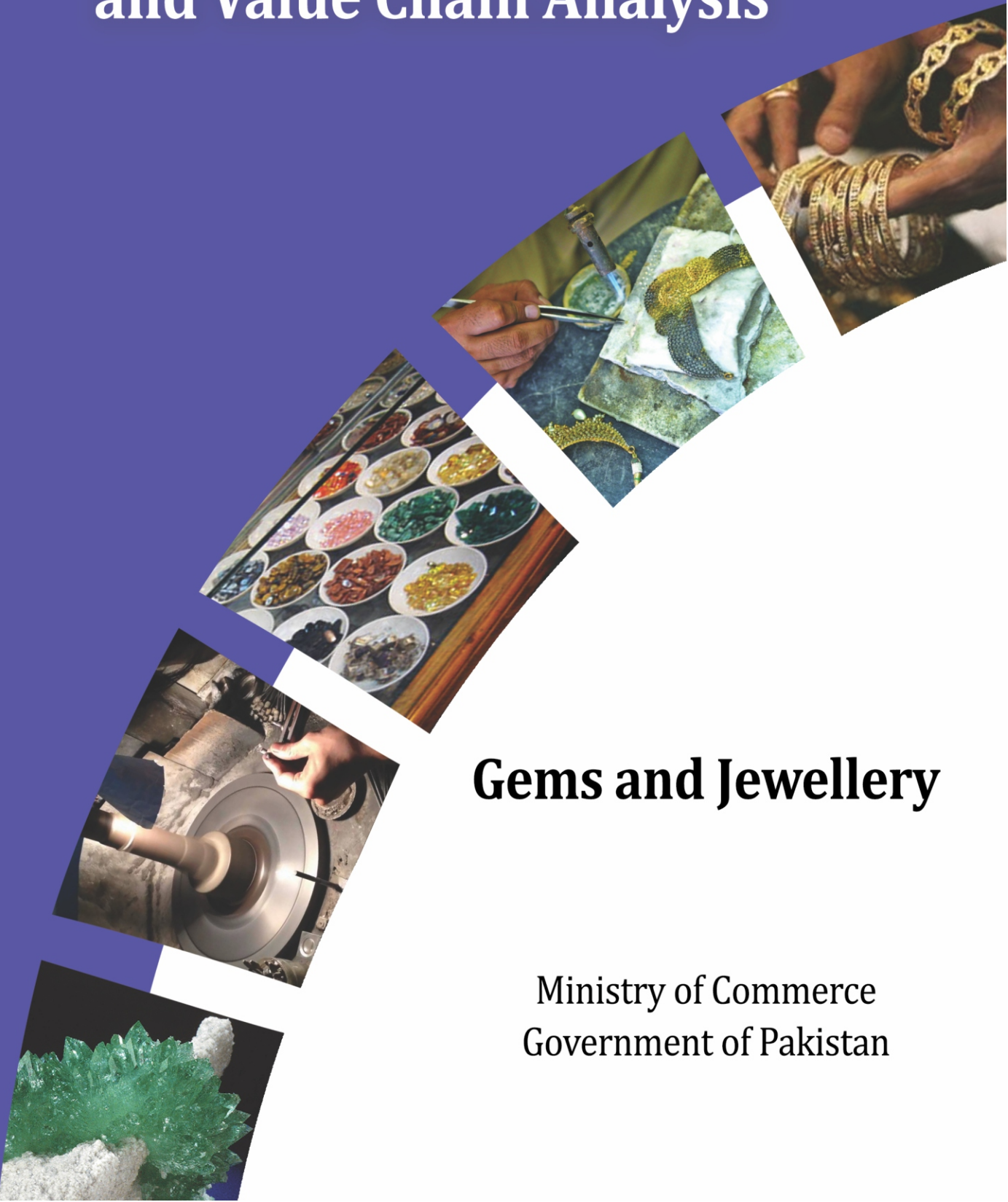




Trade Development Authority of Pakistan

Sectoral Competitiveness and Value Chain Analysis



Gems and Jewellery

Ministry of Commerce
Government of Pakistan

Disclaimer:

This report was jointly prepared by the Trade Development Authority of Pakistan (TDAP) and European Union (EU) funded Trade Related Technical Assistance (TRTA II) programme, implemented by UNIDO in association with ITC and WIPO.

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Gems & Jewelry Value Chain
Analysis in Pakistan

April 2016

Acknowledgments

This study was carried out as part of the European Union funded Trade Related Technical Assistance Programme (TRTA II) Programme, implemented by UNIDO in association with International Trade Centre (ITC) and World Intellectual Property Organization (WIPO). This initiative was led in collaboration with Trade Development Authority of Pakistan.

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Preface



The era of import substitution is in the past. Today's world is shaped by trade integration--the ability of countries and companies to be part of an ever-expanding Global Value Chain (GVCs). These GVCs are governing features of global trade linking developing, emerging, and developed economies. Through GVCs, industrial nations connect as part of a huge economic chain focusing on specialization and high value addition in order to ensure maximum economic benefit.

Firms take advantage of this specialization and try to optimize production processes by locating various stages of their business across different sites. They therefore, manufacture goods wherever the necessary skills and materials are available at competitive costs and quality. The past decades have witnessed a strong trend towards this international dispersion of value chain activities such as design, production, marketing, distribution, etc. The result is a chain of production crossing borders throughout the globe.

GVCs make a strong contribution to international development. The level of participation in GVCs is associated with stronger levels of GDP per capita growth. They have a direct impact on the economy and employment as well as creating opportunities for national development. Global Value Chains can also be an important mechanism to enhance productive capacity by increasing the rate of adoption of technology and through workforce skill development, they can help build the foundations for long-term industrial upgrading.

Pakistan's trade policies need to be formulated to ensure that our country is strategically placed within this global chain. The higher the placement, the higher the value addition provided and, so too, the higher the amount of revenue generated. Such interconnectivity however necessitates an open, predictable, transparent trade and investment regime. It is also necessary to highlight complementary policy agendas that leverage engagement in Global Value Chains into more inclusive growth and employment strategies.

To keep abreast of market trends and to motivate companies to restructure their operations internationally through outsourcing of activities involves developing a Global Value Chain Analysis for almost every product. Sadly, there is a dearth of good research in Pakistan, especially in this increasingly important area. And although Pakistan does have the expertise and ability to be firmly integrated in several fast growing sectors data and focus is lacking.

Keeping this point in mind, the Trade Development Authority, in collaboration with UNIDO, under the EU funded Trade Related Technical Assistance (TRTA) II Programme, has developed value chain analysis for four products that have the ability to raise Pakistan's exports at a fast rate. They are; Gems and Jewelry, Leather gloves, Rice and Readymade garments.

The current report on Gems And Jewelry studies the structure and dynamics involved in the global gems & jewelry value chain. It aims at understanding how small to medium sized enterprises (SMEs) in Pakistan can competitively improve their presence and insertion into the global market of Gemstones and Jewelry. At present there is little or no integration of this highest value sectors in the global chain with the result that Pakistan is losing its vast resource edge by exporting low value uncut gems and jewelry into the world market.

The importance of undertaking such an analysis for Pakistan for the Gems & Jewelry industry is essential if we want to maximize the country's potential. In Pakistan's northern areas we have good reserves in Emerald, Pink Quartz, Ruby and Peridot stones, however we are hampered by outdated methods of extraction, cutting and poor technology. Value addition in gems is approximately 100 % from beginning to end of the value chain and this is what Pakistani exporters stand to lose if they do not upgrade their technology and marketing skills.

Before our valuable resources run out, these issues need to be redressed through policies restricting the export of raw uncut gems—something on the Sri Lankan model. Incentives on the education, import of technology and up gradation of this sector need to be considered.

TDAP's report is the beginning of a series of research studies focused towards export enhancement. It is time that Pakistan becomes an important sector in Global Value Chains. It is time that we maximize national profit through highest value addition in the resources that our country is blessed with!

Rabiya Javeri Agha
Secretary
Trade Development Authority of Pakistan (TDAP)

Foreword



The Global Value Chain (GVC) initiative was launched under the EU funded Trade Related Technical Assistance (TRTA II) programme in collaboration with Trade Development Authority of Pakistan (TDAP) with the aim to assess the sectoral competitiveness and value chain analysis of the four selected sectors; Rice, Gems and Jewelry, Readymade garments and Leather gloves.

The TRTA II programme is funded by the European Union (EU), implemented by United Nations Industrial Development Organization (UNIDO) in collaboration with International Trade Centre (ITC) and the World Intellectual Property Organization (WIPO). This programme aims at strengthening the capacities of Pakistan to participate in the international trade. The overall objective of the Programme is to support economic integration of Pakistan into the global and regional economy.

A two week training on 'Sectoral Competitiveness and Value Chain Analysis' was held in Vienna, Austria. The training was attended by officials from Trade Development Authority of Pakistan (TDAP) and United Nations Industrial Development Organization (UNIDO). The central objective of the training was to guide professionals to independently carry out value chain analysis in different sectors.

TDAP selected four sectors; Rice, Gems & Jewelry, Leather gloves and Readymade Garments to conduct value chain analysis. These export sectors are vital for the economy of Pakistan. They contribute around 20 percent to the export of the country. In recent years, exports share of Pakistan in the global markets has registered a decline, which can be attributed to quality and production constraints in the domestic production value chain. High prices, production constraints and quality constraints have led to reduced market share for Pakistan's exports products. It is imperative for Pakistan to take steps to strengthen the local production value chain to boost its exports and remain competitive in the international market.

This has been possible with the continued support of the European Union that has funded the TRTA II programme.

S. M. Muneer
Chief Executive
Trade Development Authority of Pakistan (TDAP)

List of Acronyms

APCEA:	All Pakistan Commercial Exporters Association of Gemstone
APGMJA:	All Pakistan Gems Merchants and Jewelers Association
FDI:	Foreign Director Investment
GJVC:	Gems & Jewelry Value Chain
R&D:	Research and Development
TDAP:	Trade Development Authority of Pakistan
TRTA:	Trade Related Technical Assistance
UNIDO:	United Nations Industrial Development Organization

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Executive Summary

Despite its abundant reserves of precious and semi-precious gemstones and a rich history of jewelry manufacturing, Pakistan has been unable to develop an internationally competitive gems and jewelry industry. The industry at present suffers from limited research, traditional mining techniques, underdeveloped lapidary facilities, lack of trained labor, and poor international marketing and branding. Furthermore, the entire value chain is marred by limited identification and certification facilities and poor linkages with the domestic and international actors.

Capitalizing on its vast natural resources, low labor costs, skilled craftsmen and growing national and international demand, Pakistan has the potential to position itself as a regional hub for precious stone cutting and jewelry manufacturing. Developing this potential will have a significant impact on Pakistan's economy in terms of employment, entrepreneurship, income generation, export revenues and poverty alleviation.

This report analyzes the gems and jewelry value chain in Pakistan with the aim to identify the value capture opportunities in the sector, attractive international markets, the key constraints in the gems and jewelry value chain and possible solutions to address them. The tools used in the analysis include: value chain mapping, value distribution analysis, world and regional dynamism analysis, value chain performance evaluation, and attractive markets identification.

Value chain mapping indicates that the gemstone industry in Pakistan is in its primary stage; gemstones are exported in the form of rough stones, mainly because of a lack of sophisticated processing units in Pakistan. The jewelry industry in Pakistan imports gold and manufactures it into jewelry. It caters to the domestic market only.

The gems and jewelry industry follows a typical

pattern of value addition, whereby, as the level of processing increases, the price and the profit margins also increase. Globally, the most profitable activity of the gems and jewelry value chain is retailing. This trend is also evident in the local market whereby the retailers earn the highest profit margins.

The world and regional dynamism analysis of the gems and jewelry industry identified the demand patterns and growth trends of the selected product. The analysis indicates that the global demand of jewelry is much higher than that of gemstones. Between 2009 and 2014, the demand for gems (excluding diamonds) remained constant whereas the demand for jewelry increased by 4 percent. The gems and jewelry industry is growing at a higher rate than the total global trade¹. The above average annual growth rates of these industries indicate that these two sectors are dynamic.

The regional market share and regional growth rates analysis identified the main importing and exporting regions of gems and jewelry. East Asia Pacific has been able to capture a 54 percent share in the world export of gemstones. China and Hong Kong have become regional hubs for carrying out value addition activities such as cutting, polishing and manufacturing jewelry. On the demand side, East Asia also emerged as one of the top importers of gemstones. The import and export concentration of gems and jewelry in East Asia has allowed the region to become the main hub of gems and jewelry trade.

The value chain performance analysis indicates that Pakistan has been unable to develop an internationally competitive gems and jewelry industry. The country is exporting high volumes of low value added products. The export unit value of a processed gem is as high as US\$ 97, which is 650 percent higher than that of rough gems. The jewelry industry in Pakistan only caters to the domestic market. Pakistan's major competitors for the gems and jewelry industry

¹ Global trade includes agricultural and manufactured products

are Sri Lanka, Vietnam and Thailand. The value chain performance reveals that Pakistan is in a relatively better position to export gems than jewelry.

The import dependency index calculated identifies the attractive markets according to the market size and the prices. China was identified as the only high price – big market for gemstones, while USA and Taiwan were identified as big markets but low price. India, Lebanon and Switzerland fall in the high price- small market category. Most of the European countries fall in the low price small market category. China is the top export destination for Pakistan's gemstones, followed by Hong Kong and USA. India and Germany are the 4th and 5th largest markets for Pakistan. These top 5 destinations make up 83 percent of the total gemstone exports. The attractive markets analysis for jewelry shows that Hong Kong is the only high price – big market for jewelry from Pakistan. USA, Greece, Netherlands and Australia are low price – big markets. The lack of export market diversification of gold jewelry has adversely affected the jewelry industry in Pakistan. 90 percent of Pakistan's gold jewelry exports are concentrated in the UAE but the country could not be included in the analysis due to a lack of data. Pakistan has preferential market access in major markets like China, USA and EU for the export of gemstones and jewelry.

The gems and jewelry industry in Pakistan has been unable to develop into a competitive high value added sector due to a number of reasons. Gemstone cutting and polishing is done on a very limited scale and that too with outdated and underdeveloped techniques. Precious and semi-precious stones are identified based on personal skills and experience by the miners and traders. The lack of internationally recognized certification facilities has led to undervaluation of precious stones and loss in export value. There are limited vocational training facilities for the gems and jewelry industry. Moreover, a dearth of financing opportunities and

investment in research and product development has adversely affected the industry.

In order to improve the export performance of the gems and jewelry sector, it is imperative to introduce technological improvements, technical assistance, investment in product development, marketing and branding, and policy interventions in the sector. These interventions will allow the gems and jewelry sector to contribute to the national economy of Pakistan and develop into a competitive, high value added sector.

Introduction

Despite being naturally endowed with the raw material, the gems and jewelry industry in Pakistan is largely undeveloped. The industry is characterized as a small and medium enterprise with an estimated 20,000 jewelry retailers across the country. Although there is no major refinery or gold bar manufacturer in Pakistan, there are approximately 1,000 small refiners across the country (Trade Development Authority of Pakistan). During 2014, the export value of the gems & jewelry sector accounted for a mere 0.007 percent of the GDP, a value that is far below the potential of the sector.

The gems and jewelry sector has witnessed inconsistent export trends in the past few years. The export value of the sector witnessed its pinnacle of growth in 2012 when it reached US\$ 1.62 billion. However, this growth could not be sustained for long as the imposition of strict regulations afterwards caused the export value to drop to US\$ 431 million in 2013, which further declined to US\$ 118 million in 2014. In 2015, the export value of gems and jewelry sector was reported at US\$ 12 million (Pakistan Bureau of Statistics).

This report analyzes the gems and jewelry value chain in Pakistan with the aim of identifying the value capture opportunities in the sector, attractive international markets, the key constraints in the gems and jewelry value chain and possible solutions to address them. The first section of the report will compile and assess the information with respect to the gems and jewelry sector in Pakistan. The second section will map the main characteristics such as the processes and products involved, the main actors, governance and value distribution of the gems and jewelry value chain in Pakistan. The third section of the report will assess the global and regional trends of the value chain. The fourth section presents the performance of the value chain by identifying and examining the opportunities and the constraints within the mapped value chain. The final section of the report will identify the policy and institutional issues affecting the competitiveness of the gems and jewelry value chain and provide recommendations accordingly.

Scope and Methodology:

The global economy is increasingly structured around Global Value Chain (GVCs), whereby the production of goods and services takes place in a global setting, divided in a number of stages spread across different countries. Each firm, producer and worker is integrated in the global economy and global value chain, and is most likely to be affected by global events.

Value chain analysis is a tool that enables industrialists and policy makers to identify industrial value capture opportunities. It also helps public and private sector stakeholders to devise strategies for business growth, such as improvement in the quality of product, process upgradation, engagement in new activities or participation in new value chains. This methodology is particularly useful for policy makers to identify the priority sectors where government efforts such as policy regulation, direct intervention, provision of information and budgets ought to focus. The identification of value added products and market analysis is beneficial for the private sector, as it identifies the potential attractive markets, the gaps local firms face and possible solutions to overcome them. Most importantly it points out the winners and losers in the chain therefore signaling towards lucrative investment opportunities. This methodology has been adopted by a range of institutions and governments in order to understand global industries and to guide the formulation of new programs and policies so that countries can insert themselves in the most strategic component of the value chain and achieve economic growth.

This report has adopted the UNIDO value chain methodological approach. This methodology maps the

gems and jewelry value chain to identify the processes, actors and linkages in the value chain. The value distribution analysis for the selected products reveals the export unit value and identifies the product that generates the highest revenue. The global and regional analysis employs two tools to assess dynamism; annual average growth rates and global demand. The Export Competitiveness Index (ECI) is calculated to assess the performance of Pakistan and benchmark its performance with other countries. The import dependency index calculated, identifies the attractive markets according to the market size and the prices. The results of the quantitative analysis are complemented by industry insight obtained through published reports, surveys and group discussions carried out with exporters, associations and industrialists.

Value Chain Overview

The global trade of gems and jewelry was reported at US\$ 53 billion in 2009, which reached US\$ 138 billion in 2014 after growing at an average annual growth rate of 21 percent (International Trade Centre). The following table indicates the main exporters of the Gems & Jewelry Value Chain (GJVC) in the world trade.

Table – 1: Top exporting countries of Gems

Top Countries	Value in 2009	Value in 2014	Annual Average Growth Rate
World total	3,295,608	9,050,087	22%
Hong Kong, China	29,000	2,012,825	133%
China	101,600	1,537,058	72%
United States	803,606	933,071	3%
Thailand	400,687	930,558	18%
Switzerland	456,488	884,445	14%
Singapore	85,497	330,669	31%
India	281,876	310,035	2%
Germany	223,026	252,377	3%
United Kingdom	132,443	228,721	12%
Brazil	105,961	187,114	12%
Pakistan	3,160	8,017	20%

Table-1 shows that Hong Kong was the top exporter of gems and jewelry in 2014. The country became one of the top exporters in the world within 5 years. Hong Kong is followed by China, USA, Thailand and Switzerland. Pakistan ranked thirty-second in 2014 with an average growth rate of 20 percent in the last five years.

Table – 2 shows the top importers of gemstones. It is evident that China is the world's largest importer of gemstones and imports 76 percent of the world's total gemstone imports. Its import growth rate during the last five years was 158 percent. USA and Hong Kong are the 2nd and 3rd largest importers. The top 5 importers buy approximately 92 percent of the total world import of gemstones.

Table – 2: World Top importers of Gemstone

Top Countries	2009	2014	Annual Average Growth Rate
World Total	3,563,134	34,606,902	58%
China	230,091	26,306,276	158%
United States	985,561	2,387,423	19%
Hong Kong,	375,773	1,327,733	29%
Switzerland	466,402	1,026,776	17%
India	208,145	870,751	33%
United Kingdom	221,352	307,895	7%
France	135,546	307,205	18%
Singapore	85,287	303,880	29%
Thailand	167,114	269,080	10%
Italy	88,986	264,472	24%

Table –3 shows the top exporters of gold jewelry. The top exporting country is China followed by India. In 2009, India was the top exporter of jewelry, whereas China's export was a quarter of India's exports. Switzerland is the third and Hong Kong is the fourth top exporting country. Pakistan ranked 30th in 2014, while its annual average growth rate during last five years was –25 percent.

Table – 3: Top exporting countries of Jewelry

Top Countries	Value in 2009	Value in 2014	Annual Average Growth rate
World total	43,474,548	123,969,320	23%
China	2,556,362	48,566,352	80%
India	10,604,141	13,088,476	4%
Switzerland	3,919,165	10,788,856	22%
Hong Kong, China	734,660	6,724,295	56%
Italy	4,387,876	6,473,575	8%
United States	2,819,173	4,687,940	11%
United Kingdom	3,566,962	4,615,155	5%
France	1,480,341	4,511,078	25%
Turkey	1,155,721	4,347,257	30%
Thailand	2,484,981	3,837,688	9%
Pakistan (30)	470,942	109,613	-25%

Table – 4 shows that world import of jewelry increased by an average growth rate of 16 percent. From being the third biggest importer of jewelry in 2009, Hong Kong became the biggest importer in 2014. Switzerland remained the second biggest importer in both years. Switzerland is followed by United States, United Kingdom and Singapore.

Table – 4: World Top importers of Jewelry

Top Countries	2009	2014	Annual Average Growth rate
World total	28,687,879	60,613,219	16%
Hong Kong	3,991,183	14,142,829	29%
Switzerland	4,110,558	9,431,368	18%
United States	5,526,434	7,698,619	7%
United Kingdom	2,998,783	4,117,016	7%
Singapore	1,732,463	3,768,825	17%
France	1,113,597	3,670,045	27%
Japan	1,145,326	1,770,300	9%
Germany	960,325	1,636,369	11%
Macao	303,975	1,361,196	35%
Italy	689,513	1,218,987	12%

The global performance of gems and jewelry products indicate promising growth in the future. China has emerged as one of the top exporters of gems and jewelry in the world, followed by Hong Kong. India, Thailand and Singapore are also important players in the gems and jewelry industry. The global gems and jewelry industry is dominated by brands such as Cartier (France), Harry Winston Inc (USA), Van Cleef And Arpels (France), Tiffany & Co. (France), Piaget (Switzerland), Bvlgari (Italy), Mikimoto (Japan), Graff Diamonds (UK), Buccellati (Italy), and Chopard (Switzerland). Pakistan's gems and jewelry industry is in its inception stages; therefore the country does not supply gemstones or jewelry to any one of these top brands.

The gems industry in Pakistan has great potential to grow due to indigenous availability of raw materials. Northern parts of Pakistan and Baluchistan have abundant reserves of precious and semi-precious stones, found in the mountains that are covered with heavy snow for 8 to 9 months of the year. The excavation of gems is therefore regarded as a seasonal activity in Pakistan. Table-5 shows the available reserves of gems in Pakistan.

Table-5: List of Gemstones in Pakistan

S #	Gemstone	Color	Location
1	Emerald	Vivid green/Bluish green	Mingora (Swat), Shamozaï, Gujjar Killi, Charbagh, Malacan
2	Ruby	Dark Red	Hunza, Gilgit and Azad Kashmir
3	Pink Topaz	Pink	Ganado hills, Shamozaï Codling
4	Topaz	Dark orange, Pale, Yellow, Pick colors, blue, violet colored crystal	Chitral, Gilgit, Kalam Arden

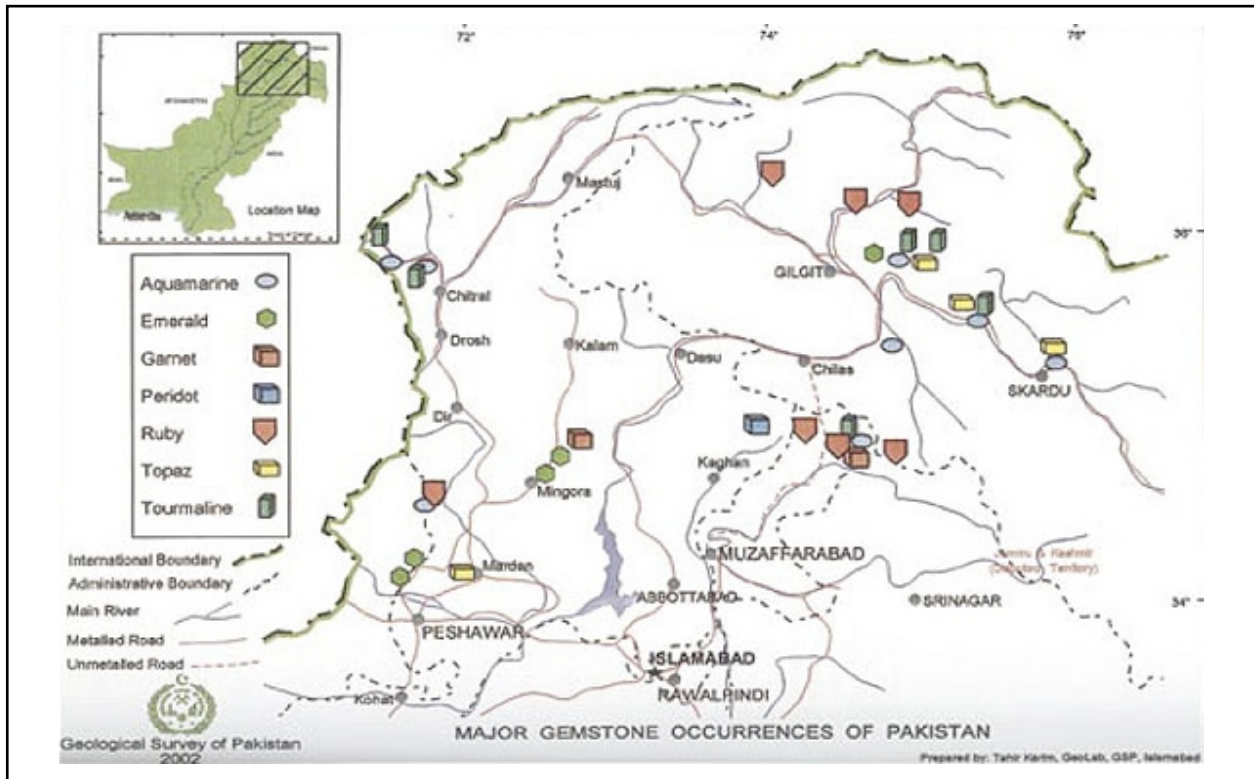
S #	Gemstone	Color	Location
5	Aquamarine	Sky Blue and Sea green	Shirker valley of Balochistan, Chitral, Kaghan, Nelam Valley of AJK
6	Garnet	Blood red, purple green	Dir, Swat, Quetta and Kalat
7	Lapis Lazuli	Brilliant violate, blue with golden dots.	KPK
8	Serpentine	Red, Brown, white and Black	Gilgit and KPK
9	Peridot	Yellowish green	Paria Sapat, Naran
10	Tourmaline	Blue, green Pink, bright red, rare golden, yellow, bi-color and tri color	Gilgit, Shingus, Baltistan, Chitral, Kaghan, AJK

Afghanistan is also a great source of gemstones for Pakistan. Stones such as 'Lapis Lazuli' are mostly supplied from Afghanistan. Although the weather and excavation conditions in Afghanistan are similar to that of Pakistan, the former has an uninterrupted supply of gemstones throughout the year. In African countries, gems are found on or under the water surface and therefore can be excavated with minimal effort and wastage. Figure-1 and Figure-2 below show the global and Pakistan's reserves of gemstones.

Figure – 1: Global gemstone reserves

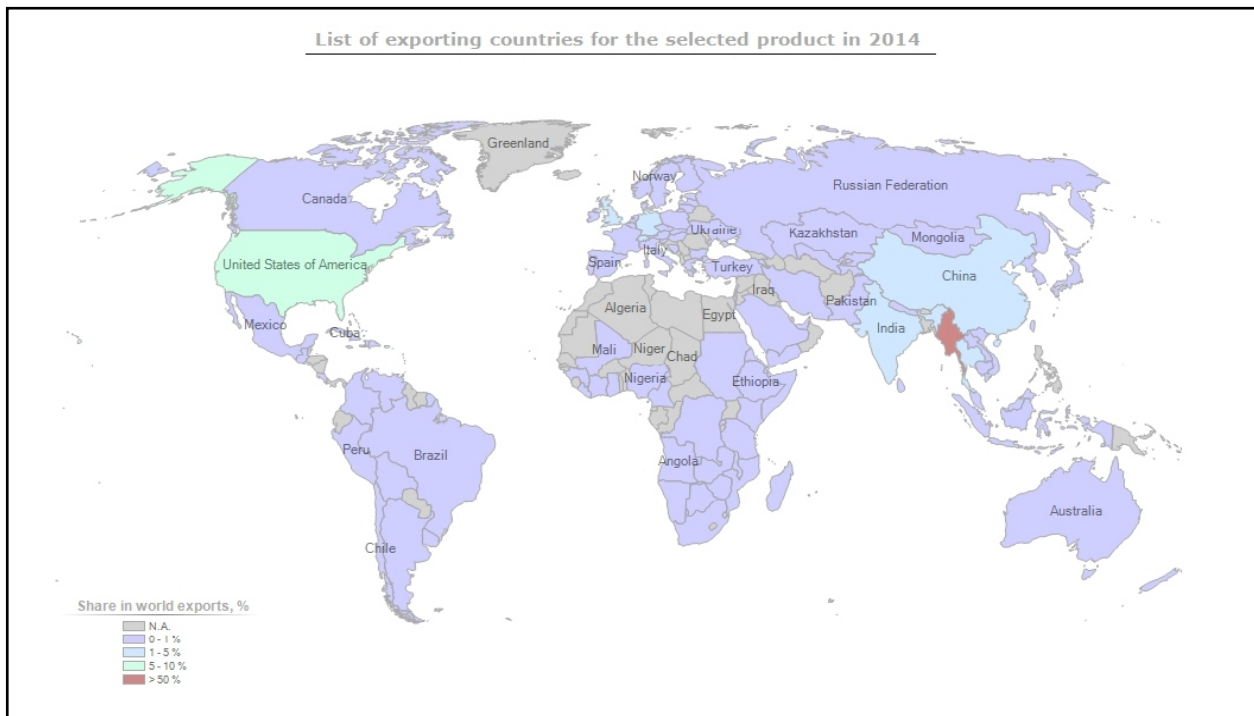


Figure – 2: Pakistani gemstone reserves



Since this study focuses on Pakistan's value chain of gemstone and jewelry, only those products that are exported by Pakistan have been selected. Diamond is a highly demanded gemstone but it is not found in Pakistan so it has been excluded from the gemstone product group. Figure-3 shows the world major exporters of gemstones, excluding diamond.

Figure-3: Global Exporters of Gemstones (Other than diamond)



The products selected for this study are included in the HS Chapter 71. Chapter-71 consists of the products “Pearls, precious stones, metals & coins etc”. All natural pearls, precious stones including diamond, gold and silver metals jewelry, gold & silver coins and imitation jewelry fall under this heading. The following products of HS Chapter 71 have been selected to carry out the gems & jewelry value chain analysis:

Table – 6: Gems & Jewelry Value Chain Product List

Gems		
S #	HS Code	Product Description
1	710310	Precious/semi-precious stones (o/t diamonds) unworked/simply sawn/rough shaped
2	710391	Rubies, sapphires and emeralds further worked than sawn or rough shaped
3	710399	Precious/semi-precious stones further worked than sawn/rough shaped
4	711620	Articles of precious or semi-precious stones, natural, synthetic or reconstructed
Jewelry		
5	711311	Articles of jewelry of silver w/n plated/clad w/o precious metals
6	711319	Articles of jewelry & platinum thereof of/o precious met w/n plated/clad w precious metal
7	711510	Catalysts in the form of wire cloth or grill, of platinum
Waste		
8	711299	Waste and scrap of silver, incl. metal clad with silver, and other waste

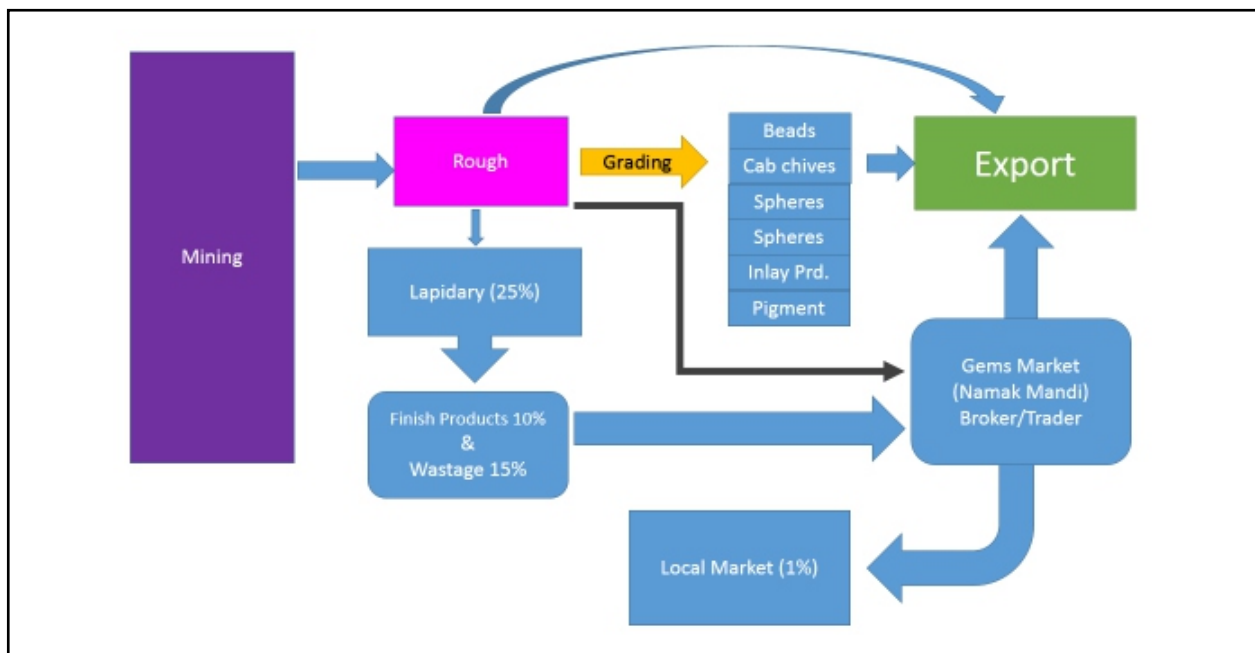
Value Chain Mapping

The value chain mapping exercise covers three fundamental aspects of the gems and jewelry manufacturing process. The first aspect defines the processes that are involved in the transformation of raw gemstone to the final product. The second aspect identifies the chain actors, for example the processing firms, suppliers, service providers, and institutional players. The third aspect identifies the linkages and relationships between the participating actors in the gems and jewelry value chain.

2.1: Process and Products

The first stage for gemstone extraction is mining. Most of the miners excavate stones through blasting, which leads to heavy losses in terms of gemstone quality and quantity. This method of excavation has also been criticized for its contribution to environmental damage. In Pakistan the mining procedures are outdated. Processing units are reluctant to upgrade their methodology and use latest technology, however, there are some processing units which are using relatively latest techniques which minimize wastage. Most of the mine owners are reluctant to use modern machinery to extract gemstones. Due to the prevailing political structure and the poor governance of resources in the province of Baluchistan and KPK, the mining sector is unable to attract investment. The following figure shows the processes involved in obtaining the gemstones for supplying to the end-customer.

Figure – 4: Gemstones Value Chain map



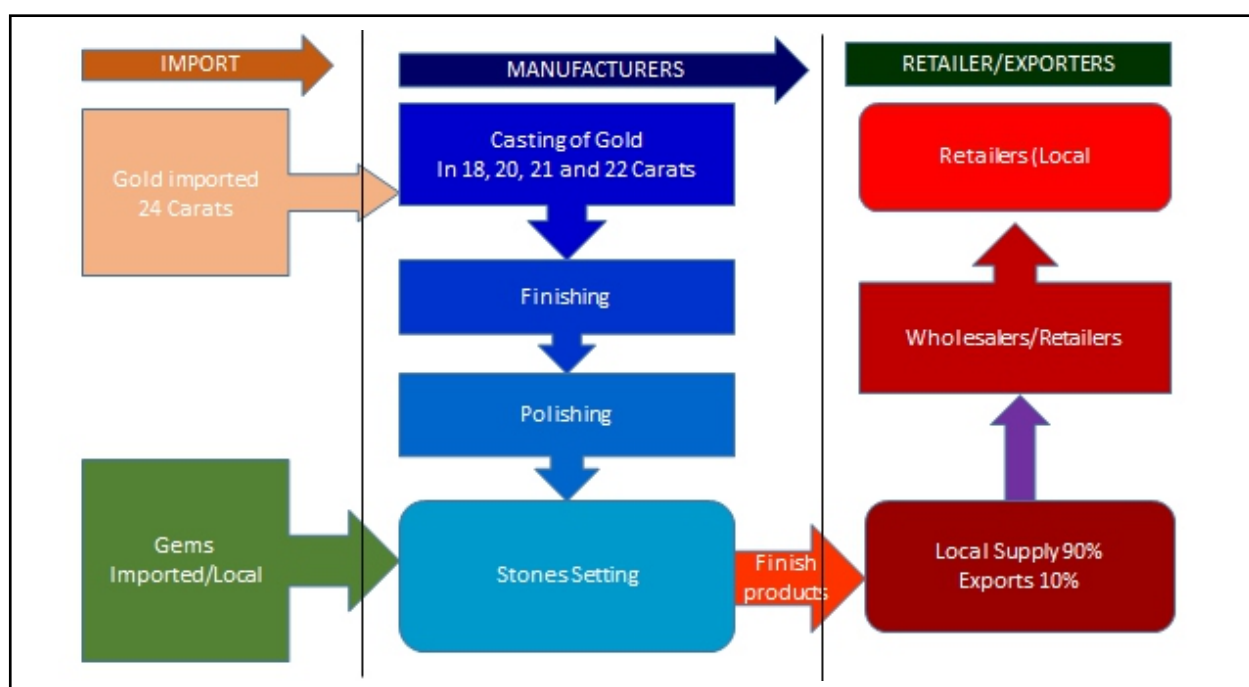
After being excavated, the gemstones are in raw form. The raw stones are graded according to their type and size. Most of the gemstone exports of Pakistan are exported at this stage in the value chain, that is, after they have been mined and graded. Namak Mandi in Peshawar is the biggest market of gemstones in Pakistan, where miners sell gems in raw form. It is estimated that only 25 percent of the gems are brought to the lapidary for further processing. Wastage at this stage was reported at 15 percent. The wastage is further processed and used in the cosmetic industry. The residue of the semi-precious stones is also used to manufacture decoration pieces. Precious stones are used in the manufacturing of jewelry. The demand for semi-precious and precious stones in Pakistan is very low, therefore most of the gems are exported.

Gemstone exporters in Pakistan have been quick in terms of adopting the latest marketing tools. Most of the gemstone exporters market and sell their products through popular e-commerce websites such as e-bay and social media pages such as Facebook. Since most of the demand for gemstones is generated from developed countries such as the United States and the European Union, the gemstone exporters require systems of online transactions such as Pay Pal.

Precious gems have to be exported through DHL or other international courier services, to ensure safety and proper handling. However, courier companies often refuse to carry these shipments on the pretext that the custom authorities create hurdles and mishandle the shipment.

Figure-5 shows the processes and stages involved in jewelry manufacturing. Since gold is not mined in Pakistan, the raw material required is imported. 24 carat gold is first casted in to four further categories of gold; 18 carat, 20 carat, 21 carat and 22 carat. The gold is then molded into different designs and polished. In the final stage, the mould is forwarded for stone setting. The finished product is either exported, or supplied to the wholesalers and retailers in the local market. The study found that over 90 percent of the jewelry is supplied locally and merely 10 percent is exported.

Figure-5: Gold Jewelry Value Chain map



In order to analyze the existing gems and jewelry value chain in Pakistan, this study identified the agents or the actors who influence the way in which value is produced and captured along the chain. The major value chain actors identified for the gems industry are the miners, the middleman, the processors, and the customers. For the jewelry sector, importers, manufacturers and exporters were identified as the main actors in the value chain. The exporters also take on to the role of wholesalers.

Miners:

Miners are responsible for the excavation of gemstones in the mountainous terrain of Baluchistan, Northern Areas and Khyber Pakhtunkhwa. The miners either bring the specimen to the 'Namak Mandi' in Peshawar or export it to countries such as Thailand, Hong Kong and India, where it is further processed. Miners were found to be the strongest players within the gemstone value chain in Pakistan.

They determine the quality and quantity of the raw material being supplied in the market.

Manufacturers/Processors:

Gemstone processors are mainly responsible for cutting and polishing precious and semi-precious stones. Most of the processing firms in Pakistan are small and medium firms. With the exception of one or two firms, most of the processing units use outdated machinery and do not encourage technological innovation. The market for gems and jewelry is highly buyer-driven and manufacturing takes place as per requirement of the buyer.

Certification Labs:

The gemstones industry in Pakistan heavily relies on the miner's and processor's skills, acquired through personal experience, to recognize the type and quality of precious and semi-precious stones. Processors and miners do not have any equipment that can be used to identify the type and quality of the stone. The industry is constrained by the lack of laboratories for testing. With the exception of an inefficient institute in Karachi, there are no certification bodies that can facilitate the concerned actors. Due to the lack of knowledge and availability of proper certification, the middleman, and in some cases the processors, charge extremely high prices from the customer.

Customer:

The demand for precious and semi-precious stones in Pakistan is not significant. Most of Pakistan's excavation of precious and semi-precious stones is exported to countries such as Thailand, Hong Kong and India. Moreover, due to the buyer-driven nature of the industry, the international buyer determines the design and prices of gemstones.

Jewelry Manufacturers:

The jewelry manufacturers in Pakistan also take on the role of importers and retailers. The jewelry-manufacturing sector is mostly based in Karachi, and according to market sources, 99 percent of the manufacturing is being done there. Punjab was identified as the major domestic market, accounting for 70 percent of the jewelry consumption of the country.

Associations:

There are two private sector associations in the gems and jewelry sector, namely All Pakistan Commercial Exporters of Association of Rough & Un-Polished Precious and Semi-Precious Stones (APCEA) and All Pakistan Gems Merchants and Jewelers Association (APGMJA). The former association is relevant for the gems industry while the latter is an association for the jewelers. APCEA carries out its activities in Peshawar whereas APGMJA has an active presence in all the major cities of the country. These associations are responsible for issuing documents for exports such as the Certificate of Origin and visa recommendations. The associations also encourage and facilitate businesses to participate in international exhibitions and trade fairs across the world. Most importantly, these associations assist their members with custom related issues. The associations have been heavily criticized for their inability to improve the mining and processing facilities in Pakistan.

Government Institutions:

Pakistan Gems Jewelers Development Company (PGJDC), a public sector agency, is mainly responsible for increasing the competitiveness and uplifting the gems and jewelry sector of Pakistan. The company conducts various training programs for the sector aimed at increasing the sector's competitiveness.

Gems/Gold Jewelry governance:

The export of gold jewelry is entirely regulated through a government regulation called 'Import and Export of Precious Metals Jewelry and Gemstone Order 2013²'. According to this regulation, all exporters and importers of jewelry are required to register with the Trade Development Authority of Pakistan in order to be able to trade. Exporters of gold jewelry need to register under two different scheme namely the self-consignment and entrustment scheme. The regulation is applicable on precious metals and its products. Under the self-consignment scheme, exporters procure gold from local markets to manufacture jewelry for exports and are bound to realize earnings within 120 days. 50 percent of the earnings can be shown in the form of gold and the remaining 50 percent has to be shown in the form of foreign currency. Under the entrustment scheme, 25 kg of gold can be imported in order to be exported in the form of manufactured jewelry. According to this scheme, there has to be at least 13 percent of value addition and 10 percent wastage. This particular legislation reveals that gold cannot be imported in the country for local use. The local gold can only be obtained from recycling gold jewelry. After the promulgation of the above legislation, the number of registered exporters of gold jewelry shrunk to 63 members only. Among them, only 35 companies are actively importing and exporting at present. Most of the gemstones, such as zircons where are used in jewelry, are imported from countries like China and Hong Kong mainly because the precious and semi precious stones being mined in Pakistan are expensive. There are no major foreign players in the jewelry industry in Pakistan except for a UAE based company called ARY jewelers.

The actors identified in the gemstones industry in Pakistan are highly resistant to change and lack specialized skills and technical innovation. Moreover, the absence of a set price mechanism in the gems industry has adversely affected the industry. In most of the cases, precious and semi-precious stones are either undervalued or overvalued.

Domestic Market Norms

The following actors have been identified as the major actors in the domestic value chain of gems and jewelry:

Consumer ➡ Retailer ➡ Manufacturer ➡ Craftsmen ➡ Product ➡ Manufacturer ➡ Retailer ➡ Consumer

Within the domestic value chain, the retailers have the highest profit margins. The retailer uses the following formula to calculate the price:

Table-7: Domestic pricing of gold jewelry

Value Chain Actor	Pricing formula
Retailer charges	Market price of the gold according to weight + 10% wastage + labor which is usually Rs. 2000/- per tola ³ .
Manufacturer/owner	Charged to the retailer: Rs. 600 per tola + 6 ratti wastage
Craftsmen	Charged to the manufacturer: Rs. 200 per tola + 2 ratti wastage

² Please see annexure

³ Tola and Ratti are domestic measurements, in fact measurements of the sub-continent

Value Distribution

The 'value distribution' indicator analyses the level of revenues and profits captured along various stages of processing. By identifying the stages where most value is created and profits are maximized, this section of the value chain analysis helps to identify the 'winners' and the 'losers' in the gems and jewelry value chain in Pakistan.

3.1: Revenue / Profit distribution

The gems and jewelry industry follows a typical pattern of value addition whereby as the level of processing increases, the price and the profit margins also increase. The value of gems is determined by four factors; color, clarity, cut and carat. The value and profit margins of the gem are determined by the degree to which the raw specimen meets the ideal criteria in each factor. However, within the domestic market, an interesting notion is prevalent amongst the actors of the value chain that the raw specimen receives the highest price and cutting and polishing activities do not contribute to value addition. Therefore, the concerned actors do not engage in value addition activities.

Globally, the most profitable activity in the gems and jewelry value chain is retailing. This trend is also evident in the local market whereby the retailers earn the highest profit margins.

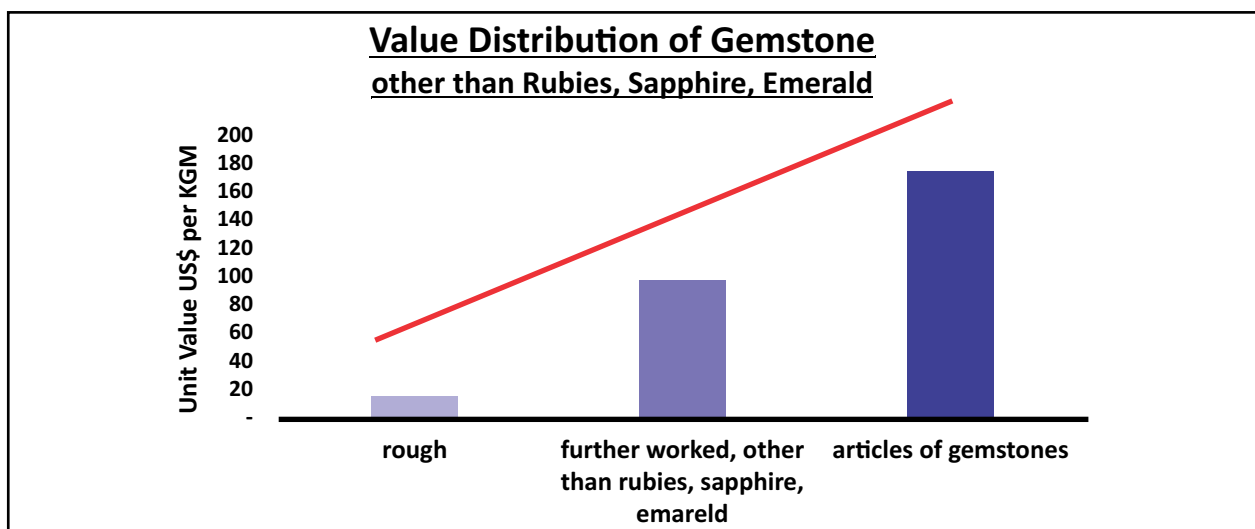
The local industry actors have varying opinions about major profit making actors. Traders in the Namak Mandi are of the view that mine owners earn the highest profit, while processors are of the view that the exporters enjoy the highest profit margins.

Similar to the gemstones industry, jewelry retailers and brands earn the highest profit margins. The profit margin for retailers was approximately 10 percent, followed by 5 percent for jewelry manufacturers, and 2 percent for jewelry importers. In Pakistan, gold jeweler brands such as ARY and Tessoro have higher profit margins as compared to the unbranded retailers.

3.2: Unit Values:

Figure-6 shows the global average export unit value of three different gemstone products. The graph below has categorized the output of gemstone industry according to three stages of processing, namely primary product, semi processed and processed. Rough specimen, which is the primary product, has the lowest export unit value followed by processed stone, which is a semi-processed product. Articles of gemstones have the highest export unit value.

Figure – 6: Value distribution of Gemstones



These three products are at 6-digit HS level, however the product 'HS-710391 – Rubies, Sapphires and Emerald further worked' has been excluded from the unit value analysis. Figure-6 indicates that the global value of rough gemstone is very low, but further processing increases its value by almost 650 percent; articles of gemstone have the highest value addition. The value of processed stones is also determined by the type and quality of the stone. The graph indicates that the increase in value addition from semi-processed to processed products of gemstones is approximately 100 percent.

Figure – 7: Global value distribution of Gold Jewelry

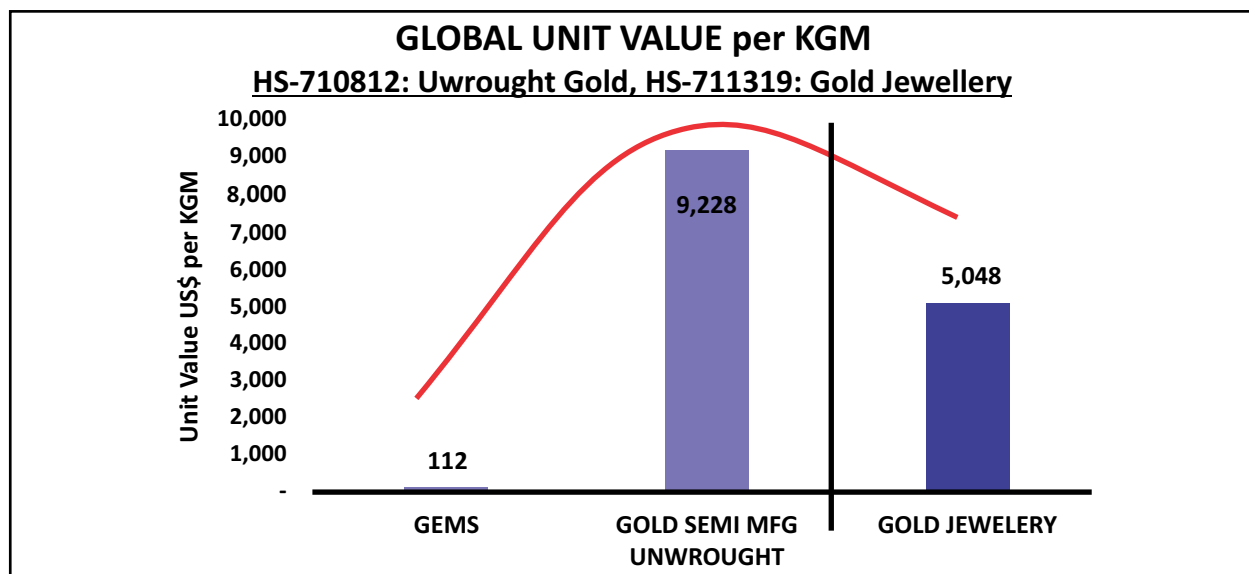


Figure 7 illustrates the unit value distribution of the jewelry sector. The sector has been categorized according to the stage of processing. The graph indicates that as compared to manufactured jewelry, semi processed gold has a higher unit value. This is largely because semi processed gold is 24 carats whereas manufactured jewelry ranges from 18-22 carats of gold, therefore reducing the unit value.

The value chain distribution in the figure above does not provide a true picture of the unit value addition at every stage. The price of gold varies due to factors such as the nature and quality of gold, thereby rendering it difficult to analyze value distribution over time.

3.3: Employment/Skills/Technology

The gems and jewelry industry is a labor-intensive industry. The majority of the labor required and employed in this sector is skilled. Specialized skills and expertise is required to mine, process and manufacture gems and jewelry. The processing sector uses highly specialized machinery that requires proper knowledge and training regarding the operational processes at each and every stage. The constantly changing product mix in terms of new markets, designs, products and processes in the gems and jewelry sector requires highly skilled labor.

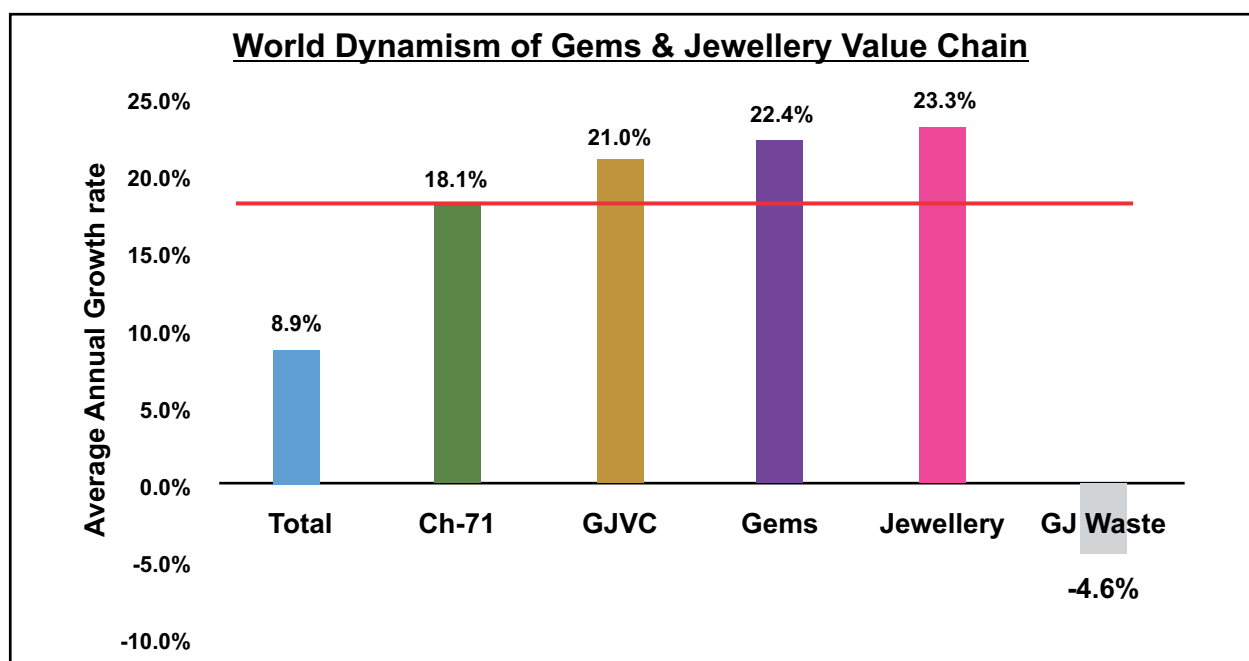
With the exception of Gems and Gemological Institute in Peshawar, there are no formal training institutes in the gems and jewelry sector. Most of the labor is trained through informal apprenticeship systems. In the past few years, fashion institutes and universities have taken significant steps to introduce professional programs and courses on jewelry designing and manufacturing. Due to cultural barriers, female participation in this industry is negligible.

Global and Regional Dynamism

World Dynamism is a tool which establishes the rationale for the sector selection and eases the decision making process for entrepreneurs. World dynamism identifies the global demand and the annual average growth rates of each sector. This methodology employs two tools to assess world dynamism: growth rates and global demands.

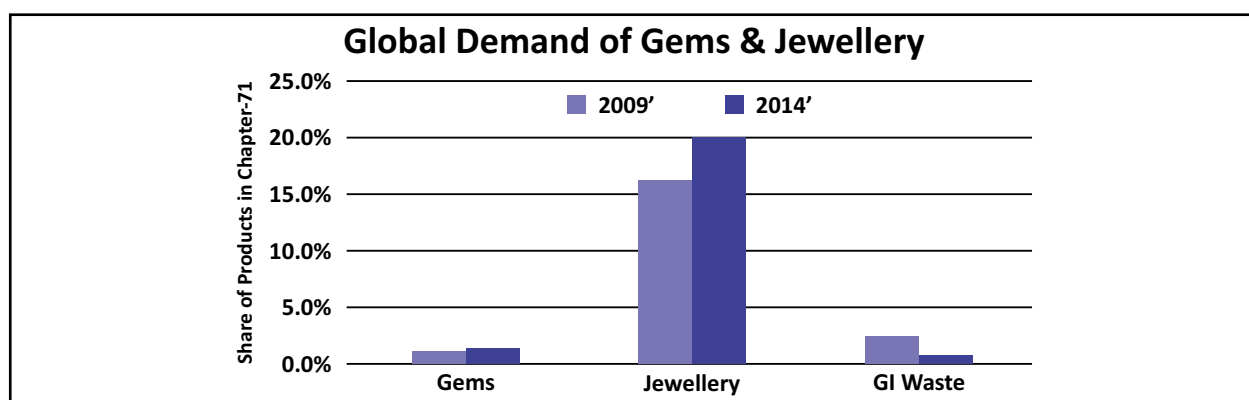
The annual average growth rate of gems and jewelry is analyzed over a period of time. The graph below shows the annual average growth of gems⁴, jewelry⁵, gems and jewelry value chain⁶; chapter 71 includes all products relevant to gems and jewelry and the total trade⁷.

Figure-8: World dynamism of Gems and Jewelry Value Chain



The gems and jewelry sector has been benchmarked with the HS Chapter 71. The analysis reveals that the annual average growth rates of the gems sector and the jewelry sector are higher than that of HS Chapter 71 and the world total trade, indicating that these two sectors are dynamic. Although the international price of gold has witnessed a downward trend, the demand for the product has remained dynamic. Moreover, the dynamic nature of the sector has also been attributed to the increased purchasing power of the consumers in developed countries.

Figure-9: Global Demand of Gems & Jewelry



⁴ Only included the gem products mentioned in Table 1

⁵ Only included the jewelry products mentioned in Table 1

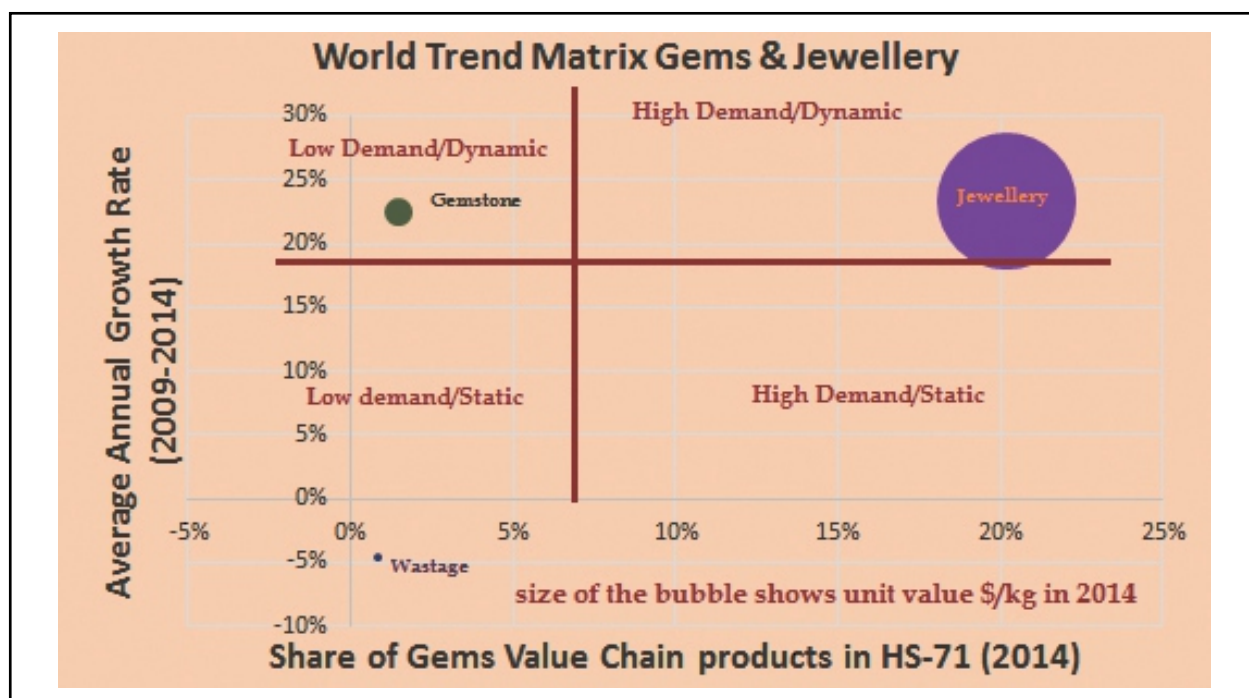
⁶ Combined the selected gems and jewelry products

⁷ Include agricultural and manufactured products

The diagram above shows the demand of gems and jewelry within the product categories included in Chapter 71. The demand for gems (excluding diamonds) between 2009 and 2014 has more or less remained constant whereas the demand for jewelry has shown an increase of around 4 percent between 2009 and 2014. The global demand of jewelry is much higher than that of gemstones.

The world trend matrix for gems and jewelry sector classifies the export products in four categories according to their dynamism and world market share. The size of the bubble represents the unit value for each product. It is evident from the graph that the growth rates of both gems and jewelry are higher than the annual average growth rate of Chapter 71, rendering them as dynamic products. However, the demand for jewelry has been growing more than that of gemstones between 2009 and 2014. Another product category that was taken for the purpose of this analysis was wastage. The demand and annual average growth rates for wastage are low mainly because it is recycled.

Figure - 10: World trend matrix of GJVC

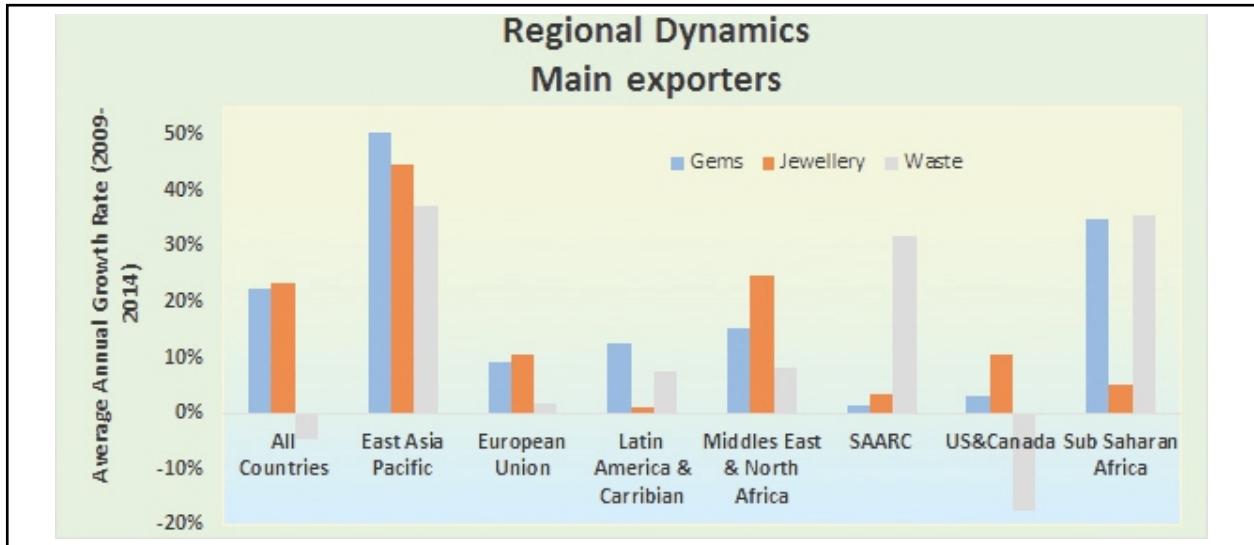


Regional Dynamics

This section will analyze the impact of various regions on the trade of gems and jewelry in the world market. It helps to identify the main importing and exporting regions and determine the regional growth patterns for each product.

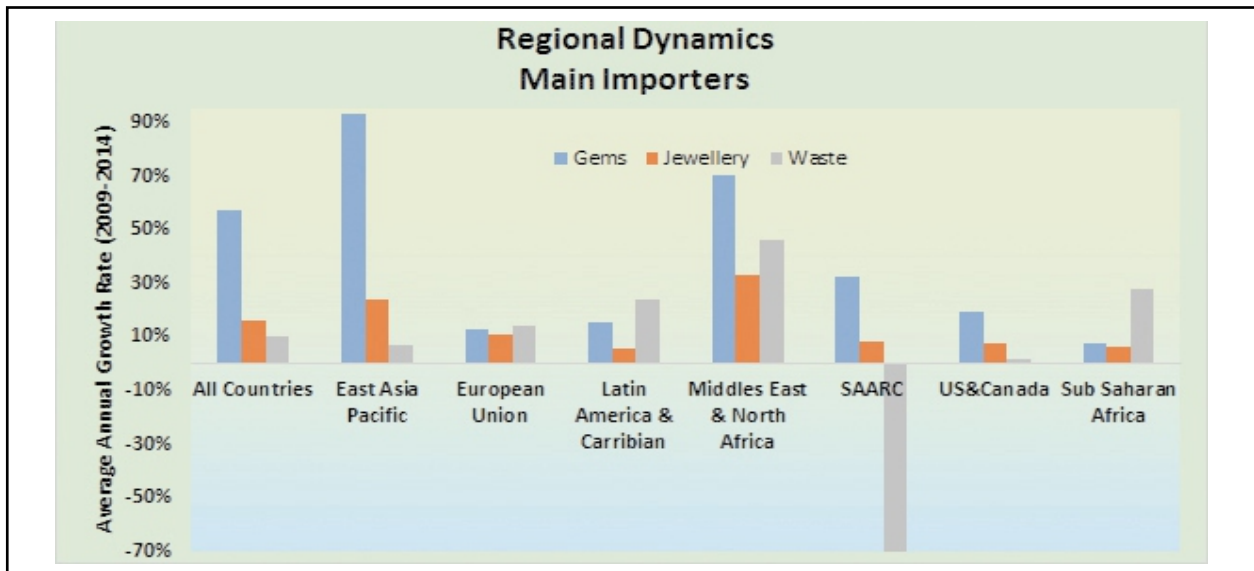
The regional dynamics can be measured by the average annual growth rates of exports and imports in each region. This indicator measures each region's growth of exports and imports. The graph titled 'Annual Average Growth Rate - Main Exports' shows that the global average growth rate for gems is 22 percent and for jewelry is 23 percent. East Asia, and Middle East and North Africa (MENA) have the highest annual average growth rate in the sector. In East Asia, the growth rates for gems and jewelry are 45 percent and 50 percent respectively. In the MENA region, the annual average export rates of jewelry are even higher than that of the global growth rate. Growth rates in SAARC and Latin America are dismal.

Figure – 11: Growth rates of main exporting region of GJVC



The annual average growth rates of gems and jewelry imports in the importing countries indicate that the gemstones industry is growing at a higher rate than that of the jewelry sector. The annual average growth rate of gemstones is impressively high in East Asia (90 percent), Middle East (70 percent) and SAARC (30 percent). The high average growth rate in East Asia is mainly because this region has become a hub for carrying out value addition activities in the value chain such as cutting, polishing and manufacturing jewelry for exports and domestic consumption. The import growth rates for jewelry are high in the Middle East followed by East Asia and European Union.

Figure 12: Growth rates of main importing region of GJVC



The regional market share helps to identify the major markets and the major competitors for each product. Figure-13 shows the major suppliers or exporters of gemstones. In 2009, US-Canada region was the top supplier of gemstones followed by East Asia and the European Union. South Asia (SAARC) was the 5th largest region. However, during 2014 the regional supply dynamics changed and East Asia Pacific became the top supplier with 54% share in total world export. US-Canada saw a drop of 50% in the world market share of gemstones in 2014. EU's share dropped from 17% to 10% and the share of

SAARC region dropped from 13% to 5%. Sub-Saharan Africa saw an increase of 1% from 2009-2014.

Figure – 13: Regional exporters of Gemstones

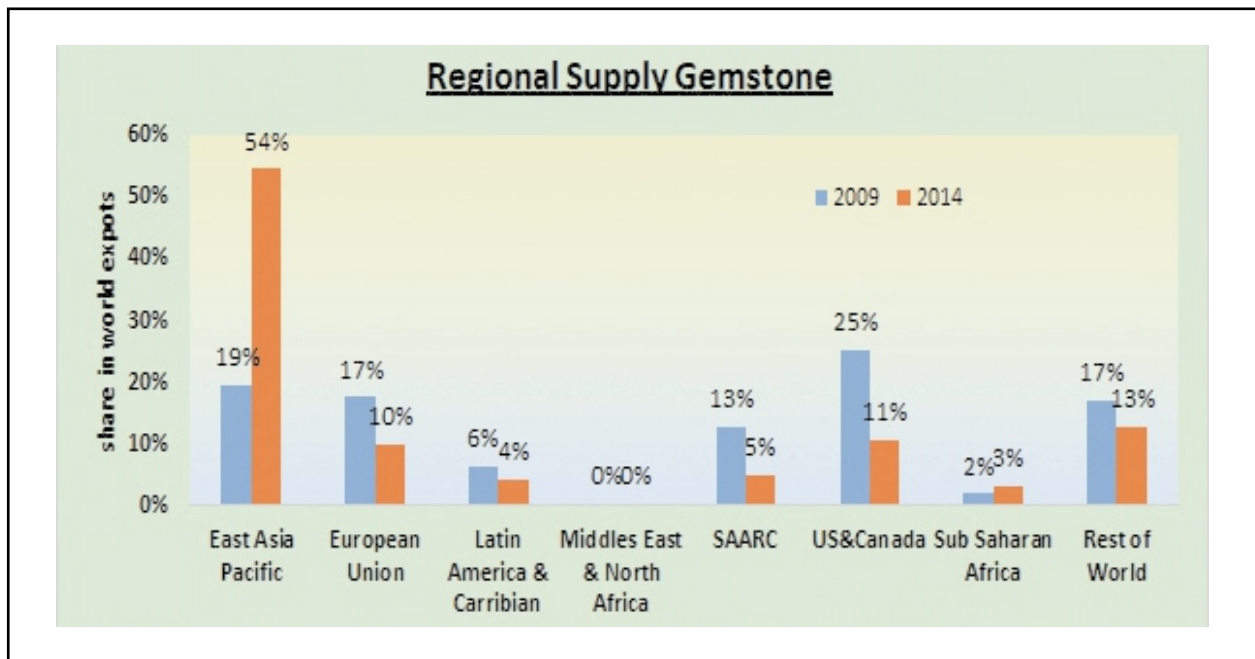
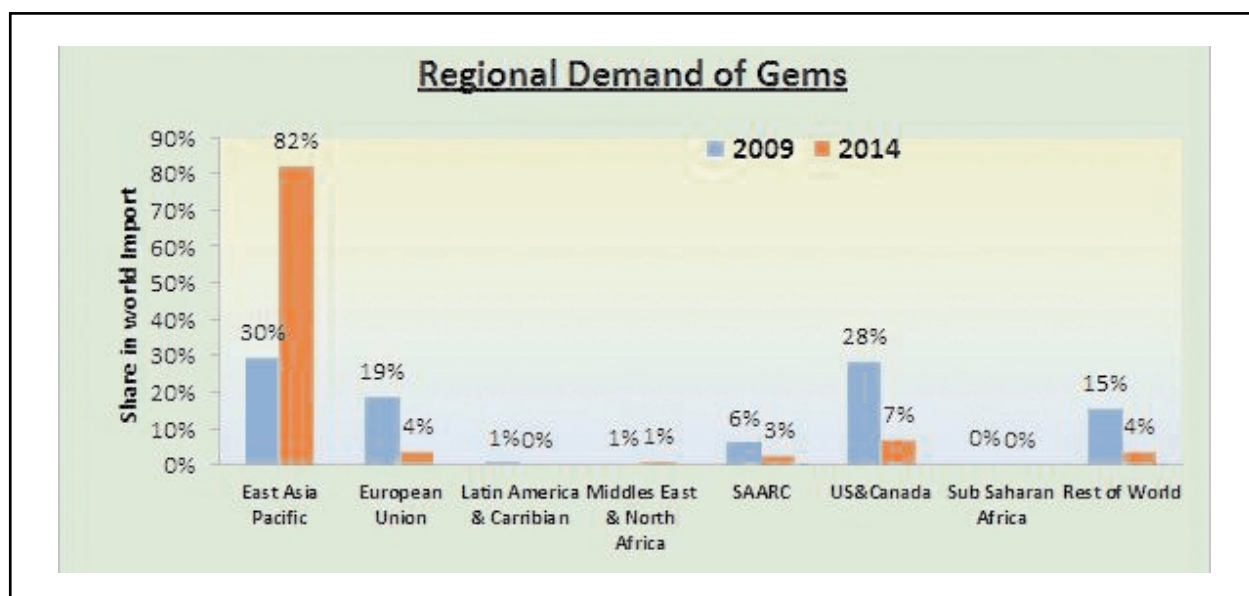


Figure – 14: Regional exporters of Jewelry



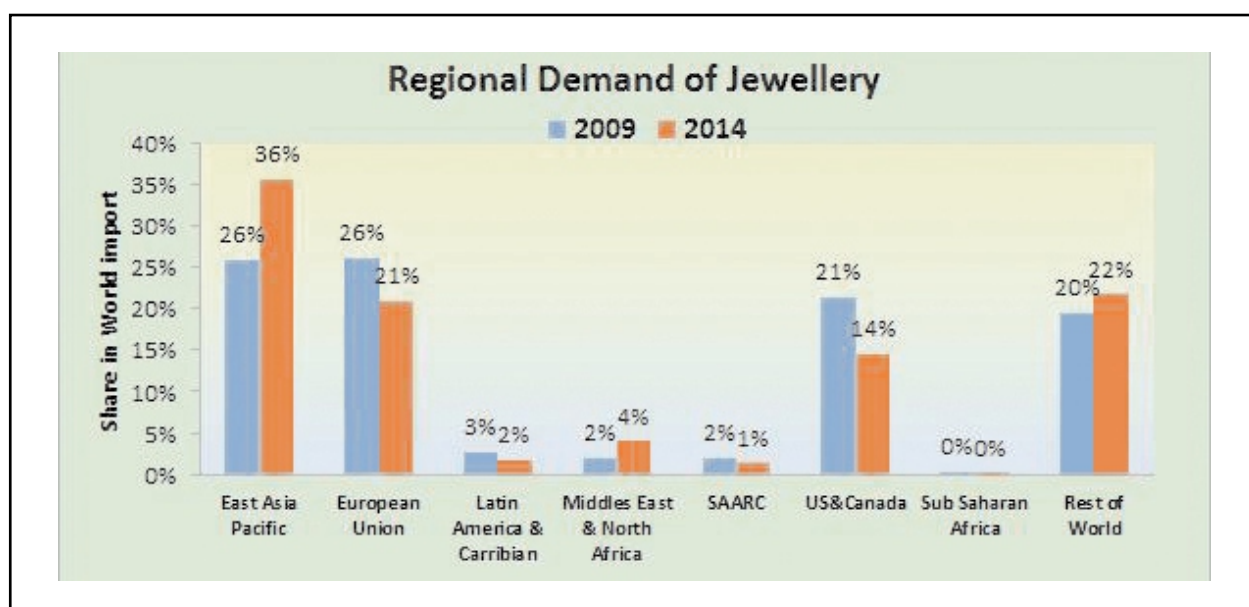
The same regions that are the world top suppliers of gems are the world top suppliers of jewelry (figure-14). In 2009, East Asia, EU and SAARC each had a share of 25 percent, 26 percent and 26 percent respectively in the world exports of jewelry. However, in 2014, East Asia captured 55 percent of the world market share and became the top supplier of jewelry in the world market. The share of EU and SAARC both decreased to 15 percent and 11 percent respectively.

Figure – 15: Regional Importers of Gemstones



The demand side, which is captured through world import, shows a significant change in the demand trends for gems. In 2009, East Asia was the top importing region capturing 30 percent of the world import share, while US-Canada was the second top importing region with 28 percent share. EU and SAARC captured 19 percent and 6 percent market share respectively. In 2014 East Asia imported 82 percent of the total world import of gemstones; such a huge concentration of import of gems in East Asia shows that the region has now become the main hub of gemstone trade. East Asia has become a region for processing gemstones and using them in the manufacturing of jewelry.

Figure – 16: Regional Importers of Jewelry



The regional demand of jewelry shows a similar pattern. In 2009, East Asia Pacific was the top importing region with 26 percent share in world trade of jewelry; in 2014, the share of this region reached 36 percent while it maintained its position as the largest importer of jewelry. On the other

hand, EU's share dropped from 26 percent in 2009 to 21 percent in 2014. Share of US-Canada also dropped from 21 percent to 14 percent. The share of Middle East increased from 2 percent to 4 percent.

The above stated trend in demand signifies that the demand of gold jewelry is decreasing in EU and US-Canada region, while in East Asia Pacific it is increasing. World economic recession, which has mostly impacted the EU and USA economy, can be attributed as one of the main reasons for low demand of gold jewelry. However the world economic recession has not affected the demand of gold jewelry in East Asia Pacific.

Value Chain Performance

5.1: Economic Contribution:

Despite being endowed with large reserves of gems and precious metals, Pakistan has not been able to develop its gems and jewelry sector into a thriving and competitive industry. During 2014 the export value of the gems & jewelry sector was merely 0.007 percent of the GDP. In 2012-2013, the sector's contribution in the total sales tax was 0.007 percent, which ought to have been higher due to the high cost of gold and gemstones (Economic Survey of Pakistan).

The industry is characterized as a small and medium enterprise. The total number of Jewelry retailers is estimated to be 20,000 and while there is no major refiner or gold bar manufacturer, there are approximately 1,000 small refiners across the country (Trade Development Authority of Pakistan). The total gold consumption in Pakistan is around 170 tons, while 800,000 workers are employed in the industry . The annual demand of jewelry was US\$ 1.2 billion, so the share in GDP was 1.22 percent in 2014.

Under 'Import and Export of Precious Metals Jewelry and Gemstone Order 2013' legislation all exporters and importers of jewelry must be registered with the Trade Development Authority of Pakistan in order to be able to trade, therefore making it mandatory for the companies to be registered at all relevant taxation authorities. There are 63 registered companies at TDAP at present, out of which 35 companies are actively exporting. Pakistan's export value of gems & jewelry sector reached US\$ 1.62 billion in 2012, but declined to US\$ 431 million in 2013 after the imposition of this regulation; in 2014, the exports of the sector were valued at US\$ 118 million which further declined to US\$ 12 million in 2015 (Economic Survey of Pakistan).

For the purpose of this study, only those products in the gems and jewelry value chain have been selected which are being exported by Pakistan. Therefore, the following two products were selected: raw gems (HS-710310) and gold jewelry (HS-711319). It is evident that Pakistan is exporting low value added products. The unit value analysis showed that the unit value of rough gem is US\$15 while the value of a processed gem is as high as US\$97, which is 650 percent higher than that of rough gems. In the jewelry industry as well, Pakistan is involved in low value addition activities. The unit value of gold jewelry is less than the value of unwrought gold or semi manufactured gold. The gold jewelry industry is dependent on imported gold. 95 percent of the gold jewelry produced in Pakistan is supplied in the domestic market.

5.2: Export Competitiveness:

The Export Competitiveness Index (ECI) measures a country's relative export competitiveness. This study has calculated ECI for both gems and jewelry products, which include the tariff lines indicated in Table-8.

Table – 8: Gems & Jewelry ECI and Rank

Countries	Export Competitiveness Index		Rank	
	2009	2014	2009	2014
Switzerland	0.7088	0.6182	1	1
China	0.1229	0.5127	9	2
Hong Kong, China	0.1295	0.5044	8	3
Singapore	0.3680	0.2726	4	4
India	0.5076	0.1411	2	5
Bahrain	0.0130	0.1192	33	6
Italy	0.2677	0.1040	5	7
United Kingdom	0.2238	0.0812	6	8
United States	0.3826	0.0795	3	9
Thailand	0.1685	0.0723	7	10
Turkey	0.0673	0.0635	14	12
Malaysia	0.1018	0.0411	11	13
Indonesia	-	0.0331	110	15
Sri Lanka	0.0132	0.0041	32	43
Vietnam	0.0708	0.0028	13	48
Pakistan	0.0240	0.0014	22	61

The table above shows the rankings of the countries with the highest export competitiveness index for the products included in the gems and jewelry value chain. Switzerland is the most competitive country to export gems and jewelry and it can be seen in table 6 that it has maintained its hegemony between 2009 and 2014. East Asian countries such as China and Hong Kong jumped to 2nd and 3rd position. The ranking of USA, India and Thailand decreased between 2009 and 2014. Pakistan also lost its competitiveness substantially between this period. It fell from being the 22nd most competitive country to export gems and jewelry to 61st in a span of 5 years. The main competitors identified for Pakistan are China, Hong Kong, India, Thailand, Sri Lanka and Vietnam. Except China and Hong Kong, most of the countries have lost their hegemony in the global market.

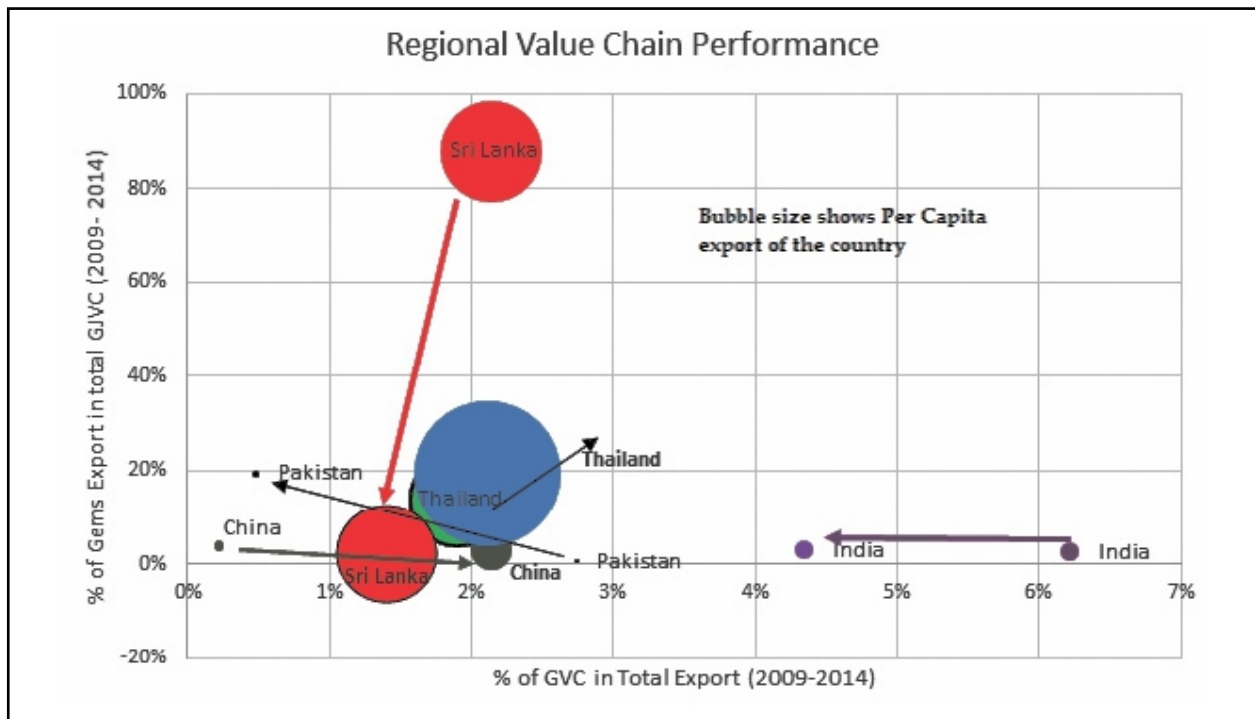
The list of the countries in the table above suggests that South Asia and South East Asia are the major exporting regions of gems & jewelry products. However, western countries such as Switzerland, UK, and USA are also among the top ten major exporters.

The ECI for gems (Table-9) shows that in 2014, Hong Kong beat Switzerland to become the top supplier of gems in the world. China jumped to the 3rd rank from 13th. USA's ranking dropped to 5th position from 2nd. Singapore, India, Germany, UK, and Sri Lanka also dropped in the ranking. Although Pakistan was able to maintain its ranking between 2009 and 2014, its ranking in the global market is not impressive. It is evident that East Asian, South Asian and European countries are the major exporters of gems.

Table – 9: Gems ECI and Rank

Countries	ECI		Rank	
	2009	2014	2009	2014
Hong Kong, China	0.0533	1.0000	14	1
Switzerland	0.7840	0.4140	1	2
China	0.0639	0.3838	13	3
Thailand	0.3004	0.2559	3	4
United States	0.5222	0.2370	2	5
Singapore	0.1986	0.1909	4	6
India	0.1774	0.0774	5	7
Germany	0.1619	0.0683	6	8
Israel	0.1060	0.0648	8	9
United Kingdom	0.1004	0.0632	9	10
Sri Lanka	0.1392	0.0450	7	12
Pakistan	0.0021	0.0021	35	35

Figure – 17: Regional Value Chain Performance of Gemstones



In order to gauge the performance of the country, it is imperative to compare its export performance with other selected countries. In this report, Pakistan's export competitive performance in the gems industry is compared to that of Thailand, China and Sri Lanka.

The value chain performance graph shows that between 2009 and 2014, the export capacity of Thailand increased substantially while its share in total Gems & Jewelry exports and GJVC export share

in total exports remained unchanged. Sri Lanka's share of gems export in the gems and jewelry value chain decreased sharply between this time, falling from 80 percent in 2009 to 5 percent in 2014; however the share of GJVC in total exports decreased slightly, from 2 percent to 1.5 percent. This indicates that Sri Lanka has substantially decreased the export of unpolished and uncut gems and is instead exporting processed gems. India's export of gemstones in the total GJVC and export capacity remained the same between 2009 and 2014, while GJVC share in total exports of India decreased from 6 percent in 2009 to 4 percent in 2014. China's export capacity increased significantly between 2009 and 2014. The GJVC exports in total exports also increased from 0.2 percent to 2.1 percent, indicating that China has increased its dependency on the exports of gemstones. It is evident that Pakistan's performance compared to Sri Lanka, China and India is extremely poor. The exports of gems in total gems jewelry value chain increased from 0 to 20% percent. However, the contribution of gems & jewelry export in the total trade decreased from 3 percent to 0.5 percent. The analysis suggests that Thailand, Sri Lanka and China are the major player in the business. These three countries are also the major competitors in the world market.

Thailand is the hub of gemstone markets in the world and Sri Lanka has the vision to make the country a hub for gemstone processing. The export performance of the gems industry shows that during the last 5 years, China has fast become the hub of gems trade. China and Hong Kong are the major export destination of Pakistani gemstone exports. Almost 66 percent of Pakistani gemstone is exported to these two countries. As mentioned earlier, China is the biggest buyer of Pakistani gemstone. Due to the law and order situation in the country, only Chinese are visiting Namak Mandi Peshawar to purchase gemstones.

Jewelry is the final product of the Gems & Jewelry value chain. The Export Competitiveness Index (table-10) for jewelry shows a similar trend as the total gems & jewelry value chain. Switzerland is the top most Competitive country of the gold Jewelry export, followed by China, Hong Kong, Singapore and India. The rankings of Singapore and India have dropped from 3rd to 4th and 2nd to 5th, respectively. Italy and UK also dropped in ECI ranking, while France and Turkey improved their ranking. Thailand and USA have also dropped to 11th and 12th positions from 6th and 7th positions respectively. Ranking of Vietnam and Pakistan also substantially dropped. Vietnam was ranked 12th in 2009, and dropped to 40th, and Pakistan dropped from 23rd to 47th.

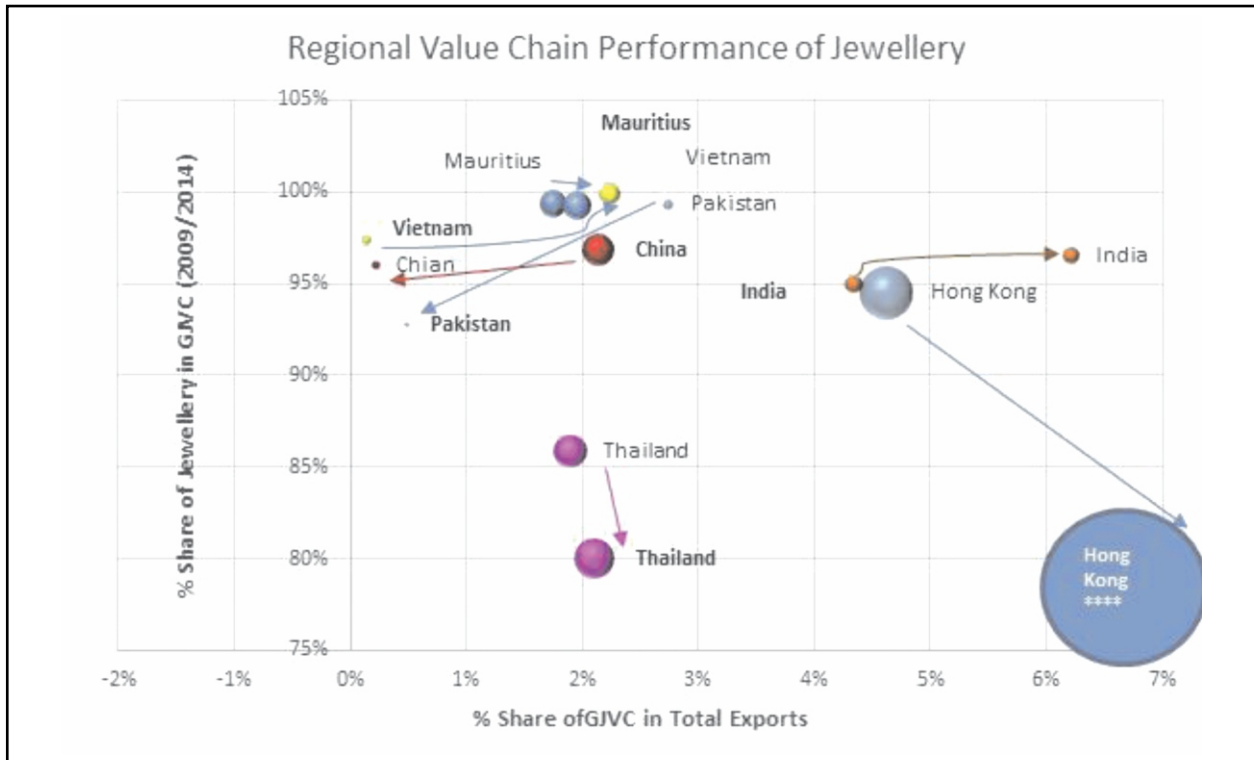
Table – 10: Jewelry ECI and Rank

Countries	ECI		Rank	
	2009	2014	2009	2014
Switzerland	0.6848	0.6111	1	1
China	0.1224	0.5135	9	2
Hong Kong, China	0.1387	0.4217	8	3
Singapore	0.3902	0.2659	3	4
India	0.5086	0.1386	2	5
Bahrain	0.0151	0.1307	28	6
Italy	0.2803	0.1067	4	7
United Kingdom	0.2248	0.0747	5	8
France	0.0924	0.0723	11	9
Turkey	0.0705	0.0665	13	10
Thailand	0.1541	0.0610	6	11
United States	0.1420	0.0538	7	12
Malaysia	0.1054	0.0430	10	13
Vietnam	0.0749	0.0029	12	40
Pakistan	0.0250	0.0014	23	47

Table-10 shows that European, East Asian, and South Asian countries are the major exporters of gold jewelry in the world.

The value chain performance graph shows that even though the share of jewelry exports in total GJVC has decreased from 94 percent to 75 percent, the export capacity of Hong Kong has improved manifold between 2009 and 2014. China's export capacity has also increased and the contribution of jewelry in the total GJVC has remained stagnant. The analysis shows that Mauritius only exports gold jewelry and its contribution in total export is 2 percent. The export capacity and share of GJVC in total export of Vietnam increased between the period 2009-2014. The value chain performance graph shows that Pakistan is the only country in the region whose performance has deteriorated. The per capita exports and GJVC share in total export decreased drastically. This trend shows that Pakistan is the weakest exporting country among all regional players in the jewelry trade.

Figure – 18: Regional Value Chain Performance of Jewellery



The value chain performance reveals that Pakistan is in a relatively better position to export gems than jewelry. The country has indigenous supply of gemstone, whereas the raw material for jewelry has to be imported. Furthermore, Pakistan has introduced tough regulations with respect to the trade of precious metals and jewelry. The jewelry manufacturing industry is entirely dependent upon imported gold, which can only be imported in limited quantity at a time. This should not be the case, as the top ten countries do not have such restrictions on the import of gold.

Value Chain Capture Opportunities

The Import Dependency Index determines world attractive import markets. The important aspect of this index is that it considers only those countries that are the net importers of the products.

Attractive markets are divided into four sub-categories: high price-big market, high price-small market, low price-big market and low price-small markets. Markets whose quantity imported is above the average quantity import of the world economies are considered as big markets, while countries whose unit value is above the average unit price are considered as high price markets and vice versa.

Table – 11:Top-20 Attractive Gems Markets

S #	Countries	Import value thousand US\$	Unit value in US\$/Kg	Unit value in US\$/Kg
1	China	26,306,276	12,768	2,060
2	USA	2,387,423	679	3,515
3	Switzerland	1,026,776	7,105	145
4	India	870,751	20,332	43
5	UK	307,895	528	583
6	France	307,205	614	501
7	Italy	264,472	806	328
8	Japan	177,319	414	429
9	Other Asia,	135,896	52	2,610
10	Belgium	56,541	1,790	32
11	Canada	43,246	527	82
12	Lebanon	27,828	10,295	3
13	Mexico	22,871	59	389
14	Austria	21,177	206	103
15	Czech Rep.	17,951	33	550
16	South Africa	16,134	383	42
17	Spain	15,826	25	644
18	New Zealand	9,660	160	60
19	Netherlands	7,638	157	49
20	Greece	6,087	70	87

Table-11 shows the top importing markets. The index combines two indicators: trade balance and world market share. On the basis of this calculation, the countries listed above have been identified as attractive markets for gemstone. In terms of imported value, China is the biggest market, followed by USA, however the data on quantity shows that USA is the world's largest importer. USA's import value is almost 13 times lower than China's but its import quantity is 150 percent more than that of China's. The unit value of imported gemstone is the highest in India, followed by China and Lebanon.

Figure – 19: World attractive markets of Gemstones

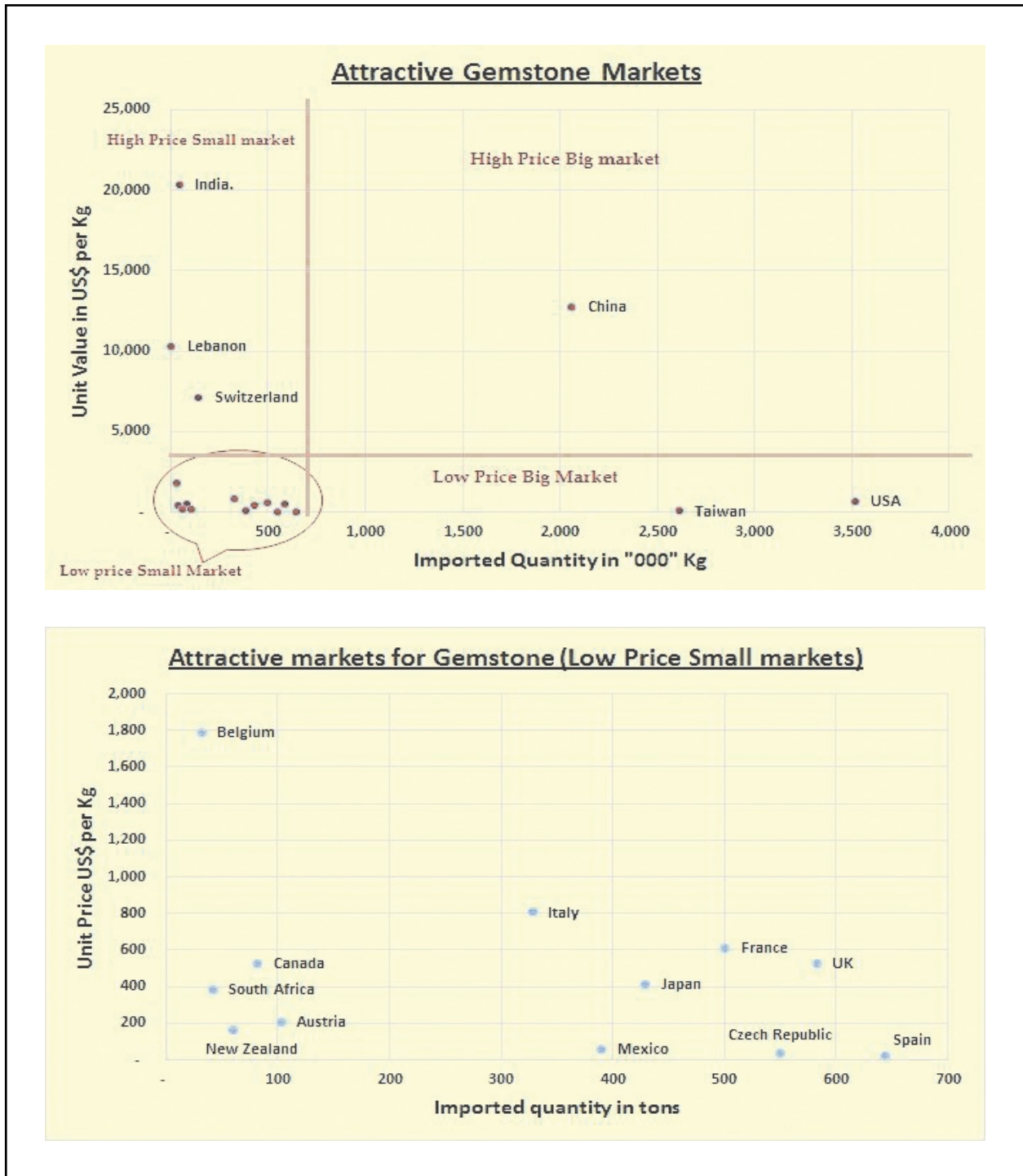


Figure-19 shows that China is the only high price – big market for gemstones, while USA and Taiwan fall in the category of big markets but low price. India, Lebanon, and Switzerland fall in the high price- small market category. Most of the countries fall in the low price-small market category. Low price-small markets are mostly European countries. Mexico, Canada, South Africa, and New Zealand are other important markets for gemstones.

China is the top export destination for Pakistan's gemstones, followed by Hong Kong and USA. India

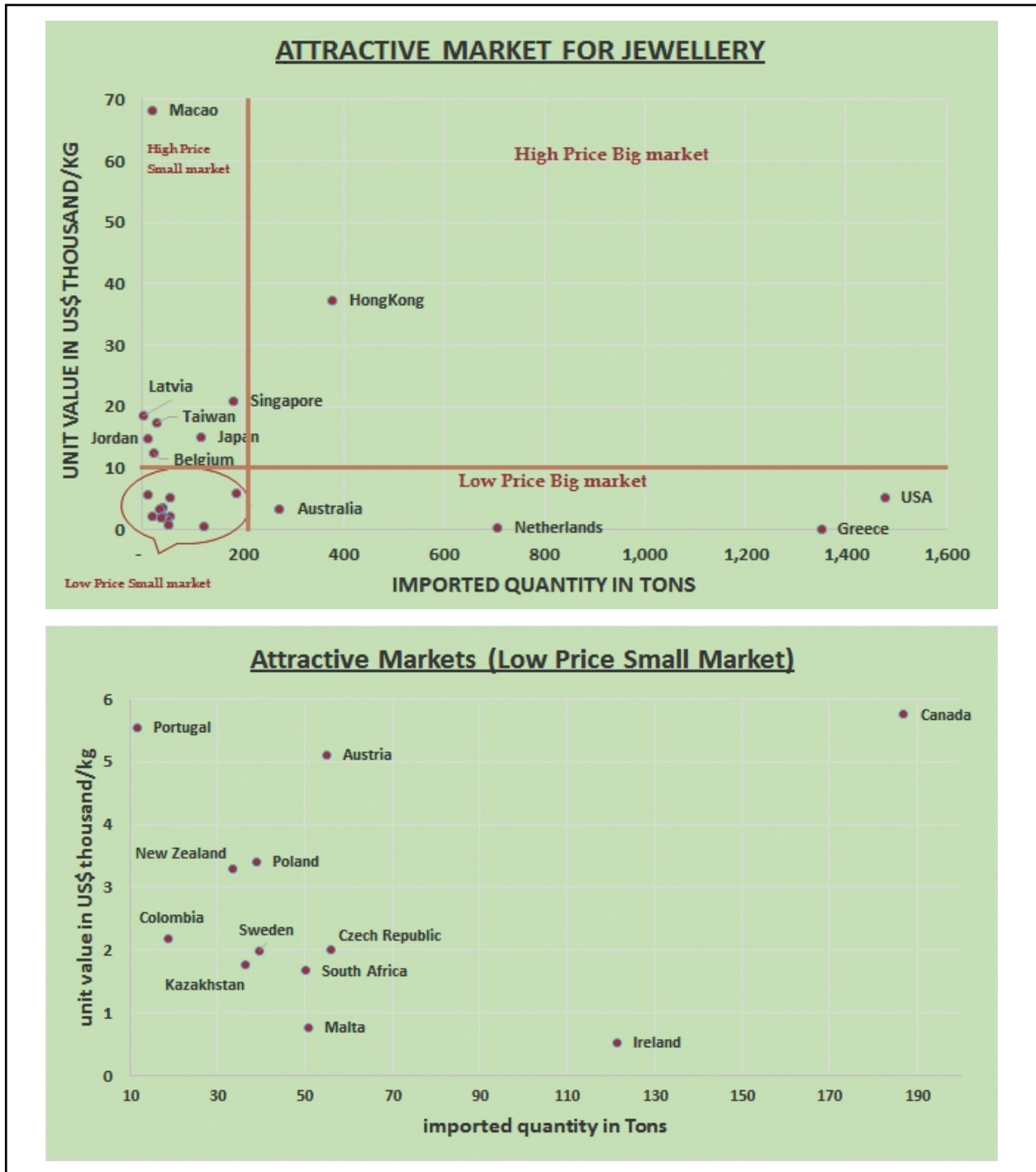
and Germany are the 4th and 5th largest markets for Pakistan. These top 5 destinations constitute 83 percent of the total gemstone exports. Table - 12 below shows attractive import markets of gold jewelry.

Table - 12: Top-20 Attractive Jewelry Markets

S #	Countries	Import value	Thousand US\$/Kg	000 Kg
1	H.K	14,142,829	379	37
2	USA	7,698,619	1,478	5
3	Singapore	3,768,825	181	21
4	Japan	1,770,300	117	15
5	Macao	1,361,196	20	68
6	Canada	1,074,388	187	6
7	Australia	902,525	274	3
8	Taiwan	476,425	27	17
9	Austria	280,066	55	5
10	Belgium	279,631	23	12
11	Netherlands	198,289	705	0
12	Jordan	183,847	12	15
13	Poland	132,494	39	3
14	Czech Rep.	112,045	56	2
15	New Zealand	111,089	34	3
16	South Africa	83,729	50	2
17	Sweden	78,445	40	2
18	Greece	69,947	1,351	0
19	Ireland	64,622	121	1
20	Portugal	64,497	12	6

Table - 12 shows that Hong Kong is the largest importer of gold jewelry in terms of value and second biggest importer in terms of quantity. Macao is the largest importer in terms of quantity, but 5th biggest in terms of import value.

Figure – 20: World attractive markets of Jewellery



The attractive market map shows that Hong Kong is the only high price – big market for gold. USA, Greece, Netherlands and Australia are low price – big markets. Macao, Singapore, Japan, Taiwan, Belgium, Lebanon and Latvia are high price – small markets. Canada, Ireland, Austria, Czech Republic, Malta, South Africa, Poland, Sweden, Kazakhstan, New Zealand, Colombia and Portugal are low price – small markets.

UAE is Pakistan's largest market for gold jewelry. 90 percent of Pakistan's exports are sent to the UAE. The country does not appear on our analysis because the exports and imports data for UAE is available till 2008 only. It was identified that UAE re-exports 60% of its total imports. In 2014, the export

destinations for Pakistan were UK, USA and Canada. These three countries are identified as attractive markets for gold jewelry.

Trade Regimes of Attractive Markets:

China, EU, USA and other Asia Pacific countries are attractive markets for both gems and jewelry. India is also an attractive market for gemstone. There is no specific requirement by European Union on the import of gems and jewelry. There is no import duty in the aforesaid markets, however a 20 percent VAT is levied in on the imports of gems and jewelry in the UK and France. None of the attractive markets have imposed tariff barriers on the trade of gemstones. Sri Lanka has imposed export duty on the export of raw gemstones, where as the import duty is zero-rated.

Hong Kong and China have emerged as the most important markets for both gemstones and jewelry. Sri Lanka is also a very important supplier of gemstones. Sri Lanka and Thailand are considered as benchmarks for gemstone industry while India is considered as benchmark for the gold industry.

The following table shows market access requirements of attractive markets for Pakistan.

Table-13: Market requirement of Attractive Gems/Jewelry

Country/Region	Import Tariff for Pakistan	MFN Rate	Non-Tariff Measures
China	Zero for Gems 14% for jewelry under PCFTA	3% for gems 20% for jewelry	Re-export is not allowed
Hong Kong	MFN zero	Zero	No specific requirement
USA	Zero under GSP	Zero for Gems 5%-6.5% on jewelry	No specific requirement
EU	Zero under GSP	Zero for gems 2.5% for jewelry	No specific requirement

The table above shows that major attractive markets are free for Pakistan. If Pakistan improves its competitiveness, it can improve its market share in the international markets.

Value Capture Constraints

There are various factors that affect the value capture potential for Pakistan. As stated earlier, Pakistan has access to gemstones but due to its inability to adopt modern and scientific technique, both in mining and processing, the country is unable to export high value added products. Similarly in the jewelry sector Pakistani artisans have not adapted to the changing market trends and use outdated technology to manufacture gold jewelry.

Lack of Technological Advancement:

Pakistan's gemstone and jewelry industry is ill equipped in terms of latest technology and skilled labor required to operate it. Miners still use the blasting technique for the excavation of gemstones, which compromises the quality of the stone. Moreover, the traditional approach of the manufacturers and miners in Peshawar has hindered the development of the gems and jewelry industry. On the other hand, the actors in Karachi and Lahore have begun processing gemstones using modern equipment and have adapted to the global demand patterns. The small and medium size of the businesses operating in the gemstone and jewelry industry does not allow for technological advancements at a large scale. The lack of certification facilities and labs has hindered the growth of the gemstone industry. Gemstones are often under-valued and over-valued by the traders, which has also led to price instability in the trade of gems.

The mishandling of precious gemstones by the customs officials compromises the quality of the gemstones. Therefore, custom officials require training to scan, unpack and repack the consignment based upon agreed procedures.

Trade Regime:

Pakistan has imposed a 5 percent import duty on processed gemstone, while rough gems can be imported duty free. Furthermore, traders have to pay a withholding tax of up to 5 percent and an export development surcharge of 0.25 percent.

There is no legal framework to govern the trade of gemstones, which has encouraged illegal trade in this industry. On the other hand, TDAP plays a central role in the import and export of gold and precious metal. All the companies are required to be registered with the Trade Development Authority of Pakistan for export and import of gold jewelry.

Mining activities have an adverse effect on the environment but the government of Pakistan has not introduced effective policies and regulations regarding the mining of gemstones.

Finance:

Gems and jewelry sector is included in Long Term Financing Facility (LTFF) of State Bank of Pakistan. Under this scheme loans are available at concessionary interest rate for export-oriented units. The minimum requirement set by the government of Pakistan is US\$5 million worth of exports or exports as 50 percent of total production, whichever is lower.

In 2015 the export of gemstones and jewelry was valued at PKR4.8 million and PKR7.5 million respectively. The State Bank statistics reveal that out of PKR 2.9 trillion worth of loans to the private business sector, jewelry sector is given only PKR 605 million in loans, which is 0.02 percent of the total outstanding loan to the private businesses.

The gemstone exporters face a problem regarding online payments of small orders. Gemstone traders

are selling and marketing their products through various e-commerce channels. The lack of online payment channels such as PayPal limit the businessmen. This online system is available in all the South and South East Asian countries, except Pakistan.

Industrial Training:

Gemstones processing and jewelry manufacturing are highly skilled jobs. The lack of good training institutes in Karachi, Lahore and Peshawar has constrained the growth of industry in terms of providing skilled labor to the businessmen. The Gemological Institute in Peshawar is the only training institute providing skilled labor to the industry.

Industry Association:

There are two private sector associations for this sector; All Pakistan Gems Merchants and Jewelers Association and All Pakistan Commercial Exporters Association of Precious and Semi-Precious, Rough and Polished Gemstones. Apart from these associations, Saraffa Bazaars in all towns have their own Jeweler's committees.

The associations play a pivotal role for the association members. They assist their members by facilitating visa processes, customs related issues, resolution of taxes and administrative issues, trade regulations and participation in international exhibitions.

Research Institutes:

The lack of research and development institutes has led to the stagnation of the industry. There is only one company in Lahore, which imitates machineries for gems and jewelry business. There are no professional courses being taught at universities. However, in some engineering universities there is separate department of Metallurgy.

Lack of complete awareness of Government regulations and policy:

Lack of complete knowledge regarding government regulations and policy regime has led the traders to underperform. For example, some of the traders stated that there is a high custom duty on the import of "raw/rough gemstones". However, the data reveals that there is zero import duty on raw unworked gem and a 5 percent duty on the import of processed gems. Import of machines used in the gemstone processing, cutting and polishing, are zero rated. But the traders insist that the machines are imported at very high duty, therefore they use the locally manufactured machines.

Law & Order situation:

The poor governance and law and order situation in the country has discouraged foreigners to access the gemstone market in Peshawar and Karachi. At the moment, only Chinese traders are visiting the markets in Pakistan and are interested to expand their market.

Conclusion/Recommendations

Despite the current constraints, the gems and jewelry sector has tremendous potential to contribute to the national economy and develop into a competitive, high value added sector.

Pakistan participates in the low value addition activities of the gems and jewelry value chain. The country largely exports rough gemstone at a cheap rate, which if processed as per international standards, will give 10 times or 1000% more value. Pakistan's gems export value in 2014 was US\$ 8 million, had it be cut and polished the export earnings would have been over US\$ 800 million.

Similarly if jewelry manufacturing is mechanized at international level the cost of jewelry will reduce and exporters will be able to generate more value of their products. Pakistani exporters of gold jewelry do not supply jewelry to any world renowned jewelry stores. Retailers are the highest profit making actor in entire value chain of jewelry, therefore branding would have highest value in the chain. There are no international brands of Pakistan origin in the world. There are some local brand which are popular, such as, ARY jewelers and Chotani jewelers. These companies also export jewelry to Dubai under their own brand name.

The following recommendations were made based on the findings of this report:

- In order to raise the value chain productivity of the gemstones industry, it is imperative to upgrade the existing technology and processes in mining, gems manufacturing and jewelry manufacturing:
 1. Mining techniques need to be upgraded to reduce environmental damage, minimize wastage and improve the quality of the gemstones obtained. Moreover, training the labor will increase the output and quality of gemstones obtained.
 2. Train labor to cut, polish and process gemstones to enhance the quality and value of the obtained gemstones. Upgrade technology required for gemstone cutting and processing.
 3. The jewelry industry ought to adopt latest technology to manufacture contemporary jewelry designs that are highly demanded in the international market.
- The following policy interventions are suggested regarding the export and import regulations of gold jewelry:
 1. Notarization and attestation of export contract from the country be abolished.
 2. A 1 percent cash margin for the import of gold should be eliminated, as it reduces the working capital.
 3. Under the Self-Consignment scheme exporters should be allowed to bring 100 percent gold in the country instead of 50 percent gold and 50 percent foreign exchange.
 4. Value addition norms should be as follows
 - US\$ 1 per gram for plain bangles, chain and other plain jewelry
 - US\$ 1.50 per gram for studded and embedded jewelry
 5. Gold testing laboratory at all BCPs is not a feasible option due to high costs and technical issues. Random checks at certain BCPs are feasible.
 6. The condition of forfeit of 1% cash margin should be implemented in case the export is not affected within the time limit.

- Introduce tariffs and non-tariff measures to discourage the export of unprocessed gemstones.
- Impose zero rated duty on the imports of precious and semi-precious stones as the increased domestic availability of gemstones will lead to the development of the local industry. Moreover, zero rated tariff duty will also provide Pakistan a level playing field with its competitors such as India, Thailand and Sri Lanka
- Enhance the capacity of existing certification bodies and laboratories to provide international scientific standards for gem testing and identification. This particular act will allow Pakistan to boost consumer confidence and increase the exports of the country. Certification bodies and labs should be established in all major cities of Pakistan.
- Upgrade the marketing and branding efforts for the domestic and international market. Pakistan needs to establish itself as a source of high value added gemstones and quality finished jewelry. Branding and marketing activities will generate higher profit margins.
- Encourage the participation in international gems and jewelry fairs and exhibitions to gain prominence in the international market.
- Establish research and development institutes to encourage product development and process up gradation programs. R&D institutes need to work in close collaboration with the universities, manufacturers and training institute to impart relevant knowledge and skills to the concerned actors.
- Online payment systems like Pay-Pal should be introduced in Pakistan to facilitate the exporters and the international buyer. At the moment, Pakistan and Bangladesh are the only counties where this facility is not available. India, Sri Lanka, Bhutan and Nepal have this facility.
- Train custom officials to handle gemstone consignments to minimize damage to the product.

Trade Related Technical Assistance (TRTA II) Programme
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