcing", we need to go back to the OECD's Five-Step Framework and point out potential weaknesses step by step.

STEP 1: "ESTABLISH STRONG COMPANY MANAGEMENT SYSTEMS"

As with combatting money laundering or corruption, drawing up a compliance system seems an easy starting point. In fact, a large commodity trader assured me that they had just acquired a state-of-the-art anti-corruption compliance programme developed by a top-notch London law firm. So in his view, everything was just fine.[120]

It is only fine if you are content with "paper tigers". In the area of gold sourcing, the OECD reminds auditors to go beyond merely verifying "the existence of management systems and controls" in order to assess "whether the company's systems and controls are functioning as intended".[121] As the OECD rightly points out, the challenge is to implement the standards.[122]

Is implementation the only challenge? Not really. The OECD and other critics have already identified a series of deficiencies in the existing due diligence standards. As we have seen in CHAP. 5, the OECD and NGOs are very critical of the RJC standards, in particular the *Code of Practices*, which lacks detail and does not aim at traceability.[123] They also criticise the *Chain of Custody*, even in its revised form of 2017.[124] Since its current coverage is so limited and one-sided, and focused on refineries rather

than mines, it does not achieve its goal of establishing chain of custody or traceability.[125] In general, the language of the RJC texts is considered too unspecific, allowing too much discretion ("where possible", "can consider").[126]

The OECD *Due Diligence Guidance* and its Annex II are rather specific regarding the *risks* to be considered. But even texts closely aligned with the OECD text, like the LBMA's *Responsible Gold Guidance*, are missing the role of security providers – a touchy issue in large-scale mining too[127] – and the assurance of payments of taxes and royalties. This is again an issue that can also concern large-scale mining companies that refuse to pay their dues.

The main problem identified with the 2017 LBMA text (version 7) is the *relationship to suppliers.* First, it remains uncertain that refiners are obliged to fully communicate their standards to their suppliers.[128] The RJC *Chain of Custody*, with its soft "can consider" wording, is clearly insufficient here.[129] Second, the OECD claims that LBMA-certified companies have failed to introduce systems that "drive due diligence down the supply chain beyond the relationship between a refiner and its tier 1 (direct) suppliers".[130] Human Rights Watch doubts that refiners ask their suppliers for sufficient detail to allow them to do due diligence.[131]

The refiners interviewed for this book disagree with the criticism, claiming to have systems in place to know the source and to actually know the identity of the producers. Valcambi countered Public Eye's reports on child labour in Burkina Faso, claiming they knew the coordinates of every single mine from which they sourced.[132] Whether they had the time and funds to actually inspect the mines was left open. Metalor agreed that they sourced from the collector Minerales del Sur in Peru, claiming that they knew the over 70 sources of Minerales del Sur to be above board.[133] Recently published Peruvian court files, however, seem to demonstrate that Minerales del Sur had close to 1,000 sources, many of them problematic, some fictitious.[134]

A close reading of one of Metalor's press releases may be helpful. Under the headline "Metalor – The leading gold refiner worldwide for its efforts on conflict gold and improvement of artisanal mining", the refinery

claims that "all Peruvian companies that *export* their gold to Metalor are legally established and registered in the Ministry of Mines. All exports are duly reported at SUNAT by Metalor's customers".[135] This text certainly promises to follow the supply chain back to the immediate *supplier*, although not necessarily back to the actual *source*.

In this point, the 2018 version of the *Responsible Gold Guidance* (version 8) strives for greater clarity. In particular, suppliers must complete a newly designed, detailed form. It remains to be seen whether smaller companies will be able to do this. What remains the case is that the refineries need only rely on self-declaration by the suppliers.

STEP 2: "IDENTIFY AND ASSESS RISKS IN THE SUPPLY CHAIN"

The management system requires companies in the gold supply chain to identify risks if they source gold from conflict-affected or high-risk areas.

The possibility that refiners follow up on the original producer and visit the mine should not be excluded off-hand.[136] However, reports claim that they frequently rely on the assessments of other evaluation systems.[137] If they are referring to RJC standards, this will be a "weak assurance".[138] Sometimes they simply base their decisions on (self-)declarations by the immediate supplier.[139] In the case of other refineries or bullion banks, refiners have been found to dispense with the risk assessment entirely – unchallenged by auditors.[140]

The finer detail holds more surprises. The OECD *Supplement on Gold* is clear that for artisanally mined gold, refiners are obliged to seek evidence "of the factual circumstances of gold extraction […] including the mine(s) of origin […]".[141] Under the corresponding chapter on "enhanced due diligence", however, the LBMA *Responsible Gold Guidance* treats large-scale and small-scale mining differently. For gold sourced from large-scale mines, the refinery needs to collect "proportionate KYC on each company […] from the *mine* to the refinery". For artisanally

mined gold it should merely "collect progressively proportionate KYC on each company located in conflict or human rights abuse high-risk areas involved in the chain from the gold *exporter* to the refiner".[142] Rightly, Public Eye queries why companies operating in the highest-risk locations have lighter due diligence requirements.[143]

Could this be the reason why Metalor purportedly sourced from a local trader in Ghana that did not have a child labour due diligence system in place?[144] Is this why, as we saw above, Valcambi could accept gold from Togo that could never have been produced there? This brings us back to Metalor's press statement claiming they only sourced from legally registered *exporters*. It seems to indicate that some refiners are in fact satisfied with identifying only their immediate suppliers, in this case Minerales del Sur.

The OECD sees a further deficit in risk identification. Rarely do refineries follow the gold standard in the case of *enhanced risk*. They are supposed to "establish on-the-ground assessment teams" and analyse the situation where it arises.[145] The reports of on-site inspections were either "inconsistently documented"[146] or if inspections were undertaken at all they all too frequently "focused narrowly on commercial issues".[147]

STEP 3: "DESIGN AND IMPLEMENT A STRATEGY TO RESPOND TO IDENTIFIED RISKS"

Once risks are identified and assessed overall, companies are expected to develop a risk management strategy. They would typically take mitigating action or suspend trade temporarily in order to allow the source to rectify the shortcomings. Only in extreme cases does the *Supplement on Gold* suggest permanent disengagement as a risk management plan.[148]

In practice, the OECD Alignment Assessment in 2018 found that LBMA- and RJC-certified refineries adopted a risk-averse approach as soon as red flags indicated problems, cutting ties with the supplier. Some

refiners even pre-empted such decisions with an "internal embargo" (no gold from Africa[149] or no more ASM[150]). Rightly, the assessment of the OECD criticises the attitude as against the spirit of the *Supplement on Gold*. The OECD suggests that preference should be given to risk mitigation before disengagement. Artisanal mining cannot be phased out, since the livelihoods of 80 percent of the world's miners depend on it.[151]

As discussed above, Metalor has pursued an alternative approach. The company is reported to have stopped sourcing from Ghana after the criticism by Human Rights Watch in 2015. However, it continued to source from questionable backgrounds in Peru (until March 2018), Colombia and Eritrea, as we saw in CHAP. 6. One may well ask whether their reasons are motivated by a desire to support artisanal mining or purely by business considerations.

STEP 4: "CARRY OUT AN INDEPENDENT AUDIT OF REFINER'S DUE DILIGENCE PRACTICES"

As mentioned, the OECD *Due Diligence Guidance* considers the refiners the "control point" between the upstream and the downstream segment of the supply chain.[152] The *Supplement on Gold* charges the downstream companies with obtaining "preliminary evidence of the refiner's due diligence" and determining "whether the refiner's due diligence practices have been audited".[153]

If auditors follow the LBMA *Responsible Gold Guidance*, they should apply the detailed LBMA *Third Party Audit Guidance*. The auditing concept is close to banking audits: the auditors analyse the management systems, visit the refinery, talk to staff and conduct a documentation review. The aims are to understand how the company is collecting data on suppliers, customers and transactions and how it is conducting its risk assessment. In particular, the Guidance goes into some depth on Steps 2

and 3, which are about how the company identifies and assesses risks in the supply chain and how it responds to "red flags".[154]

A clear parallel to banking arises where the refinery is confronted with allegations of sourcing from areas with a high risk of forced labour, child labour, organised crime or conflict. The difference is that in banking, a public supervisor would want to know in detail which considerations led a bank to continue relations with a client accused of money laundering, for example. This supervisor is clearly missing in the area of gold refining. From past experience it is doubtful that LBMA staff can replace a public supervisor.[155]

As we have seen, in its 2018 Alignment Assessment, the OECD is particularly critical of the performance of auditors, questioning the effective implementation of this crucial anchor of the entire OECD *Due Diligence Guidance*. It harshly criticises the professional competencies of auditors under the LBMA, RJC and DMCC programmes.[156] And it seems that the auditors are not particularly interested in additional training.[157] They are criticised for their lack of awareness of the specific challenges[158] and for their superficial approach: "Many audits were overly focused on documentation checks rather than robustly challenging companies' management practices and due diligence decision-making".[159]

In particular directed at the audits under the RJC system, the OECD criticised the narrow focus on the existence of management systems and controls rather than their functioning.[160] The RJC was also harshly criticised, both by the OECD and NGOs, for allowing entities to be certified on the basis of merely a part of their operations and on materials from the "lowest risk supply chain".[161]

On a technical level, criticisms arose because the actual sources (mines) were only visited if they were the object of certification. Furthermore there are no unannounced audits foreseen in the existing programmes. Probably the most scathing criticism is that auditors lack "critical analysis"[162] and have a tendency to be "too lenient".[163] This criticism goes to the heart of their professionalism.

Maybe the problems identified within EY in Dubai and Geneva[164] illustrate what the OECD points out in a more abstract manner. As we

saw in our discussion of MKS Pamp in CHAP. 6, EY Geneva clarified in an interview that it was now following the approach developed for bank audits. That the auditors PWC[165] (auditor of Argor-Heraeus), Mazars[166] (Metalor) and KPMG (Valcambi)[167] steadfastly refused an interview may indicate that the OECD is right in pointing out where the weak spots in their governance systems still lie.

STEP 5: "REPORT ON SUPPLY CHAIN DUE DILIGENCE"

Closely related to auditing is reporting. It is the declared interest of the business community to "assure" downstream partners, customers and stakeholders of their responsible gold sourcing practices.[168] Companies are obliged to publish a summary audit report. Step 5 of the *Supplement on Gold* defines the minimum information that needs to be given.[169]

Again, the assessment of the OECD is not very flattering. As a cross-cutting suggestion in its initial 2016 assessment, the OECD already proposed "consistent, annual and public reporting" in conformity with Step 5.[170] In its 2018 assessment, it finds that published reports are "often basic and generic".[171] Indeed, reading these reports, they typically consist of a form filled with standard language and an equally formulaic sign-off paragraph in the auditor's assessment letter.



METALOR® LBMA Refiner Gold Compliance Report

Excerpt from Metalor's 2017 audit

Conclusion
In our opinion, the Metalor Technologies SA's Compliance Report and the Country of Origin Annex for the year ended 31 December 2017, in all material respects, describe fairly the activities undertaken during the year to demonstrate compliance, and management's overall conclusion contained therein, is in accordance with the requirements of the *LBMA Responsible Gold Guidance*.

MAZARS LTD

Conclusions by the auditors

DOWNSTREAM COMPLIANCE

The downstream supply chain stretches from refiners to retailers and comprises bullion banks, gold traders, exchanges, gold storage companies and above all jewellers, watchmakers, retailers and industrial manufacturers.[172]

According to the OECD *Supplement on Gold*, they are part of the due diligence process. The Responsible Jewellery Council, with its abovementioned *Code of Practices* and *Chain of Custody* guidelines, was created to implement the standards downstream.

Whereas refiners have gone through the fire of public criticism, jewellers are relatively new to the topic of responsible sourcing. And their due diligence toolkit still suffers from the deficiencies discussed in CHAP. 3 and CHAP. 5.

In 2018, Human Rights Watch analysed the policies and practices of 13 major jewellery and watch companies based on their responses to a questionnaire, interviews and public documentation.[173] You can find the full document online, but here is a summary:

It is interesting that companies based in one of the most active consumer countries, India, either come out very weak or refuse to provide



Graphic 10 Ranking of the jewellery companies investigated by Human Rights Watch

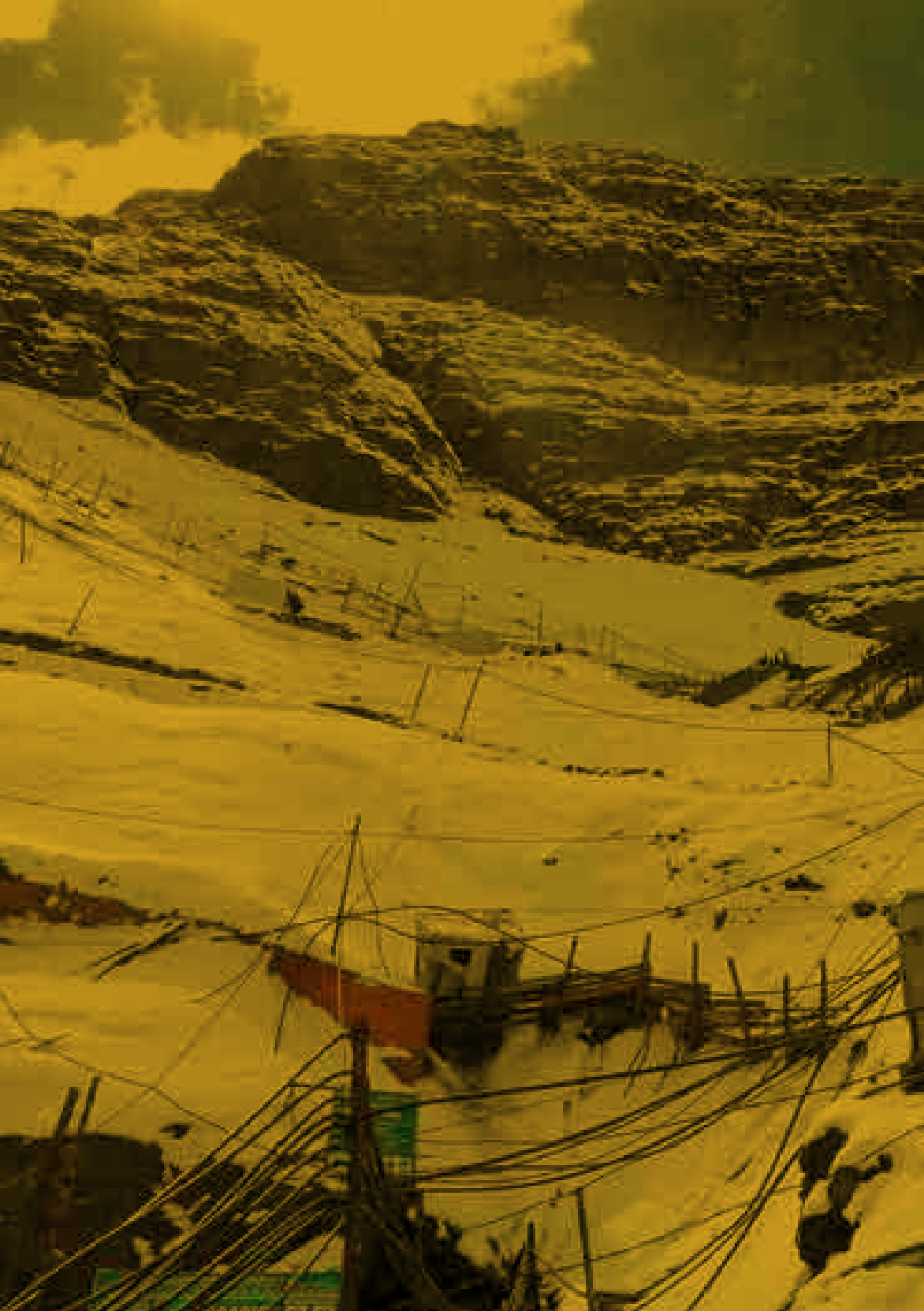
information. And why does Rolex, one of the most reputed watchmakers with a large market in East Asia, refuse to report publicly even minimal information on its human rights due diligence,[174] as Step 5 of the *Supplement on Gold* prescribes?

WHY THE GAPS IN COMPLIANCE?

The OECD *Due Diligence Guidance* has clearly evolved into the global standard on responsible sourcing of minerals.[175] It is wider in its approach than many texts, extending to all minerals, with two extra supplements on specific mineral supply chains. Its definition of protecting human rights is broad. It is not focused on a specific geographic region and it involves all relevant companies, whether upstream or downstream. The notion of risk in Annex II is also broad. Yet NGOs are critical of its implementation in reports scathingly entitled OECD *Due Diligence Guidance – A key standard, poorly implemented*[176] and *One step forward, two steps back: Shortfalls in the* OECD *and the* LBMA *Guidance.*[177]

Compliance with the Guidance is voluntary. There is no supervisor but merely some initial attempts at monitoring. The LBMA tries to strengthen the thrust by adding responsible sourcing to its criteria for appearing on the Good Delivery List.[178] To call the approach mandatory[179] is, however, an exaggeration in light of the weaknesses identified in its audits, the LBMA's inability to credibly supervise audits and the lack of transparency, both of LBMA and at the company level. This illustrates how difficult it is for a trade association to be a regulator at the same time.

Whereas the LBMA is trying to meet this challenge, with DMCC the balance clearly tips towards the trade representative and promoter. And RJC does not seem to know where it wants to go. Faced with a critical OECD Alignment Assessment, it blustered that "over-prescriptiveness in the Alignment Assessment tool can hinder our ability to cover this broad range" [of companies and countries].[180] In light of the NGO criticism calling it a "weak assurance",[181] this reaction is not very convincing.





SWITZERLAND, THE WORLD CENTRE OF GOLD REFINING //

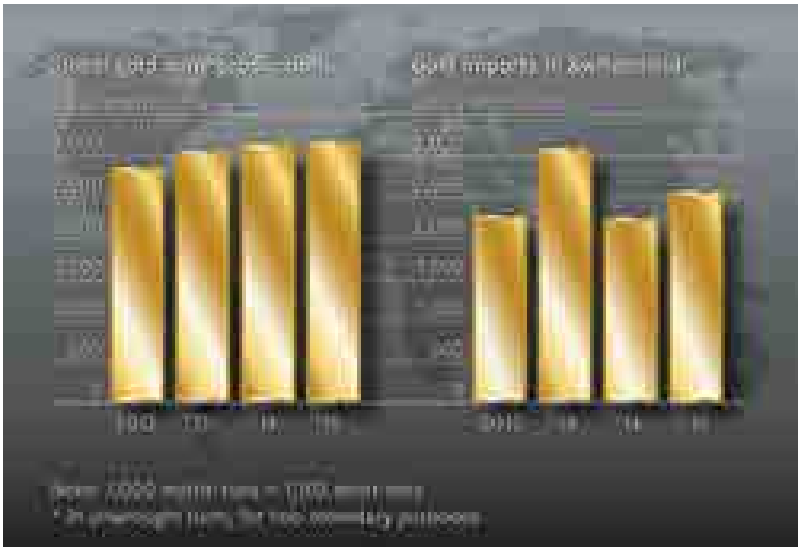
07 //

WHAT'S SO SPECIAL ABOUT SWITZERLAND?

Switzerland is known for its beautiful landscapes, its cheeses and its chocolate. It regularly tops rankings on lifestyle, innovation and attractiveness to multinational enterprises.[1] The country is small, with barely 40,000 m^2 and a mere eight million inhabitants. Yet it is a world power in gold refining. Four of the world's largest refineries are in Switzerland.[2] Until recently Switzerland imported 70 percent of the world's gold.[3] *The Wall Street Journal* called it – slightly maliciously – "the Midas touch".[4]

How can a small country with hardly any gold of its own[5] become the biggest centre of gold refining and one of the most important gold trading sites in the world? Refiners and lobbyists answer that Switzerland's unique selling points are "manufacturing excellence, reliability, reputation, the Swiss brand, the secure and stable business environment, low financing and insurance costs, respect for confidentiality agreements, and clear custom regulation".[6] The Swiss government echoes these advantages, stressing high quality in particular.[7]

Much of this may be true. Other bright spots in the bigger picture include the long watchmaking tradition in the Jura region, the northern



Graphic 11 The Midas Touch – The prominence of Switzerland's gold refining industry

Italian jewellery manufacturers close to the refineries in Ticino, and especially the financial industry, covering one quarter to one third of the world's private banking.[8] More recently, Switzerland has also emerged as the world's biggest trading centre for all sorts of commodities, soft (like coffee, cocoa and wheat) and hard (like oil and gold).[9]

This concentration or "cluster"[10] of related activities has grown over time. Switzerland was a poor agricultural country way into the early 20th century, when banking and the machinery and chemical industries picked up. Keeping out of European wars in the first half of the 20th century made Switzerland attractive as a business hub and gave the economy a competitive advantage after World War II.

We have, though, also touched in CHAP. 2 upon the special role Switzerland played as a financial turntable during World War II. We saw how its freely convertible currency made commerce with Swiss banks attractive

to the warring countries and how Swiss banks acquired gold stolen and looted by the Nazis. We also saw how, when the London Gold Pool folded in 1968, three Swiss commercial banks stepped in to create the Zurich Gold Pool[11] and soak up masses of gold from South Africa and the Soviet Union.[12]

This was a crucial moment for the development of the Swiss refinery industry, as each of the three banks in the Zurich Gold Pool acquired or created their own gold refinery.[13] As we saw, it is understood that close to 80 percent of the South African gold they imported was re-melted and sold on the world market as "Swiss gold", at a time when South Africa's gold industry was hurting from the UN sanctions against apartheid.[14] This behaviour would be repeated much later: when Dubai-based refinery Kaloti lost its DMCC accreditation,[15] Swiss LBMA-certified refineries stepped in to re-melt and re-stamp the Kaloti gold.[16]

Overall, the answer as to why Switzerland has become a major hub for refining and trading gold must lie in a combination of factors: not only its attractive business environment and craftsmanship but also its commercial opportunism. There is nothing wrong with being commercially savvy as long as business is done responsibly and transparently – which for gold at least, isn't yet the case.

HIGH EXPOSURE, LITTLE REGULATION

Switzerland has traditionally demonstrated an ultra-liberal approach towards business. For decades, its financial industry has profited from strong bank secrecy and the low interest of authorities in granting mutual legal assistance to foreign authorities. It could be called a "pirates' harbour".[17] This has significantly changed since the 1990s, but there is concern that even today authorities are slow to realise similar risks related to commodity trading.

A 2013 Swiss government commodity report and four follow-ups in 2014, 2015, 2016 and 2018[18] demonstrate a typical approach. The first half reads as if it were written by an NGO, adequately describing the challenges. The second half, on measures, is timid. The approach is, to put it simply: "we are happy to do something if our foreign competitors participate". But there is little planned to get them to participate.[19] So far this has also been the official attitude to regulation of the precious metals refinery business.

The reluctance around state regulation is closely linked to the general perception of risk. Refiners regard the risk of sourcing problematic gold as "small".[20] The Swiss government's attitude is similar, with its *Expert Study on the Swiss Gold Sector and related Risks of Human Rights Abuses* stating that merely "1.2 percent of the raw gold (in terms of value) imported to Switzerland is estimated to be sourced from countries with a *poor* or *failing* governance system".[21] A further 7.1 percent is supposedly sourced from countries with a *weak* governance system. The study points out, though, that most of the gold is sourced from countries at the top end of the 2017 Resource Governance Index for the mining sector.[22] Little comfort will be gained if the key source countries meant are Peru, Ghana, Burkina Faso and Colombia – the countries that come up time and again when we talk about problem gold, as in CHAP. 4.

In line with this assessment, the study finds it questionable that the reported cases (see CHAP. 4) are "indicators for systemic weaknesses or gaps in the respective corporate compliance and risk management system". The study instead attributes the compliance breakdowns discussed above to "misconduct or negligence of individuals".[23] No reasons are given for this conclusion.

It is probably right to credit the Swiss refinery industry for substantial improvements in self-regulation.[24] We have, however, looked at the deficiencies of the self-regulatory system in detail, relying especially on the OECD Alignment Assessment. You don't have to look too closely at the binding Swiss regulations to see that the image is that of a Swiss cheese: soft and full of holes.

ASSAYING AND METALS CONTROL

The one bit of regulation that has earned Switzerland credit for its intentions[25] is the assaying regulation. The Precious Metals Control Act (PMCA)[26] and the Precious Metals Control Ordinance (PMCO)[27] combine to control the quality and hallmarking of precious metals. The Ordinance requires refiners to demand proof of lawful acquisition from suppliers.[28]

This could be a crucial first step to better supply chain due diligence. However, the Swiss authorities give the term "lawful acquisition" a narrow meaning. The refiners have to ensure they are not receiving stolen goods.[29] The Swiss authorities claim that this obligation does not extend to verifying the respect of human rights. Not even child labour? If the political will were there, the rule could easily be given a broader interpretation or used as an avenue to introduce a mandatory due diligence system for refiners.

ANTI-MONEY LAUNDERING RULES

Money laundering is an offence according to the Swiss Criminal Code (Art. 305bis SCC). It is closely linked to the forfeiture of ill-gotten gains (Art. 70 and 71 SCC), as the legal construction of the offence defines money laundering as "frustrating forfeiture".

In parallel to criminal law, a dense web of administrative and private legal regulations has emerged over the last 20 years. The rules have been created to force financial operators in a wide sense to be diligent in dealing with clients. This means identifying the client and the beneficial owner of the assets, clarifying the economic background of an unusual transaction and potentially notifying authorities of suspicious circumstances.

Applied to gold traders and refiners, the system is patchy. Art. 2 of the Anti-Money Laundering Act (AMLA)[30] defines who is a financial intermediary. Regarding commodity traders, the text is ambiguous: Art. 2 s. 3 says that financial intermediaries are (also) persons professionally

receiving or helping to invest assets of third persons. In al. c, however, it goes on to say that financial intermediaries subject to the AML regulations are also persons "dealing for their own or a third party's account with banknotes, coins […] precious metals, commodities […]".

There is a clear understanding that money-changers, even when working on their own account, are subject to the AML laws. It would be logical to extend this approach to commodity traders as well. Instead, the Swiss government wrote an Ordinance clarifying that commodity traders were merely subject to AML standards insofar as they traded on the account of third parties (i.e. hardly ever).[31] Some claim that this happened after intervention by some high-powered commodity traders, especially Marc Rich, who threatened to leave the country.[32] Whatever the case, the Ordinance does not seem in line with the Act.

Looking at the trading and refining of gold more specifically, the situation gets even murkier. The AMLA had made it clear that trading in precious metals needed to be covered even when trading on one's own account. However, the Precious Metals Control Act and Ordinance restrict "precious metals" to "monetary-used gold" with a purity level above 995/1000.[33] Trading in raw gold would only be covered when traded at a stock exchange for a third party or "over-the-counter" if its "degree of standardisation is high enough for it to be liquidated at any time".[34] Trading raw gold for one's own account and trading raw gold over-the-counter, as long as it is not yet sufficiently standardised (e.g. doré), are therefore not covered by Swiss AML laws.

Refineries are subject to AML laws as soon as they produce gold above a purity level of 995/1000. However, the requirements do not extend upstream. The only person or entity they need to identify is the buyer of the gold downstream. Frequently refineries have a mere intermediary function, acting either as an agent or as a service provider between the mine and the bullion bank. Yet their obligations under AML laws are directed only towards the downstream chain, and here efforts are minimal when dealing with a publicly supervised entity such as a bank or financial institution. Upstream due diligence remains governed by soft law, i.e. the OECD and LBMA.

CRIMINAL LAW

Obviously, stolen goods are covered by Swiss criminal law. Hiding them and reintegrating them into the financial system fall under the offence of money laundering. We have already seen that serious human rights violations can also fall under Swiss criminal law, such as pillaging. The "worst forms of child labour" according to ILO Convention 182 fall under the category of crimes against liberty or trafficking in human beings.

The real challenge (beyond money laundering) is that the jurisdiction for crimes committed by non-Swiss individuals abroad may be difficult to establish (as far as Art. 7 SCC applies). Typically, human rights covenants do not require states to introduce the world principle, creating jurisdiction wherever the crime has been committed. If they exceptionally do, there will be a forum in Switzerland (Art. 6 SCC). An exception would be made for sexual offences against minors (Art. 5 SCC), triable in Switzerland independently from foreign law. Obviously, Swiss authorities may be able to grant mutual legal assistance to foreign authorities where they are not in a position to hold the case themselves in Switzerland.

CORPORATE CRIMINAL LIABILITY

Since serious human rights violations abroad are typically committed on behalf of a corporate entity, corporate criminal liability could become crucial. Now, here we need to be very clear about the limits of the existing law. Switzerland has enacted two types of criminal corporate liability:

- For general offences, including corporate manslaughter, other serious human rights violations and even the gravest forms of environmental offences, corporate liability only applies if, due to the disorganisation of the company, an individual person

cannot be held responsible (Art. 102 s. 1 SCC). To be frank, this rule has nearly never been applied and doesn't seem intended to be applied.[35]

- A stronger, direct corporate responsibility, independent of the liability of a specific individual, only applies to those economic crimes for which Switzerland has committed to introduce corporate liability: money laundering, corruption, organised crime and terrorism (Art. 102 s. 2 SCC).

Again, jurisdiction of Swiss authorities for offences committed by employees or agents abroad or in foreign subsidiaries may pose problems.[36] However, the general understanding is that in corporate criminal liability, not only the place of the actual offence but also the place of the disorganisation (typically in Switzerland) triggers territorial jurisdiction (i.e. competence of Swiss authorities).[37]

If Switzerland wants to be on an equal footing with its main competitors and other responsible states, it urgently needs to adapt its corporate criminal liability to apply the second, stronger approach to all crime.[38]

CUSTOMS REGULATIONS

That the refiners are happy with "the clear customs regulation"[39] may be surprising, since only one thing is clear: the customs declaration of imported gold merely asks about the country of dispatch – rather than the country of origin – and customs officials are not required to verify the correctness of the country of origin.[40] If customs procedures and trade statistics based on customs declarations are to be in any way meaningful, they need a fundamental overhaul and customs needs a broader legal mandate.

HARD LAW VS. SOFT LAW?

The main debate about responsible supply chains in Switzerland, as internationally, is whether due diligence requirements need to be made mandatory. Swiss businesses in general are confronted with the issue more sharply than their foreign competitors, as a group of over 100 NGOs has launched a "popular initiative".

This is a unique democratic feature of Switzerland, whereby 100,000 citizens can force a referendum on a change to the Swiss Constitution on virtually any topic. Of course, in many cases the referenda fail. Opponents can gamble by simply fighting them or they can encourage the committee launching the initiative to withdraw, offering alternative legislation that responds to most or part of their proposition.

The Responsible Business Initiative[41] focuses on civil liability (so called "tort"). It picks up key suggestions of Professor Ruggie and the UN *Guiding Principles* and attempts to transform them into binding law at a national level. Corporations would be required by law to implement human rights due diligence programmes. They would be held liable for failures, including by controlled entities in their supply chain abroad, unless they can prove their good governance (the "rotten apple" defence).

Industry fiercely opposes the Responsible Business Initiative,[42] not so much for its goal of protecting human rights, but because of the hard law approach. Industry associations fear international trade disadvantages and warn that the Initiative may foster a risk-averse approach rather than the investment needed in particular in higher-risk countries. They add that putting the onus of proof on the company is unfair.[43] The Swiss government has picked up most of these arguments in its official reaction to the Initiative.[44]

WHAT'S WRONG WITH THE RESPONSIBLE BUSINESS INITIATIVE?

Reputable Swiss company lawyers, close to international business interests, have launched a counter-attack against the Responsible Business Initiative.[45] Their arguments are a mix of traditional legal and political considerations.

Addressing the first of four elements of the Initiative, the obligation of companies to respect internationally recognised human rights and environmental standards, they do not really question the merits of the standards but instead claim that human rights are merely about protecting individuals from the state.[46] This argument may have been correct in the times of the bourgeois revolution, but it misses the point that corporations are the modern power holders who are most likely to endanger the population at large.[47]

The further argument, that they would much prefer international soft law to take care of human rights, misses the obvious shortcomings of soft law and self-regulation. The argument that Swiss companies do not want to find themselves regulated beyond their competitors[48] has a strange ring to it. So as long as US or UAE companies are allowed to harm human rights, we want to have the same prerogative?

That the Initiative deliberately goes beyond due diligence within the parent company and extends to subsidiaries and "controlled entities" in the supply chain, is exactly what the UN *Guiding Principles* and the OECD *Supplement on Gold* are about. It is not surprising that traditional corporate lawyers insist that they have created legal limits to responsibility with their holding structures:[49] typically, companies based in the Global North use subcontractors in the Global South. Why should they not have an obligation to supervise them if they work for the multinational company? If you need an example outside the field of gold extraction, just think of clothing from Bangladesh.[50]

Supervision leads directly to *responsibility* if things go wrong. There is an argument that Swiss legal practice already finds many ways to hold the group responsible for failures by subsidiaries, for example through

dual functionality of personnel or because the subsidiary acts as an agent of the parent company, etc.[51] This is not a convincing argument as long as it is not a general principle. And why should a corporation be criminally liable when it comes to corruption,[52] not only by its most senior representatives but by all employees, yet not be liable when it comes to human rights violations?[53]

Industry representatives are particularly unhappy that the Initiative uses concepts that were originally developed around 1900 to establish liability of the principal for his agents and employees to justify civil responsibility for tort (an illegal act outside a contract that leads to liability – "respondeat superior" in the US terminology).[54] Yet it is difficult to understand why a parent company should not be held responsible for harm caused by a subsidiary and its representatives according to this rule.[55] After all, it is using the foreign subsidiary to earn money.[56]

It all comes to a crunch when talking about *jurisdiction* and *forum*. Can a victim seek remedy in a court in Switzerland against a Swiss parent company? Here the company lawyers are pretty clear.[57] Today, the victim of wrongful acts committed by the subsidiary of a Swiss parent company would have to go to court at the place of the offence or the place where the subsidiary has its domicile (let's say in Colombia). Swiss courts would refuse competence. According to the Initiative, Switzerland would – at least indirectly – need to offer a "forum" for the victim. What's wrong with that? That we don't want to tell the world how to apply their law, that we are against legal imperialism?[58] These considerations miss the point. Surely we want to offer a place in Switzerland where foreign victims can complain about misdeeds by a Swiss corporation and its dependent entities.

In the meantime, however, media are reporting that the population is largely favourable of the Responsible Business Initiative: 70 percent in German-speaking areas and up to 90 percent in francophone areas.[59] Can companies seriously defend the idea that they don't want to be held responsible for offences that they have committed abroad? Even international companies like IKEA have suggested that self-regulation in the protection of human rights may not be working that well and that alternative legislation would be preferable to simply opposing the Initiative.[60]

A broader group of politicians therefore came forward with an alternative to convince the Initiative's committee to withdraw it. They suggested making human rights due diligence mandatory at least for companies above a certain size, and – as the Initiative demands – to hold these companies civilly liable for tort committed abroad, including by agents and foreign subsidiaries (not, however, the entire supply chain).[61]

What was meant to be a sweetener for the industry, though, was the suggestion to allow companies to independently certify their due diligence programme. The certification would serve as a presumption that the due diligence programme is sufficient as a defence. It would then be up to the victim to prove that the presumption is erroneous.[62] Even though this alternative legislation sounds like it should have been acceptable, industry hardliners and their lobbyists in Parliament saw to it that the alternatives where vetoed by the upper chamber of Parliament.[63]

All this may sound like legalise to the non-lawyer, but it has dramatic consequences for the exporting industry and precious metals supply chain. Even if the committee was leaning towards withdrawing the Responsible Business Initiative, there remained one key issue to follow up with regarding gold refiners. Are refineries SMEs, and therefore excluded from the regulation, or are they multinational enterprises?

Judging by their size and the number of employees they look like small businesses,[64] but judging by their turnover and their significance to the world of gold and to the Swiss economy,[65] they are major players. And of course the risks they are confronted with are anything but insignificant.[66]

THE OFFICIAL LINE

The Swiss government published two reports in November 2018, one summing up its position on the regulation of commodity trading[67] and shortly afterwards an additional report on the gold trade.[68] The Gold Report relies heavily on a long expert opinion[69] and follows – as we mentioned earlier – an approach that has now become typical: it recognises the challenges but leaves the solutions to industry self-regulation.

In the area of gold, the government repeatedly refers to domestic and international industry associations, in particular to the LBMA.[70] In marked contrast to the EU, the Swiss government sees no reason for public regulation, even though it recognises that human rights may be at risk.[71] In particular, the government does not plan to subject the gold industry to any kind of supervision.[72] The report does not attempt to remedy the insufficient anti-money laundering and tax regulations. Nor is any effort made to redraft the law on metals control. In short, Switzerland, the largest centre of refining in the world and one of the most important gold markets, leaves it to the industry to deal with the challenges.

HOW SWITZERLAND CAN STRENGTHEN ITS PATCHY REGULATIONS

If the Swiss population adopts the Responsible Business Initiative or if Parliament adopts alternative legislation declaring supply chain due diligence to protect human rights mandatory, this would be a decisive step that is also highly relevant for the gold supply chain. In contrast to industry claims it would not lead to a trade disadvantage, since companies are supposedly already following the UN *Guiding Principles*, the OECD *Guidelines for Multinational Enterprises* and the OECD *Due Diligence*

Guidance with its *Supplement on Gold*. Besides, the EU is already heading towards a mandatory solution with its Conflict Minerals Regulation.

The Swiss legislature clearly has a long list of additional tasks to bring the patchy regulations up to standard. Money laundering regulations, customs regulations and corporate criminal liability need to be adapted urgently if Switzerland is to have a regulatory system that matches its risk exposure. If Swiss authorities need a specific "hook" to introduce mandatory due diligence requirements, they could use either the Precious Metals Control Act or the Anti-Money Laundering Act and extend them.

Looking at the bigger picture, further development assistance and multi-stakeholder initiatives make sense.[73] We have seen how they can add value, albeit by complementing and not replacing mandatory legislation.





THE WAY FORWARD FOR THE GOLD INDUSTRY?

08 //

It should be clear by now that the entire gold industry needs a serious overhaul. There are promising initiatives, with the OECD in particular playing a key role. Industry participation is vital, yet many private sector initiatives do not clearly distinguish between promoting trade and regulating it.

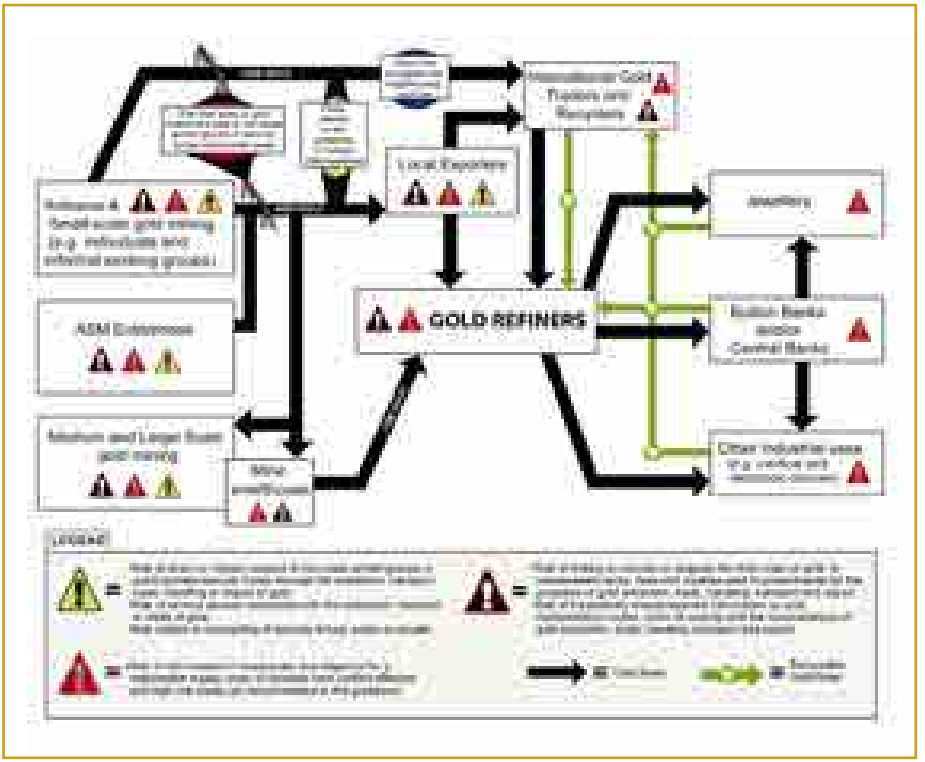
Creating a clean supply chain is not easy due to the complexity of the steps and the peculiarities of the sources. But nor is it impossible. Let's go step by step along the supply chain once more to see if we can tease out some concrete suggestions.

MAPPING THE SUPPLY CHAIN AND ITS RISKS

The OECD *Supplement on Gold* has provided a chart identifying the risks in the supply chain. Its primary focus is on conflict and direct/indirect support of armed groups. As a second component it addresses the risk of insufficient due diligence. With a third symbol it alerts to ancillary risks, like corruption to conceal the illicit origin of gold or to obscure tax fraud, etc.

Interestingly, the OECD chart puts the gold refiners at centre stage. Refiners may find this unfair, since they are economically far weaker than the large mining corporations. However, there is a logic in focusing

Risks in the supply chain of gold from conflict-affected and high-risk areas



upstream due diligence at the point where the material loses any chemical traces that might point to the place of origin. Like other regulatory systems, in particular anti-corruption or anti-money laundering in the financial services industry, identifying a "gatekeeper" as the primary responsible due diligence entity has its advantages.

Compliance obviously comes with a cost. The OECD suggests collective action, i.e. industry stakeholders coming together to solve shared challenges, to lower the cost of risk management.[1] As in banking or with anti-corruption efforts, such collective action does not conflict with anti-trust rules, especially if the companies charge a third party with providing due diligence data.[2]

Focusing specifically on refineries and downstream entities, the discussion of the OECD's Five-Step Framework in CHAP. 6 has come up with a clear image of continuing weaknesses:

- Step 1: Some industry programmes and the participating companies omit to pick up all the risks mentioned in the OECD *Due Diligence Guidance*, Annex II.
- Step 2: Typically, refiners and downstream entities limit their due diligence to the immediate supplier. In the case of newly mined gold, this means the national exporter or international trader.
- Step 3: For commercial reasons, refineries frequently omit to conduct increased on-site due diligence and, if needed, risk mitigation. If they can source from large-scale mines, they may cut out artisanal and small-scale mining sources altogether to save costs.
- Step 4: Private auditing has proved to be weak.
- Step 5: Public reporting by large-scale mining corporations, refineries and downstream entities is still insufficient.

Overall, the system is struggling to generate "assurance" of any kind, whether technically "reasonable" or even just "limited".[3] Rightly, the

Swiss government's *Expert Study on the Swiss Gold Sector* doubts whether the disclosed information is sufficient to "generate public trust that the applied due diligence processes are effectively working".[4]

So what should be done?

IMPROVING HUMAN RIGHTS IN MINING

After the lengthy description of problems related to mining, it may sound cynical to demand improvements in mining conditions. Mining is by its nature dirty and destructive to landscapes and the livelihoods of people. Yet many countries and their populations rely on extractive industries, so we cannot simply ignore the problems. What can we do?

LARGE-SCALE MINING

The OECD *Due Diligence Guidance* needs to be more closely followed by the large mines themselves, but also by refineries sourcing from large mines. The World Gold Council's *Conflict-Free Gold Standard* needs to be enlarged to cover all risks mentioned in Annex II of the OECD text. Its "Management Statement"[5] needs to be accompanied by credible auditors' assurance, meaning that detailed and meaningful audit reports must be mandatory[6] if they are to persuade downstream entities.

Ultimately, it is up to refiners to exert pressure on the mines. Even if they are economically far smaller than the mines, the refineries have a formidable leverage due to their market share.

ARTISANAL AND SMALL-SCALE MINING

Artisanal mining is certainly far more challenging. Rightly, though, the OECD and key players in the industry[7] have acknowledged that it is not an option "to phase out" or to "embargo"[8] artisanal mining. From an industry perspective, we cannot ignore 400 t out of 3,200 t of newly mined gold per year, in a world where refineries are competing hard for newly mined gold.

What is more compelling is that even if artisanal miners only generate 20 percent of the world's gold, they make up a workforce of 15 to 20 million people worldwide and they feed 100 million people. These 100 million people are typically impoverished and vulnerable,[9] so here is where change is desperately needed.

Protection of miners' human rights

It is primarily the task of the local government to protect artisanal miners and their communities, including part-time mining and farming communities, against armed groups, organised crime and physical danger in general.[10] Furthermore, it is the government's responsibility to respect the rights of indigenous people and other traditional mining communities. The government should equally ensure that farmers engaged in producing coffee and cocoa, etc. do not lose their livelihood through large-scale mines or illegal small-scale mining.

State support is also needed for the reverse move from mining into agricultural or other work alternatives. Such projects have been developed in Madre de Dios, Peru[11] and there is talk of fostering sustainable alternatives to mining in the DRC.[12] In forestry, protection moves are being made, even if slowly in view of the rate of illegal deforestation (especially in the Amazonas region and in Colombia).[13] Local groups are suggesting "indigenous stewardship of Amazon forest".[14]

Problematic social conditions in mining communities need to be taken into account in catalogues of recommendations. It is of course primarily

the task of the producer country to fight sexual exploitation and forced labour. But even countries relatively high on the Resource Governance Index – like Colombia and Peru, which ranked as number 10 and 16 respectively in 2017 – struggle to deal with the problem. Places like La Rinconada are a disgrace for Peru, since the state is practically absent.

Countries that are the primary destinations of the gold should also make more of an effort to support programmes around gender[15] and child labour.[16]

Supporting formalisation

The first key step towards the legalisation of artisanal mining is formalisation. The aim is to grant local artisanal mining cooperatives and small mines a legal status that allows them to trade and export their produce legitimately. Formalisation is also a condition for certification. The flip side is that miners need to pay taxes and comply with local laws.

It is obvious that the main responsibility lies with the producer state. For too long, artisanal mining has been simply ignored in many countries,[17] or large-scale mining has been given preference and artisanal mining pushed into narrow and typically less attractive corridors.[18] Such policies are an open door to conflict and illegal mining.[19]

Even where a producer state has decided to promote formalisation of artisanal mining, formidable challenges frequently stand in the way. The major problem is typically that the procedures are overly complex, lengthy and expensive and that they require literacy.[20]

What is more, in many countries officials tasked with formalising artisanal mining resort to rent seeking – extortion, bribery and the like.[21] The local state is frequently too weak to confront rampant corruption, and police, military personnel and judges may themselves be part of the problem.

Development agencies can play a role in helping formalisation. They have the bargaining power that small-scale miners lack. They can teach miners how to fill in the paperwork, help them to organise in cooperatives

and associations and facilitate micro-credits for cooperatives. They may serve as a protective shield against complex rival powers: government agencies, multinational enterprises and illegal agents.[22]

New technologies to protect workers and the environment

Another essential role for development agencies is technical support to protect workers and the environment. Mercury and cyanide are major problems and the aim should be to replace these highly toxic substances with alternative methods.

Alternative methods do exist and they don't even have to be high-tech. We saw in CHAP. 2 that the ancient Egyptians were already using a form of gravimetric concentration by trapping gold in a sheep skin. Increasingly, small cooperatives are using "shaking tables" that separate the heavier precious metals from the lighter sediments. They claim that the method is as thorough as mercury amalgamation, just slower. In fact, this is a development of the basic panning methods used for instance by the Afro-Colombian communities in Chocó, Colombia.

Another alternative technique gathering momentum is the gravity-borax method. This simply means using borax powder instead of mercury to separate the concentrate from the gold. When the borax powder is blowtorched and melted, the precious metals sink to the bottom of the pan. Borax powder has the advantage of being next to harmless for human beings and practical tests in Bolivia and the Philippines have proven that this method recovers more gold than mercury amalgamation.[23] Rand Refinery in Johannesburg performs gold extraction using the gravity-borax method on an industrial scale.[24]

There are already incentives to produce gold without toxic substances. Certifications by Fairmined and Fairtrade (described in CHAP. 5) depend primarily on the protection of vulnerable workers from the dangers of mercury recovery, and small-scale mines that produce gold without mercury may qualify for a special "ecological" bonus under both programmes.



Vibrating table at Oro Puno's gold mine in Ananea, Peru

Specialists with field experience, however, suggest that only a long-term, realistic approach will improve the situation of artisanal miners.[25] Prohibiting the use of mercury outright may seem an easy answer, but it would simply drive these miners further into illegality. Instead, development specialists and certifiers suggest that *reducing* the amount of mercury (and cyanide) and offering better protection to workers should be the immediate next step. They are promoting a combination of gravimetric concentration and mercury amalgamation to reduce the use of mercury and improve gold yields. In the amalgam-burning phase, they suggest using closed retorts and encourage support for cooperatives to acquire them.[26]

As ever, there is debate about the best technical solutions. Some metallurgist specialists say the closed retort-method misses the goal of reducing environmental exposure significantly, because 90 percent of mercury is lost in the tailings and only 10 percent in blowtorching.[27] More debate and research are needed to improve cleaner extraction technologies and promulgate best practices.

Certification of clean gold

Formalisation and legalisation are stepping stones towards certification. Certification makes the gold attractive for refineries and in particular for the growing number of jewellery and watch companies priding themselves on sourcing clean gold.[28] A similar trend has set in with bullion banks that offer their clients clean gold as an investment product.[29]

Again, there are promising movements in this direction. We have already talked about Fairmined and Fairtrade in CHAP. 5. At a regional level, the International Conference on the Great Lakes Region (ICGLR) has created – with the help of several national development agencies and the OECD – a comprehensive mineral tracking and certification scheme. The ICGLR is an inter-governmental organisation with 12 Member States across Africa.[30] The certification scheme builds on the OECD's Five-Step Framework, also described in CHAP. 5.

At least once per year, mines must be inspected and the status of the mine (ID, location, licensing, owner ID, inspection history, etc.) entered into a database. The chain of custody for the minerals needs to be established and the full supply chain from mine to exporter audited.[31] Non-compliance by an upstream actor is considered non-compliance by the exporter.[32] The Audit Committee is composed of government officials and elected industry and local/international civil society representatives.[33] Designated minerals are certified for trade and export.[34]

Currently, there has been a stagnation in formalisation and certification in certain producer countries. Rightly, the NGO Verité points out that importing countries could have a role in fostering certification by providing incentives to companies importing certified gold.[35] Increasing demand for certified gold is one of the main aims of the Swiss Better Gold Initiative.

Opening the international supply chain

One of the major difficulties for artisanal miners is that they do not have direct access to the international supply chain. They rely on local traders or collectors, selling on to exporters and possibly to international traders. Over this long value chain, traders syphon off a substantial part of the proceeds. Depending on whether artisanal miners are working with legal or illegal traders, the miners will only get 70 to 80 percent of the official London Gold Fix.

As we saw in CHAP. 5, Fairmined and Fairtrade certificates offer miners a guaranteed price as well as a premium. The Swiss Better Gold Initiative and similar initiatives try to cut out the intermediaries[36] and generate demand for fairly produced gold. This type of approach makes sense and deserves to be enlarged in scope.[37]

It should, however, be accompanied in two directions by further development interventions. The Better Gold Initiative is primarily interested in helping formalised and certified miners to find international clients at a fair price. It only works if development agencies – particularly in Colombia with its 80 percent informal mining – assist miners in formalising. Maybe more emphasis should be placed on support for formalisation.[38]

Furthermore, Better Gold Initiative members continue to source from the most horrid places, because the Initiative does not regard it as its responsibility to deal with forced labour, child labour, sexual exploitation or a general environment of violence and mob law.[39] If it cannot address these issues itself, the state component of this public-private partnership (here SECO) needs to develop a holistic approach together with other development agencies. Some measures, like women's support offices in places like La Rinconada where women are routinely abused, are relatively uncomplicated to implement and could have significant positive effects.

Addressing conflicts between LSM and ASM

As we have seen, large mining corporations have a tendency to depict small-scale artisanal miners as "villains".[40] Part of the responsibility goes to governments deliberately granting overblown concession areas to these large corporations, including in traditionally artisanal mining areas.[41] Beyond conflict with local communities, these corporations are indeed also confronted with rogue miners (e.g. zama-zamas in South Africa[42]), helping themselves to already cut ore by gate-crashing official mines.

International organisations are promoting solutions termed "co-existence" or "cohabitation" between large-scale mining and legitimate artisanal mining.[43] The OECD suggests striking formal agreements between large- and small-scale operators, but accepts that this might not be easy.[44] Development agencies could assume a role as mediators.

COLLECTORS AND TRADERS

Judging from the problem cases we have looked at, local traders and exporters are a significant risk factor. In many cases, they did not have a human rights policy, they sourced from conflict areas, they turned a blind eye to child labour and they were involved in smuggling and corruption. This is why the next version of the LBMA's *Responsible Gold Guidance* needs to get in line with the OECD *Due Diligence Guidance* and ask refiners to establish the supply chain back to the *mine*, not merely back to the *exporter*.

Certification for traders could help to improve the situation. Fairmined offers a Fairmined First Authorized Buyer certificate that allows local traders to sell gold to Fairmined Authorized Suppliers, the next stage in the supply chain. Authorized Suppliers would not buy directly from the mines[45] but instead collect it from the certified local traders and sell it downstream.

REFINERS

The menu of improvements for refiners comes out pretty clearly from the deficits discussed in CHAP. 6. Most of the challenges have been identified by the OECD Alignment Assessment and various NGOs.

TAKING CONTROL OF THE SUPPLY CHAIN

Two issues have come out of the assessments. First, refiners need to be very explicit with their immediate suppliers as to what they expect them to do. They need to specify which risks the suppliers need to address in their due diligence upstream if they want to do business with this refinery.

A second issue relating to supply chain due diligence is fundamental. In following the LBMA's *Responsible Gold Guidance*, refineries have not systematically gone beyond the immediate supplier in their due diligence efforts.[46] We have seen that they sometimes explicitly point out that the national exporter was a legitimate company. What happened in the country, and the conditions under which the gold was produced, may easily fall outside the scope of the refinery's due diligence. Refineries need to be reminded that the OECD's *Supplement on Gold* expects them to identify the local artisanal mining team, association or cooperative.[47]

Of course, refiners may use a common resource (if possible a third party) to conduct the identification. Relying on entities that are RJC-certified alone is risky, though, as they may have received certification only on a small part of their materials or supply chain.

INCREASED DUE DILIGENCE

If red flags appear, for example if media reports or law enforcement actions indicate that an entity in the supply chain is problematic, Step 2 of the OECD's Five-Step Framework prescribes increased due diligence by an "on-the-ground assessment team to investigate the risks and report back".[48]

The main difficulty under Step 2, according to the OECD, is that refineries tend to be overly risk averse. Probably for commercial reasons, they tend to cut out typically risky sources altogether and save the expenses of costly increased due diligence.[49] This attitude is only sustainable as long as there is sufficient supply of gold from easier sources. And competition is fierce. Swiss refineries could theoretically refine all of the world's gold, but with new competitors in Dubai, India, Hong Kong, Singapore and the US, along with longstanding companies in South Africa and Japan, there is a huge excess of refining capacity worldwide (20,000 t of capacity for about 5,000 t of newly mined and recycled gold available). So refineries will have to deal with artisanal mining in the long run.[50]

The way forward for the refinery business is to take more seriously the requirement of co-operation with artisanal miners and the suggestions of risk mitigation according to Step 3 and Annex III of the OECD *Due Diligence Guidance*.[51]

AUDITING AND REPORTING

We saw how the harshest criticism by the OECD and the NGO community was directed against auditing and reporting practices (Steps 4 and 5). Given the professional standards of the audit community, it is surprising how devastatingly they failed the test. Remember the criticisms: lack of knowledge, unspecific language and in particular lack of critical analysis.[52] A criticism like this would usually be the end of an auditor's career.

In this area it is in particular up to the LBMA, RJC and DMCC industry associations to clean up if they want to establish credibility. They have to see to it that the audits are monitored. RJC needs to realise that it cannot possibly assess the quality of an audit merely on the basis of a generic summary.[53]

The deficits in reporting are even more blatant. RJC does not even publish summaries of audits. The LBMA summaries are frankly useless, as we do not learn how the refinery implements its due diligence programme, how it deals with risk, how it conducts increased due diligence and what risk mitigation means to the company.[54]

Again, the onus is on the industry associations. If they want to achieve any kind of "assurance", they need to systematically overhaul auditing and reporting to meet the standards described in Steps 4 and 5 of the OECD's Five-Step Framework.

DOWNSTREAM COMPANIES

This is a mixed bag of entities: central banks, bullion banks, jewellers, watchmakers, markets, retailers and industries that use precious metals.

The OECD *Due Diligence Guidance* is useful in defining what downstream companies should do to establish that they are sourcing from serious refiners. Much relies again on the refiners and industry associations doing their job to secure "assurance". The weaknesses of the industry standards for downstream entities have been identified and we can only hope that they will gradually be addressed.

Consumer awareness will help. Who wants to buy a wedding ring made from gold mined by children? That's a bad start to your married life. And can you use your mobile phone with a good conscience if you know how much people and the environment have suffered to produce its components? Civil society – that means all of us – needs to further lean

on the major watch and jewellery producers, as well as tech companies who use gold in their products, to publish their supply chain policies.

Since consumers may not be aware of the sourcing problems it is up to jewellers to inform them about the options to source clean gold. Given that China, India and also Turkey are major consumer markets, finding ways to raise awareness in these markets could have a significant effect.

ILLICIT FINANCIAL FLOWS

The cross-cutting issue of illicit financial flows involves all stages of the supply chain and goes beyond the actual gold trade.

Illegally sourced gold, especially where organised crime is involved, moves through a chain of illegal traders frequently involved in smuggling[55] and corruption.[56] At a certain point, the gold needs to be "legalised". This could happen through a licensed local collector or exporter[57] or at the very latest an international trader.[58] In parallel to the illegal gold exports, an illicit financial flow will go back through the clandestine value chain to its actors.

Obviously, money laundering plays a key role in illegal gold transactions. The simplest option is simply to launder stolen gold. The Panama Papers revealed that the law firm Mossack Fonseca had opened a company "tied to Gordon Parry, a London wheeler-dealer" who supposedly laundered the bounty of the Brink's-Mat warehouse robbery of 1983 – including 7,000 gold bars.[59] Colombian authorities have also suspected narcotraffickers of buying gold and using it as a means to launder the profits of drug smuggling, as we saw in CHAP. 4.[60]

In a wider sense, there are links between gold trafficking and the laundering of bribes and untaxed profits from gold mining. These risks may involve large-scale mining[61] just as much as small-scale mining. The

methods are pretty classic, involving offshore companies,[62] bank accounts at locations with strong confidentiality rules and little willingness to co-operate, and possibly lawyers abusing client-attorney privilege.[63]

The Financial Action Task Force suggests a series of Recommendations relevant to preventing and detecting money laundering in the gold sector.[64] Particularly relevant are the know your customer (KYC) rules applicable to precious metals dealers and refiners, the requirements in unusual cases (increased diligence) and the obligation to report suspicious transactions.[65]

HARD LAW VS. SOFT LAW REVISITED

This overview of the supply chain and the steps to be taken brings us back to the key issue of whether due diligence can be left to self-regulation by the industry. The international standards (the UN *Guiding Principles* and OECD *Guidelines for Multinational Enterprises* and more specifically the OECD *Due Diligence Guidance* with its *Supplement on Gold*) are non-mandatory. They leave the issue of securing compliance open to Member States.

INDUSTRY REGULATIONS

Relying on industry self-regulation definitely has advantages, but you have seen by now that there are clear conceptual shortcomings and that implementation is not guaranteed. "Assurance" would depend on far more serious governance efforts by the private regulators. They would have to check on auditing practices and this is frankly difficult for a trade promoter.

One solution that has shown impressive results is the OECD's Alignment Assessment. If an international organisation with the reputation of the OECD is able not only to monitor abstract alignment of texts and systems, but of implementation (including audits by conducting "shadow audits") this may lend the self-regulatory system additional credibility.

PUBLIC SECTOR REGULATIONS

As pointed out, some regulatory tasks have to be assumed by states. In gold-producing countries, this means that protection, formalisation and legalisation, as well as law enforcement and tax administration, are mandatory state obligations. In refining countries, a robust customs regulation, serious anti-money laundering legislation, precious metal controls and law enforcement need to be implemented.

The main discussion point on hard versus soft law is the question of how to prevent human rights violations in the supply chain. Theoretically, different approaches to mandatory regulation are possible:

- Prohibition: prohibit trading or refining of conflict minerals altogether.
- Mandatory due diligence: declare supply chain due diligence mandatory and enforce it.
- Transparency: enact reporting obligations for corporations sourcing conflict minerals.

It is generally recognised that prohibiting trade in minerals sourced from high-risk areas is not practical. A different matter is where there is concrete evidence that minerals have actually been sourced from conflict parties, organised crime, states involved in forced labour, etc. Here criminal law applies and victims have access to civil litigation in trading and refining hubs.

The transparency approach of the Dodd-Frank Act has run into difficulties not only because it is politically embattled but because it is locally confined. Preference should be given to the broader OECD *Due Diligence Guidance* approach. The EU Conflict Minerals Regulation, even if limited in scope to tin, tantalum, tungsten and gold, applies to all "conflict-affected and high-risk areas".[66] The EU Regulation explicitly refers to the OECD *Due Diligence Guidance*, including to the risk matrix in Annex II.[67] This is relevant as the mandatory "management systems" to be introduced by "Union importers" not only address conflict risk in the narrow sense, but extend to environmental risk, forced labour, the worst forms of child labour, sexual slavery, etc.

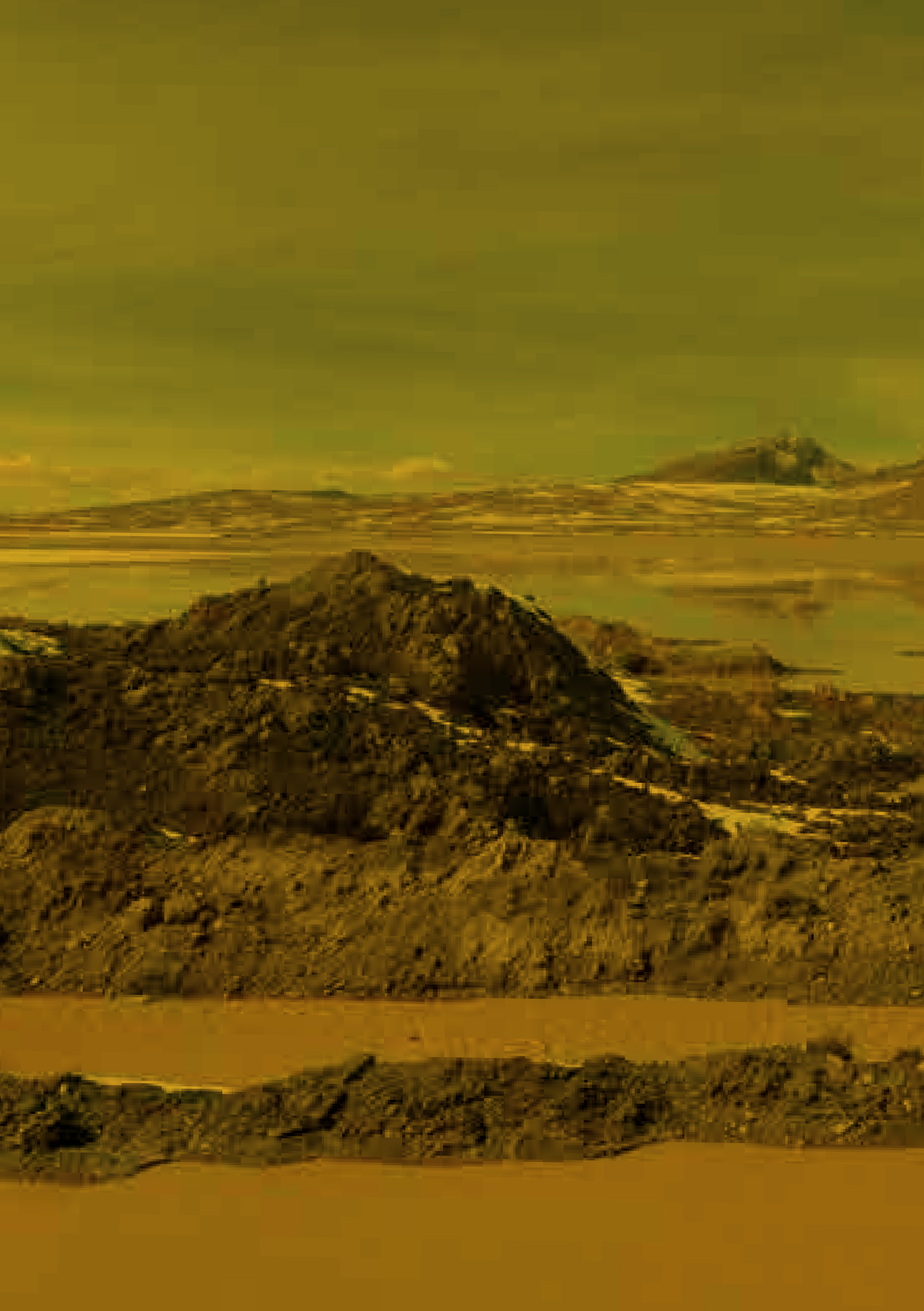
The advantage of the EU Regulation is that it makes the OECD *Due Diligence Guidance* mandatory in a significant part of the world. EU importers are subject to detailed reporting obligations.[68] A peculiarity is that "[g]overnments, industry associations and groupings of interested organisations having due diligence schemes in place may apply to the Commission to have the supply chain due diligence schemes […] *recognised by the Commission*".[69] The European Commission shall, according to Art. 9, maintain a list of "global responsible smelters and refiners". Furthermore, Member States are obliged to designate competent authorities to carry out "appropriate ex-post checks".[70]

When it comes into force in 2021, the EU Regulation will show that mandatory regulation and supervision by public entities of due diligence requirements in the mineral supply chain is perfectly possible. However, the EU Commission will have to prove that it will go beyond simply referring back to the industry standards discussed above (e.g. LBMA and RJC). It would be embarrassing if the efforts of the EU ended in yet another whitewash.

THE FUTURE ROLE OF THE OECD

If it is possible in the framework of the EU to transpose large parts of the OECD *Due Diligence Guidance* into mandatory law, this guidance could now be upgraded. A good model is how a mixture of hard- and soft-law instruments have been used to combat and prevent economic crime. The OECD Working Group on Bribery, the Financial Action Task Force on Money Laundering and the Global Forum on Transparency and Exchange of Information for Tax Purposes are all bodies focused on combating and preventing economic crime, and their common denominator is that Conventions and/or Recommendations are enforced with the help of country evaluations.

Learning from the monitoring experience, a peer evaluation mechanism could be created within the OECD to assess the status of regulations in Member States on supply chain due diligence for gold and other minerals from "conflict-affected and high-risk areas". As noted above, the voluntary Alignment Assessment of industry practice is also worth continuing.




THE WIDER PICTURE

09 //

The supply of gold is merely an example of what can go wrong and how human rights can be violated in the struggle over rare minerals. Gold represents an age-old fascination, whereas other rare metals and rare earth elements have become crucial to future technological development. Elements nobody had heard of until recently, like neodymium, praseodymium or lanthanum, will be the gold of the future.

Obviously, there are technical means to improve the sourcing of gold and other rare elements, ranging from formalisation and certification of mines to enforcing due diligence throughout the supply chain. Manipulations in the corresponding value chain, like money laundering and transfer pricing, can be countered by legal requirements like identifying beneficial owners of companies and accounts.

And yet, we should not forget that the multitude of challenges in the supply chain is no coincidence. Most of the world's gold, like other rare elements, originates from weak states. There is a nexus between companies, including multinational mining enterprises, trying to obtain licences at any cost and local elites ready to sell the riches of their country

for private gain. Corruption results and the proceeds typically end up in financial centres, sometimes offshore and sometimes not.

Corruption is not the only reason why commodity-rich countries such as the DRC, Nigeria or Venezuela frequently end up with poverty-stricken populations. The so-called resource curse is also a consequence of profit-shifting from the location where the value is generated and where the social, health and environmental costs occur to low-tax jurisdictions and offshore financial centres.

The challenges and abuses of the gold trade that I have described in this book, and some of which I have personally witnessed with great disgust, are significant. But they are just a tiny part of a much bigger story about the divide between rich and poor and why, despite everything we know and despite all our laws and standards and resources, this divide continues to widen.

ACKNOWLEDGEMENTS //

I would like to thank my team for their intensive work on this book, especially Stefan Mbiyavanga, who together with David Mühlemann did the research for the book and participated in the field trips. My thanks also go to Hildegard Willer and Oscar Solórzano for opening doors in Peru. To Rebekka Gigon I owe a lot for having put together yet another book and for her supervision of the production. I would also like to thank Pablo Arnaiz and Marlen Schultze for their valuable contribution and Monica Guy who has helped to make the book accessible to a wider public.

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Co-CEO of Argor-Heraeus; José Ramón Camino de Miguel, Group General Counsel of Metalor Technologies SA; Mehdi Barkhordar, Managing Director of MKS PAMP and Michael Mesaric, CEO of Valcambi SA and representatives of their industry association, the Association Suisse des Fabricants et Commerçants de Métaux Précieux (ASFCMP).

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Important contributions to the book were also made by representatives of various NGOs (in particular Human Rights Watch, Global Witness, Public Eye and Society for Threatened Peoples), the media and interested experts (including archaeologist Claudia E. Suter on the role of gold in antiquity, anthropologist Eugenia Robles Mengoa on the position of women in mine camps in Latin America, Henni van Vuuren from the South African NGO Open Secrets and Luis Moreno Ocampo, former prosecutor of the International Criminal Court).

Finally, I would like to thank André Gstettenhofer of Salis Verlag for his great commitment.

Mark Pieth

CORRESPONDENCES //

Annex 1: Letter to EY (EY was ready to speak. The interview with Ms. Milena De Simone took place on 28 June 2018)

Annex 2: Letter to KPMG (KMPG did not respond to this letter)

Annex 3: Letter to Mazars (Mazars reacted neither to this letter nor to several follow-up emails and calls)

Annex 4: Letter to PWC (PWC refused a meeting even after several follow-up emails and calls)

Annex 5: Letter to Rolex

Annex 6: Letter by Rolex

Annex 7: Response letter to Rolex (14 May 2018)

Annex 8: Second inquiry to Rolex (24 May 2018)

Annex 9: Letter to Minerales del Sur (Minerales del Sur did not respond to this letter)

ANNEX 1

University of Basel
Faculty of Law

University of Basel, Faculty of Law, P.O. Box, 4002 Basel / bd

Stéphane Muller,
Ernst & Young AG
Route de Chancy 59
P.O. Box
1213 Petit-Lancy

Basel, 16 April 2018

Study Refining Gold

Dear Mr. Muller

Allow me first to introduce myself: I am a Professor of Law at Basel University in Switzerland. Over the last 25 years, I have been intensively involved in international regulation in delicate areas like anti-money laundering and anti-corruption (in particular as Chair of the OECD Working Group on Bribery (WGB) and as a Swiss Representative to the FATF). As Chairman of the Basel Institute on Governance (BIG) I have been tasked by B 20 to develop concepts of Collective Action (CA) for business sectors.

I am currently preparing a study on the role of gold refineries at the interface between the supply and demand in gold. As you are well aware, due diligence on the provenance of the raw materials is fundamental, and yet challenging.

As part of my study, I would like to conduct a series of talks with auditors of major gold refineries on the way they approach and conduct Compliance Report audits. I hope you are open to such a dialogue.

I am happy to subject dates between April and June if this query should find your interest.

Yours sincerely

Professor Mark Pieth

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KPMG LLP
15 Canada Square,
Canary Wharf
London, UK

Basel, 16 April 2018

Study Refining Gold

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Yours sincerely

Professor Mark Pieth

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ANNEX 3

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University of Basel, Faculty of Law, P.O. Box, 4002 Basel / bd

Mazars
Chemin de Blandonnet 2
1214 Vernier

Basel, 16 April 2018

Study Refining Gold

Dear Sir or Madam

Allow me first to introduce myself: I am a Professor of Law at Basel University in Switzerland. Over the last 25 years, I have been intensively involved in international regulation in delicate areas like anti-money laundering and anti-corruption (in particular as Chair of the OECD Working Group on Bribery (WGB) and as a Swiss Representative to the FATF). As Chairman of the Basel Institute on Governance (BIG) I have been tasked by B 20 to develop concepts of Collective Action (CA) for business sectors.

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PricewaterhouseCoopers SA
Via della Posta 7
Casella Postale
6901 Lugano

Basel, 16 April 2018

Study Refining Gold

Dear Sir or Madam

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Yours sincerely

Professor Mark Pieth

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Faculty of Law
Peter Merian-Weg 8, P. O. Box
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ANNEX 5

University of Basel
Faculty of Law

University of Basel, Faculty of Law, P.O. Box, 4002 Basel / bd

Rolex SA
Rue François-Dussaud 3-5-7
1211 Genève 26

Basel, 16 April 2018

Study Refining Gold

Dear Sir or Madam

Allow me first to introduce myself: I am a Professor of Law at Basel University in Switzerland. Over the last 25 years, I have been intensively involved in international regulation in delicate areas like anti-money laundering and anti-corruption (in particular as Chair of the OECD Working Group on Bribery (WGB) and as a Swiss Representative to the FATF). As Chairman of the Basel Institute on Governance (BIG) I have been tasked by B 20 to develop concepts of Collective Action (CA) for business sectors.

I am currently preparing a study on the role of gold refineries at the interface between the supply and demand in gold. As you are well aware, due diligence on the provenance of the raw materials is fundamental, and yet challenging.

As part of my study, I would like to conduct a series of talks with jewellers and watchmakers on the way they approach and conduct supply chain due diligence. I hope you are open to such a dialogue.

I am happy to subject dates between April and June if this query should find your interest.

Yours sincerely

Professor Mark Pieth

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ANNEX 6

ROLEX

DIRECTION

ROLEX SA

Prof. Dr. Dr. h.c. Mark Pieth
Professor of Criminal Law and Criminology
University of Law
Peter Merian-Weg 8, P.O. Box
4002 Basel

Geneva, 4th of May 2018

Study Refining Gold

Dear Prof. Pieth,

We thank you for your letter and your interest in our brand.

We unfortunately regret to inform you that we are not going to be able to accommodate your request as we do not typically comment on such matters.

We thank you for your understanding and wish you all the best for your study.

Kind regards,

Arnaud Bouteuil
Head of Communication & Image
ROLEX SA

ANNEX 7

University of Basel
Faculty of Law

University of Basel, Faculty of Law, P.O. Box, 4002 Basel / bd

Arnaud Boetsch
Head of Communication & Image, Rolex SA
Rue François-Dussaud 3-5-7
1211 Genève 24

Basel, 14 May 2018

Study Refining Gold

Dear Mr Boetsch,

Of course we are disappointed by your answer. I do, however, assume that you would allow me to publish your letter, if need be.

With kind regards,

Professor Mark Pieth

University of Basel
Faculty of Law
Peter Merian-Weg 8, P. O. Box
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ANNEX 8

University of Basel
Faculty of Law

University of Basel, Faculty of Law, P.O. Box, 4002 Basel / bd

Arnaud Boetsch
Head of Communication & Image, Rolex SA
Rue François-Dussaud 3-5-7
1211 Genève 24

Basel, 24 May 2018

Study Refining Gold

Dear Mr Boetsch,

Allow me to come back to our exchange of letters. As our study proceeds, we are coming across perfectly understandable reasons why one could be reticent to publish ones due diligence policies and practices – e.g. the fact that currently there is not enough fair-minded gold on the market.

We believe, however, that it would be most beneficial for the reputation of a worldwide renowned corporation such as Rolex to talk about its supply chain due diligence.

I hope you are able to reconsider your position.

With kind regards,

Professor Mark Pieth

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ANNEX 9

University of Basel
Faculty of Law

University of Basel, Faculty of Law, P.O. Box, 4002 Basel

Minerales del Sur S.r.l.
614 Cercado
Juliaca
- Peru -

14/05/2018

Visita del 4 de Junio 2018

Muy estimados señores y señoras

Permítanme que me presento: Soy catedrático de derecho en Suiza, y actualmente estoy trabajando en un proyecto sobre las rutas de suministro de oro del Perú a Suiza.
Quisiera preguntarles si Vds. estarían dispuestos a recibirme el día 4 de Junio 2018. Ese día estaré en Juliaca durante mis viajes de investigación. También tendré una reunión con sus contactos comerciales en Suiza, incluyendo la empresa Metalor Technologies S.A.

Muchas gracias por su consideración y respuesta.

Muy atentamente

Prof. Mark Pieth

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ENDNOTES //

01 — TWO SIDES OF THE COIN

1 Interview of 4 June 2018 with Padre Marcos of Arapa.
2 Willer, TagesWoche, 23 March 2018, 9: "Das glänzende Schweizer Gold kommt vom dreckigsten Ort der Welt".
3 Robles Mengoa 2017, 20.
4 MEGA, Infierno Blanco, La Rinconada – Peru: "La tierra de nadie" (available at https://www.youtube.com/watch?v=hMCu9648rU0, retrieved 21 May 2019).
5 Corporación Minera Ananea S.A.
6 CIPE Blog, 19 December 2008: "The power of incentives" (available at https://www.cipe.org/blog/2008/12/19/the-power-of-incentives/, retrieved 24 April 2019).
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9 SDC 2011, 34.
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02 — THE HISTORY OF GOLD

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55 Ibid., 5 et seq.; Hart 2013, 47 et seq.
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58 Ibid., 49 et seq.
59 Gerlach/Kugler 2015; Green 1981, 23.
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61 Sec. 9 Coinage Act of 1792; Green 1981, xx; Hart 2013, 45; Kwarteng 2014, 42.
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63 Hart 2013, 60.
64 Green 1981, 81; Hart 2013, 70 et seq.; Reisenberger/Seifert 2011, 29 et seq.
65 Butler/Deaver 1976, 192.
66 Bergier 1998, Interim Report, 191; cf. Eizenstat 1997, IV et seq.
67 Bergier 1998, Interim Report, 178.
68 Bergier 1998, Interim Report, short version, 10; Eizenstat 1997, 127; Ziegler 1997, 86.
69 60% of the arms industry, 50% of the optical industry and 40% of the machine industry worked during the war for Germany: Bergier 1998, Interim Report, short version, 12.
70 Ziegler 1997, 146 et seq.
71 Report by Hjalmar Schacht, then President of the Reichsbank Directorate, on 7 January 1939, in: Ziegler 1997, 48 et seq.
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75 Hayes 2004, 197.
76 Ziegler 1997, 83, 99, 127.
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86 Eizenstat 1997, XLII et seq.; Ziegler 1997, 194 et seq.; 250 million equates to approximately 1.2 billion Swiss Francs in 2018.
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118 Federal Council (Government), Press Release of 13 December 2013; EZV 2013; EZV 2015; NZZ, 20 February 2014, 32: "Heisser Goldhandel im Kalten Krieg".
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03 – THE SUPPLY CHAIN

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10 Investopedia, the Industry Handbook: Precious metals (available at https://www.investopedia.com/features/industryhandbook/metals.asp, retrieved 21 May 2019).
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23 Green 1981, 30.
24 Blyvoor: Reisenberger/Seifert 2011, 55 et seq.
25 Mponeng: Hart 2013, 1 et seq.
26 Reisenberger/Seifert 2011, 62.
27 Visit to Mponeng Gold Mine in September 2018. Written by Stefan Mbiyavanga.
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37 Cf. Art. 7 UN Minamata Convention on Mercury 2017: artisanal and small-scale gold mining.
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43 Reisenberger/Seifert 2011, 80 et seq.
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45 Gavin Hilson at SDC event in Geneva on 4 July 2018; SDC 2011, 16 et seq.
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48 La República, 30 June 2018: "Por qué nos tratan así?".
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51 Daily Maverick (South Africa), 6 May 2018: "Miner safety – where to from here?".
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57 Ibid.; cf. also OECD Guidance 2016, 65.
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59 Global Initiative against Transnational Organized Crime 2016, 26, 29; Herzog et al. 2015, 12 et seq.
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61 Interview of 11 June 2018 with Peruvian Prime Minister César Villanueva; cf. also Reuters, 14 March 2008: "Lawmakers defend traditional coca use".
62 EBP 2017, 32; interview of 27 June 2018 with Mr. Wild, Co-CEO of Argor-Heraeus.
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64 SDC 2011, 24.
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75 Barrantes/Escalante 2017 (Terre des Hommes Suisse), 30, 63 et seq.
76 Global Initiative against Transnational Organized Crime 2016, 31.
77 Bloomberg, 9 March 2017: "How to Become an International Gold Smuggler"; Bloomberg, 16 March 2017: "Gold Company Manager Charged in Vast Peruvian Smuggling Plot".
78 El País, 27 April 2016: "El narco peruano lavó 250 millones de dólares en 2015"; Miami Herald, 5 September 2017: "Two Miami men convicted of laundering billions in Amazon gold".
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92 Gold Paper 2013, 7, 10; World Gold Council/Boston Consulting Group 2015, 3, 5.
93 EBP 2017, 36.
94 FATF 2015, 17.
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96 Sülberg 1991, 123; World Gold Council/Boston Consulting Group 2015, 7.
97 Becker in Sciencing, 25 April 2017: "How Gold is Recycled".
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04 – PROBLEM GOLD

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2 Cremers et al. 2013, 1; Global Initiative against Transnational Organized Crime 2016, 23 et seq.; SPDA 2014.
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05 — CREATING A RESPONSIBLE SUPPLY CHAIN

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65 **Graphic 2** Figures from World Gold Council, https://www.gold.org/gold-hub/data/gold-supply-and-demand-statistics (retrieved 21 May 2019)

66 **Graphic 3** Figures from World Gold Council, https://www.gold.org/gold-hub/data/gold-supply-and-demand-statistics (retrieved 21 May 2019)

67 **Graphic 4** Figures from World Gold Council, https://www.gold.org/goldhub/data/gold-prices (retrieved 21 May 2019)

75 **Graphic 5** https://www.911metallurgist.com/blog/cyanidation (retrieved 21 May 2019)

79 **Graphic 6** Stefan Mbiyavanga

112 **Graphic 7** Global Initiative against Transnational Organized Crime 2016, 8

141 **Graphic 8** Mark Pieth

163 **Graphic 9** Stefan Mbiyavanga, Status as of December 2018

191 **Graphic 10** HRW 2018, 53

197 **Graphic 11** Wall Street Journal, 25 December 2016: "Switzerland's Niche in Global Gold Trade Draws Scrutiny"

ABBREVIATIONS //

AML	anti-money laundering
AMLA	Federal Act on Combating Money Laundering and Terrorist Financing (Anti-Money Laundering Act) of 10 October 1997 (SR 955.0)
AMLO	Anti-Money Laundering Ordinance
ARM	Alliance for Responsible Mining
Art.	Article
ASFCMP	Association Suisse des Fabricants et Commerçants de Métaux Précieux (Swiss Association of Manufacturers and Traders in Precious Metals)
ASGM	artisanal or small-scale gold mining
ASM	artisanal or small-scale mining
BA.	Bundesanwaltschaft (Attorney General)
BACRIM	A colloquial term for criminal groups (*bandas criminals*) in Colombia
BGI	Better Gold Initiative
CCCMC	China Chamber of Commerce of Metals Minerals & Chemicals Importers & Exporters
CECOMIP	Central de Cooperativas Minero Metalúrgicas de Puno
CEO	Chief Executive Officer
CHF	Swiss Franc
CIFOR	Center for International Forestry Research

CIPE	Center for International Private Enterprise
CoC	Chain of Custody
Col.	Colonel
CoP	Code of Practices
COSOC-GL	Coalition of Civil Society Organizations in the Great Lakes Region
CS	Credit Suisse
DMCC	Dubai Multi Commodities Centre
DRC/DR Congo	Democratic Republic of the Congo
EU Regulation 2017/821	Regulation (EU) 2017/821 of the European Parliament and of the Council of 17 May 2017 laying down supply chain due diligence obligations for Union importers of tin, tantalum and tungsten, their ores, and gold originating from conflict-affected and high-risk areas, OJ L 130/1, 19 May 2017
ENAMCO	Eritrean National Mining Corporation
ETF	exchange-traded funds
EU	European Union
EY	Ernst & Young
EZV	Eidgenössische Zollverwaltung (Swiss Federal Customs Administration)
FAPC	Forces Armées du Peuple Congolais (Armed Forces of the Congolese People)
FARC	Fuerzas Armadas Revolucionarias de Colombia (Revolutionary Armed Forces of Colombia, a former guerrilla movement)
FARDC	Forces Armées de la République Démocratique du Congo (Armed Forces of the Democratic Republic of the Congo)
FATF	Financial Action Task Force
FINMA	Swiss Financial Market Supervisory Authority
FNI	Front des Nationalistes et Intégrationnistes (Nationalist and Integrationist Front, a rebel group active in the Democratic Republic of the Congo)
GAO	US Government Accountability Office
H.R.	House of Representatives
HRW	Human Rights Watch
ICC	International Chamber of Commerce
ICGLR	International Conference on the Great Lakes Region
ILO	International Labour Organization
IMF	International Monetary Fund
IPEC	International Programme on the Elimination of Child Labour
ISAE	International Standard on Assurance Engagements
KGGT	Koordinationsgruppe zur Bekämpfung der Geldwäscherei und Terrorismusfinanzierung (Swiss Coordinating Group on Combating Money Laundering and Terrorist Financing)
KYC	Know Your Customer
LBMA	London Bullion Market Association
LSGM	large-scale gold mining

LSM	large-scale mining
MMTC	Metals and Minerals Trading Corporation of India
NCP	National Contact Points
NGO	Non-Governmental Organisation
NRGI	Natural Resource Governance Institute
NZZ	Neue Zürcher Zeitung, a Swiss daily newspaper
OECD	Organisation for Economic Co-operation and Development
PAMP	Produits Artistiques Métaux Précieux
PMCA	Federal Act on the Control of the Trade in Precious Metals and Precious Metal Articles (Precious Metals Control Act) of 20 June 1933 (SR 941.31)
PMCO	Ordinance on the Control of Trade in Precious Metals and Articles of Precious Metals (Precious Metals Control Ordinance) of 8 May 1934 (SR 941.311)
PWC	PricewaterhouseCoopers
RB	Deutsche Reichsbank, the German Central Bank from 1876 to 1945
REDD	Reducing Emissions from Deforestation and Forest Degradation, a United Nations programme
REDD+	Reducing Emissions from Deforestation and Forest Degradation *plus* the Role of Conservation, Sustainable Management of Forests and Enhancement of Forest Carbon Stocks in Developing Countries
RGG	Responsible Gold Guidance
RJC	Responsible Jewellery Council
SBGA	Swiss Better Gold Association
SBV	Schweizerischer Bankverein, a former Swiss bank now part of UBS
SCC	Swiss Criminal Code
SDC	Swiss Agency for Development and Cooperation
SEC	US Securities and Exchange Comission
SECO	Schweizerisches Staatssekretariat für Wirtschaft (Swiss State Secretariat for Economic Affairs)
SME	Small- to medium-sized enterprise
SNB	Schweizerische Nationalbank (Swiss National Bank, the Central Bank in Switzerland)
SPDA	Sociedad Peruana de Derecho Ambiental (Peruvian Society for Environmental Law)
SR	Systematische Sammlung des Bundesrechts, a reference system for Swiss laws
SRF	Schweizer Radio und Fernsehen, a Swiss media outlet
SS	Schutzstaffel
STP	Society for Threatened Peoples
SUNAT	Superintendencia Nacional de Aduanas y de Administración Tributaria (Peruvian customs and tax administration authority)
SWI	swissinfo.ch, a Swiss media outlet

t	tonne (1,000 kilograms)
TPAG	Third Party Audit Guidance, a publication of the LBMA
US	United States
UAE	United Arab Emirates
UK	United Kingdom
UMT	Universal Metal Trading (Peru)
UN	United Nations
UNCAC	United Nations Convention against Corruption
UNODC	United Nations Office on Drugs and Crime
UNSC	United Nations Security Council
UNSCR	United Nations Security Council Resolution
UPC	Union de Patriotes Congolais (Union of Congolese Patriots, a militia group in the Democratic Republic of the Congo)
USAID	United States Agency for International Development
USD	United States Dollar
WEEE	Directive 2012/19/EU on Waste Electrical and Electronic Equipment
WGC	World Gold Council
WHO	World Health Organization
WOZ	Die Wochenzeitung
WWF	World Wide Fund for Nature
ZKB	Zürcher Kantonalbank, a Swiss bank

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In this eye-opening book, Mark Pieth gives an in-depth insight into how the global gold market works, what role Switzerland plays in it, where the hidden abuses lie and how human rights in the gold industry can be protected in a credible way.

The exclusively researched depiction of a key area of economic policy takes us both to the glittering world of gold refining and to the world's worst mining regions. Mark Pieth illuminates the historical roots of the gold trade before turning his attention to today's supply chains, from mines to refineries and clandestine intermediaries to consumers: central banks, investors, jewellers and watchmakers. He reveals some of the horrific problems caused by gold mining that still receive little attention due to a lack of binding regulations – severe environmental destruction, forced labour and human trafficking, land grabbing, stolen assets and money laundering.

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