

Responsible Sourcing of Colored Gemstones

Graduate Institute of Geneva
Applied Research Seminar Report
December 15, 2013

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Executive Summary

Jewelry retailers saw an important change towards color over the past decade, which was not only driven by a higher demand from Arab countries, India and China, but also by an increasing interest in colored stones on US and European markets.¹ At the same time, there seems to be a significant increase in demand for ethical colored gemstones. Understanding the risks and weaknesses of colored gemstones supply chains is essential to evaluate initiatives, which are developed by different multi-stakeholder groups to make the colored gemstone sourcing and their supply chains more sustainable and transparent. This study analyzes the supply chain of colored gemstones and connected risks and assess the opportunities and challenges for existing as well as potential initiatives.

¹According to the UNcomtrade database, the trade in mounted colored gemstones in 2012 equals approximately 6-8% of the diamond trade. The trade data also shows that trade in diamonds as well as the trade in colored gemstones has increase over the last decade. The US, Hong Kong, Thailand, Switzerland and India are the main exporting countries of mounted colored gemstones. According to Gemfields, an colored stones mining cutting and marketing company, polished colored gemstones such as emeralds, rubies and sapphires were only an estimated US\$2 billion market in 2012 (UN Comtrade, <http://comtrade.un.org>; “Gemfields Sees \$10 billion Colored Gemstone Market in 10 Years”, accessed on 10 December 2013, <http://www.euroinvestor.com/news/2013/02/08/gemfields-sees-10-billion-colored-gemstone-market-in-10-years/12201080>).

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List of Abbreviations

ASM Artisanal and Small Scale Mining

CGH Columbia Gem House, Inc.

DRC Democratic Republic of Congo

EGL Gemological Laboratory America

GIA Gemological Institute of America

GURN Government of Unity and National Reconciliation

ICA International Colored Gemstone Association

ILO International Labor Organization

IWG-CG International Working Group on Coloured Gemstones

KPCS Kimberly Process Certification Scheme

OECD Organization for Economic, Cooperation and Development

PSMSWG Precious Stones Multi-Stakeholder Working Group

RESP Responsible Ecosystems Sourcing Platform

RJC Responsible Jewellery Council

RUF Revolutionary United Front

UN United Nations

UNICRI United Nations Interregional Crime and Justice Research Institute

UNGP United Nations Guiding Principles on Business and Human Rights

UNITA National Union for the Total Independence of Angola

UNSC United Nations Security Council

1. Introduction

“The first luxury good known to man was gemstones. The first objects that we picked up and said this has value for no other reason, it is not a food, it is not a fuel, it is not a medicine, it has value purely because of its beauty, these were colored gems.”²

Increasingly, the awareness of the provenance and production process of luxury items has become as important to consumers as the actual product itself. For instance, with evidence showing that the illicit trade in diamonds played a crucial role in financing civil war belligerents in countries like Sierra Leone and Angola, consumers were afraid of buying ‘blood-diamonds’. Hence, international jewelry houses faced the urgent need to react to accusations of selling blood-diamonds. As a multi-stakeholder initiative, the Kimberley Process Certification Scheme was created in 2000 to curb the trade in conflict diamonds. Similarly, the gold industry has faced international scrutiny and has come under critique by civil society alliances, which seek to end conflict-related mining and trading practices. Increasingly, the extractive and manufacturing industries have become subjects to attempts to enhance responsibility in the sector, which are initiated by such different actors as industry representatives themselves (either collectively or unilaterally), governments, international organizations or civil society representatives. Today, numerous standards and regulations have been initiated, governing different luxury products through a variety of coping mechanisms to promote greater responsibility throughout luxury products’ supply chains.

Regarding the colored gemstones industry, there is no comprehensive monitoring scheme in place to ensure fair and ethical practices. However, lately the sector has been undergoing some change in this respect, with the emergence of initiatives aiming to increase the responsibility and sustainability of the sourcing of colored gemstones as well as the transparency of their supply chain. While various industry initiatives focus on developing best practice standards that companies can comply with on a voluntary basis, the United Nations Interregional Crime and Justice Research Institute (UNICRI)

² Interview with colored gemstone industry representative, 25 November 2013.

promotes a Chain on Custody Certification Mechanism that aims to ensure that precious stones which will be UNICRI certified are tracked through the sourcing process and comply with ethical standards.

One reason that might account for why the gemstone sector is lagging behind other extractive industries, especially diamonds and gold, is the extremely fragmented nature of the supply chain: Unlike the global diamond industry, which is largely controlled by a small number of big companies such as De Beers and where the number of countries producing jewelry quality diamonds is equally limited, the colored gemstones are today sourced in over 47 countries. In most producing countries, the sourcing of colored gemstones is still largely dominated by informal small scale-mining, and the way the stone travels from the mine to cutting centers and then to the market is different from country to country.

Despite the changing attitude, most jewelers lack information about the true origin and the sourcing of the stones they buy, as well as about intermediaries involved in the supply chain. Dealers often buy stones in countries where smuggling is rampant, recordkeeping is poor, corruption is high and mine owners neglect internationally recognized labor standards.

Understanding the supply and demand networks of the colored gemstone market and the problems and potential risks the jewelry sector is currently facing regarding colored gemstones is key to evaluate the different multi-stakeholder initiatives developed and launched by the industry, as well as by organizations to promote ethical gemstones.

Our study seeks to first shed light on both of these aspects – the supply chain and the connected risks – in order to, as a second step, assess the opportunities and challenges for existing as well as potential initiatives aimed at increasing responsibility in the colored gemstone sector. The first part of this report will establish the contextual background by having a closer look at the Kimberley Process as a precedent for mineral regulation, as well as a number of additional standards already in place. The second part will provide an assessment of the present state of the colored gemstone sector. Focusing on rubies, emeralds and sapphires, the study aims to present what is currently known about the supply chain of these stones and the issues they raise. Potential solutions and the remaining knowledge gaps will be identified in this section. In order to fill these gaps,

a set of interviews with key stakeholders was conducted, the systematic and comparative analysis of which makes up the third part of the study. The results are presented in the form of recommendations to jewelry retailers on how to contribute to the existing initiatives in the colored gemstone sector, as well as on what needs to be done to cover areas that have not been addressed so far.

2. Paving the Way: The Kimberley Process and Conflict Minerals

2.1. Conflict diamonds and the Kimberley Process

The case of diamonds has functioned as a precedent for the broader issue of responsibility in the extractive industry. The introduction of the Kimberley Process Certification Scheme in 2003 marked the end of the Kimberley Process negotiations and the emergence of a global conflict minerals agenda. Over the years this has been broadened through other initiatives to include a range of other issues such as human rights and the environment. Increasingly, actors from different backgrounds began to shift their attention towards issues of transparency and responsibility with regard to the extraction of mineral resources, with ever more initiatives being developed to ensure conflict-free trade in gold, tantalum, coltan or tin.

The mechanisms they employ have equally evolved and today state-led and industry-led standards, voluntary or binding in nature, narrow or wide in their thematic scope, coexist.³ Especially over the course of the recent years, the colored gemstone sector has attracted attention in this regard and a number of initiatives are currently underway as a response to increased scrutiny. Given the intuitive comparisons between colored gemstones and diamonds, an overview of the creation of the KPCS shall serve as a starting point and comparative base for the case of colored gemstones.

Conflict diamonds first became an issue on the international political agenda in the context of the civil war in Angola, raging in the country at varying intensity from the mid 1970s through the late 1990s, and attracted further attention in the light of the extremely brutal conflict prevailing in Sierra Leone throughout the 1990s. The global diamond market was and still is characterized by a very high degree of centralization,

³ See section 2.2 for a more detailed description of some selected initiatives.

making it “one of the most successful and long-lived cartels in history”.⁴ By the end of the 1990s, Belgian diamond trader De Beers was the dominant company in the sector, occupying an almost monopolistic position. In the early 1990s, De Beers accounted for 45% of worldwide diamond production, sold nearly 80% of the global supply through its Central Selling Organization and could regulate the market through its large stock of diamonds, estimated at 5 billion USD.⁵ Furthermore, the majority of diamonds at the time was traded through only a handful of diamond bourses in Tel Aviv, New York, London, and most importantly, Antwerp, which together formed a powerful syndicate in the World Federation of Diamond Bourses.⁶

Findings of several NGOs reports uncovered how rebel groups, the National Union for the Total Independence of Angola (UNITA) in Angola and the Revolutionary United Front (RUF) in Sierra Leone, were financing hostilities through trade in diamonds extracted from mines under their control.⁷ The UN reacted by adopting *Resolution 1173*, banning the trade of conflict diamonds from Angola. In December 1998, London-based NGO Global Witness published a report, which uncovered considerable shortcomings on the side of UN Member States in the effective implementation of the resolution’s sanctions against uncertified diamonds and accused De Beers of being involved in large-scale purchases of rough diamonds from Angola. At the height of conflict, the UNSC subsequently appointed a Panel of Experts mandated to investigate breaches of the sanctions, whose final report confirmed Global Witness’s findings.⁸

The linkage of diamonds to the Sierra Leonean civil war resulted in notable media attention, as diamond trade was found to finance the rebel fighters of the RUF, infamous for their extreme brutality against civilians. De Beers and other diamond retailers originally denied responsibility, however, they came under mounting pressure due to the

⁴ C.f. The Economist, “Changing facets. An industry once dominated by a cartel is starting to look like any other”, *The Economist*, February 22, 2007, <http://www.economist.com/node/8743058>; see also Virginia Haufler, “The Kimberley Process Certification Scheme: An Innovation in Global Governance and Conflict Prevention”, *Journal of Business Ethics*, 89 (2010): 405.

⁵ Virginia Haufler, “The Kimberley Process Certification Scheme”, 405.

⁶ Daniel Feldman, “Conflict Diamonds, International Trade Regulation, and the Nature of Law”, in *U. Pa. J. Int’l Econ. L.* 24/4 (2003): 849.

⁷ C.f. Philippe Le Billon, “Diamond Wars? Conflict Diamonds and Geographies of Resource Wars”, *Annals of the Association of American Geographers*, 98/2 (2008).

⁸ UNSC, *Report of the Panel of Experts on Violations of Security Council Sanctions Against UNITA*, S/2000/203 (2000), http://www.un.org/News/dh/latest/angolareport_eng.htm.

consumer's increased awareness about the issue. In May 2000, a first meeting of producing and consuming states, industry and civil society representatives took place in the mining city of Kimberley, South Africa, initiating what was to become known as the Kimberley Process. Within three years, negotiations were concluded and in 2003, the KPCS was implemented in the participating states.

Under the KPCS, all participating states commit to exclusively trade in diamonds with other participating states, ensure that all diamond shipments are accompanied by an official KP Certificate as well as to meet minimum requirements with regard to transparency, cooperation and internal control.⁹ Currently, the Kimberley Process is made up of 81 signatory countries and the World Diamond Council as industry representative, with the possibility to suspend state membership in cases of non-compliance with the standard.¹⁰ PAC remained as the only civil society party to the Kimberley Process after Global Witness' withdrawal in 2011 following their continuous criticism of the Scheme's ineffectiveness.¹¹

This brief overview contains several aspects that are worthwhile to consider, when examining other conflict minerals and regulatory approaches. First of all, there was **reported evidence** on the way diamonds played into the conflict dynamics in Angola and Sierra Leone and this evidence was officially acknowledged and addressed early on by a UNSC resolution, which is the strongest international legal enforcement instrument at states' disposal. Second, the problem was of a **limited scope and low complexity**. It applied mainly to two states and was focused solely on the way in which diamonds were used to finance conflicts in those countries. Third, the structure of the diamond industry with its remarkably **high degree of centralization** made it easy to identify key stakeholders and thus facilitating the convention and eventual successful conclusion of negotiations. Fourth and last, there were **strong incentives** in place for De Beers to prove that their diamonds were conflict-free and thus helping to eradicate suspicions that its mining activities were fuelling conflict and illicit trading of diamonds. De Beers faced an

⁹ "KPCS Core Document", <http://www.kimberleyprocess.com/en/kpcs-core-document>.

¹⁰ "About – KP Basics", 2013, <http://www.kimberleyprocess.com/en/about>.

¹¹ "Global Witness leaves Kimberley Process, calls for diamond trade to be held accountable", 5 December 2011, <http://www.globalwitness.org/library/global-witness-leaves-kimberley-process-calls-diamond-trade-be-held-accountable>.

NGO-induced consumer boycott and considerable reputational damages. Furthermore, the company risked high costs linked to the illicit trade with diamonds by bypassing domestic taxation. Lastly, De Beers was concerned to rescue the local diamond industry in Africa.

2.2. Selected initiatives in the mineral sector

Aside from the Kimberley Process, there are a number of other international and national initiatives worth analyzing to show how the public and private sectors try to promote the regulation of the mining and the supply of diamonds, gold and precious metals.

2.2.1. Dodd-Frank Act

In the wake of the global financial crisis, the United States Congress signed the Dodd-Frank Wall Street Reform and Consumer Protection Act into law on July 21st, 2010 in order to regulate the American financial sector through enhancing accountability and transparency to contribute to a financially stable national economy. Section 1502 on *conflict minerals* outlines that “the exploitation and trade of conflict minerals originating in the Democratic Republic of the Congo is helping to finance conflict characterized by extreme levels of violence in the eastern [DRC].”¹² It amends Section 13 of the Securities Exchange Act of 1934 to require any publicly traded companies doing business with and in the DRC to disclose a report available to the public detailing measures taken to ensure that traded minerals are conflict free.¹³

This national legislation represents an important step in incorporating issues pertaining to the responsible sourcing of minerals into national legislations and reforms, regulating the trade and conduct of transnational actors active in this sector. Including conflict minerals into a domestic financial bill not only raises awareness about minerals in conflict regions, but also sets an example for other countries to increase accountability of their own national companies. Although the Dodd-Frank Act is a national legislation, it applies to all the companies registered with the Security and Exchange Commission, which includes American as well as foreign corporations.

¹² United States Congress, *Dodd-Frank Wall Street Reform and Consumer Protection Act*, p. 838.

¹³ A product is considered conflict-free when it “does not contain conflict minerals that directly or indirectly finance or benefit armed groups in the [DRC] or an adjoining country.” (Dodd-Frank Act, p. 839)

2.2.2. OECD Due Diligence

The OECD Due Diligence Guidance for Responsible Supply Chains of Minerals from Conflict-Affected and High-Risk Areas is a multilateral international effort orchestrated by the OECD and involving an array of actors ranging from international governmental organizations, governments and industry to civil society. This initiative specifically targets tin, tantalum, tungsten and gold with the objectives of ensuring companies adhere to human rights and do not trade in conflict minerals, as well as promoting a transparent mineral supply chain and sustainable corporate engagement.¹⁴ Originally, only tin, tantalum and tungsten (3 Ts) were included, with gold being added during July 2011.

To this end, the OECD suggests a Five-Step Framework for Risk-Based Diligence in the Mineral Supply Chain: As a first step, companies should institute strong company management through the creation of company policies and standards, transparency, company engagement with suppliers and grievance mechanisms.¹⁵ The second step is for companies to identify and assess the risks in the mineral supply chain. The next steps involve developing, implementing and monitoring a risk management strategy allow companies to effectively deal with the identified risks. Lastly, independent third-party audits of the supply chain due diligence at specific points in the chain and a report on supply due diligence will also contribute to a more responsible mineral supply chain. The guidelines are non-binding but can be seen as recommendations to practice due diligence for responsible supply chains of minerals. This process is based on the view that it is in the corporate actor's best interest to adopt the proposed framework.

2.2.3. European Union

The EU has so far focused on advocating for a conflict sensitive management of international diamond trade and the forestry sector. It has also promoted the transparency of revenues generated by the extractive industry, adopting a new accounting and transparency directive in 2013 which requires EU oil, gas, mining and timber companies to publish specific payments to partner governments.¹⁶ Yet, there are no binding EU

¹⁴ OECD, *OECD Due Diligence Guidance for Responsible Supply Chains of Minerals from Conflict Affected and High-Risk Areas*, (OECD Publishing, 2013), p. 3

¹⁵ *Ibid.*, p.17.

¹⁶ "New disclosure requirements for the extractive industry and loggers of primary forests in the Accounting (and Transparency) Directives (Country by Country Reporting) – frequently asked questions

legislations today that compel European businesses to carry out due diligence along their supply chains to make sure they are not using or trading natural resources that are funding violent conflict. However, different NGOs, including Global Witness, have pressured the EU to adopt binding regulation.

In March 2013, the European Commission and the European External Action Service opened a public consultation on a possible *European initiative on the responsible supplying of natural resources from areas of conflict and high risk*. The initiative would require European business entities using and trading natural resources to carry out due diligence, in line with OECD and UN standards. A draft is expected to be published by the end of 2013. Although diamonds may be covered by the new regulation, it is not foreseeable that gemstones will be included. However, the indicative roadmap published by the EU Commission in April 2013 only pertains to the 3Ts and gold.¹⁷

In September 2013, 59 European and global non-governmental organizations published a position paper calling on the European Commission to adopt legislation that should (1) create a legally binding obligation on business to conduct supply chain due diligence to identify and mitigate the risk of conflict financing and human rights abuse; (2) be based on the relevant international instruments; (3) recognize the State duty to protect human rights as defined by International Human Rights Law; (4) apply to all segments of the supply chain; (5) have a global geographical scope; (6) be applicable to all natural resources; (7) is founded on a risk-based approach; (8) complements other existing EU initiatives and legislation; and (9) forms part of a wider comprehensive approach to protect the environment and encourage security sector and mining reform in natural resource-rich developing countries.¹⁸

If this comprehensive approach becomes a legally binding regulation across EU countries, it is likely that EU business entities will need to disclose where their minerals and other natural resources originate. The regulation would thus not target specific

European Commission - MEMO/13/541 12/06/2013", accessed on 12 November 2013, http://europa.eu/rapid/press-release_MEMO-13-541_en.htm?locale=en.

¹⁷ "A comprehensive EU supply chain initiative for responsible sourcing of minerals originating in conflict-affected and high-risk areas", European Commission DG Trade, April 2013, accessed on 12 November 2013, http://ec.europa.eu/governance/impact/planned_ia/docs/2013_trade_019_conflict_minerals_en.pdf.

¹⁸ "Breaking the links between natural resources and conflict: The case for EU regulation", 16 September 2013, accessed on 12 November 2013, http://www.globalwitness.org/sites/default/files/library/BreakingtheLinks_ENG.pdf.

countries, as does the Dodd-Frank Act, but it will focus on the commodities themselves.¹⁹

The EU has also used sanctions as a means to protect customers from inadvertently buying conflict gemstones. For example, it imposed an embargo on Zimbabwe's national mining corporation in the wake of brutal attacks by security forces against members of the opposition after the 2008 presidential election.²⁰

3. Colored Gemstone Industry: What available data tells us

3.1. Supply chain

The supply chain of colored gemstones compared to other minerals and especially compared to what has been said about diamonds in the previous section is extremely fragmented and highly complex, making it nearly impossible to trace a gemstone's trajectory from the mine to the end-user.

Colored gemstones are mined in roughly 50 countries, located mostly in the global south.²¹ Gemstones pass through numerous hands already before being polished, transformed into jewelry and sold in the international retail market.²² Artisanal and small-scale mining (ASM) still accounts for the vast majority of the worldwide supply of colored gemstones,²³ posing high obstacles to transparency and traceability already at the production stage. ASM is very labor intensive, employing ten times more people than needed in large-scale mining projects and, at the same time, often takes places in remote and hardly accessible areas.²⁴ Although there is an increasing number of studies on

¹⁹ "EU May Help Mineral Exporters from Eastern Congo", Voice of America, 28 October 2013, accessed on 12 November 2013, <http://www.voanews.com/content/eu-may-help-mineral-exporters-from-eastern-congo/1778622.html>.

²⁰ "EU eases Zimbabwe sanctions, gives pledge on diamond firm," Reuters, 18 February 2013, accessed on 17 November 2013, <http://www.reuters.com/article/2013/02/18/us-zimbabwe-eu-idUSBRE9IH0JB20130218>.

²¹ c.f. "Coloured Gemstones: Establishing a mechanism for their traceability and certification of ethical origins", 2013, <http://www.viji.eu/wp-content/uploads/2013/04/Coloured-gemstones-presentation-UNICRI.pdf>, accessed September 7, 2013.

²² c.f. Jamie Cross, Sanne van der Wal and Esther de Haan, "Rough Cut. Sustainability Issues in the Coloured Gemstone Industry" (Center for Research on Multinational Corporations, 2010). http://somo.nl/publications-en/Publication_3418, 5.

²³ c.f. "Expert Meeting to Discuss a New Initiative on Coloured Gemstones Traceability and Certification of Ethical Origin", 2013, http://www.unicri.it/news/article/2013-04-11_Expert_meeting_Gemstones.

²⁴ c.f. International Institute for Environment and Development, "IIED shines a light on small-scale mining", via <http://www.iied.org/iied-shines-light-small-scale-mining>, last modified March 5, 2013,

gemstone ASM and country-specific case studies, figures on ASM are only estimates due to the informal and mostly unregulated character of the sector.²⁵ Together, these characteristics make it difficult to establish an accurate overview of the colored gemstones mining industry.

Contrary to the mining sector, there are hardly any studies providing reliable information on the subsequent processing of colored gemstones. The trajectory of a gemstone from the place it was found through cutting and polishing centers into a piece of jewelry sold in a shop is opaque: “There are many places in the supply chain of gems and jewelry where the picture is more than a little hazy.”²⁶

Production	Gemstones
Extraction	High
Trading	Low
Processing	Low/medium
Trading	Low
Production	Jewelry
Manufacture	Low
Wholesale	Low
Retail	High

Table 1: Existing knowledge levels in the jewelry supply chain.²⁷

Table 1 provides an overview of the level of existing knowledge on the respective stages as of 2003 that has not been considerably altered since. Once mined, the rough stones are usually traded on local markets, with varying numbers of dealers involved. Subsequently, gemstones are processed through cutting and polishing centers, which can be located both in the country of origin as well as abroad, with the most important cutting centers today being in India and China.²⁸ Colored gemstones are sold to jewelry brands through wholesalers, which can happen at different stages: In their rough form or after they have

accessed September 7, 2013

²⁵ c.f. Abbi Buxton, “Responding to the Challenge of Artisanal and Small-scale Mining. How Can Knowledge Networks Help?” (International Institute for Environment and Development, 2013), 3.

²⁶ Magnus Macfarlane, Anne Tallontire and Adrienne Martin, “Towards and Ethical Jewellery Business. A Review of Key Issues” (Natural Resources Institute, 2003), <http://projects.nri.org/nret/ethicaljewellery.pdf>, accessed September 9, 2013.

²⁷ Magnus Macfarlane, Anne Tallontire and Adrienne Martin, “Towards and Ethical Jewellery Business. A Review of Key Issues” (Natural Resources Institute, 2003), <http://projects.nri.org/nret/ethicaljewellery.pdf>, accessed September 9, 2013.

²⁸ c.f. “Coloured Gemstones: Establishing a mechanism for their traceability and certification of ethical origins”.

undergone cutting, from international markets or in the producing country itself, from a big gemstone seller or from small, local dealers as well as possibly at the mine itself.

While any jewelry quality gemstone passes through these main stages – mining, processing, cutting, manufacturing, and retail – the number of sub-stages included may vary from one situation to another. Similarly, the number of actors may differ considerably and they may intervene at different stages, as the colored gemstone sector is not governed by a centralized cartel as in the case of diamonds.²⁹ Rather than one coherent supply chain, there are multiple supply chains for colored gemstones.

It is therefore a key objective of this study to **explore, map and compare the different paths a gemstone travels from the mine to the jewelry end-consumer**, as well as to **examine the factors accounting for this variance**.

3.2. Existing problems and potential risks

Due to the large number of producing countries, the many and often anonymous actors involved, and the sometimes remote mining areas, it is quite difficult to provide a complete assessment and available information mostly takes the form of snapshots, small case studies focusing on one region in one country and one or more sub-aspects of broader categories of problems. Compiling these snapshots into one picture, problems and risks can be grouped along three main dimensions: human rights, environmental issues, and illicit activity.

Starting with human rights issues, child labor emerges as a central issue. Child labor in mining, which, according to the International Labour Organisation (ILO) Convention 182, belongs to the worst forms of child labor, has been reported from gemstone mining sites in countries as diverse as Madagascar,³⁰ Myanmar,³¹ Pakistan,³² Sri Lanka,³³ and Zambia.³⁴ Moreover, children are allegedly working under unlawful

²⁹Doug Guthrie, “The Environmental Impact of Mining Precious Metals and Gemstones. The Case for Putting Jewellery Back Into Circulation”, 24.

³⁰ Richard Hamilton, “Madagascar’s scramble for sapphires“, BBC News, August 1, 2003, <http://news.bbc.co.uk/2/hi/africa/3114213.stm>.

³¹ “Child Labour, Health, and Welfare Issues in Asia’s Gem & Jewellery Sector”, US Department of Labour, last modified September 9, 2010, <http://www.dol.gov/ilab/programs/ocft/tvpra/20100409d.pdf>.

³² “Child Labour, Health, and Welfare Issues in Asia’s Gem & Jewellery Sector”.

³³ “Education key to ending child labour in Sri Lanka“, UCA News, October 18, 2013, <http://www.ucanews.com/news/education-key-to-ending-child-labor-in-sri-lankas-gem-mines/69505>.

conditions in cutting and polishing centers in Asia, including India and Thailand.³⁵ Colombia claimed several years ago to have eliminated child labor in its emerald mines.³⁶ With regard to the environment, consequences of gemstone mining include deforestation, erosion, water pollution and illicit hunting³⁷, which have been reported, among others, from and for Myanmar, Brazil, Madagascar and Sri Lanka.³⁸

With regards to illicit activities, which in this report includes the use of illegally extracted or traded gemstones to finance criminal activity and smuggling of gemstones across borders, one case that made headlines a couple of years ago stands out in particular: Rubies from Myanmar. There was evidence that the military was implicated in the gemstone trade during its abusive rule. The trade in rubies reportedly constituted a major financing channel for the regime,³⁹ triggering unilateral US sanctions in the form of an import ban on rubies and jade from Myanmar in 2008.⁴⁰ Although still in place and recently updated,⁴¹ there is evidence that this ban is being loosened.⁴² In addition to the situation in Myanmar, some authors have suggested that colored gemstones can also be linked to repressive and in some cases terrorist-supporting regimes, such as in Tanzania, Ethiopia, Sri Lanka, Afghanistan and Pakistan.⁴³

³⁴ Sifuniso Nuyumba and Birgitte Poulsen, *The global crisis and rising child labour in Zambia's mining communities: Are we facing a downward decent work spiral?* (ILO, 2010), <http://www.ilo.org/public/english/support/lib/financialcrisis/featurestories/story26.htm>.

³⁵ "Child Labour, Health, and Welfare Issues in Asia's Gem & Jewellery Sector".

³⁶ International Organisation for Migration, "Columbian Emeralds Free of Child Labour", August 7, 2009, <http://www.iom.int/cms/en/sites/iom/home/news-and-views/press-briefing-notes/pbn-2009/pbn-listing/colombian-emeralds-free-of-child-labour.html>.

³⁷ Laurent E. Cartier, "Environmental Stewardship in Gemstone Mining: Quo Vadis?", *InColor*, Fall/Winter 2010, http://www.gemstone.org/index.php?option=com_content&view=article&id=200:incolor-summer-2010&catid=37:magazine&Itemid=40, 2-9, 5.

³⁸ Doug Guthrie, "The Environmental Impact of Mining Precious Metals and Gemstones", 24-27; see also "Gems and the Environment. Balancing Benefits and Costs", last modified 2007 (?), <http://www.uvm.edu/rsenr/gemecology/index.html>.

³⁹ C.f. Jamie Cross, Sanne van der Wal and Esther de Haan, "Rough Cut. Sustainability Issues in the Coloured Gemstone Industry", 35.

⁴⁰ Tom Lantos Block Burmese Jade (Junta's Anti-Democratic Efforts) Act, section 6.

⁴¹ C.f. Paul Eckert, "US updates Myanmar sanctions to maintain global import ban", Reuters, August 7, 2013, <http://www.reuters.com/article/2013/08/07/us-usa-myanmar-gems-idUSBRE97615L20130807>.

⁴² C.f. Dan McDougal, "The curse of the blood rubies: Inside Burma's brutal gem trade", Dailymail, September 18, 2010, <http://www.dailymail.co.uk/home/moslive/article-1312382/The-curse-blood-rubies-Inside-Burmas-brutal-gem-trade.html>; Raphael Minder, "Burmese ruby ban likely to be undermined", Financial Times, November 17, 2008, <http://www.ft.com/cms/s/0/10c834bc-b4ca-11dd-b780-0000779fd18c.html#axzz2kk9q9OYa>.

⁴³ C.f. Jamie Cross, Sanne van der Wal and Esther de Haan, "Rough Cut. Sustainability Issues in the Coloured Gemstone Industry", 34.

There are numerous factors that are of interest with regard to the results of this preliminary search bearing in mind the contextual framework established in the first part of this report: First, most problems seem to be situated at the **mining stage**, with the occurrence of issues during the subsequent stages either being absent or poorly reported. Second, and in comparison to diamonds and other minerals, risks are on the one hand much **more diverse and higher in number**, but on the other hand lower **in intensity** and reporting on the linkage to gemstones seems to be blurred. With regards to environmental impacts, for instance, risks seem similar to those reported in many other industries and, at least at their alleged scale, are arguably not of the same graveness and urgency as in other sectors. Third, the respective risks and problems seem to **differ greatly from one country to another**, which explains the existence of a series of case studies rather than comprehensive evaluations and renders comparative approaches difficult.

3.3. Existing and prospective initiatives

The introduction and the previous chapters established that there is an array of public and/ or private initiatives aimed at improving the responsibility of the mineral sector as a whole or of a specific industry (i.e. diamonds and gold). At this moment it is more difficult to find such initiatives in the colored gemstone sector. The existing initiatives can be separated into two categories: multi-stakeholder and corporate.

3.3.1. UNICRI

In 2010, the United Nations Interregional Crime and Justice Research Institute (UNICRI) in cooperation with the Vienna International Justice Institute and the International Colored Gemstones Association founded a public-private partnership to improve the transparency, regulations, working conditions and sustainability in the colored gemstone and jewelry supply chain from mine to export markets.⁴⁴ The key tool is a chain of custody mechanism, which facilitates the trace of gemstones from the mines, regions and countries they are extracted and exported from, using a verifiable documentation at export points and beyond. The greater traceability and origin certification shall ensure ethical, social and environmental good practices as well as prevent illicit trafficking of

⁴⁴ UNICRI, "Expert meeting to discuss a new initiative on coloured gemstones traceability and certification of ethical origin", 11 April 2013, accessed on 12 November 2013, http://www.unicri.it/news/article/2013-04-11_Expert_meeting_Gemstones.

colored gemstones. The chain of custody mechanism is based on five key principles: (1) *Design for adaptability*. It is not a fixed mechanism but it needs to be adapted according to the needs of governments or the industry. (2) *Transparency*. It is based on transparency to prevent any possibility of money laundering or infringing domestic law. (3) *The burden of proof falls primarily on governments, exporters and ultimately on importers*. The importer benefits from a certificate of origin through the promotion of consumer confidence. This way, fraud becomes a crime that can be domestically as well as internationally persecuted. (4) *Mandatory third party audits*. Before a country becomes eligible for the chain of custody mechanism, it needs to be audited by a third party according to criteria decided upon by the government, the industry and the civil society. (5) *Integrate appropriate parameters of other systems*. The chain of custody mechanism is not meant to reinvent a certification system. It rather aims at integrating already existing best practices ideas of traceability and certification of origin from other initiatives such as the Kimberly Process.⁴⁵

Among the industries participating in the UNICRI initiative are Cartier, Bulgari, Dior, Tiffany & Co., and Gemfields. Eight countries (Myanmar, Kenya, Colombia, Brazil, Madagascar, Mozambique, Sri Lanka, and Tanzania) already participate in the initiative and will be audited with the aim of adopting the chain of custody mechanism. They have been chosen either on the basis of their urgent need for reform in the gemstone mining sector or for their achievements regarding conservation laws, transparent exporting systems and traceability. Further countries under consideration are Afghanistan, Australia, Cambodia, Nigeria, Pakistan, Russia, Zimbabwe, Tajikistan, Vietnam, and Zambia. The three major processing countries China, India and Thailand will also be invited to participate. The US, Canada, Russia and South Africa support the UNICRI initiative in terms of policy and regulatory advice.⁴⁶

Similar to the Kimberly Process Certification Scheme, local governments will have to disclose where the gemstones come from. Contrary to the translation of the

⁴⁵ Jean-Claude Michelou, "Coloured Gemstones: Establishing a mechanism for the traceability and certification of ethical origins" (power point presented during the International Colored Gemstones Association's Congress 2013 in Changsha, China), available at http://www.gemstone.org/index.php?option=com_content&view=category&layout=blog&id=53&Itemid=38.

⁴⁶ Jean-Claude Michelou, "Presentation by Jean-Claude Michelou on Gemstone Tracing & Certification and UNICRI", accessed on 12 November 2013, http://www.youtube.com/watch?v=_e8LBVixamM.

Kimberley Process into national law, the UNICRI initiative will be voluntary – at least in the beginning. In total, it will prospectively take four to five years to implement the chain of custody mechanism.⁴⁷

3.3.2 Gemfields and Columbia Gem House Inc.

There is a wide array of different corporate approaches companies have taken to make their business more transparent, ethical and sustainable. Probably the two most prominent examples are Gemfields and Columbia House.

Gemfields is a gemstone mining company and one of the world's leading producers of colored gemstones. It produces approximately 20% of the world's high quality emeralds and has a ruby deposit in Mozambique, which once explored could be one of the biggest ruby deposits in the world. The company is now also looking for sapphire deposits in various jurisdictions.⁴⁸ According to the company, it sources gemstones in the Kagem mine in Zambia and in the Montepuez mine in Mozambique in an ethical, sustainable and transparent way.⁴⁹

Gemfields is involved in each step of the process from mine to market, which allows the company to guarantee the provenance of every one of their gemstones, and commits to the promotion of sustainability, environmental protection, and community development in the context of their mining activities.⁵⁰

Columbia Gem House Inc. is a vertically-integrated gemstone mining, cutting and marketing company. It has exclusive agreements with mines around the world, including in Southern Malawi, China, and Tasmania. In collaboration with its jewelry-manufacturing subsidiary, Trigem Design, Columbia Gem House Inc. is able to cover the entire process from the mine to the finished jewelry design. Like Gemfields, the company adopted a "mine to market" vision to promote traceability and transparency in their sourcing and trading of colored gemstones.⁵¹ In 2004, Columbia Gem House Inc.

⁴⁷ "A Kimberley Process...for Gemstones?", JCK 2 May 2013, accessed on 13 November 2013, <http://www.jckonline.com/blogs/cutting-remarks/2013/05/02/kimberley-processfor-gemstones>.

⁴⁸ "Gemfield's keen to acquire more emerald deposits", CNBC Africa, 04 October 2013, accessed on 13 November 2013, <http://www.cnbc.com/video/?bctid=2719432865001>.

⁴⁹ "Gemfields: Coloured Gemstones", Pallinghurst, accessed on 13 November 2013, <http://www.pallinghurst.com/investment-gemfields>.

⁵⁰ "Ethical Gemstone Mining: Ethics and Environment", Gemfields, accessed on 13 November 2013, <http://consumer.gemfields.co.uk/ethics/ethics-and-environment>.

⁵¹ "Delivering a Sustainable and Responsible Jewellery Industry", accessed on 13 November 2013, http://www.sustainablejewellery.org/index.php?option=com_content&view=article&id=25:fair-trade-

launched the Fair Trade Gems project. Miners who participate in the project agree to support efforts to protect workers' rights and the environment, and thereby to enhance the integrity of their gemstone production.⁵²

4. Methodology

The following chapter explores methodological considerations (scope, time and resources) and outlines the methodology of the study: semi-structured interviews. Academic and news articles, as well as books, are secondary data sources that are used to better understand the primary data. Past research on gemstones serves as an additional source of information for this study, as applied in the previous sections of the paper.

4.1 Methodological Considerations

Before examining the methodology, it is important to consider the scope of the study. As mentioned, the focus of our paper is on three of the most precious stones, namely, rubies, emeralds, and sapphires. Considering that there are a much greater variety of stones in the gemstone sector than – for example – in the diamond industry, a narrower approach results in a more descriptive and specific overview of the supply chains of these three stones. This may also provide insight into whether there are any – if at all – significant differences in the supply chains of rubies, emeralds and sapphires.

A second factor to take into account is the time dimension, which is also an additional reason to limit the scope of the analysis to only three of the most important gemstones. The project took place over the course of three months. This not only impacts the depth of the study, but it also imposes restrictions on the methodology. Since the authors conducted semi-structured interviews, only as many actors along the supply chain of colored gemstones as the time frame allowed were interviewed. As will be discussed in the following sub-sections, the authors nonetheless include actors from the various stages along the supply chain. Thus, it is the number of persons per supply stage, which is

gems-project-usa- &catid=4:case-studies&Itemid=11; "Fair Trade Gems", accessed on 13 November 2013, http://www.fairtradegems.com/fair_trade_gems/.

⁵² "The African Mining Vision: A Transformative Agenda for Development", Africa Canada Forum, accessed on 13 November 2013, http://www.ccic.ca/_files/en/working_groups/2013-04-02-AMV_backgrounder_EN.pdf.

limited. Future studies could, for example, expand on this study by increasing the number of interviewees.

4.2 Semi-Structured Interviews: Why?

For the purpose of this study, semi-structured interviews were conducted. Interviews are the best approach to this study because there is such little knowledge on the colored gemstone sector. Surveys, therefore, would present the risk that only limited information could be gathered from the respondents and that there would be a lower response rate than with interviews. Moreover, surveys are rigid and standardized, and do not allow for flexibility depending on the expertise of the interviewee. For this reason, the authors also decided against conducting structured interviews because “the primary way a researcher can investigate an educational organization, institution, or process is through the experience of the individual people, the ‘others’ who make up the organization or carry out the process.”⁵³ In this case, the process represents the various actors along the supply chain of colored gemstones and the actors in the different institutions involved in the sector.

The advantage of semi-structured interviews, therefore, is that the respondent is given the time and scope to talk about their opinions and knowledge on a particular subject. It is important to *understand* the respondents’ point of view and to try to formulize generalizations where possible. Therefore, “an in-depth interview gives the interviewer a chance to probe, to clarify, to search for deeper meanings, to explore unanticipated responses, and to assess intangibles, such as mood and opinion intensity.”⁵⁴ This would not be possible in a standardized survey or in a structured interview.

Such interviews are also beneficial “in situations in which you won’t get more than one chance to interview someone, *semistructured* interviewing is best.”⁵⁵ Although, it is important to keep in mind that semi-structured interviewing can also pose a significant strain on the limitations of the study because this methodology requires a lot of time commitment: “the researcher has to conceptualize the project, establish access

⁵³ Irving Seidman, *Interviewing as Qualitative Research: A Guide for Researchers in Education and Social Sciences* (New York: Teachers College Press, 2013), p. 9.

⁵⁴ Janet Buttolph Johnson and H.T. Reynolds, *Political Science Research Methods* (Washington, D.C.: CQ Press, 2008), p. 338.

⁵⁵ H. Russell Bernard, *Research Methods in Cultural Anthropology* (Newbury Park, California: SAGE Publications, 1988), p. 204.

and make contact with the participants, interview them, transcribe the data, and then work with the material [...].”⁵⁶ Despite these disadvantages, semi-structured interviewing was the most suitable approach to this study because the narrow scope of the project and the help of the partners provided enough support to the researchers to be able to carry out these interviews.

4.3 Sampling

In the scope of this study, sampling was based on the identification of stakeholders who work at the different stages of the colored gemstones supply chain. An initial list of stakeholders was provided by the partners Richemont S.A. and the Responsible Jewellery Council to the researchers. The researchers then developed a target list of interviewees in consultation with the partners. The central criterion in sampling was whether the potential respondents are familiar with the supply chain of colored gemstones. Expert knowledge serves the research objective in two ways. On the one hand, it helps the authors to provide a thorough description of the industry and enable drawing conclusions with regard to opportunities and challenges. On the other hand, based on their knowledge, experts were also able to provide their personal assessment of the chances they see for increasing responsibility in the sector. Their views thus complement the authors’ own analysis and together provide the most comprehensive picture of the gemstone sector.

In this context, it is furthermore crucial to ensure that actors at each stage of the supply chain – e.g. retailers, traders, polishers etc. – and actors from different institutional backgrounds – e.g. industry, civil society, science etc. – are equally represented. In cases where direct access to the respective actors is limited or even impossible, such as local, small-scale miners themselves, experts on the issue have been included in the sample. In total, 20 semi-structured interviews have been conducted, mostly in person and otherwise over the phone or Skype. Personal interviews were conducted in a number of European and American cities.

⁵⁶ Seidman, *Interviewing as Qualitative Research: A Guide for Researchers in Education and Social Sciences*, p. 11.

4.4 Interview Schedule and Evaluation of Data

As a way to organize the interview, the interviewers have created a standard set of questions, which allows for flexibility with regard to the content of the interview and with regard to the expertise of the respondent. The questions are mainly open-ended with the possibility of adding further questions on specific issues, some suggested by the interviewees, and some arising during the interview in order to focus on certain information the respondents address. Such an approach is advantageous because “major questions were developed [for semi-structured interviews] in the form of a general statement which was then followed by a sequence of sub-questions for further probing.”⁵⁷ The set of questions is composed of three parts: mapping the industry supply chain, identifying risks and evaluating existing initiatives and opportunities.⁵⁸ Following the interviews, transcripts of the recordings were analyzed based on the three main parts discussed in the interviews. The authors looked for repeated ideas and themes in order to find patterns in the data, which will be presented in the following sections.

4.5 Ethics

Since the interviews were recorded, it was vital to carry out an ethical study that protects the confidentiality of the respondents. Each interview consented to participating in the study by filling out a confidentiality form, which states that the interview is voluntary and that they have the right not to answer questions. Before the interview, the respondents were informed about the objective and the background of the study and were given the choice to be cited in the study. There was no compensation for the interview.

5. Colored Gemstone Industry: What the interviews tells us

In the following part, the data gathered from the interviews is presented, which is divided into three components: supply chain, existing problems and risks and existing and potential initiatives.

⁵⁷ Khairul Baharein Mohd Noor, “Case Study: A Strategic Research Methodology,” *American Journal of Applied Sciences* 5:11 (2008), p. 1603.

⁵⁸ See Annex A for the complete questionnaire.

5.1 Supply chain

The colored gemstone industry is highly complex and differs greatly from the diamond or gold sectors. It is, on the one hand, much more informal and includes a larger variety of actors on the other; there is no De Beers for colored stones. Moreover, ‘colored gemstones’ includes a variety of different commodities: The total value of the colored gemstone industry is said to be approximately 2 billion US,⁵⁹ and it is difficult to estimate the share that rubies, sapphires and emeralds account for. There are almost 50 gemstone producing countries,⁶⁰ some which that were frequently referred to during the interviews include Colombia, Brazil, Zambia, Zimbabwe and Madagascar for emeralds,⁶¹ Myanmar, India, Thailand, Afghanistan and Sri Lanka for rubies⁶² and Madagascar, the Kashmir region of Pakistan and India, Sri Lanka and Brazil for sapphires.⁶³ There seems to be an increasing focus on African countries, especially for rubies and sapphires as the output of South East Asian deposits is diminishing. Some sources are famous for the very exceptional quality of the stones they produce: According to our interviewees, Colombian emeralds and sapphires from the Kashmir region are among the finest stones and ‘Burmese’ became a label in itself to describe a ruby of outstanding quality.⁶⁴

The producing countries referred to here are not exhaustive and could easily be extended to include an additional 20 states, with some colored gemstone deposits still being unexplored. Already in this respect, the colored gemstone industry differs considerably from the diamond sector. The multitude of sources also means a multitude of local geological, political, legal and economic contexts that shape the gemstone industry in the respective settings. Together with other factors, that will be discussed in more detail below, this similarly results in a multitude of supply chains: Almost without exception, interviewees underscored that this variance is much higher for colored stones than for diamonds and that it is impossible to speak of *the* supply chain of colored gems. Based on the research conducted, the first part of the following section will sketch out

⁵⁹ As a comparison, the global trade in diamonds was estimated by interviewees at an annual 12 billion USD.

⁶⁰ Interview with a sustainable luxury expert, 22 October 2013.

⁶¹ See also International Colored Gemstone Association: “Emerald”.

⁶² See also International Colored Gemstone Association: “Ruby”.

⁶³ See also International Colored Gemstone Association: “Sapphire”.

⁶⁴ International Colored Gemstone Association: “Ruby”.

and describe in more detail the main stages of production a colored gemstone travels through from its mine to its end consumer. Building on this, some factors that affect the variation in supply chains as well as differing levels of traceability will be more closely examined, drawing upon the examples from respondents.

5.1.1 Supply chain: production stages

Despite the complexity of colored gemstone supply chains, the stages that a stone passes through on its way from the mine to being sold as jewelry to the end consumer remain the same for all stones, namely mining, cutting and polishing, manufacturing, and retail, as summed up in Table 2.



Table 2: Production stages of colored gemstone jewelry.

Mining

There are two ways to mine colored stones: Industrial, large-scale mining and artisanal and small-scale mining. Interestingly, the raise in prices for colored gemstones have led to a dual upwards trend in both industrial as well as small-scale mining. An industry representative explained that

“there’s slowly more larger-scale players coming into colored gemstone mining, (...) it is increasing but (...) as there’s more demand for color, there’s actually more and more people moving into small-scale mining as well.”⁶⁵

Before exploring each type of mining in more detail, it should be noted that the dichotomy implied here for analytical reasons does not fully hold in reality. Several respondents pointed to the fact that large-scale mining does not necessarily refer to a situation in which one mining company runs one mine with a certain number of miners working in it. Rather, one mining site may be controlled by a varying number of stakeholders who share the mining license for a given deposit. As a representative of the colored gemstone industry put it, there might be

“only one mine with 200 people [miners], but each of the 200 is directed by a different boss with a different agenda and strategy. It’s not one team,

⁶⁵ Interview with a coloured gemstone industry representative, 25 November 2013.

one company, one vision. So it is still small-scale mining to some extent”.⁶⁶

Yet, the distinction between different types of mining is crucial for the understanding of the supply dynamics of colored gemstones and was highlighted by nearly all interviewees. For the purpose of this study, the differentiation shall thus be made on the basis of corporate involvement: industrial mining refers to mining outfits in which mines are operated by one corporate entity whereas ASM refers to individual mining activities, hence also including the type of de facto ASM described above.

For reasons that will be addressed later, it is very difficult to define the shares of **industrial mining** vis-à-vis ASM in the colored gemstone sector. Respondents estimated the proportion of industrially mined stones at around 15-20% globally. Numbers differ from one region to another as well as, consequently, from one type of stone to another. Generally, the share of corporate mining seems to be larger for emeralds than for rubies and sapphires due to large mining projects in Brazil and Zambia. Colombia as another important emerald producing country and the Muzo area as its key deposit is a case that would probably fall in between the two categories, with mining activities being controlled by a number of local stakeholders.⁶⁷ Small-scale mining remains the main source especially of Madagascan sapphires.⁶⁸

Depending on the geological nature of the deposit, industrial mining can be the only feasible option to extract gemstones from, for instance, very deep or underwater locations.⁶⁹ Industrial mining is the more adequate mining configuration in such situations, not least because corporations have the necessary financial means to provide the upfront capital that is needed to determine the existence of such a deposit in the first place as well as to eventually finance technology-intensive production.⁷⁰ Another factor that has been identified as influencing the type of gemstone mining is the political and legal context in a given country:⁷¹ A comparatively formalized mining sector with administrative procedures in place that govern the attribution of mining licenses

⁶⁶ Interview with a coloured gemstone industry representative, 25 November 2013.

⁶⁷ Interview with a gemstone dealer, 21 November 2013.

⁶⁸ Interview with a colored gemstone expert, 29 October 2013.

⁶⁹ Interview with a colored gemstone industry representative, 25 November 2013.

⁷⁰ Interview with an ASM expert, 21 November 2013.

⁷¹ Interview with a gemmologist, 30 October 2013.

constitutes a conducive environment for industrial mining, while informality, weak governance and a long-standing tradition in small-scale mining might encourage ASM rather than larger-scale, corporate projects.

The vast majority of mining in colored gemstones is still done **artisanally**, with small-scale miners accounting for a much higher proportion of total production than it is the case for gold or diamonds as other jewelry components. 80% is a frequently cited number to describe the share of ASM in the colored gemstone sector, yet, it is only an estimate due to several reasons: First, despite attempts to speed up the formalization of the mining sector in a number of countries, ASM in many cases remains a largely informal activity. It is easy and does not require much specific knowledge or equipment; at the same time, it bears the promise of quick and high returns and thus, second, attracts a large numbers of people. What adds to this is that gemstone mining often takes place in remote areas, posing an additional obstacle to any attempts of monitoring. As one ASM expert put it, 80% is the “standard number (...) but who knows who first came up with that number?” – at the present stage, figures on ASM are thus only approximates and should not be treated as absolute numbers.

Why is ASM so prevalent in the gemstone sector? One reason certainly is the little technology needed to extract colored gemstones, at least from alluvial deposits. Furthermore, gemstone mining is a historic activity that mankind has practiced for thousands of years before the arrival of states, regulations and modern technologies. The long tradition of small-scale mining practices might in part account for why formalization in this particular sector lags behind. Lastly, some respondents pointed to a lack of interest in the colored gemstone sector: A civil society representative suggested that the experience of the Kimberley Process in part “spurred the diamond sector to become more formalized and more organized”.⁷²

Cutting and Polishing

The next step a colored stone passes through is that of cutting and polishing, which have been subsumed as one single stage because no significant distinction between them was

⁷² Interview with a civil society representative, 20 November 2013.

drawn by respondents.⁷³ There are two main patterns that were identified with regard to where the stones are cut and polished: Locally in the country where the stone was sourced or in one of the global cutting hubs. In addition, it can happen that especially big and high-value stones are cut – be it in the country of origin or in one of the cutting centers – and subsequently re-cut a second time, mostly by international traders responding to their clients’ demands, in those cases duplicating the cutting stage.⁷⁴

Local cutting is increasingly encouraged by governments of producing states as a measure to retain value of the stone in the country, either explicitly, by imposing higher royalties on the export of rough stones, or implicitly, as the margins of value added at the cutting stage tend to be among the highest throughout the downstream chain.⁷⁵ Notable examples of such efforts are found in South America, namely in emerald-producing Colombia and Brazil, where the lapidary sector is comparatively well developed and large shares of stones are exported after being cut. Similarly, a number of other countries including Nigeria, Sri Lanka, Tanzania and Madagascar are currently trying to develop their local lapidary capacities and legal frameworks so as to increase the export of cut vis-à-vis that of rough stones.⁷⁶

Yet, although expanding, local cutting still seems to be the exception rather than the rule in most countries. Instead, rough stones are transferred to a handful of places that have emerged as **global cutting centers**. Consequently, most of today’s cutting and polishing of colored stones takes place in South East Asia, with India (Jaipur), Thailand (Bangkok) and China being the most named lapidary hubs. In addition to this, reference was made to Sri Lanka (Colombo), Tucson (USA) and more recently the UAE (Dubai) in this context, with Germany’s (Idar-Oberstein) once central role declining. Turning to the different stones, gemstone traders indicated that sapphires are almost exclusively cut in Colombo whereas one finds the majority of the worldwide ruby production being transferred to Bangkok for cutting.⁷⁷ Speaking in terms of geographical trade flows, stones from South America – unless they were cut locally – tend to be transferred to

⁷³ The term “cutting” thus entails both cutting and polishing, unless otherwise specified.

⁷⁴ Interview with a gemstone dealer, 21 November 2013.

⁷⁵ Interview with a gemstone dealer, 11 November 2013.

⁷⁶ Interview with an ASM expert, 21 November 2013.

⁷⁷ Interview with a gemstone dealer, 22 November 2013.

Tucson for cutting, stones originating in Central Asia are cut in Jaipur and rough stones from Africa are mostly brought to Bangkok.⁷⁸

Manufacturing

Manufacturing is the stage in which gemstones are turned into jewelry and integrated in rings, bracelets, necklaces, earrings, watches, and so forth; and it is the stage that, along with the retail stage, was least addressed during the interviews. Consequently, it is difficult to provide detailed information on how the cut colored gemstones are transformed into jewelry. Nevertheless, some general observations will be briefly presented.

First, there seems to be two main options as to where manufacturing takes place as well as to who is in charge of it. On the one hand, manufacturing can be done **in-house** by the jewelry brands themselves. This appears to be the preferred option of big luxury brands when dealing with high-value gemstones. On the other hand, manufacturing can be **outsourced** to a number of different actors, including to cutters and polishers also offering manufacturing services, or manufacturers that are located geographically closer to the jewelry retailers. What all of these different trajectories have in common is that manufacturing is usually done on the basis of specific orders of the retailer or jewelry brand.⁷⁹ According to the interview data, the chosen way of manufacturing very much depends on the quality of the stone⁸⁰ as well as on the commercial quantity ordered: The higher the value, the ‘closer’, organizationally and geographically, to the jewelry retailer the manufacturing tends to take place, whilst closeness seems to be less important for large quantities of rather commercial end products, as compared to luxury jewelry.

Retail

The research conducted did not provide considerable new insights into the structure and characteristics of the retail stage of the colored gemstone industry. One obvious reason is that retail is the most visible and at the same time transparent one of the four stages identified and examined here. It is the jewelry brands’ names that consumers will know, not those of mining companies – in cases of industrial mining – or manufacturers who produced their jewelry – in cases of outsourced manufacturing. Of all actors involved in

⁷⁸ Interview with a colored gemstone industry representative, 31 October 2013.

⁷⁹ Interview with a colored gemstone expert, 29 October 2013.

⁸⁰ Interview with an ASM expert, 21 November 2013.

the colored gemstone industry, jewelry retailers are those that are most easily identifiable. In addition, and probably also because of this, there is much more information publicly available on the jewelry brands and their size, working methods and vision than for any other corporate actor involved, with the possible exception of large corporate mining enterprises such as Gemfields and Columbia Gem House, Inc.

One aspect that is worthwhile highlighting in this context and that has been pointed to by several respondents is that there are different types of jewelers. There are the large, famous luxury brands on the one hand, yet the majority of colored gemstone jewelry sold is of commercial quality, with the average price for one piece of jewelry in the US being of around 175 USD.⁸¹ In this context, it is also important to bear in mind that only a small fraction of mined gemstones is of appropriate quality to meet the requirements of luxury jewelry.⁸² The following section will, among others, show in more detail how the size of a stone potentially impacts the traceability of its supply chain.

5.1.2 Traceability

Due to the coexistence of several supply chain models, as described above, traceability is generally regarded as being rather low for colored gemstones, especially in comparison to other commodities such as gold and diamonds. In this context, almost all interviewees highlighted the crucial role of intermediaries. The analysis of the colored gemstone supply chain would thus be incomplete without a close examination of their involvement of intermediaries. The following will proceed as follows: First, the role and nature of intermediaries will be described in general terms. Second, a set of endogenous and exogenous factors related to intermediaries that respondents regarded as influential with regard to traceability will be examined.

Intermediaries

The first section described the four main stages of the colored gemstone supply chain as well as the actors involved at the main stage. What it left out is how a stone moves from one stage to another. One jewelry representative identified the linkages between the different steps as one of the largest remaining knowledge gaps: “I think we have

⁸¹ Interview with a colored gemstone expert, 29 October 2013.

⁸² Interview with a colored gemstone expert, 29 October 2013.

information on each step, but then we don't know how all these interact".⁸³ Here, intermediaries play an absolutely pivotal role. When speaking of the fragmentation of the supply chain, this does not refer to the four steps of production, but it refers to the time in between, where stones are traded through a number of hands before reaching the next stage. All interviewees, regardless of their professional background and position on the supply chain, pointed out that it is nearly impossible to identify the exact number of times a gemstone changes hands from the mine to the consumer. One industry representative estimated it to be around 10-15 times between mining and manufacturing.⁸⁴

This difficulty is also reflected in the multitude of names that were used to describe the intermediaries at different stages: small and large traders, local and international dealers, brokers, intermediate brokers, rough stone traders, cut stone traders, buyers, suppliers, wholesalers, collectors, distributors, exporters and importers. It is important to differentiate between local and international intermediaries: While local intermediaries comprise all those trading gemstones in the country of origin, international intermediaries, especially wholesalers, link the upstream part of the supply chain to the downstream actors. In other words, it is them who supply gemstones to the jewelers, either directly or through contracted manufacturers. Thus, wholesalers are known actors, whereas the identity of especially smaller local intermediaries is very difficult to determine and not a lot of information on them could be gathered in the interviews. This is reflected in the observation that traceability tends to increase after the stones are exported. Consequently, "what we know least about in terms of transparency [is] that bit between the person that's imported the rough and the mine."⁸⁵

The following analysis of the role of intermediaries is two-fold: It will start with some observations on endogenous factors, that is, characteristics of the working methods of international wholesalers and their impact on traceability. The second part will examine some exogenous factors that have an impact on the number of intermediaries involved in the supply chain.

Interviewees highlighted the **characteristics of the international gemstone trading business** as a highly traditional one. According to a civil society representative,

⁸³ Interview with a jewellery representative, 30 October 2013.

⁸⁴ Interview with a colored gemstone industry representative, 25 November 2013.

⁸⁵ Interview with an ASM expert, 21 November 2013.

“there are a lot of traders who are doing business in a very, very old-fashioned way. There’s a lot of familiar links and sales and trades are done without any sort of written contract”.⁸⁶

This view was confirmed by gemstone traders themselves, who underscored that their work was mainly built on longstanding business relationships and trust.⁸⁷ This observation is linked to a second inherent feature of the trading business: the protection of sources. Various respondents underscored how important it is for international traders to treat their sources confidentially:

“Traders and collectors don’t want to reveal where they got the stones from, they want to protect their own business, they are not very keen on disclosing information on origin provenance, etc.”⁸⁸

This secrecy is understandable when a business’s success is based on the ability to provide a certain quality of goods at a specific price, especially at a time where, as some of the interviewed traders noted, the rules that have governed the trade in colored gemstones for centuries are undergoing some change. With increasing options of access at the mining level for downstream actors, the protection of sources becomes even more important for wholesalers so as to safeguard their business.⁸⁹

Based on the view shared by many respondents, the number especially of local intermediaries depends on whether a stone has been mined industrially or artisanally as well as on whether a stone is of very high quality. The following will analyze each of these scenarios.

Respondents consistently stated that the number of intermediaries tends to be lower if stones originate in an **industrial mine**. Generally, industrial large-scale miners will have a more formalized and shortened supply chain.⁹⁰ One reason for this is that corporate miners might have direct contracts with other actors involved in the production of jewelry, cutters and polishers, manufacturers or also retailers,⁹¹ and hence have to account for what they mine. In this idealized case, the supply chain would be virtually limited to the four steps of production described in the first section. Another one is that

⁸⁶ Interview with a civil society representative, 21 November 2013.

⁸⁷ Interview with a gemstone dealer, 22 November 2013.

⁸⁸ Interview with a jewellery industry representative, 30 October 2013.

⁸⁹ Interview with a gemstone dealer, 22 November 2013.

⁹⁰ Interview with gemmologists, 13 November 2013.

⁹¹ Interview with a colored gemstone industry representative, 25 November 2013.

the selling structure of industrially mined stones is comparatively formalized, even in the absence of such contracts. Large-scale miners hold auctions, either in the country of origin or in colored gemstone trading centers around the world. A gemologist described the process as follows:

“The stone is mined and then the big companies often hold some sort of an auction and they have (...) buyers, they come and buy their goods. (...) They sometimes do these auctions in Europe. It depends, they tend to do those in different locations worldwide.”⁹²

In this scenario, international intermediaries, and through them the downstream actors, come in directly after the mining stage, thus cutting out the local intermediaries. This is also a strategy increasingly used by wholesalers as the number of corporate mining operations increases.⁹³

Things lie very different for **artisanally mined stones**, with the rough stones being traded by numerous local intermediaries before being exported and bought by international wholesalers. Identities of the local actors seem to be mostly unknown:

“You [the buyer] could ask ‘where did you get it from?’ and he [the seller] might say, ‘well, I bought it from somebody on the ground’, but how does he know for sure how it goes?”⁹⁴

There are several reasons that account for the centrality of local intermediaries in ASM. As mentioned above, mining areas are often remote, mines are informal and it is very unlikely that jewelry companies would go directly to the mines.⁹⁵ For international wholesalers, too, buying from small-scale mines on the ground is challenging and, according to one gemstone trader, has nothing to do with standard selling structures.⁹⁶ Consequently, cases where individual traders go all the way up to the mines might exist but are very seldom.

Table 3: Supply chain of artisanally mined stones.⁹⁷



⁹² In

⁹³ In

⁹⁴ In

⁹⁵ Interview with a jewellery industry representative, 31 October 2013.

⁹⁶ Interview with a gemstone dealer, 11 November 2013.

⁹⁷ IM stands for intermediary. Note that the number can vary.

Moreover, local middle men are also needed to bridge the gap between the mine and the international dealers due to very practical constraints: The miner might simply be unable to sell the stones he mined directly into the international market. If it is not himself holding the mining license, he⁹⁸ might be bound by arrangements with the person holding it.⁹⁹ Even in the absence of such obligations, it might just be physically impossible for the miner to reach the local trading centers. One expert gave the example of Madagascar, where the miner sells to intermediaries waiting at the mining sites, who then, in turn, will sell the stones to small dealers that have the means to transport the material to the closest trading center, where the gems will be bought by larger dealers and eventually exported.¹⁰⁰ Local traders furthermore have an important function in sorting the stones that will subsequently be traded as parcels rather than individually.¹⁰¹ After the rough stones have been exported, they might again change hands for a couple of times before moving on to the next stages of production, as can be seen in Table 3. However, as noted above, its path tends to become more transparent and the intermediaries involved at this time tend to be identifiable, also due to the fact that they might be directly linked to the manufacturer or the retailer and thus the very last downstream actors.

With regard to stones that have been cut locally, respondents' views on whether this would limit the number of local intermediaries differed. Some stated that it would considerably shorten the supply chain, whereas some indicated, with reference mainly to Colombia, that stones would still pass through four to five local intermediaries before ending up with international wholesalers.¹⁰²

The trading pattern of artisanally mined stones thus looks very different from that of industrially mined ones and can include a number of intermediaries between the different stages of production, especially with regard to the local intermediaries involved between mining and cutting.

Another factor that respondents pointed to with regard to the number of intermediaries involved is the size and **quality of the stone**. A jewelry industry

⁹⁸ "He" and "she" does not refer to the gender of the subject.

⁹⁹ Interview with an ASM expert, 21 November 2013.

¹⁰⁰ Interview with a colored gemstone expert, 29 October 2013.

¹⁰¹ Interview with an ASM expert, 21 November 2013.

¹⁰² Interview with a gemstone dealer, 12 November 2013.

representative emphasized that the size does not “change the initial mining, but it changes the way the stone is dealt with afterwards”.¹⁰³ The reason for this is that “big stones attract a certain kind of traders, everyone looks for big stones”¹⁰⁴ and larger local traders as well as international wholesalers will try and get hold of a high-quality, big stone as early as possible.¹⁰⁵ It might also be related to what several respondents suggested with regard to the identity of the jewellery retailer: Precisely, one expert on ASM noted,

“luxuries will tend to try and do an as closed type version of supply chain as they can. Because when you shorten the supply chain, there is less profits that are pitched. You keep your margin high.”¹⁰⁶

Thus, if a high-quality gemstone is mined artisanally, the supply chain is likely to be shorter than in the pattern described above as actors will try to circumvent large numbers of intermediary traders in an attempt to keep their margins high.

5.1.3 Concluding remarks

There are three main conclusions that can be drawn from the analysis of the supply chain. First, **the type of mining** seems to be crucial. It is considered to have a direct impact on the way in which a stone will be traded in the future, both with regard to where and by whom it will be cut, polished, and, to a lesser extent, manufactured, as well as to how many intermediaries are involved in its trade and consequently, how well its trajectory can be traced. Clearly, and for reasons that have been shown, industrial mining would be the perfect option if traceability was to be applied as a standard. At the same time, whether industrial mining is actually feasible depends on a variety of factors: geology, the local political and legal context as well as the local mining traditions to name only a few. Under these circumstances, it becomes clear that industrial mining alone cannot solve the problem of intransparency and fragmentation, as ASM will not suddenly cease to exist. Moreover, increased formalization does not necessarily put an end to ASM but can also create grey zones where the de-facto dynamics of small-scale mining remain unchanged. In order to come to grips with the complexity of the colored gemstone supply

¹⁰³ Interview with a jewellery industry representative, 30 October 2013.

¹⁰⁴ Interview with a jewellery industry representative, 30 October 2013.

¹⁰⁵ Interview with a gemstone trader, 11 November 2013.

¹⁰⁶ Interview with an ASM expert, 21 November 2013.

chain, an increased attention on ASM and on how to increase traceability for artisanally mined stones is of central importance.

This is where the second conclusion comes in: As has been shown, the essence of what is described as fragmentation and lack of transparency basically translates into the **role, identity and number of intermediaries** involved in the trade of colored gemstones. Any attempt to increase traceability forcibly has to include the intermediaries, both actively and passively. Actively, because international traders are the only actors that might perhaps be able to identify their upstream counterparts and their role in the trade as well as for the simple but absolutely critical reason that the trade in colored gemstones is built on intermediaries. As it has been demonstrated, especially for artisanally mined stones there is no way around them, both on the international and on the local level. In terms of trading processes, they arguably are the most important actors in the colored gemstone and jewelry industry. Passively, because further insight is needed into the functioning of their business and any attempts to alter the current situation will have to be weighed against the traders' vital interest to protect their sources in order to ensure their participation. Here, a balance has to be found between two delicate and seemingly juxtaposed positions: the commendable and necessary efforts to increase traceability and the equally understandable requirements for a specific business model.

Lastly, combining these two observations, there seem to be **different levels of traceability** or numbers of intermediaries involved depending mainly on the type of mining but also on the quality of the stone. The latter has been implicitly addressed in the first section: Accordingly, lower quality stones' patterns of production seem to slightly differ from those of high quality stones that will be used for luxury jewelry. Given, however, that the vast majority of the world's production of colored gemstones is of lower quality and ends up in moderately priced, commercial jewelry products, this factor should not be overlooked.

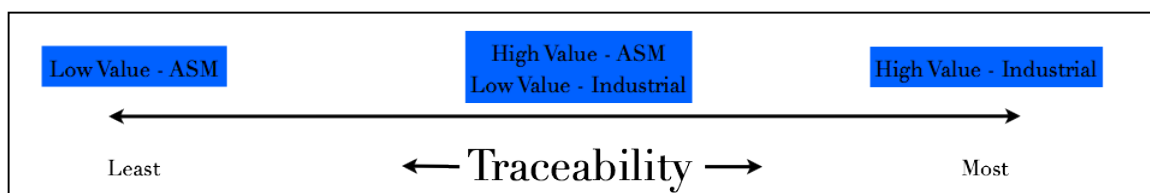


Table 4: Levels of traceability.

The categorization, as presented in Table 4, implies that special attention needs to be attributed to artisanally mined stones and, among them, especially to lower quality stones.

5.2 Existing problems and potential risks

While diamonds have been mainly linked to conflict regions, financing violence and human rights abuses, the gemstone sector does not have one such main critical existing problem or risk. Instead, respondents identified an array of existing problems and risks in the sector, which appeared to vary depending on their position in the supply chain and on their interests. Similarly, there is not one particular region and there is no list of specific countries that have more existing and potential problems and risks in the sector than others. The only recurring countries mentioned throughout the interviews are Myanmar, Colombia and Madagascar. Interviewees were concerned about the questionable relationship between the Burmese military and the gem trade, Colombia's conflict links, and Madagascar's working conditions and environmental degradation.

Before addressing the existing problems and risks in the sector, it is important to point out that many of these are directly linked to the characteristics of gemstones. Numerous respondents emphasized the value of the stone as an important factor in determining existing problems and risks. The size and quality of the stones impact what issues and risks are associated with the trade of those particular gemstones. For example, an ASM expert noted that child labor is more prevalent with lower quality stones.¹⁰⁷ In general, the small size of the stones makes gemstones an easy commodity to smuggle and to use for money laundering. As a result, the value of the stones also brings about a security risk for the actors supplying, trading or purchasing the gemstones. A representative of the jewelry and watchmaking industry explained that traders looking for emeralds in Madagascar or Colombia are sometimes accompanied by armed men due to the life risks linked to the value of the stones.¹⁰⁸

¹⁰⁷ Interview with ASM expert, 21 November 2013.

¹⁰⁸ Interview with representative of jewelry industry, 31 October 2013.

The following sub-sections analyze the existing problems and risks according to the following categories: country specific problems and risks, criminal activities, existing problems and risks at the mining and manufacturing stages, existing problems and risks at the company and retailer stages, existing problems and risks related to international law, most critical problems and risks, and differences between large-scale mining and ASM. Table 5 provides a brief overview of the risks and existing problems to be discussed in this section.

Country Specific	<ul style="list-style-type: none"> • Stability of the government • Availability of resources • Degree of regulation and enforcement • Corruption • Financing of illegal activities or armed groups • Conflict • Role of the political elite
Criminal Activities	<ul style="list-style-type: none"> • Money laundering • Smuggling • Tax evasion • Fraud • Theft • Exploitation
Mining and Manufacturing Stages	<ul style="list-style-type: none"> • Human rights • Forced labor • Child labor • Old people working in Mines • Working conditions • Gender discrimination • Health an safety • Environment • Weather • Migrant population • Effects on the local economy
Company and Retailer Stages	<ul style="list-style-type: none"> • Liability • Traceability of stones • Reputation • Shifting demand

Most Critical	<ul style="list-style-type: none"> • Corruption • Smuggling and fraud • Working conditions and child labor • Funding human rights abuses and violence
Large-Scale vs. Small-Scale Mining	<ul style="list-style-type: none"> ⤴ Risks and existing problems are mainly associated with small-scale mining
International Law	<ul style="list-style-type: none"> • Little evidence to adhere to international law

Table 5: Overview of the risks and existing problems.

5.2.1. Country-specific problems and risks

As gemstones are not concentrated in a specific region, there are systemic problems and risks related to development that impact the responsibility of the supply chain and efforts to improve the conditions in the sector:

- *Stability of the government*
- *Availability of resources*
- *Degree of regulation and degree of enforcement*
- *Corruption*
- *Finance of illegal activities or armed groups*
- *Conflict*
- *Role of the political elite*

Respondents indicated that the **stability of the government** serves as an indicator of problems and risks linked to that particular country. Governmental instability exacerbates existing problems and increases risks, strengthening the potential for conflict and violence. For example, a civil society representative pointed out that for actors working in the gemstone trade in Madagascar it is important to take the potential risk of instability into consideration by looking at who is profiting from the business in the country.¹⁰⁹ When dealing with countries that are unstable or have the potential for instability, there is also the risk that the practices of the gemstone sector support bad governance, lawlessness and actors that perpetuate the situation in the nation.

Poor governance and the level of development also influence the **availability of resources** of local law enforcement agencies. In many countries where gemstones originate, officials simply lack the necessary resources to provide oversight, regulation,

¹⁰⁹ Interview with civil society representative, 20 November 2013.

and enforcement of the sector. A representative of the jewelry and watch industry noted that it would be difficult to implement regulation in the industry if local authorities have a shortfall of resources, citing an example where officials do not have the financial means to purchase a car to check suppliers of exotic skins within the country.

Availability of resources, thus, further poses an obstacle for **regulation and enforcement** by the national and local governments. Existing problems and risks vary depending on the degree of regulation and enforcement in the country. A lower degree of regulation and enforcement translates into more risks and problems, especially because the level of criminal activity in the country also fluctuates based on these factors.¹¹⁰ However, there is not always an inverse relationship between regulation and enforcement and risks and problems because there are instances where criminal activity persists despite stronger oversight. According to an ASM expert, 50 percent of the gemstones in Brazil are smuggled out of the country even though it is one of the most well governed gemstone sectors in the world.¹¹¹

Consequently, **corruption** is a big problem in the industry, representing an obstacle for regulation. A gemologist explained that high levels of corruption is an issue for the KPCS, as stones pass borders through smuggling and are declared as originating in a different country.¹¹² Such corruption facilitates criminal activities such as smuggling by turning a blind eye on the illegal dealings in the gemstone sector. As observed by a gemstone dealer, wherever there is money, there will be government officials at customs and at places where export and mining licenses are distributed.¹¹³ Procedures to purchase official licenses constantly change and it is often unclear when these licenses expire. The government profits from the export of gemstones. Moreover, in some places such as Colombia corruption is simply part of the mentality of the government and the local citizens.

Another existing problem, as well as risk, is the **finance of illegal activities or armed groups** through the sale of gemstones. Respondents contended that this occurs less frequently and on a smaller scale for colored gemstones than in the case of diamonds.

¹¹⁰ Interview with representative of jewelry industry, 30 October 2013.

¹¹¹ Interview with ASM expert, 21 November 2013.

¹¹² Interview with gemologist, 30 October 2013.

¹¹³ Interview with gemstone dealer, 11 November 2013.

One reason for this was pointed out by a gemologist who posited that it is easier to finance weapons with diamonds or gold because gemstones vary substantially in value, making it more difficult to sell them.¹¹⁴ Nonetheless, there is the potential risk that illegal armed groups will profit from the gemstone trade and transportation. As a result, it is possible that the sale funds groups who commit human rights abuses.¹¹⁵ Numerous interviewees expressed concern over the ties between the gemstone trade in Myanmar and the military regime, arguing that there is no concrete evidence of the relationship between the two but that it is likely that the regime has benefited from the ruby trade.

Contrary to diamonds, gemstones are not generally directly linked to **conflict**. Colombia is the only country that was brought up repeatedly by the interviewees with regard to conflict-related problems and risks. According to a civil society representative, gemstones are the perfect commodity for conflict financing due to how easy they are to mine and to transport.¹¹⁶ The emerald trade in Colombia was connected to violence in the 1990s but there appears to be more stability at the moment. Nonetheless, there is always the risk that violence will break out again and that the emerald trade could be implicated in financing illicit activities or illegal armed groups.

In order to control who is benefiting from the gemstone trade, it is thus important to take **the role of the political elite** into consideration. The political elite can serve as a tool to perpetuate the existing problems and risks in the nation. According to an NGO representative, actors in the supply chain need to examine whether the gemstone trade is important to the political elite, as may have been the case of the military junta in Myanmar, and whether they have a role in the continuation of war. For example, there are concerns about the role of the Taliban and the trade of sapphires and rubies in Afghanistan and Pakistan.¹¹⁷ More specifically, actors should also be aware of who is profiting from the mining activities, and companies should take this into account in countries like Myanmar where there is a risk of instability. All the aforementioned country-specific existing problems and risks are systemic and mainly associated with development, which is why they differ depending on the nation.

¹¹⁴ Interview with gemologist, 30 October 2013.

¹¹⁵ Interview with civil society representative, 20 November 2013.

¹¹⁶ Interview with civil society representative, 20 November 2013.

¹¹⁷ Interview with civil society representative, 25 October 2013.

5.2.2. Criminal activities

There were some disagreements among the interviewees about the prevalence of criminal activity along the supply chain. Since many actors primarily interact with each other based on established trust, they try to only conduct business with legitimate people, suggesting that they come across instances of criminal activities less frequently.¹¹⁸ The majority of respondents, though, identified numerous widespread existing problems and risks related to criminal activities in the gemstone sector:

- *Money laundering*
- *Smuggling*
- *Tax evasion*
- *Fraud*
- *Theft*
- *Exploitation*

Money laundering is a common problem associated with gemstones because the stones travel easily even when there are export restrictions. A gemstone dealer noted that the emerald business in Colombia is a tool for people in the drug trafficking business to launder money, since the dealer does not know what happened before the stones were sold.

Respondents had varying opinions about the extent of **smuggling** in the supply chain of gemstones. In Colombia there is no need to smuggle gemstones because there are no taxes, which means there is little incentive to hide the export of these stones. On the contrary, smuggling is common in Afghanistan and Pakistan where nearly all of Afghanistan's gemstones are smuggled into Pakistan. As already mentioned, smuggling is also prevalent in Brazil where half of the gemstones are smuggled out of the country despite a high degree of regulation over the sector. The problem of tax evasion is directly linked to smuggling.

Fraud was briefly mentioned, but was not directly addressed by the majority of interviewees. An ASM expert pointed out that the industry is most concerned with smuggling and fraud.¹¹⁹ In terms of smuggling gemstones, there is a risk of fraud because sometimes actors will misrepresent where the stones originated. For example, rubies

¹¹⁸ Interview with gemstone dealer, 22 November 2013.

¹¹⁹ Interview with ASM expert, 21 November 2013.

mined in Vietnam could be labeled as rubies from Myanmar in order to get more value per carat. Additionally, there is an existing problem, as well as risk, of theft at the mining stage, which is primarily a problem in large-scale mines. It was noted that roughly 10 percent of Gemfields production is stolen.¹²⁰ Instances such as a fisher hiding emeralds in his fish in Zambia near a big mine also occur.

While not directly a criminal activity, **exploitation** is another problem and risk in the gemstone sector, particularly at the start of the supply chain. Since the pricing scheme for gemstone is complex, buyers often trick miners into lower prices than the gemstones are actually worth. There is also the risk for miners that they do not find any gemstones and that they are fighting for their survival. Moreover, exploitation takes place in the sense of a lack of beneficiation for the local community, which means much of the money in the sector does not help those actors that are living in poverty and are fighting for their livelihoods.¹²¹ An NGO representative witnessed in Sierra Leone that even when a proportion of the tax goes to local community beneficiation, it is unclear how the money is distributed and who is profiting from it.¹²² For example, there are no visible benefits from the resource rich environment in African countries that would improve living conditions. In combination with money laundering, smuggling, tax evasion, fraud, and theft, exploitation exacerbates these problems and risks in the colored gemstone industry.

5.2.3. Existing problems and risks at the different stages of production

A significant proportion of the existing problems and risks determined by the interviewees were concentrated in the **mining and manufacturing stages** of the supply chain. These include the following:

- *Human rights*
- *Forced labor*
- *Child labor*
- *Old people working in mines*
- *Working conditions*
- *Gender discrimination*
- *Health and safety*

¹²⁰ Interview with ASM expert, 21 November 2013.

¹²¹ Interview with NGO representative, 25 October 2013.

¹²² Interview with NGO representative, 25 October 2013.

- *Environment*
- *Weather*
- *Migrant populations*
- *Effects on the local economy*

There was a disagreement among respondents whether or not **human rights** is a problem in the gemstone sector, with many arguing it's a widespread issue and some asserting it is not a problem at all. A civil society representative speculated that forced labor and inadvertently **financing armed groups committing human rights abuses** are serious problems in both the diamond and gemstone industries.¹²³ Even though concrete evidence is missing, the abusive military junta in Myanmar has most likely profited from the trade of rubies, linking the colored gemstone sector to human rights violations.

Child labor was an additional human rights violation, which emphasized by several interviewees but was another contested topic among respondents. In the view of a gemstone dealer, there is no child labor in the colored gemstone sector because workers need to be skilled to cut the stones.¹²⁴ Children simply lack the knowledge to work in this business. Another gemstone dealer argued that children are present in the sector, just not everywhere due to their lack of knowledge and experience, especially in the cutting and polishing stage.¹²⁵ Furthermore, children are weaker than adults, increasing the difficulty for them to work in colored gemstone mines. According to an ASM expert, child labor is more common for the lowest quality stones.¹²⁶

A few respondents mentioned the child labor in the sector, while pointing out that there are often no other alternatives for these children. In many cases these children need to support their families due to poverty and little to no access to education. A gemologist noted that it is thus challenging to differentiate between child labor in the sense of human rights abuses and children who are working to help support their families and have no other options.¹²⁷ An expert gave an example of children in Madagascar who cannot afford to pay the annual tuition and who need to find a way to survive.¹²⁸ Conversely, one

¹²³ Interview with civil society representative, 20 November 2013.

¹²⁴ Interview with gemstone dealer, 22 November 2013.

¹²⁵ Interview with gemstone dealer, 11 November 2013.

¹²⁶ Interview with ASM expert, 21 November 2013.

¹²⁷ Interview with gemologist, 30 October 2013.

¹²⁸ Interview with an expert, 29 October 2013.

interviewee also mentioned that there are also **old people working in mines**, which could be considered a violation of human rights.¹²⁹

Working conditions depend on the size of the mine. Poor working conditions tend to be associated with ASM, while better working conditions can be found in large-scale mines. Furthermore, working conditions are also dependent on the nature of the sedimentary and how deep miners need to dig in order to locate colored gemstones. In Madagascar working conditions are poor because miners need to descend 30 meters into narrow holes. **Health and safety** problems and risks associated with working conditions include blindness and shorter life expectancy as a result of the use of chemicals. Safety issues arise when there is a lack of expertise in securing the mine. For example, in Madagascar miners do not have access to timber to secure the site.¹³⁰ Often actors live near the mining operations, which exposes them to health and safety problems in both their living and working surroundings.

Many interviewees expressed concern about **environmental** problems and risks primarily related to the mining and manufacturing stages, although emphasizing that these are more critical in the gold industry. One of the biggest problems for the environment is mining in natural parks.¹³¹ This is especially pertinent in Madagascar where mining has taken place in environmentally protected areas, negatively affecting the biodiversity. There was a big claim in a protected region of Madagascar but it was only discovered after there was already damage to the environment, prompting an end to the mining activities. Environmental destruction is also a result of human settlement in these protected areas of land because miners alter the ecosystem through their way of living.¹³² Rather than ensuring remediation and rehabilitation of the environment, holes are left behind, which poses a risk for animals, children and others passing through the area. Additional risks associated with mining are soil erosion, and changes in the river flow, as well as contamination of the river water. On the other hand, environmental problems can also originate in the practices of processing the colored gemstones. When mercury is used to clean and wash stones, the chemicals seep into the soil and the river.

¹²⁹ Interview with gemstone dealer, 11 November 2013.

¹³⁰ Interview with ASM expert, 21 November 2013.

¹³¹ Interview with representative of the jewelry industry, 30 October 2013.

¹³² Interview with ASM expert, 21 November 2013.

A gemstone dealer also referred to **weather** as a risk because it could drastically change mining conditions from one day to another.¹³³ For instance, a typhoon crossing Thailand, the Philippines or Madagascar is an environmental risk that impacts the gemstone sectors in the affected nations. **Migrant populations** pose another problem at the mining stage, as they might be more likely to disregard local regulations and customs. Lastly, a respondent in the jewelry and watch industry noted that mining and manufacturing also **impacts the local economy**.¹³⁴ For example, certain industries might have to close down when workers switch to gemstone mining. This has adverse impacts on the local economy and thus also presents a problem for the gemstone industry.

Upstream of the supply chain, **companies and retailers** also face significant risks in the gemstone industry that are heavily dependent on consumer awareness and knowledge about the responsibility of the gemstone supply chain. These are also influenced by the informality and the fragmentation of the sector, which complicates issues of transparency and which poses a challenge for tracing gemstones.

- *Liability*
- *Traceability of stones*
- *Reputation*
- *Shifting demand*

According to a colored gemstone industry representative, **liability** poses a big risk for the gemstone sector.¹³⁵ A lack of disclosure about commodities to the customer could open companies up to lawsuits, which is a risk that the industry needs to be concerned with in the long term. This includes misidentifying and/or misrepresenting the origin of gemstones. However, the colored gemstone industry representative identifies this as one of the **key drivers for more responsibility** in the sector because companies need to ask themselves whether they can afford not to know. **The traceability of gemstones**, thus, poses a risk in terms of liability because the complex nature of the supply chain makes it challenging to trace the origin of the stones. This also complicates any measures taken to address the existing problems and risks in the sector.

¹³³ Interview with gemstone dealer, 11 November 2013.

¹³⁴ Interview with representative of the jewelry industry, 30 October 2013.

¹³⁵ Interview with colored gemstone industry representative, 25 November 2013.

Reputation represents another risk for the end of the supply chain, especially when looking at the reputational damages caused by scandals in the gold and diamond industries.¹³⁶ There is pressure on the industry to mitigate reputational risks based on the experience from these other sectors.

Liability risks, problems tracing gemstones, the risk of reputational damages and all of the existing problems and risks mentioned in this section also create the potential risk that there will be **shifting demand** in the industry away from gemstones. An NGO representative asserted that there is the risk that the consumer will lose confidence in the gemstone industry or will question the origin of the stones.¹³⁷ There appears to be a consensus among participants that consumer awareness and knowledge about the sector is low, which is why the chance of a consumer backlash is low at this moment in time, but it poses a substantial risk nonetheless.

5.2.5. Existing problems and risks: international law

Based on the limited discussion and responses about the role of international law during the interviews, international law can be considered as a risk and an existing problem in the gemstone sector because there is a general lack of adherence to international law by the smaller actors in the beginning stages of the supply chain. A gemologist posited that corruption represents a challenge in the countries where the stones originate since actors need money and will do whatever is necessary to improve their financial situation.¹³⁸ Nevertheless, the representative speculates that big companies do follow international law in these countries. According to an ASM expert, there is little incentive for actors to comply with international law at all.¹³⁹

5.2.6. Most critical existing problems and risks

Respondents were asked to assess the most pressing problems and risks in the gemstone sector. They named the following items:¹⁴⁰

- *Corruption*
- *Smuggling and fraud*

¹³⁶ Interview with civil society representative, 20 November 2013.

¹³⁷ Interview with civil society representative, 25 October 2013.

¹³⁸ Interview with gemologist, 30 October 2013.

¹³⁹ Interview with ASM expert, 21 November 2013.

¹⁴⁰ This does not however mean that this is an exclusive list, as it is only based on the answers of the actors interviewed for this project.

- *Working conditions and child labor*
- *Funding human rights abuses and violence*

5.2.7. Differences between ASM and large-scale mining

According to the respondents, the aforementioned risks and existing problems are mainly associated with ASM. These are in particular: environment, child labor, criminal activities and working conditions. Small-scale mining in protected areas in Madagascar is a big problem, for instance. Conversely, large-scale mines are typically linked with better working conditions because big companies will pay more attention to health, safety and security in order to avoid reputational damages. A representative of the jewelry and watch industry argued that this is the reason why child labor is less likely in big mines.¹⁴¹

This does not mean, though, that there are no problems and risks in big mines. An NGO representative posited that sometimes these multinational companies get involved in complicated environments, which exposes them to risks.¹⁴² Moreover, an ASM expert explained that large-scale mines tend to have massive problems with community relations, but did not elaborate further on the subject.¹⁴³ With regard to criminal activities, big mines have problems with theft by employees or other actors in the area.

5.2.8. Concluding remarks

The analysis of the array of existing problems and risks demonstrates that many are concentrated in the mining and manufacturing stages of the supply chain, but that companies and retailers also have potentially big risks associated with the outlined existing problems in the gemstone sector. Many of the existing problems and risks vary depending on the country and are systemic, which means they are linked to development and are often not a direct result from the practices of the gemstone industry. These systemic problems and risks thus complicate efforts to make the supply chain more responsible due to varying degrees of regulation and enforcement and low incentives to follow international and national laws. Colombia is the only nation in which the trade of emeralds has been linked with conflict, while there is no concrete evidence of the relations between the military junta and the gemstone trade in Myanmar. This suggests

¹⁴¹ Interview with representative of the jewelry industry, 30 October 2013.

¹⁴² Interview with civil society representative, 25 October 2013.

¹⁴³ Interview with ASM expert, 21 November 2013.

that it is vital for governments – in particular countries where gemstones originate – to be a part of any mechanisms aimed at increasing the responsibility of the supply chain.

The value of the stones also has an impact on the problems and risks because higher value brings about more risks. Additionally, many of the issues are connected to ASM, while respondents reasoned that there are fewer risks in large-scale mining mainly due to reputational concerns. Another factor is the informality of the sector, often resulting in low levels of oversight and scrutiny. As a result of the fragmentation of the supply chain, some risks only affect certain actors along the supply chain and not others, which means that not every actor is going to be interested in the same problems and risks.¹⁴⁴ This might explain why there were disagreements among interviewees about the problems and risks. According to a civil society representative, a challenge to addressing these problems and risks is that there is a lack of pressure in the industry to improve its responsibility at the moment.¹⁴⁵ This section has demonstrated the complexity of the risks and problems associated with the gemstone industry and the challenges that the sector will face in order to make the supply chain of colored gemstones more responsible and transparent.

5.3 Existing and prospective initiatives

Today, customers appear to be more cautious when they buy luxury jewelry, asking for example for certificates of origin and whether the jewelry they are buying was ethically sourced. A report on responsible luxury, published by the Confédération Internationale de la Bijouterie (CIBJO), states that,

"consumer reflection places greater emphasis on how they express their individual civic duty or changing feelings of responsibility towards society through their luxury spending. This is not underpinned by any past guilt; instead by a belief driven by younger generations of how more can be attained in a single purchase than just the value of the item itself. Am I supporting others in my consumer choice? Can I feel good about my purchase, beyond the function or flare of the item itself? In buying this product, can I be assured that no one less fortunate than myself is being exploited?".¹⁴⁶

¹⁴⁴ Interview with gemstone dealer, 11 November 2013.

¹⁴⁵ Interview with civil society representative, 20 November 2013.

¹⁴⁶ Kendall, Jonathan, "Responsible Luxury: A report on the new opportunities for business to make a difference", 2010, accessed on 15 November 2013, http://www.cibjo.org/download/responsible_luxury.pdf.

This new trend should be seen as a driving force for jewelry retailers to ensure that what they buy from gemstone dealers, at auctions or trading centers has a certificate of origin and does not violate any ethical standards. Jewelry retail companies may not necessarily want to brand their jewelry as ethical as this can bear the risk of selling both ethical and 'less ethical' jewelry which could alienate the consumer. Instead, they could use the growing consumer awareness regarding precious stones as a momentum to respond proactively and join other stakeholders in the jewelry sector in attempts to increase responsibility. This section outlines what respondents said about existing and potential responsible sourcing initiatives in the colored stone sector and evaluates their strengths and weaknesses.

5.3.1. Analysis of existing and potential responsible sourcing initiatives

Most respondents and representatives of the jewelry industry in particular saw the need to take action to address risks involved in the colored gemstone supply chain. However, some respondents doubt that it is possible to develop a comprehensive scheme similar to the KPCS for colored gemstones because of their very fragmented supply chain and the many different actors involved in it, as explained in the previous sections.

One gemstone dealer¹⁴⁷, for instance, pointed out that at this moment in time he could not see how an international entity could possibly bring all stakeholders from different cultures and countries, and conflicting private and public sector interests together to develop a similar certification scheme for colored gemstones. This is also one of the reasons why there is some doubt that the multi-stakeholder **UNICRI initiative** will be successful in establishing a certification mechanism and operating the work of laboratories in sourcing countries. Many stakeholders, especially governments, have to be convinced about the need to apply the mechanism. Furthermore, some interviewees pointed out that the feasibility, time and high costs of the UNICRI initiative and its implementation are a serious concern. The producing countries would need to establish laboratories and train staff to test and certify all parcels of stones that leave the country. These laboratories as well as mines and other sites involved in in the gemstone sourcing

¹⁴⁷ Interview with gemstone dealer, 24 October 2013.

process would need to be regularly monitored to prevent problems of corruption and violation of international standards. This in turn would also require significant and thus probably international funding. One gemologist¹⁴⁸ states that,

“it has to be financed, it will be very expensive. There has to be done a lot of monitoring in the [sourcing] country itself already, again because of corruption. This will be in my opinion very difficult, and certainly limited to a certain extent or degree because you can’t monitor everything, that’s impossible.”

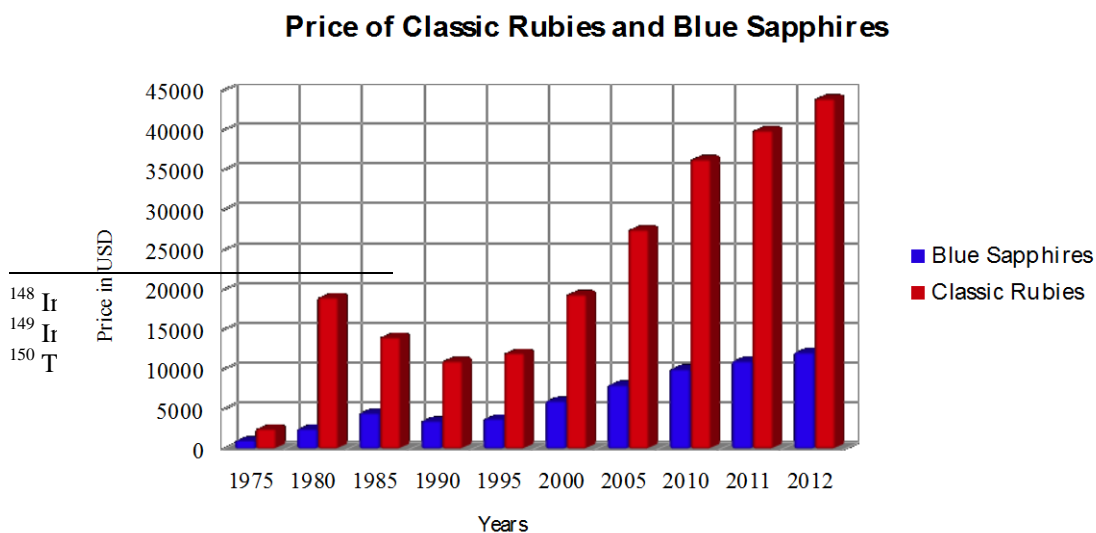
One representative of the jewelry and watchmaking industry also argued that the initiative is likely to create new compliance measures for artisanal miners in sourcing countries which could turn out to be rather harmful to the local mining and trading of colored gemstones:

“those kinds of steps [the UNICRI initiative] are simply burdensome to the [sourcing] countries and to the artisanal miners and they are impractical. And all what they do is create higher costs and higher burdens on them, and that’s not what’s needed. All what’s needed are basic assurances and frameworks to get the stones to market.”¹⁴⁹

Like this respondent, some representatives of this industry observed that non-binding codes of best practices would be less damaging to small-scale artisanal mining and local trading and cutting of colored gemstones.

Yet, most interviewees agreed that the certification system that UNICRI is currently developing would make it possible to trace gemstones back to the country where they were sourced. This is considered to be an important innovation as it would make the jewelry industry and the colored gemstone market more transparent and could prevent a consumer backlash similar to what happened in the diamond industry.

Table 6: Price of classic rubies and sapphires.¹⁵⁰



148 Ir
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150 T

Finally, gemstone dealers emphasized that it is the origin of a colored gemstone that is key to establish its price. However, not only dealers need to know where precisely a stone comes from, but also auction houses, which have become new important players in the jewelry industry by competing with retailers by selling diamonds and colored gemstones at auctions or privately to high-net-worth clients. According to one gemstone dealer¹⁵¹, auction houses were also in part responsible for driving up the number and the price of gemstone sales and making rare and precious gemstones become an attractive investment alternative. As is shown in Table 6, the price for rubies and sapphires has been steadily increasing over the last years. One auction in Myanmar in 2011 alone achieved US\$2.8 billion in sales.¹⁵² In September 2013, Gemfields generated record revenues of US\$8.5 million from an auction of traded rough emeralds held in Jaipur, India, achieving a per-carat price of US\$58, the highest average price achieved at any Gemfields auction.¹⁵³

While it is rather easy for companies like Gemfields to know where the stones it sells come from, as was shown in the description of industrial mining, other jewelry retailers and auction houses have a strong interest in tools that help identifying the country of origin of a colored gemstone. The UNICRI initiative would provide a powerful tool to do that. The same gemstone dealer also pointed to past attempts to combine the different gemstone laboratories operating in developed countries under one umbrella organization to standardize certificates of origin.¹⁵⁴ According to a dealer, the industry would have benefited from making origin and price issues more transparent. Apparently, gemstone dealers use different laboratories such as GIA, EGL, Gübelin and others to get their stones certified after they have been imported into the US or Europe. Standardizing this process by using the certificate mechanism envisaged by UNICRI is likely to help dealers and retailers to better trace a stone and establish its price and thus there is an incentive for them to support the initiative.

Another approach taken into consideration by the industry is to look at what

¹⁵¹ Interview with gemstone dealer, 22 November 2013.

¹⁵²“Secret Rocks”, The Wall Street Journal, 17 May 2013, accessed on 10 December 2013, <http://online.wsj.com/news/articles/SB10001424127887323372504578466933124542820>.

¹⁵³“Gemfields nets \$8.5m at Jaipur auction”, accessed on 10 December 2013, <http://www.jewellerynewsasia.com/en/News/8976/Gemfields-nets-8-5m-at-Jaipur-auction-.html>.

¹⁵⁴ Interview with gemstone dealer, 22 November 2013.

initiatives already exist and whether these could be extended to include colored gemstones to make their supply chain more transparent and sustainable. The **Precious Stones Multi-Stakeholder Working Group (PSMSWG)**, for example, is a coalition of actors, which represents the whole value chain of precious stones and aims to explore how to advance and to coordinate responsible supply chains and sourcing in the sector. A civil society representative¹⁵⁵ said that the PSMSWG is

“keen to ensure that this initiative covers colored stones as well as diamonds, wanting to make sure that their [the jewelry retailers’] entire product is kind of covered, well, to take forward the idea of improving due diligence standards for precious stones supply chains, both diamonds and colored stones.”

The working group adheres to the United Nations Guiding Principles on Business and Human Rights (UNGPs), emphasizing the prevention of the trade in precious stones affiliated with financing conflict and perpetrating human rights abuses. International efforts to source precious stones responsibly should also not undermine the already existing initiatives (KPCS and UNICIRI initiative for colored gemstones), as well as taking into account the general guidelines of due diligence outlined by the OECD. This group acknowledges the success and effectiveness of similar initiatives for other industries, such as gold, and ascertains that it is applicable to precious stones.¹⁵⁶ The PSMSWG came together for the first time in April 2013 to discuss measures to advance and harmonize voluntary due diligence in support of responsible sourcing of precious stones. During this initial meeting and several follow-up teleconferences, the group agreed to commission a report, the “Study of Due Diligence For Responsible Sourcing of Precious Stones”, that will examine what additional measures can be taken to enhance the responsibility of the precious stones industry, to determine whether these are feasible, and to provide suggestions as to how these can be implemented. Moreover, the study will also identify the gaps in any of the current approaches. For example, similar frameworks such as the OECD Due Diligence Guidelines as well as industry-led applications of the OECD Guidance, including the Responsible Jewelry Council’s Chain of Custody Standard, are mentioned. The authorship team is supposed to submit a first draft of the study in Winter

¹⁵⁵ Interview with gemstone dealer, 20 November 2013.

¹⁵⁶ Terms of Reference, PSMSWG.

2013 and finalize the report by spring 2014. The PSMSWG will then submit the report to the OECD in spring 2014.

Looking at how existing initiatives can be extended to also cover colored gemstones is regarded as a good step to avoid creating more initiatives that risk to eventually overlap each other. For example, one representative of the jewelry and watchmaking industry¹⁵⁷ argued that

“we [the industry] should stop and not have too many initiatives. First of all you have the same people participate in the same initiatives and at some point it’s difficult to do more, and also, there’s duplication.”

However, for PSMSWG to be seen as a successful and representative initiative, respondents said that governments of sourcing countries and civil society representatives need to be more actively involved than they are at the moment. Moreover, although it was considered to be important to both focus on diamonds and colored gemstones, one ASM expert¹⁵⁸ highlighted that the initiative needed to take into account that colored gemstones and their supply chains are different from diamonds and should therefore be treated differently. One member of PSMSWG¹⁵⁹, however, argued that the working group plans to have two different supplements to the OECD Due Diligence Guidance, one for colored gemstones and one for diamonds.

However, it remains to be seen if the PSMSWG will be able to encourage other jewelry retail companies to join the initiative and voluntarily comply with the Due Diligence Guidance supplements on diamonds and colored stones once they will be developed and adopted. A critical number of retailers need to comply with these standards, convince their suppliers to equally adhere to them, and obtain RJC certification to make the overall colored gemstone industry more transparent and responsible.

Another **supply chain initiative** also focuses on measures that promote compliance with ethical and environmental standards among first, second and third tier suppliers. Two respondents, one gemstone dealer¹⁶⁰ and the representative of a jewelry association¹⁶¹, mentioned studies on colored gemstone supply chains currently conducted

¹⁵⁷ Interview with representative of the jewelry industry, 30 November 2013.

¹⁵⁸ Interview with ASM expert, 21 November 2013.

¹⁵⁹ Interview with representative of jewelry industry, 9 December 2013.

¹⁶⁰ Interview with gemstone dealer, 24 October 2013.

¹⁶¹ Interview with representative of jewelry association, 13 November 2013.

by an Australian university and other international researchers. Reportedly, this study looks at creating a ready-to-use system of qualification and certification that aims at enabling the industry to label actors according to their sustainability performance. The respondents voiced hopes that this new system will help the industry check other actors' compliance with ethical and responsible business standards. This initiative would also be in line with what colored gemstone dealers across countries already do to ensure that what they buy is responsible and does not put their reputation at risk.

One initiative looks more closely at how 'ethical gemstones' could be defined and which steps could be taken by luxury brands that sell jewelry to promote an ethical sourcing and trading of colored gemstones. In May 2013, the **Ethical Committee for Colored Gemstones** was launched under the auspices of Assogemme (Associazione Italiana Fra Le Aziende Delle Pietre Preziose Ed Affini), an Italian precious stones trade association. The Ethical Committee is currently chaired by Bulgari. Other important luxury brands such as Pomellato, Gucci and Pasquale Bruni have already joined the initiative.

The Ethical Committee will work on a new system which will enable jewelry retailers to track gemstones and to ensure ethical practices throughout colored gemstones supply chains. Assogemme's Chairman recently noted with regard to the scope of the initiative: "Control companies' certification procedures with regard to their ethical supply chains. Each gemstone will have a code in order to guarantee transparency, also with regard to customer service". He emphasized that the main objective will be to avoid child labor and exploitation of workers the supply chain of colored gemstones.¹⁶²

The Ethical Committee is composed of different subcommittees which currently work on a comprehensive study that aims to formulate practical and feasible recommendations to the jewelry industry. Furthermore, they will study the typology of colored stones and evaluate to which stones the concept of 'ethicality' may apply. Then, they will evaluate the supply chains of the selected stones against the standards of 'ethicality'. Problems related to the identification of the origin of colored stones as well

¹⁶² "Gemme: al via il comitato etico", accessed on 12 December 2013, [http://www.futurgem.com/pdf/rassegna_ita/Comitato%20Etico%20\(Viorodaily_Maggio%202013\).pdf](http://www.futurgem.com/pdf/rassegna_ita/Comitato%20Etico%20(Viorodaily_Maggio%202013).pdf); "Responsabilità sociale e standard etici, a Milano si fa il punto al meeting annuale del RJC", accessed on 12 December 2013, <http://preziosamagazine.com/responsabilita-sociale-e-standard-etici-a-milano-si-fa-il-punto-al-meeting-annuale-del-rjc/>.

as to their certification will also be taken into account and alternative ways of certifying stones might be considered. Finally, after these first assessments, the initiative will also attempt to identify CSR measures to be taken to improve working conditions and other weaknesses in the supply chain of colored gemstones.¹⁶³

The research commissioned by the Ethical Committee on Colored Gemstones and carried out by its subcommittees will help shed light on many different aspects of the colored gemstones supply chain, such the applicability of the concept of ‘ethicality’ as well as traceability issues. Although no respondent mentioned the Assogemme initiative in particular, it is possible that time and costs could prove a problem.

Furthermore, there seems to be only one initiative looking at environmental issues in particular. The **International Working Group on Coloured Gemstones (IWG-CG)**¹⁶⁴ is a multi-stakeholder group part of the **Responsible Ecosystems Sourcing Platform (RESP)**. IWG-CG aims to facilitate the design and implementation of business models for improved transparency (including traceability) and contribute to the development of international sustainability standards for the colored gemstones industry.

IWG-CG’s main focus lies with analyzing the net positive impact on biodiversity and the socio-economic spill over effects of the jewelry industry on local communities by 1) improving working conditions, 2) implementing mining restrictions in protected areas, 3) assessing the environmental impact assessment, and 4) developing remediation and restoration practices.

The multi-stakeholder working group consists of business representatives from the jewelry sector. At this stage of the project, mainly jewelry brands are involved but when the envisaged pilot project will be implemented, miners, manufactures, distributors and other key stakeholders will be invited to join. Moreover, government and NGO representatives participate in the project.

The project is based on five pillars: (1) an in-depth focus on systemic change. IWG-CG attempts to gain a thorough understanding of issues related to the functioning and management of natural resources, and the processes along the value chain through working on a limited number of pilot projects concerning colored gemstones and

¹⁶³Information on the Ethical Committee on Colored Gemstones sent by Assogemme on 10 December 2013.

¹⁶⁴Information emailed on 13 December 2013.

sourcing countries, which will offer the greatest learning opportunities and potential for replication and scaling up to develop international standards and benchmarks; (2) a collaborative approach which will focus on the cooperation of all relevant stakeholders from the industry, research, NGO and government; (3) a global value chain approach that takes into account all various stakeholder in the different steps of the colored gemstone supply chain; (4) an ecosystem management approach, which will look at the overall impact on the ecosystem; and (5) a ‘cradle to grave’ analysis which will assess the environmental impacts associated with all the stages of a gemstone’s supply chain.

IWG-CG’s project is expected to be implemented over the next seven to eight years, i.e. from 2012/2013 to 2020. The project’s time frame is broadly structured along three main stages: First, IWG-CG will focus on understanding challenges and opportunities, prioritizing action issues, and defining pilot projects (i.e. on gemstones and countries), which will approximately take one year (step 1). Currently, the project is in the middle of the development phase. In the following three to six years, pilot projects will be implemented (step 2). After the implementation of the first pilot project, relevant results will be further tested, scaled up and replicated in other countries or for other colored gemstones. This will be done to develop or strengthen international voluntary standards, benchmarks and contribute to the improvement of policies that apply to the sector (step 3). A survey has already been conducted to gather information on existing expertise and remaining knowledge gaps. IWG-CG expects to start the implementation phase of the first pilot project in the third quarter of 2014. The work of IWG-CG is funded on a public-private partnership basis. The industry as well as development cooperation related government funding support the project financially.

Overall, IWG-CG’s project seems comprehensive and will help shed light on the impact of the different stages of the colored gemstone supply chain on the ecosystem. Moreover, it is the only project that will create pilot projects which will help evaluate the impact of policy measures on the ecosystem of sourcing countries and their biodiversity. Yet, it seems difficult to operationalize since governments of producing countries. One ASM expert¹⁶⁵ also observed that the focus on environmental issues only is considered to have a limited effect on increasing the sustainability of the colored gemstones’ supply

¹⁶⁵ Interview with ASM expert, 21 November 2013.

chains since it is equally important to improve the lives of miners, cutters and small local dealers in developing countries and to help alleviate poverty. The respondent suggested that a more diversified approach would increase the credibility of this type of initiative in sourcing countries.

Another approach mainly pursued by US, European and Asian gemstone laboratories is to focus on **education**, training and small-scale miners, cutters, polishers and other actors especially in emerging markets and developing countries to help regional populations to play a more active and integral role in the gemstone industry and create job opportunities in the countries of origin.

It is thought that better education programs would in general make the gemstone trade more responsible, as they help bring more value from the global trade of gemstones to the countries where they are sourced. One gemology expert¹⁶⁶ said that traveling to different sourcing countries and monitoring the work of laboratories he tries to

“ spread as much knowledge as I can and in a number of different areas, and I do feel that education helps unlock a greater potential in the industry and leads to greater transparency”.

Respondents also highlighted that education and training programs in sourcing countries could potentially lead to higher beneficiation for local communities as well as governments. For example, one expert on colored gemstones¹⁶⁷ observed that while small-scale gold miners get a comparatively higher percentage of the final price of what they have mined, small-scale gemstone miners only get a very small percentage of the retail price of the rough, as the value of the stones increases with each step of the supply chain. Once rough gems are cut and polished, they are more valuable. This is why some African governments in Tanzania or Zambia for example tried to pressure large mining companies such as TanazniteOne and Gemfields to do auctions in the respective countries. In this regard, education programs would also help governments of resource-rich African countries to do more value added at home in order to achieve higher revenues from the exports of colored gemstones, as discussed in the section on the supply chain.

Corporate approaches also aim to ensure that stakeholders involved in the

¹⁶⁶ Interview with gemology expert, 13 November 2013.

¹⁶⁷ Interview with expert on colored gemstones, 29 October 2013.

colored gemstones supply chain avoid actions that may directly or indirectly finance armed conflict or serious human rights violations around the world or that may harm the environment. Gemfields, for example, run mines in a number of countries such as Zambia and Mozambique in partnership with the governments of these countries since Gemfields is a locally registered company in these countries. Before starting mining operations it conducts an environmental feasibility study, cooperating with local partners, universities and international organizations such as the World Bank. The company then starts mining the rough, subsequently cleaning and sorting it, and finally transferring it to local cutting and polishing factories. Gemfields only works with companies, which are listed, pay taxes, and comply with environmental, health, labor and safety standards. It makes sure that no local partner supports child labor.¹⁶⁸ Finally, Gemfields' auctions are by invitation only to carefully select distribution partners around the world.

Columbia Gem House, Inc. (CGH)¹⁶⁹ has a similar approach to Gemfields. The company is able to trace 90% of all colored gemstones it produces and sells from mine to market. In most cases, the company traces the gemstones all the way from a specific mine it works with, through a specific cutting facility to the dealers who sell the gemstones to CGH. The company, as well as other jewelry retailers such as Signet Jewelers, has established a set of protocols for all their suppliers, which ensure that suppliers, i.e. miners, cutters and dealers, comply with environmental and labor standards and other regulation and custom policies, and that they correctly state the rough origin, treatments and enhancements.

Gemstone dealers also said that they pursue a similar approach like retailers to guarantee that they sell ethical colored stones. One gemstone dealer¹⁷⁰ emphasized that he only works with other trustworthy dealers, cutting centers and laboratories that are in the business for a long time and whose good reputation is well-known among actors operating in the colored gemstone market. This way, dealers make sure that they know the exact origin of the stones they buy, the enhancement and treatment that was previously done to the stone, and the other intermediaries involved in the supply chain of the stone. As mentioned above, some dealers try to shorten the supply chain by cutting

¹⁶⁸ Interview with colored gemstone industry representative, 25 November 2013.

¹⁶⁹ Information was emailed on 08 November 2013.

¹⁷⁰ Interview with gemstone dealer, 11 November 2013.

out intermediaries and buying stones from dealers close to the mines in sourcing countries. Other dealers buy gemstones in well-known trading centers such as the Jewelry Trade Center located in the Silom Road gemstone district of Bangkok, Thailand. However, most dealers admit that instances of smuggling, money laundering and tax evasion occur that can somehow undermine their attempts to make colored gemstone supply chains more ethical and responsible, as outlined in the section on risks and existing problems. Table 7 provides a comparative overview of the major initiatives in the colored gemstone sector.

	UNICRI	PSMSWG
Objective	Tracing and certifying where colored gemstones come from and ensuring that they were ethically sourced.	Explore how to advance and to coordinate responsible supply chains and sourcing in the jewelry sector.
Mechanism	Chain of custody mechanism to trace colored gemstones, using a verifiable chain of documents at export points and beyond.	Exchange ideas with PSMSWG members, undertake a Study of Due Diligence For Responsible Sourcing of Precious Stones to identify measures to taken to enhance the responsibility of the precious stones industry, come up with a similar framework as a supplement to the OECD Due Diligence Guidance for diamonds and colored stones.
Actors	Governments, Private Sector, Mining Sector, Civil Society (implemented by UNICRI, the Vienna International Justice Institute and the International Colored Gemstone Association)	Representatives from the jewelry and watchmaking industry, NGO and government representatives.

Strengths	Sourcing countries disclose gemstones' origins → the supply chain of colored gemstones becomes transparent/industry can label its merchandise as responsible.	Includes both diamonds and colored stones, extends what has been done so far in terms of initiatives.
Weaknesses	Feasibility, time and costs are a concern.	Mainly US/European companies and retailers represented, Civil Society, governments and sourcing countries should be more actively involved.

Table 7: Overview of the most important initiatives.

5.3.2. Conclusion

Different observers indicate that the price of colored gemstones may considerably rise over the next years. Internationally renowned jewelry retail companies, as well as mining, cutting and trading companies such as Gemfields and Columbia Gem House, Inc., or smaller dealers acknowledge that it is necessary to be able to tell interested customers that the colored gemstones they are buying comply with responsible sourcing standards and do not contribute to financing conflict or illicit activities abroad.

6. Concluding Remarks and Recommendations

This study attempted to shed light on the supply chain of colored gemstones and the connected risk as well as assessed the opportunities and challenges for existing initiatives. On the basis of the data obtained from the interviews, the present report provides a comprehensive overview of the colored gemstones sector. The picture it draws – of course – is not complete as knowledge is fragmented and analyses of the sector are scarce. With a number of initiatives currently being developed there is the promise that remaining knowledge gaps will be filled in the future. As a starting point for future research and based on the obtained data this report presents the following recommendations to the jewelry industry:

Supply chain-related recommendations:

- Improve understanding of small-scale mining issues as well as of de-facto small-scale mining situations
- Take into account the socioeconomic importance of ASM in sourcing

countries

- In this context, cooperate closely with the institutions implicated at the international, national, and regional level such as the United Nations and affiliated organizations, the World Bank, the OECD, national mining authorities, as well as international and local NGOs.
- Conduct an in-house mapping exercise to establish an overview of all known actors involved in the colored gemstone supply chain of each individual company.
- Improve understanding of local trading structures and the intermediaries involved in sourcing countries. In this context cooperate with the United Nations and affiliated organizations, the World Bank, the OECD, national authorities, as well as international and local NGOs
- Give special attention to issues linked to the traceability of lower quality stones

Risk and existing problems-related recommendations:

- Incentivizing actors to pursue legal channels over illegal
- Taking into consideration the different interests and objectives of the various stakeholders in the supply chain, as not every actor will be interested in the same problems and risks.
- Creating a beneficiation system for local communities
- Government involvement important for any solutions to increase the responsibility of the supply chain due to the systemic problems and risks.
- Improving traceability is vital

Initiatives-related recommendations:

- Enhance communication among different stakeholders and initiatives
- Increase coordination between the different initiatives in order to create beneficial synergies to improve the performance of existing and potential initiatives
- Include all relevant stakeholders such as gemstone dealers and commercial jewelers
- Include the expertise of all relevant stakeholders, in particular gemstone traders
- Increase the participation of civil society and government representatives
- Encourage the participation not only of luxury jewelers but also of commercial jewelers for the initiatives to be representative of the whole industry

8. Bibliography

- Abbi Buxton, "Responding to the Challenge of Artisanal and Small-scale Mining. How Can Knowledge Networks Help?" (International Institute for Environment and Development, 2013), 3.
- Andrew Bone, "Conflict Diamonds: The De Beers Group and the Kimberley Process", in *Business and Security. Public-Private Sector Relationship in a New Security Environment*, ed Alyson J.K. Bailes and Isabel Frommelt (Oxford University Press, 2003) pp. 129-147, p. 132.
- Andrew J Grant and Ian Taylor, "Global Governance and Conflict Diamonds: The Kimberley Process and the Quest for Clean Gems", *The Round Table*, 93/375 (2004), 385-401.
- Bernard H. Russell, *Research Methods in Cultural Anthropology* (Newbury, California: SAGE Publications, 1988).
- Dan McDougal, "The curse of the blood rubies: Inside Burma's brutal gem trade", *Dailymail*, September 18, 2010, <http://www.dailymail.co.uk/home/moslive/article-1312382/The-curse-blood-rubies-Inside-Burmas-brutal-gem-trade.html>, accessed November 9, 2013.
- Daniel Feldman, "Conflict Diamonds, International Trade Regulation, and the Nature of Law", in *U. Pa. J. Int'l Econ. L.* 24/4 (2003), 835-874.
- Doug Guthrie, "The Environmental Impact of Mining Precious Metals and Gemstones. The Case for Putting Jewellery Back Into Circulation" (George Washington University 2010), <http://business.gwu.edu/dean/files/reports/circa-report-2010.pdf>, accessed November 9, 2013
- Doug Guthrie, "The Environmental Impact of Mining Precious Metals and Gemstones", 24-27; see also "Gems and the Environment. Balancing Benefits and Costs", last modified 2007 (?), <http://www.uvm.edu/rsenr/gemecology/index.html>, accessed November 10, 2013.
- Franziska Bieri, *From Blood Diamonds to the Kimberley Process. How NGOs cleaned up the Global Diamond Industry* (Ashgate, 2010), 18.
- Forbes, "Gemfields Successful Emerald Sale In Zambia May Bolster Government's Argument", <http://www.forbes.com/sites/anthonydemarco/2013/07/23/gemfields-successful-emerald-sale-in-zambia-may-bolster-governments-argument/>, accessed November 15, 2013,.
- Futurgem, "Gemme: al via il comitato etico", [http://www.futurgem.com/pdf/rassegna_ita/Comitato%20Etico%20\(Viorodaily_Maggio%202013\).pdf](http://www.futurgem.com/pdf/rassegna_ita/Comitato%20Etico%20(Viorodaily_Maggio%202013).pdf), accessed December 12, 2013.

- Ian Smillie, "What Lessons Learnt from the Kimberley Process?", in *Profiting From Peace: Managing the Resource Dimension of Civil War*, ed. Karen Ballentine, Heiko Nitzschke (Lynne Rienner, 2005), 77-110.
- Ian Smillie, Lansana Gberie and Ralph Hazleton, *The Heart of the Matter. Sierra Leone, Diamonds & Human Security*, 2000, Partnership Africa Canada, http://pacweb.org/Documents/diamonds_KP/heart_of_the_matter-full-2000-01-eng.pdf, accessed November 8, 2013.
- International Colored Gemstone Association, "Ruby", http://gemstone.org/index.php?option=com_content&view=article&id=85:ruby&catid=1:gem-by-gem&Itemid=14, accessed on December 13, 2013.
- International Colored Gemstone Association, "Ruby", http://gemstone.org/index.php?option=com_content&view=article&id=86:sapphire&catid=1:gem-by-gem&Itemid=14, accessed on December 13, 2013.
- International Colored Gemstone Association, "Emerald", http://gemstone.org/index.php?option=com_content&view=article&id=84:sapphire&catid=1:gem-by-gem&Itemid=14, accessed on December 13, 2013.
- International Institute for Environment and Development, "IIED shines a light on small-scale mining", via <http://www.iied.org/iied-shines-light-small-scale-mining>, last modified March 5, 2013, accessed September 7, 2013
- International Organisation for Migration, "Colombian Emeralds Free of Child Labour", August 7, 2009, <http://www.iom.int/cms/en/sites/iom/home/news-and-views/press-briefing-notes/pbn-2009/pbn-listing/colombian-emeralds-free-of-child-labour.html>, accessed November 10, 2013.
- Irving Seidman, *Interviewing as Qualitative Research: A Guide for Research in Education and Social Sciences* (New York: Teachers College Press, 2013).
- Jamie Cross, Sanne van der Wal and Esther de Haan, "Rough Cut. Sustainability Issues in the Coloured Gemstone Industry" (Center for Research on Multinational Corporations, 2010). http://somo.nl/publications-en/Publication_3418, 5.
- Janet Buttolph Johnson, and H. T. Reynolds, *Political Science Research Methods* (Washington D.C.: CQ Press, 2008).
- John Carruthers, "A Rationale for the use of Semi-structured Interviews," *Journal of Educational Administration* 28:1, 1990.
- Khairul Baharein Mohd Noor, "Case Study: A Strategic Research Methodology," *American Journal of Applied Sciences* 5:11, 2008, pp. 1602-1604.
- Kimberley Process, "About – KP Basics", 2013, <http://www.kimberleyprocess.com/en/about>, accessed November 7, 2013.
- Kimberley Process, "KPCS Core Document", <http://www.kimberleyprocess.com/en/kpcs-core-document>, accessed November 11, 2013.

- Laurent E. Cartier, „Environmental Stewardship in Gemstone Mining: Quo Vadis?”, *InColor*, Fall/Winter 2010, http://www.gemstone.org/index.php?option=com_content&view=article&id=200:incolor-summer-2010&catid=37:magazine&Itemid=40, 2-9, accessed November 9, 2013.
- Magnus Macfarlane, Anne Tallontire and Adrienne Martin, “Towards an Ethical Jewellery Business. A Review of Key Issues” (Natural Resources Institute, 2003), <http://projects.nri.org/nret/ethicaljewellery.pdf>, accessed September 9, 2013.
- OECD, *OECD Due Diligence Guidance for Responsible Supply Chains of Minerals from Conflict-Affected and High-Risk Areas*, (Second Edition, OECD Publishing, 2013).
- Paul Eckert, “US updates Myanmar sanctions to maintain global import ban“, Reuters, August 7, 2013, <http://www.reuters.com/article/2013/08/07/us-usa-myanmar-gems-idUSBRE97615L20130807>, accessed November 11, 2013.
- Philippe Le Billon, “Diamond Wars? Conflict Diamonds and Geographies of Resource Wars”, *Annals of the Association of American Geographers*, 98/2 (2008), 345-372.
- PreziosaMagazine, “Responsabilità sociale e standard etici, a Milano si fa il punto al meeting annuale del RJC”<http://preziosamagazine.com/responsabilita-sociale-e-standard-etici-a-milano-si-fa-il-punto-al-meeting-annuale-del-rjc/>, accessed on December 12, 2013.
- Raphael Minder, “Burmese ruby ban likely to be undermined”, *Financial Times*, November 17, 2008, <http://www.ft.com/cms/s/0/10c834bc-b4ca-11dd-b780-0000779fd18c.html#axzz2kk9q9OYa>, accessed November 9, 2013.
- Richard Hamilton, “Madagascar’s scramble for sapphires“, *BBC News*, August 1, 2003, <http://news.bbc.co.uk/2/hi/africa/3114213.stm>.
- Sifuniso Nuyumba and Birgitte Poulsen, *The global crisis and rising child labour in Zambia’s mining communities: Are we facing a downward decent work spiral?* (ILO, 2010), <http://www.ilo.org/public/english/support/lib/financialcrisis/featurestories/story26.htm>, accessed November 9, 2013.
- The Citizen, “TZ firm on tanzanite export”, <http://www.thecitizen.co.tz/News/TZ-firm-on-tanzanite-export/-/1840392/2032214/-/t1mx4b/-/index.html>, accessed November 15, 2013.
- The Economist, “Changing facets. An industry once dominated by a cartel is starting to look like any other”, *The Economist*, February 22, 2007, <http://www.economist.com/node/8743058>, accessed November 8, 2013.
- The Wall Street Journal, “Secret Rocks”, <http://online.wsj.com/news/articles/SB10001424127887323372504578466933124542820>, accessed December 13, 2013.
- UCA News, “Education key to ending child labour in Sri Lanka“, *UCA News*, October 18, 2013, <http://www.ucanews.com/news/education-key-to-ending-child-labor-in-sri-lankas-gem-mines/69505>.

- UNICRI, "Coloured Gemstones: Establishing a mechanism for their traceability and certification of ethical origins", 2013, <http://www.viji.eu/wp-content/uploads/2013/04/Coloured-gemstones-presentation-UNICRI.pdf>, accessed September 7, 2013.
- UNICRI, "Expert Meeting to Discuss a New Initiative on Coloured Gemstones Traceability and Certification of Ethical Origin", 2013, http://www.unicri.it/news/article/2013-04-11_Expert_meeting_Gemstones.
- United States Congress, *Dodd-Frank Wall Street Reform and Consumer Protection Act*, 2010, <http://www.sec.gov/about/laws/wallstreetreform-cpa.pdf>.
- UNSC, *Report of the Panel of Experts on Violations of Security Council Sanctions Against UNITA*, S/2000/203 (2000), http://www.un.org/News/dh/latest/angolareport_eng.htm, accessed November 11, 2013.
- US Department of Labour, "Child Labour, Health, and Welfare Issues in Asia's Gem & Jewellery Sector", last modified September 9, 2010, <http://www.dol.gov/ilab/programs/ocft/typra/20100409d.pdf>, accessed November 9, 2013.
- Virginia Haufler, "The Kimberley Process Certification Scheme: An Innovation in Global Governance and Conflict Prevention", *Journal of Business Ethics*, 89 (2010): 403-416.

9. Annex

Annex A: Questionnaire

Part 1: Mapping the industry supply chain

Can you broadly describe the supply chain of colored gemstones, i.e. the main steps from mining to being sold as jewelry by retailers? Can you trace the way a colored gemstone travels from its mine to the consumer?

- Does the supply chain considerably differ between rubies, emeralds, and sapphires?
- Are there any other factors which cause a significant variance of the supply chain of gemstones?
- Could you describe in more detail the different steps of the supply chain and how they are linked to each other?
- Who are the main actors and in which part of the supply chain are they active?
- What do you think, where do you see knowledge gaps regarding the gemstones supply chain?

Part 2 Identifying risks

In your view, which risks are most important with regard to the responsible sourcing of gemstones?

What kind of risks do you see with regard to human rights?

- What do you know about child labour in the context of colored gemstone mining and trading?
- What do you know about the working conditions in colored gemstone mining and trading? Are there specific groups that are more critical?
- Are there significant differences concerning human rights with regard to the scale of mining project (small/large scale)?

In your view, which risks are most important with regard to conflict and crime in the gemstone supply chain?

- In general terms, do you think gemstones can have the same effect on conflict as has been the case for diamonds?
- Are colored gemstones used to finance criminal activity (smuggling, money laundering, corruption, arms trade etc.)?

In your view, which risks are the most important with regard to the environment?

- What do you know about the impact of mining and trading of colored gemstone with regard to biodiversity, deforestation, water pollution or other environmental problems?

Concluding questions

- Regarding the above mentioned risks, in your view how sustainable is the colored gemstone sector? Where lie the most pressing challenges?
- With regard to the risks, how well are the applicable international law and/or international standards respected in the sector?

Part 3: Evaluating existing initiatives and opportunities

- Which are the existing initiatives in the sector you know about? Can you describe the aim and the mechanisms of these initiatives? Do you think they overlap or complement each other?
- In your view, what are their shortcomings and strengths?
- In your opinion, is there a need for oversight and regulation?
- Do you see the potential for further initiatives?
- What should they look like in terms of scope, i.e. broad/narrow?
- What mechanisms should they use (domestic/international law, certification, standards, controls, formalization of trade etc.)?
- What do you think, how can knowledge gaps in terms of the gemstone supply chain be filled? How do these knowledge gaps impact the opportunities to create more comprehensive initiatives?

Annex B: Additional Tools of Analysis

The PESTEL Analysis is a widely-used tool, which helps understand key political, economic, socio-cultural, technological, environmental and legal factors and trends that influence a certain company or industry. The PESTEL analysis is a simple tool used by business leaders to ensure that what they plan for the future of their company or industry is positively aligned with the forces of change that are affecting the environment a company or industry operates in. Originally conceived as ETPS (a mnemonic for the four sectors of his taxonomy of the environment: economic, technical, political, and social) by Francis J. Aguilar (see his 1965 Harvard dissertation entitled "Formulating Company

Strategy: Scanning the Environment" which was later published as *Scanning the Business Environment*; New York: Macmillan, 1967), the model then evolved over the years to include other categories of analysis.¹⁷¹

For instance, the PESTEL framework could be used in a further research project on colored gemstones and their supply chains to map the macro-economic factors that already or are likely to impact the jewelry and watchmaking industry that uses colored gemstones. This is how a PESTEL table, which helps categorizing and analyzing the risks that we found during our research regarding the colored gemstone sector, could look like.

Political	Economic	Sociocultural	Technological	Environmental	Legal
- Stability of the government	- Poverty	- Level of criminal activity	- Laboratory technology	- Deforestation	- Contract and law enforcement
- Political elites	- Money laundering	- Consumer awareness	- Cutting and polishing technologies	- Water pollution	- Regulation
- Corruption	- Fraud	- Social media	- Enhancement and imitation	- Destruction of natural reserves	- International law
- War and conflict	- Smuggling	- Migrant populations			- Legal liability
	- Tax evasion				
	- Availability of resources				

Another approach to understand the competitive factors and forces, and their underlying causes that drive an industry’s competitiveness and profitability is Michael E. Porter’s Five Forces model. He first published this model in an article on “How Competitive Forces Shape Strategy ”in 1979 in the *Harvard Business Review*. These five forces are:

1. The threat of new entrants; 2. The bargaining power of buyers; 3. The bargaining power of suppliers; 4. The substitute products or services; and 5. The rivalry among firms. All of these five forces are believed to impinge upon a company’s or an industry’s profitability. However, it is the task of the analyst using this model to identify the strongest among these five forces and rank the other forces according to their influence on the industry. Using this model in a further research on colored gemstones could help not only identify but also rank the risks, which have an impact on the jewelry industry, and identify measures that help reduce them.

¹⁷¹ “A Brief Intellectual History of the STEPE Model or Framework”, accessed on 12 December 2013, <http://polaris.gseis.ucla.edu/jrichardson/STEPE.htm>.