



***Strategic Plan
for Pakistan's
Gems and Jewelry Industry***

Pakistan Gems and Jewelry Strategic Working Group
Strategic Plan
February 2006

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Acronyms

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Acronyms

| | |
|-----------|-------------------------------------------------------------------|
| AIGS: | Asian Institute of Gemological Sciences |
| APGMJA: | All Pakistan Gem Merchants and Jewelers Association |
| CAD: | Computer Aided Design |
| CAM: | Computer Aided Manufacturing |
| CFTMC: | Common Facility Training Centers |
| FANA: | Federally Administered Northern Areas |
| FATA: | Federally Administered Tribal Areas |
| GGIP: | Gem and Gemological Institute of Pakistan |
| GIA: | Gemological Institute of America |
| GJEPC: | Gems and Jewelry Export Promotion Council, India |
| GOP: | Government of Pakistan |
| HEC: | Higher Education Commission |
| MOST: | Ministry of Science and Technology |
| NWFP: | North West Frontier Province |
| PCSIR: | Pakistan Council Scientific and Industrial Research |
| PINSTECH: | Pakistan Institute of Nuclear Science and Technology |
| PISDAC: | Pakistan Initiative for Strategic Development and Competitiveness |
| PSFD: | Pakistan School of Fashion Design |
| SLGJA: | Sri Lanka Gems and Jewelry Association |
| SRO: | Statutory Regulatory Order |
| SMEDA: | Small and Medium Enterprise Authority |
| SWOG: | Strategic Working Group |
| TGJTA: | Thai Gems and Jewelry Traders Association |
| TUSDEC: | Technology Up-gradation and Skill Development Company |
| WGC: | World Gold Council |

1. Executive Summary

Despite its abundant reserves of precious and semi-precious gemstones and rich history of jewelry manufacturing, Pakistan has been unable to develop an internationally competitive gems and jewelry industry. Capitalizing on its vast natural resources, low labor costs, and 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 increase in employment and entrepreneurship, income generation, export revenues, and poverty alleviation. Consisting of mainly small and medium entities, growth of this sector will also have positive externalities for social indicators such as health and education.

It is in this context that the Pakistan Initiative for Strategic Development and Competitiveness Project was launched by the United States Agency for International Development. The project is implemented by J.E. Austin, a U.S. management consulting company working in partnership with Pakistan's Small and Medium Enterprise Development Authority. As part of the initiative, a group of committed industry stakeholders from gems trading and mining, jewelry manufacturing, jewelry retail and wholesale, training institutions, technical service providers, raw material suppliers and other allied industries agreed to form a Strategy Working Group (SWOG) to address how the industry could reposition itself through a better strategy. Within 16 months from its inception, the SWOG has developed a strategy shared and agreed to by the private sector and the Government of Pakistan. The SWOG itself has become a recognized private sector led platform on which all the key players in the value chain including the public sector have come together.

In general, Pakistan's gems and jewelry industry suffers from limited investment in research, product development and training, low levels of technology, traditional mining techniques, underdeveloped lapidary facilities and skills, high raw material costs, poor international marketing and branding, underdeveloped designing capabilities, limited linkages with domestic and international support infrastructure, limited identification and certification, and lack of hallmarking. The Strategy focuses on upgrading the entire value chain through the following initiatives:

Raise Value Chain Productivity

- Establish Common Facility Training and Manufacturing Centers (CFTMC) to upgrade existing technology and processes in mining, gems processing and jewelry manufacturing;
- Establish gem identification and certification laboratories to ensure better understanding of gemstones and their properties;
- Establish Gem exchange centers to facilitate linkages between buyers and sellers;
- Conduct geological survey to identify new deposits and quantify the existing ones.

Improve Industry Marketing and Branding

- Introduce Assaying and Hallmarking to ensure quality of gold jewelry for the local as well as the international market;
- Conduct market survey to ascertain the size of the local market and to identify customer trends and preferences;
- Establish Pakistan as a world class gold jewelry supplier through a country campaign to position the industry in the international market and establish recognition at trade shows.

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Strengthen Policies for Increased Competitiveness

- Initiate procurement of Gold through banks to facilitate availability of gold for manufacturers for local market consumption as well as exports;
- Allow Export/Import of Jewelry made from alternate metals to enable the local industry to diversify its product base;
- Reduce import duty on processed gemstones, and abolish sales and income tax on import of rough and finished precious and semi precious gemstones to improve competitiveness of the local industry;
- Automate Documentation and Clearance Procedures to simplify compliance;
- Reduce Exemption Limit for Cash Margin Requirement to encourage small and medium exporters;
- Abolish Infrastructural Cess on import of gold in Sindh to ensure a level-playing field for the entire industry.

Invest in Workforce Development and Innovation Capacity

- Establish CFTMCs to upgrade the industry's skill level (as mentioned above);
- Establish new training centers/provide short-term courses in collaboration with international institutions to provide world-class training opportunities;
- Build the capacity of existing R&D and academic institutions to strengthen support infrastructure.

Strengthen Industry Organization and Supporting Infrastructure

- Establish a permanent sector management company to ensure continued up-dation and implementation of the sector strategy;
- Negotiate domestic and international cargo charges with PIA and other airlines to facilitate movement of valuable goods at competitive rates and bring international couriers such as Brinks, Securicor etc. to Pakistan.

The strategy is expected to have significant impact on value addition, productivity, income levels and exports. It is intended to reposition the gems and jewelry industry from a cost-based sector to a high value-added, competitive brand in the global market. The main driver of growth will be the value added in gems processing and jewelry manufacturing. It is forecasted that by 2010, 60 percent of total gems extracted will be cut and polished and exported compared to 25 percent at present, wastage in jewelry manufacturing will reduce from 10 percent to 1.5 – 2 percent and production time will reduce from 15 days to 5 days. Jewelry designing will be upgraded to respond to international trends. As a result of the strategy's implementation, the SWOG expects exports to rise from the current level of USD 28 million to USD 200 million in 2010.

The main body of this document outlines the strategy and specific initiatives in more detail, supported by an industry profile and key supporting data. A more detailed industry analysis is appended to this document for reference.

2. Profile and Assessment of Industry Competitiveness

Pakistan's gems and jewelry sector consumed 170 tons of gold in 2004¹. The annual local demand for gold jewelry is estimated at USD 1.2 billion². Demand is predominately driven by 22 karat wedding jewelry. Accumulation of gold jewelry is also perceived as a long-term investment. The total number of persons employed in the sector is estimated at 800,000³. Total exports for the Gems and Jewelry sector were USD 28 million⁴ in 2004, representing 0.2 percent of Pakistan's total exports for the year⁵.

Despite its abundant reserves of precious and semi-precious gemstones, Pakistan has been unable to significantly penetrate the international market for gemstones. Gem reserves are at present found in Northern Areas and NWFP, with significant potential in Balochistan, however there is currently limited knowledge of the specific quantity of deposits. Mining technology and processes are rudimentary and unscientific resulting in significant wastage at the extraction stage. Non-scientific blasting, compared to modern mining practices, damages the gemstone crystals and mineral specimen thus drastically reducing their value.

Pakistan Gems and Jewelry Sector at a glance

- 170 tons of gold consumed in 2004
- Annual demand \$ 1.2 billion
- Total exports in 2004 were \$28m
- 75% of exports = rough stones
- 19 precious and semi-precious gemstones are found in Pakistan
- 800,000 employed
- Fragmented, cottage industry

Due to lack of adequate processing facilities and skills, limited understanding of gemology and lack of standardization and certification, approximately 75 percent of Pakistan's exports consist of un-worked stones⁶, representing a significant loss in value added. Gemstone cutting and polishing is done on a very limited scale and that too with outdated and underdeveloped techniques. There are only two commercial certification labs in the country, which are not internationally recognized. Lack of recognized lab infrastructure often leads to underselling of precious stones as well as lack of buyer confidence. Commerce is mainly conducted on a person to person basis with no established pricing structures. This imposes a significant transaction cost on the buyers and sellers.

Jewelry manufacturing is a fragmented cottage industry with a rich tradition of craftsmanship; however limited design capabilities, lack of modern manufacturing technology and techniques, and poor international and branding have prevented the industry from realizing its full potential. There are limited vocational training opportunities, no investment in research and product development and weak linkages between training institutes and the industry. Furthermore, due to lack of assaying and hallmarking, there is no

¹ According to World Gold Council estimates, total consumption of gold in Pakistan was 81 tons in 1997 and 120 tons in 2001, reflecting 12 percent growth per annum. Based on this growth rate, the estimate for 2004 is 170 tons. According to some SWOG estimates, consumption of gold in 2004 was 200 tons.

² This is a conservative estimate based on a methodology developed by the SWOG. It takes into account retail turnover during the year. Some industry sources estimate total demand at USD 2 billion.

³ Industry Sources.

⁴ This statistic is taken from the UNSTATS website. According to the Export Promotion Bureau gems and jewelry exports between July 2004 and May 2005 were USD 19.8 million, (jewelry: 15.6 m; gems: 3.3 m) down by 25% from the previous year. According to the All Pakistan Commercial Exporters Association, gems exports in 2004 were USD 10 million. According to industry sources, gems exports are higher due to informal gemstones trade.

⁵ According to the United Nations Statistics Division, Pakistan's total exports for 2004 were USD 13.3 billion.

⁶ SWOG estimates.

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institutional mechanism for providing product guarantee in the local and international market. There are more than thirty major cities and nearly three hundred smaller cities/mandi⁷ towns where jewelry manufacturing and trading clusters cater to domestic demand. In addition, there are at least 45,000 villages where jewelers operate as single-shop, manufacturing and selling units to meet the demand of the rural population. With a rich tradition of jewelry manufacturing, Pakistan's skilled/semi-skilled labor force is available at relatively lower rates, which offers a comparative advantage to the country.

The industry's present manufacturing capabilities cannot cater to the technology-driven 14 to 18kt international market and the changing trends of local consumers. Currently, jewelry manufacturing in Pakistan is done on 21kt and 22 kt gold with traditional tools and techniques. An expanding middle class, increase in consumer finance, and evolving fashion trends due to international influences are changing local demand patterns. However, due to limited design and manufacturing capabilities, the local industry is currently unable to cater to these new market segments. This has led to increased penetration of international manufacturers into the domestic market. Formal jewelry imports into Pakistan grew from USD 21,000 in 1995 to 110,000 in 2004, representing an increase of 424% over the period, and an average of 42% per annum⁸. According to SWOG members, formal imports represent a small fraction of actual imports because a majority of the jewelry is imported through informal channels. Main sources of finished jewelry are Dubai, Thailand, Hong Kong, China and India. This trend may lead to market erosion for the local industry if it fails to upgrade and diversify itself.

Lack of an encouraging policy framework has also imposed significant constrains on the gems and jewelry sector. Historically, the sector has received very little attention from the government. Although the government has recently introduced some positive policy reforms due to the efforts of the SWOG, additional improvements are needed in order to make the sector more competitive.

There is significant disparity between Pakistan's gems and jewelry industry and other more successful industries. The following gap analysis conducted by the SWOG quantifies these gaps compared to regional competitors such as India and Thailand and one of the best industries in jewelry manufacturing and gem cutting, Hong Kong⁹. The table also summarizes the critical limitations constraining Pakistan's industry.

Table 2.1: Gap Analysis

| | India | Thailand | Hong Kong | Pakistan |
|---------------------------------------|---------------|----------|-----------|----------|
| Quality/Workmanship | 2.5 | 1.5 | 1 | 4 |
| R&D | 4 (improving) | 2 | 1 | 5 |
| Creative Design | 2 | 2 | 1 | 3 |
| Gem cutting techniques/cuts | 2 | 1 | 2.5 | 3.5 |
| Efficient mass production | 2 | 1 | 1 | 4 |
| Business Environment | 3 | 2 | 1 | 3.5 |
| Certification and Consumer confidence | 3 | 3 | 2 | 4 |
| Marketing and Branding | 2 | 1 | 1 | 4 |

Note: 1 = Best; 3 = Good; 5 = Worst

⁷ Market.

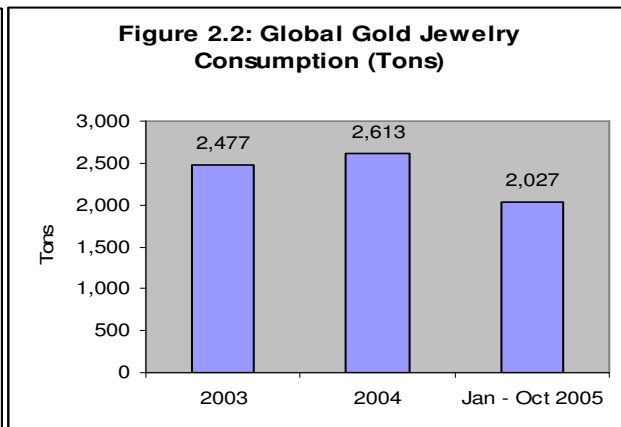
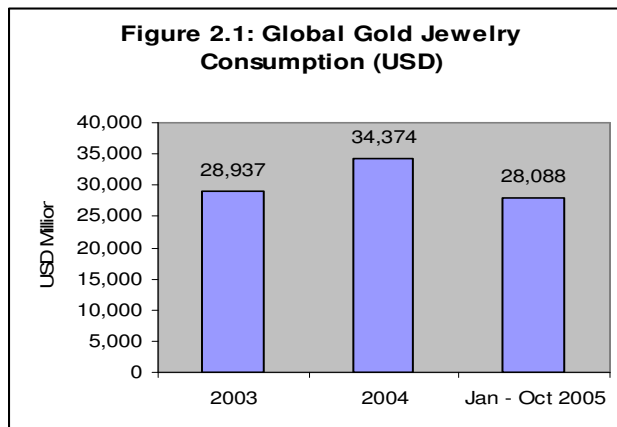
⁸ www.unstats.un.org

⁹ The gap analysis was developed by SWOG members based on their perception and experiences. It demonstrates where the industry sees itself compared to its competitors.

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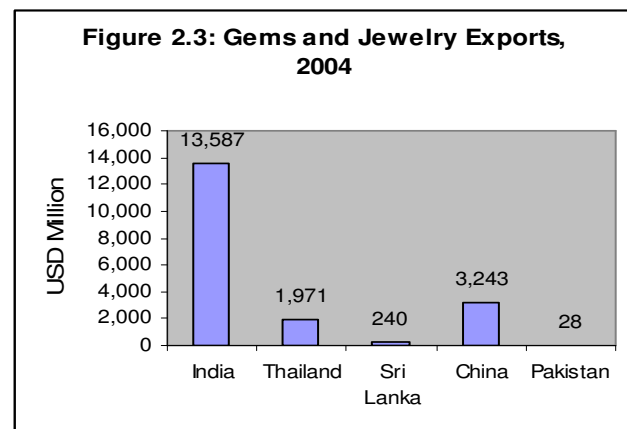
Despite the current constraints, the gems and jewelry sector has tremendous potential to contribute to the national economy and develop into a competitive, high value added sector. Expanding national and international markets, Pakistan’s vast natural resources and relatively low labor costs offer enormous opportunities for growth. The domestic market is currently estimated at a substantial USD 1.2 billion¹⁰. On the other hand, a growing and evolving domestic market can offer tremendous opportunities for the industry to diversify and expand sales if it is able to upgrade its production and marketing capabilities.

A growing international market for gems and jewelry indicates that there is significant potential for Pakistan’s exports. Year on year growth for gold jewelry in the first three quarters of 2005 rose by 12 percent in tons and 20 percent in USD terms. Growth in global gold jewelry consumption in USD terms and in tonnage is given in figure 2.1. In value terms, global gold jewelry consumption grew by 18 percent from 2003 to 2004 and by 20 percent over January – October 2004 and 2005. Global gold jewelry consumption in tons rose by 6 percent over 2003-2004 and by 12 percent over January – October 2004 and 2005. India is the world’s largest gold jewelry market by volume accounting for around 520 tons of consumption demand in 2004. In terms of consumption demand, the USA is the world’s second largest gold jewelry market by volume (around 350 tons) and the largest by retail value (around \$16 billion)¹¹. Demand for natural gemstones is also growing, partly due to the emergence of mass merchandisers entering the fine jewelry market.



Source: www.unstats.un.org

Despite the growing international market, Pakistan’s gems and jewelry exports have been negligible. The fundamental reason for this is lack of adequate lapidary facilities and techniques for gems and modern manufacturing capabilities for jewelry. Jewelry manufactured in Pakistan is mainly designed and targeted for the local 21-22kt market and not the contemporary 14-18kt western market. Furthermore, Pakistan lacks volume production capacity.



Source: www.unstats.un.org

¹⁰ Due to lack of reliable market data, the need for a formal market survey has been highlighted in the strategy.

¹¹ World Gold Council: www.gold.org

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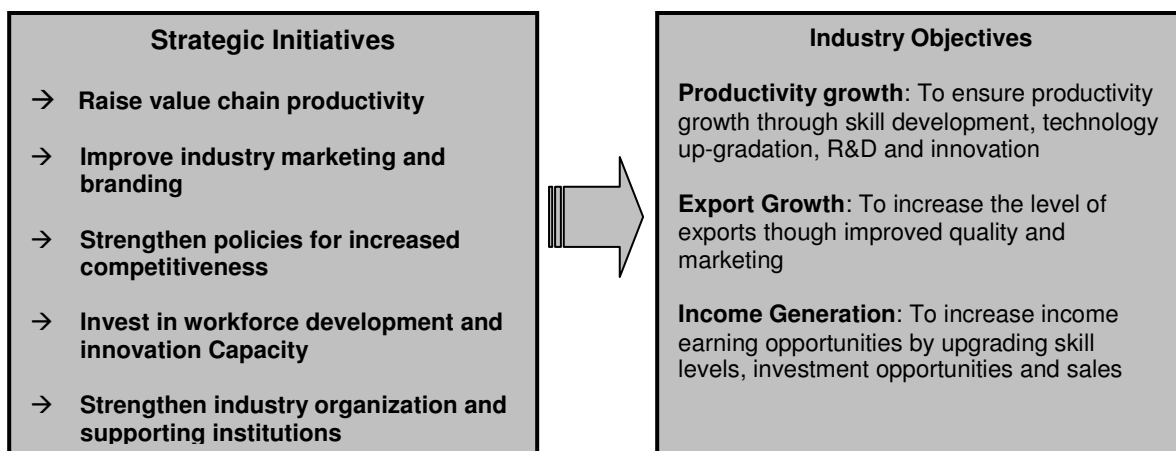
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Pakistan's vast natural resources and potential to emerge as a source of high value gems and jewelry underlines the need for a competitive sector strategy that would increase the economic and social value of the industry. With the wide geographic spread of the industry across all provinces and rural and urban areas, development of the sector will have significant impact on value addition and income generation. Consisting of mainly small and medium entities, growth of this sector will also have positive externalities for social indicators such as health and education.

3. Vision and Strategy for the Gems and Jewelry Industry

The Gems and Jewelry industry is working together across regions and activities to establish itself as a high value added, internationally competitive, world-class hub for precious stone cutting and jewelry manufacturing. The industry is pursuing this vision by up-grading mining and gems and jewelry production processes through improved technology and skills, developing the workforce to improve productivity across the supply chain, promoting R&D and diversifying the product base to realign supply with local and international market needs, establishing and implementing quality standards and ensuring an enabling policy environment.

The vision is focused on achieving three long-term objectives through five tracks of strategic initiatives.



The Strategy focuses on upgrading the entire value chain through the following initiatives:

Raise Value Chain Productivity

The first step in catalyzing growth in the gems and jewelry sector would be to improve the competitiveness and productivity of the entire value chain including identification and quantification of deposits, up-gradation of mining, gem processing and jewelry manufacturing and establishment of formal trading infrastructure. The initiatives identified to increase value chain productivity are:

- Establish Common Facility Training and Manufacturing Centers (CFTMC) to upgrade existing technology and processes in mining, gems processing and jewelry manufacturing;
- Establish gem identification and certification laboratories to ensure better understanding of gemstones and their properties;
- Establish Gem exchange centers to facilitate linkages between buyers and sellers;
- Conduct geological survey to identify new deposits and quantify the existing ones.

Improve Industry Marketing and Branding

Investments in productivity enhancement must be supported by concerted marketing efforts in order to increase domestic and international sales. These efforts include quality assurance, branding, strengthening the logistics chain and improving industry and market information. In order to market its products more effectively, the industry plans to:

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- Introduce Assaying and Hallmarking to ensure quality of gold for the local as well as the international market;
- Conduct market survey to ascertain the size of the local market and to identify customer trends and preferences;
- Establish Pakistan as a world class jewelry supplier through a country campaign to position the industry in the international market and establish recognition at trade shows.

Strengthen Policies for Increased Competitiveness

An enabling policy environment is critical for the success of an industry. Although the government has recently introduced some positive policy initiatives due to the efforts of the SWOG, additional reforms are needed in order to make the sector more competitive. The following recommendations have been identified by the SWOG:

- Initiate procurement of Gold through banks to facilitate availability of gold for manufacturers for local market consumption as well as exports;
- Allow Export/Import of Jewelry made from alternate metals to enable the local industry to diversify its product base;
- Reduce import duty on processed gemstones, and abolish sales and income tax on import of rough and finished precious and semi precious gemstones to improve competitiveness of the local industry;
- Automate Documentation and Clearance Procedures to simplify compliance;
- Reduce Exemption Limit for Cash Margin Requirement to encourage small and medium exporters;
- Abolish Infrastructural Cess on import of gold in Sindh to ensure a level-playing field for the entire industry.

Invest in Workforce Development and Innovation Capacity

Long-term productivity and competitiveness can only be achieved through workforce development and continuous innovation in the form of new products and processes. Investment in human resources and research and development is therefore critical for developing an industry's productive and innovative capacity. The strategy calls for developing the gems and jewelry workforce through establishing vocational training institutes, and upgrading existing academic and research institutions to respond more effectively to the needs of the industry. This involves creating critical linkages within the local value chain as well as with international institutions. Key initiatives include:

- Establish CFTMCs to upgrade the industry's skill level (as mentioned above);
- Establish new training centers/provide short-term courses in collaboration with international institutions to provide world-class training opportunities;
- Build the capacity of existing R&D and academic institutions to strengthen support infrastructure.

Strengthen Industry Organization and Supporting Infrastructure

Due to lack of inclusive trade organizations, the gems and jewelry sector has identified the need for an institutional platform to implement the strategy, provide marketing, research and technical support to the sector, and continue the private-public sector dialogue to ensure policy reforms.

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The sector has also identified the need to strengthen logistical support for movement of valuable goods and set up supporting institutions to ensure and certify quality of gemstones. Core initiatives to strengthen industry organization and supporting infrastructure include:

- Establish a permanent sector management company to ensure continued up-dation and implementation of sector strategy;
- Negotiate domestic and international cargo charges with PIA and other airlines to facilitate movement of valuable goods at competitive rates and bring international couriers such as Brinks, Securicor etc. to Pakistan.

4. Description of Strategic Initiatives

The vision and strategy outlined above will only be achieved through the collaboration and systematic implementation of the leaders of the gems and jewelry industry. Each initiative introduced above is outlined in more detail in this section.

4.1 Raise Value Chain Productivity

Establish Common Facility Training and Manufacturing Centers

The objective of the Common Facility Training and Manufacturing center is to provide common training and manufacturing facilities for each of the three primary activities within the industry: mining, gems processing and jewelry manufacturing.

Mining

With its abundant resources in precious and semi-precious gemstones, Pakistan can have a significant competitive advantage in the gem and jewelry market. However, mining technology and processes are rudimentary and unscientific resulting in significant wastage at the extraction stage. Indiscriminate blasting damages the gemstone crystals and mineral specimen thus drastically reducing their value. In majority of the mines basic machinery and equipment like compressors and drill sets are not available. A large number of mines are currently inactive due to lack of equipment.

The SWOG has highlighted a need for establishing Common Training and Facility Centers to upgrade mining practices in Pakistan. The CFTMC will perform two major functions:

- Training in mining techniques to reduce wastage and extract better quality gems;
- Provision of machines for use of local miners. The CFTMC will have a common pool of machines which will be leased out to miners on a need basis.

The overall objective of the CFTMC is to modernize mining practices, reduce wastage, improve the quality of extracted gems, and thereby increasing the income of miners. Training will improve the skills of those already in the mining industry and train new entrants, leading to an increase in the overall productivity of workers and hence better quality output. Provision of machines will have an immediate impact in terms of rehabilitation of inactive mines and improved production of ones already functioning. The SWOG has highlighted the need for mining CFTMCs in Balochistan, NWFP, Northern Areas and Tribal Areas.

Gem Processing

Due to lack of adequate processing infrastructure and skills, approximately 75 percent of Pakistan's exports are in unworked stones, representing a significant loss in value added (total value of exports in 2003 was USD 3.7 million). Gems cutting and processing in Pakistan suffers from obsolete technology, limited skills, and lack of precision.

Presently, there are more than 30,000¹² people involved with the industry and there are around 500¹³ units involved in cutting and polishing of gemstones. Most of the gemstone processors

¹² An Overview of the Gemstone Sector of Pakistan, Small and Medium Enterprise Development Authority (not dated).

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are clustered in Karachi and Peshawar (Namak Mandi¹⁴), with smaller clusters in Lahore, Quetta and Islamabad. Little value is gained by processing stones as cutting exists on a very limited scale in small one to three person workshops.¹⁵ The prevailing technique is cutting for yield to maximize weight, not value. The industry lacks expertise in precision and calibrated cutting and is not up to date with the latest treatments. The skill level of the craftsmen engaged in gems processing depends entirely on their experience and on what they have learned from their families, mainly migrants from Jaipur, India. These local craftsmen are unaware of latest technologies and international quality standards. Most of the stones are recut, once they reach international markets. While the value addition which can be accrued through processing of these stones (cutting and polishing) starts from 10 times and goes up to as high as 100 times. This reduces the potential price a dealer is willing to pay to the Pakistani seller. Lapidary training is being offered at the Gems and Gemological Institute of Pakistan at Peshawar. Experienced dealers have voiced concerns over the institute's limited resources and training capacity.

The objective of the Gemstones CFTMC is to provide state of the art training in cutting, polishing and treating gemstones as well as common processing facilities in order to enhance the value of gemstones sold into the local and international markets. The CFTMC will train a new generation of lapidarists in the latest processes thereby upgrading their skills and earning potential. Training of cutters will be focused on international standards of calibration and new enhancement techniques. The CFTMC will also provide a common processing facility that can be used by gemstone dealers and exporters. The SWOG has highlighted the need for lapidary training and common processing facilities in Quetta, Karachi, Peshawar, Northern Areas and Tribal Areas.

The CFTMC would offer long-term training and short-term certificate courses. Long-term courses would be for people who want to learn in-depth the different sort of cuts, faceting and polishing. Short-term courses would be for experienced artisans to learn the latest techniques of cutting and polishing. The CFTMC would also offer tailored courses and workshops in response to specific industry, firm or group demand.

As a result of better processing facilities and skills, buyers will be able to place larger orders as calibrated stones are preferred internationally. A common model lapidary facility will encourage the emergence of other private modern workshops leading to an overall up-gradation in the quality of stones and consequently have a direct impact on Pakistan's export earnings. Significant value addition can be accrued by precision cutting and good polishing, which can be captured by gems exporters rather than foreign buyers. By enhancing the income levels of those directly involved in mining and trading, it will have spin-off effects for the entire region.

Better technology and processes throughout the value chain can increase the price of stones by ten times, and in some cases even more. The following projection demonstrates the potential of the gemstone sector if this value addition is captured:

¹³ *ibid.*

¹⁴ market.

¹⁵ An Overview of the Gemstone Sector of Pakistan, Small and Medium Enterprise Development Authority (not dated).

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| Current Gemstone Export Value | Expected Value Addition in Five Years |
|----------------------------------------------------------------------------------------|-----------------------------------------------------------|
| Formal: US\$ 3.6m (25 percent) Informal: US\$ 6.4m (75 percent) Total : US\$ 10m | US \$ 100 million @ 10 times value addition ¹⁶ |

Source: UNSTATS, SWOG estimates

Jewelry Manufacturing

Jewelry manufacturing in Pakistan is done on 21kt and 22 kt gold, predominantly with traditional tools and techniques. Although Pakistan's craftsmen are considerably skilled in 22kt manufacturing of stone studded gold jewelry, they lack access to modern technology and techniques. In absence of proper training facilities, the age old *ustaad-shagird* (master-apprentice) method of teaching is most popular. A few leading shops have their own little training workshops where they teach students, who are later employed by the same shop owners, but these training sessions are more on job training rather than formal teaching. In such workshops, development is constrained due to lack of resources that a private owner can spend to update himself and his workers on latest trends and techniques. The current working conditions do not conform to international safety standards. There is lack of adequate mechanism for exhaust of toxic vapors produced by the chemicals used in manufacturing. The industry uses cadmium based solder which has been proven to be harmful to health.

The industry's current manufacturing capabilities cannot cater to the technology-driven 14 to 18kt market in the US and Europe or other contemporary design oriented markets. Hence, Pakistan's current export potential is limited by its inability to produce high technology jewelry at scale. Few exporters producing chain and bangles in large quantities invest in modern production techniques and provide competitive pricing and good quality finishing. Even domestically, the jewelry market is increasingly being driven by the latest international fashion trends and new market segments. This requires the industry to upgrade its manufacturing capacity in line with international demand as well as changing domestic preferences.¹⁷

The SWOG has highlighted the need for setting up CFTMCs for Jewelry in the major hubs¹⁸ of jewelry manufacturing¹⁹. The CFTMCs will provide manufacturing training as well as a common manufacturing facility equipped with modern technology. Training will be provided in the latest techniques and processes. It will be focused on upgrading the skills for traditional jewelry manufacturing, 22kt contemporary jewelry and high-technology 14 and 18 kt jewelry. The common manufacturing facility is meant for the use of the industry, including current manufacturers who want to move into high-technology manufacturing as well as potential entrants into the industry.

A common training and manufacturing center will equip the industry with the latest techniques and processes. It will provide artisans with the skills needed to upgrade current manufacturing processes as well as train them to use modern technology for production of 14 and 18kt jewelry. The CFTMC will train workers to use alternatives to cadmium based solders as well as how to incorporate safety and health measures in their work practices. The common manufacturing facility will provide an opportunity for existing manufacturers to diversify their product offerings. It will also provide incubation support for new entrepreneurs, who would not have the capital to invest in manufacturing infrastructure, thereby encouraging SME growth and

¹⁶ These forecasts are based on SWOG estimates assuming that the entire value chain, from mining to processing, is upgraded.

¹⁷ A survey is planned to capture consumer preferences. This survey will be repeated on a periodic basis.

¹⁸ Karachi and Lahore.

¹⁹ CFTMCs will be open to individuals from all over Pakistan.

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employment generation. It is expected that training in the latest production techniques will allow manufacturers to become internationally competitive and eventually lead to an increase in exports. The overall impact would be to upgrade the industry's skill level and facilitate its transition into high technology production. The CFTMC will also serve as a catalyst to encourage private businesses to invest in modern manufacturing facilities.

Note: Jewelry CFTMC and Gems CFTMC may be combined under the same facility with focus on one or the other depending on need of the region. For example, the CFTMC in Lahore will focus on jewelry training and manufacturing, whereas those in Quetta, Peshawar and Northern Areas will focus on lapidary training and manufacturing. Karachi, being a major hub for jewelry manufacturing as well as gems trading will have a complete CFTMC for both jewelry and gems. The SWOG plans to work towards ensuring establishment of five CFTMCs over a five year period. These will be in Karachi, Lahore, Quetta, Peshawar and Northern Areas. It is estimated that approximately 800 people will be trained in the CFTMC in Karachi, 600 in Lahore, 400 in Peshawar, 200 in Quetta and 20 in FATA each year. The CFTMCs would offer short-term courses for existing experienced craftsman, long-term training courses for new entrants and customized training to individual firms.

Establish Gem identification and Certification Labs

Due to lack of adequate gem identification facilities, there is limited understanding of gemstones and their properties often leading to underselling of precious stones as well as lack of buyer confidence. To improve upon the quality of the industry, introduction of standards in the form certification of gems is essential. Currently, there are four gem identification labs in Pakistan: GGIP located in Peshawar, NWFP, two in Karachi and one in Islamabad. GGIP and the one in Islamabad do not issue certificates. According to industry sources these labs have limited identification capacity.

The strategy calls for setting up gem identification and certification labs to provide international scientific standards of gem testing and identification. The labs will perform the following functions:

- Identification of new colored gemstones and provide examination reports;
- Testing and certification;
- Grading reports for diamonds (possibly to be implemented at a later stage as the need is created).

The SWOG has also highlighted the need for gems identification and certification labs in Karachi, Peshawar, Quetta, and Northern Areas.

Gem identification and certification labs will stimulate local sales and exports as well as improve profit margins as a greater number of people will have confidence in product quality. Stone studded Pakistani jewelry will get better prices internationally. The industry as a whole will benefit and move to a higher level of efficiency as parties will have access to impartial professional information about the nature and value of their sales transactions. The standards within the trade will improve as more and more gemstones are correctly identified and described. Quality assurance will reduce transaction costs along the value chain and allow manufacturers and retailers to improve their profits by using certification and grading information to develop consumers' perception about color stones as a worthwhile investment. This will upgrade Pakistan's reputation in the international market as a source of quality gems. The establishment of a laboratory will demonstrate national intent to improve quality standards. It will also provide an institutional mechanism for consumer protection as the consumer will be

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able to independently verify his/her purchases. The gemologists employed in the laboratory will further stimulate gemological awareness within the trade which will help in increasing the knowledge of the entire sector.

Establish Gem Exchange Centers

There is currently an absence of any formal trading infrastructure due to which miners and dealers resort to temporary locations to conduct their transactions. There are several informal trading centers in Pakistan. Namak Mandi in Peshawar is one the main trading hubs in the country. The second market place is Quetta in Balochistan.

Formal gem exchange centers are needed in various locations in Pakistan (Quetta, Peshawar, and Karachi). These exchanges will be open to retailers as well as wholesalers.

The objectives of establishing exchanges are as follows:

- Facilitate access to market;
- Provide competitive sourcing to buyers;
- Provide visibility to suppliers without marketing expenditures;
- Improve cooperation between suppliers;
- Enhance profitability by lowering transaction costs of suppliers;
- Discourage informal trade.

Note: It has been recommended that gems CFTMCs, gem labs and gem exchange centers be established under common infrastructure where possible. This integrated approach of providing all the services under one roof will reduce costs and increase cooperation amongst the different participants of the value chain.

Conduct Geological Survey

At present, there is no scientific quantification of existing and potential deposits in Balochistan. The geological survey for gem deposits in NWFP and Northern Areas was conducted approximately 20 years ago. Furthermore, the recent earthquake may have altered the geological composition of these regions. The Gems and Jewelry SWOG has identified the need to conduct a geological survey of all three areas as one of its main strategic initiatives to quantify existing deposits and identify potential mining locations. This is a crucial requirement if Pakistan is to develop and sustain competitiveness in the long-run. Determining the size and nature of a deposit is a pre-requisite for effective allocation of resources:

- If the deposit is small and high-grade than demand will encourage a small industry with low to medium machinery and premium margin strategy;
- Where the deposits are large, low-value yet in great demand, investment should focus on efficient, automated, engineering driven mining and processing since time-to-market and cost will determine market success;
- Innovation, a key component of branding and sustainable development, will be generated as the discovery and branding of new types of stones provides opportunities to strengthen Pakistan's positioning as a unique source, and help to improve margins along the value chain. Tanzanite is a prime example of how sourcing and distribution benefited from controlling supply to position this stone as a premium branded offering.

The strategy implementing body will lobby with the Pakistan Geological Survey and possibly external resources to conduct the survey. Once GSP decides to undertake the survey, the

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implementing body will work closely with GSP to define specifically what is required from the survey. It has been identified that each mine's deposit potential needs to be verified along with information on how much has been depleted. The implementing body will also work with GSP to assist them in project funding and technical support.

The Geological Survey will lead to greater exploration and exploitation of Pakistan's gemstone resources by assisting the mining industry in identifying potential investment opportunities. It will also assist in attracting more investment in mining leading to an increase in employment opportunities and up-gradation of mining technology and processes.

4.2 Improve Industry Marketing and Branding

Establish Assaying and Hallmarking

Hallmarking refers to marking a piece of jewelry to certify the purity of the metal. Pakistan currently lacks an institutional mechanism for certification of karatage for jewelry, consequently jewelry sold in the local market is at the risk of being under-karated. In addition the retailer who sells jewelry which meets the required standards of fineness of gold is at a risk of unfair competition by competitors who under-carat and can therefore sell at a lower price. In Asia Hallmarking is currently practiced in Singapore, Sri Lanka, Hong Kong, Malaysia, India, Uzbekistan and Dubai²⁰. In order to improve the quality of the product sold for domestic and export consumption, the SWOG has identified the introduction of Assaying and Hallmarking as one of the main strategic initiatives.

It has been decided that a voluntary system of Hallmarking restricted to gold would be the first step and should be initiated by constituting a Controlling Body whose role would be to set the standards, rules and regulations under which a Hallmarking Scheme would operate. The Body would then appoint/approve individual Assaying and Hallmarking centers and would have the responsibility for operating the scheme and regulating the centers. Standards of gold fineness will need to be established. Another important step is to lobby for an Act of Parliament to give legal status to the Hallmarking and Controlling Body and to institute a Hallmarking Act.

Publicity is a particularly important aspect of establishing Hallmarking. Publicity will create awareness amongst consumers who will demand hallmarked jewelry from retailers. Pivotal in this respect are the jewelers whose support for Hallmarking is essential. It is the jewelers who will have to ensure that their jewelry contains the necessary minimum quantity of gold. The jeweler will have to pay to register their mark and become licensed and pay for each jewelry item to be hallmarked. Each item will be marked with a series of marks including the *Gems and Jewelry Pakistan*²¹ mark representing the entire industry. This is part of the overall branding strategy. It will also be the jeweler's responsibility to educate the customer and ensure that customers understand the significance of Hallmarking and begin to look for Hallmarked jewelry. In this respect, a campaign highlighting the advantages of Hallmarking for both jewelers as well as consumers will be instrumental to the success of the project.

A typical center would conduct both Assaying (the analysis of an individual sample of gold article from a customer) and Hallmarking (the Assaying and Hallmarking of batches of finished items submitted by licensed/registered jewelers). The SWOG has highlighted the need for

²⁰ Others include Austria, Belgium, Cyprus, Denmark, Estonia, Finland, Germany, Greece, Italy, Latvia, Luxembourg, Malta, Netherlands, Norway, Slovenia, Sweden, Switzerland, and United Kingdom.

²¹ As part of the branding strategy, a national brand name, Gems & Jewelry Pakistan, has been launched.

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establishing Assaying and Hallmarking centers in Karachi and Lahore²².

It is believed that Hallmarking will build consumer confidence and convince the international market that Pakistan is committed to providing quality products. It will protect consumers against under-karatage, and by guaranteeing purity, increase the level of domestic sales and exports.

Conduct Market Survey

There is currently a severe lack of reliable information on the gems and jewelry industry. Due to the fragmented nature of the sector and inactive trade organizations, market and industry data has never been collected and compiled in a systematic manner. Lack of knowledge about the market constrains the development of marketing strategies of the local industry. The SWOG has identified a need to conduct a scientific market survey to assess the size of the domestic market as well as to identify consumer trends and preferences.

A market research organization will be engaged to conduct the survey. The SWOG will interact closely with the organization to define the variables. These may include:

- Size of market and its growth potential;
- End Consumer Types;
- Consumer trends in terms of values, preferences, habits and attitudes;
- Product Quality Standards –design, manufacture, raw materials, etc;
- Imports/Exports;
- Present manufacturers, wholesalers and retailers;
- Selling/buying patterns and seasons, service expectations.

The survey will be repeated periodically to ensure up-dation of information.

Market information will help the industry identify market opportunities and diversify their products accordingly. With rapidly changing consumer trends, it is crucial that market information is taken into account when planning firm strategies. The survey will also provide basic market information to the SWOG to facilitate further strategy development.

Develop Branding Strategy

The market in Pakistan is driven by 22 kt wedding jewelry irrespective of social class and income level. Studded with colored stones, Pakistani designs are distinctly different from Indian offerings and desired by Pakistani and Indian expatriate markets alike. As the market is mainly driven by wedding jewelry and is based on established retail relationships, local manufacturers and retailers invest very little on branding and marketing. Due to predominance of traditional tastes, there is little experimentation with new designs. This is also limited by lack of understanding of trends in consumer preferences, underdeveloped designing capabilities and low technology manufacturing. A niche export market for Pakistani designs has been developed by exporting traditional jewelry to retailers selling to Pakistani and Indian Nationals in Canada, USA and Britain who still favor traditional jewelry. Compared to regional competitors, Pakistan's gems and jewelry exports have been negligible²³. There has been little effort to effectively promote Pakistan's jewelry in the international market. Underdeveloped exports are also due to lack of high volume, high technology manufacturing and lack of alignment with international

²² Mr. Peter Raw, Hallmarking expert, in his recent visit to Pakistan recommended setting up Assaying centers prior to establishment of Hallmarking centers.

²³ See table 3.3.1 on page 42.

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design and quality requirements. Product development/design selection needs to be based on a segmented analysis of export customers' needs.

The branding strategy will strive to upgrade the industry's marketing and branding efforts for the domestic as well as international market. For the local market, manufacturers and retailers will be facilitated in finding new consumer segments, diversifying their product base and capitalizing on higher margin market opportunities. This will be implemented by upgrading design and manufacturing capabilities of the industry. Local institutions will be assisted in curriculum development. CFTMCs will facilitate skill development and up-gradation of technology, enabling the industry to move into more sophisticated production and diversifying their existing product base.

In order to enter the international market, Pakistan needs to establish itself as a source of high value gemstones and quality finished jewelry. This requires a distinct voice and a strong national campaign. The strategy called for a national branding initiative under the umbrella of Gems and Jewelry Pakistan. The brand was launched at the Gem and Jewelry Fair held in Bangkok on September 14 to September 19, 2005. This was the first time that Pakistan exhibited as a well organized integrated group with a branded presentation. The show resulted in the following:

- Sales orders in excess of USD 4 million (representing more than 10 percent of Pakistan's total jewelry sales in 2004);
- Linkages with leading training institutes: GIA and AIGS as well as prominent manufacturing companies;
- Initial repositioning of Pakistan's Gems and Jewelry industry in the international market.

Consistent participation in international trade shows has been highlighted as an important requirement for sustaining Pakistan's visibility in the international market. The SWOG also plans to conduct two domestic shows annually under the umbrella of Gems and Jewelry Pakistan. In addition, a Pakistan Gems and Jewelry introductory brochure and website have been developed.

Increased marketing efforts will lead to development of new market segments leading to an increase in domestic sales as well as export earnings. Considering that participation in the Thailand show resulted in sales of over USD 4 million, the potential for Pakistan to penetrate the international market with improved branding and marketing efforts is tremendous. Continuous re-enforcement of Gems and Jewelry Pakistan as a brand will transform Pakistan's position in the international market. Even domestically, consumer perceptions will change as fashion becomes the new driver of demand. The customer-vendor relationship will develop away from a largely traditional, low-margin exchange of goods to an increasingly diverse and differentiated purchasing relationship. Opportunities will emerge for specialized designer manufacturing outlets, giving entrepreneurial impetus to the growing number of ambitious graduates, independent artists, which will emerge from newly implemented training programs. New retail opportunities will create additional employment and promote the development of innovation in design and services.

4.3 Strengthen Policies for Increased Competitiveness

In order to ensure an enabling policy environment, a number of reforms have been recommended by the SWOG. To date the following have been approved:

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- Time required to export jewelry made from imported gold has been increased from 90 to 180 days. Similarly, time required to remit proceeds from export of jewelry has been doubled from 120 to 240 days;
- The Custom Valuation Committee that controlled clearance of gems and jewelry consignments before export has been abolished;
- A scheme is being developed in consultation with the State Bank, Pakistan Bankers Association, commercial banks and jewelry exporters to enable exporters to import gold by utilizing financing from private banks under a collateral arrangement;
- Import of machinery, with zero rated customs duty and sales tax for the entire trade;
- The Gems and Jewelry sector has been granted industry status;
- PSFD has been awarded a charter by the Federal Government to award degrees to students, recognized by HEC.

A number of additional reforms have been proposed to further amend the gems and jewelry policy framework. The SWOG's role will be to lobby with the government to undertake the following:

Procurement of Gold through Banks

Currently there are only three bullion importers in Pakistan: ARY, Pardesi and Tessori. ARY and Tessori have offices only in Karachi, hence gold purchased from them has to be moved to other areas personally by the jewelers which is a source of both risk and inconvenience for manufacturers and adds to the cost of production.

An exporter under *Import and Export of Gold, Gold Jewelry and Gemstones Order 2001*, is allowed to import gold equal to gold contents used in the jewelry being exported without duty. It is suggested that manufacturers of jewelry, for both the local market as well as export purposes, be allowed procurement of gold from banks. This is currently in practice in India and China. Banks such as the Bank of India, Standard Chartered, Nova Scotia, Allahbad Bank and many others are licensed to import gold by the government.

Availability of gold through banks will ensure stable and risk-free supply of gold as they have a national network of branches. It will be easier for the government to determine the exact quantity of gold being imported. It will also help jewelers to hedge against price risk and increase business opportunities for banks.

Export/Import of Jewelry made from alternate metals

International trends are increasingly moving towards alternate metals such as silver, steel and platinum. *Import and Export of Gold, Gold Jewelry and Gemstones Order 2001*, is silent about jewelry articles made from material other than gold. Hence there is no export of jewelry made from these metals from Pakistan.²⁴

It is suggested that appropriate amendments in the above mentioned order be made to include procedures for export/import of jewelry made of alternate metals. This will provide incentives for local manufacturers to diversify their product offerings for both the local as well as the international market.

Increased use of alternate metals and diversification of the product base in line with international trends will increase the level of domestic sales and exports. Since alternate

²⁴ 35% of the jewelry exported from Thailand is in silver.

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metals are often cheaper than gold, export earnings can be increased with less investment. Lower raw material cost will also allow smaller entrepreneurs to enter the market.

Reduction in taxes for import of finished precious and semi precious gemstones

Subject to conditions under SRO 567(1)/2005, the Federal Government has allowed import of diamonds and rough gemstones at 0 percent import duty. According to this SRO, a designated authority (one who has permission from the Ministry of Commerce) can import these items free of import duty. Import of finished precious and semi-precious stones is allowed at 5 percent import duty. However, sales tax of 15 percent and income tax of 6 percent are imposed on import of both rough and finished gemstones. Special concessions are allowed for exporters of jewelry and gemstones; they are allowed to import up to 70 percent of the f.o.b value of gemstones used in embedded or studded gold jewelry or loose gemstones actually exported at 0 percent duty and other taxes.

It is proposed by the industry that sales and income tax on import of rough and finished stones be declared zero-rated. It is also proposed that the 5 percent duty on finished stones be reduced.

Tax-free import of finished stones will result in greater availability of precious and semi-precious gemstones for the local manufacturing industry at competitive prices, making the industry more competitive locally as well as internationally. It will also encourage legal import of gemstones leading to revenue generation and accurate documentation of trade. Availability of cheaper finished stones will raise the quality standards of the industry, and consequently improve the level of gemstone processing in the country.

Automated Documentation and Clearance Procedures

Presently, exporters and importers are required to fill out a number of detailed documents with the Exports Promotion Bureau and the Customs Department. These formalities delay the transfer of goods and consequently affect trade performance. Rapidly changing international demand patterns require exporters to be prompt and flexible; lengthy documentation requirements restrict their ability to respond efficiently. In addition, trade data is delayed and often misrepresentative. In order to encourage exports, regional competitors such as India and Sri Lanka have simplified their documentation and approval procedures.

The SWOG proposes that this traditional way of documentation may be converted into an automated system along with limited documentation requirements as mentioned in S.R.O. 131(KE)/96, dated the 22nd November, 1996.

The proposed reform will allow faster access to the international market, thereby allowing the industry to become more responsive to changing market trends. Efficient and speedy clearance of imported goods will increase the productivity of the local industry. Automated procedures will also result in greater efficiency in information management and documentation.

Reduction in Exemption Limit for Cash Margin Requirement

According to the existing Entrustment Scheme stated in the *Export and Import Procedure for Gold, Gold Jewelry and Gemstones Order 2001*, a 1 percent cash margin is required to be submitted with to the bank for value of Gold received from the foreign buyer as advance export proceed. To encourage exports, exporters with average exports of Rs. 50 million or above in

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the preceding three years are exempted from this requirement. The current rule discourages small and medium sized exporters from entering the market. There are very few exporters who are able to meet the criteria hence the beneficiaries of this rule are limited.

The SWOG proposes that the Entrustment Scheme be amended to reduce the exemption limit for submission of cash margin.

The amendment will encourage small and medium sized exporters leading to an increase in exports and foreign exchange earnings.

Abolishment of Infrastructural Cess on transit of goods in Sindh

The Sindh government has imposed an infrastructural cess of .125 percent on gold entering the province. This tax is imposed on gold imported for local consumption as well as gold imported under the Entitlement Scheme for export purposes. Arrears for the past five years have also been charged to jewelry exporters, which has imposed a considerable burden on them. Considering that no such tax is levied in any other province and that a majority of jewelry exports are from Karachi, the tax serves as a significant disincentive for Karachi-based exporters of jewelry. Furthermore, gold that is imported against exports is a remittance, and not for local consumption. Export figures of 2004-5 and 2003-4 reveal a significant decline in the official export of gold jewelry from Pakistan. From July 2003 to May 2004, the Export Promotion Bureau reported jewelry exports of USD 25.8 million, where as for July 2004 to May 2005, they were reported at USD 19.9 million. According to industry representatives, this decline is mainly due to the infrastructural cess.

In the interest of ensuring consistent policies throughout the country and to create a level playing field for all industry stakeholders, the SWOG recommends that the infrastructural cess on gold that is imported as entitlement against exports be abolished. Since a majority of the revenue is generated from import of gold meant for local sales, the loss in revenue from this amendment would not be significant.

The proposed reform will make the exporter more competitive and have a direct impact on the level of exports from Karachi. It will also re-enforce the provincial Government's commitment to ensuring consistent, business friendly economic policies.

4.4 Invest in Workforce Development and Innovation Capacity

Develop linkages with international training institutes

Pakistan offers limited gemology training opportunities. There is currently one Gem cutting and Gemological Institute in Pakistan located in Peshawar. According to industry sources it has a limited budget and a weak faculty. Consequently, it imparts very basic gemological training. Lack of understanding of gemstones and their properties limits Pakistan's ability to enter the international market.

Establishing linkages with international gemological institutes has been highlighted as an important initiative to upgrade the current level of gemological training and jewelry manufacturing in Pakistan. The Asian Institute of Gemological Sciences has shown interest in setting up an affiliate gemology training facility in Pakistan. They will offer their accredited Gemologist Diploma. Students will also be able to take individual courses such as Diamond Grading and Pricing, Colored Stone Grading and Pricing, Synthetic and Treated Gem Identification, Gem Identification, etc. The Gemological Institute of America (Thailand Campus)

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has agreed to offer the Distance Learning Graduate Gemologist Diploma in Pakistan. In addition they have offered to administer courses in the following areas:

1. Gem Identification (5 days);
2. Diamond Grading (5 days);
3. Colored Stone Grading (3 days).

The above courses will provide training for 20 students each. The number of courses administered in a year will be determined by the initial response.

Affiliation with world class international institutes will not only upgrade the skill level in the country but also elevate Pakistan's reputation in the international gems and jewelry market. New treatments and synthetics are being developed regularly. Competent gemological training will transfer this knowledge and expertise to the local industry. Trainees will gain access to international networks which will expand professional and business opportunities for them. Skill up-gradation will raise the productivity of the local gems and jewelry industry, stimulate entrepreneurship, generate employment as well as increase the quantity and value of exports.

Build the capacity of existing R&D and training institutes

Pakistan has had limited exposure to modern jewelry designing and manufacturing. Indigenous jewelry designers are normally trained by retail shop owners who are conservative in taste, therefore the designer's task is never a truly creative one. The designs produced are often copied from foreign catalogues with slight modifications by the buyer.

The Beaconhouse National University has recently launched a degree in Jewelry Design. With the assistance of the SWOG, the Pakistan School of Fashion Design successfully held a one month course in jewellery design and manufacturing for 25 students in the summer of 2005. Two female students were selected from this course to participate in a six-month training programme at GIA Thailand. PSFD is planning to introduce a degree program in jewelry designing and manufacturing. Upgrading the capacity of these institutes to impart design and manufacturing training has been identified as one of the main initiatives by the Gems and Jewelry SWOG.

There are currently no linkages between R&D institutes, technical support institutes and the industry. This inhibits technical up-gradation and innovation.

The initiative will be implemented through the following efforts:

- Facilitating linkages between the industry and training institutes in order to align training programs with the industry's needs;
- Facilitating access to international experts to assist in curriculum and faculty development;
- Incorporation of Jewelry Computer Aided Design (CAD) and Computer Aided Manufacturing (LUMS has shown willingness to develop CAD/CAM) into the syllabi of BNU and PSDF;
- The capacity of existing R&D and technical support institutions (PCSIR, TUSDEC and PINTECH) will be built in accordance with industry needs. Linkages will be established between these institutes and the industry.

As the capacity of local universities and training institutes develops, they will produce a new breed of designers and artisans. This will help the industry diversify its product base and enter new market segments, both domestic and international. It will also stimulate entrepreneurship and consequently lead to employment generation.

4.5 Strengthen Industry Organization and Supporting Infrastructure

Establish a permanent Industry Organization to implement the Industry Strategy

Although the process of strategy formulation to improve industrial competitiveness is taking place under the Strategy Working Group, a formal mechanism is needed to implement the strategy. In the absence of functional trade associations, the need for a co-coordinating platform is all the more important in order to develop a means for continuous up-gradation.

The SWOG has highlighted the need for creating a Sector Management Company to implement the strategy. The company will carry the name of the SWOG's logo and hallmark: Gems and Jewelry Pakistan. It will perform the following functions:

- Co-ordinate to implement the initiatives laid out in the strategy;
- Develop new initiatives;
- Support research and development;
- Propose policy reforms and lobby with the government to ensure implementation;
- Provide technical and marketing support to the industry;
- Collect and disseminate industry data;
- Co-ordinate intra-industry and international linkages.

The Sector Management Company will provide the industry with an institutional platform to carry out strategy formulation and implementation. It will enable the industry to continue its dialogue with the public sector, strengthen linkages within the value chain, and help the industry as well as individual companies to develop and implement growth strategies. A tentative business model for the company is attached as a reference document.

Improve Logistical Support

Currently PIA and Swiss Air are the only airlines providing international freight service for export of valuable goods. PIA's charges are significantly higher than Swiss Air. PIA charges 25 percent of route fare from exporters since the consignment is carried by an escort. Other airlines use poly-fiber safes hence their costs are much lower. As a result, it is uneconomical for exporters to send their goods through PIA. The Swiss Air facility, however, is only available from Karachi. PIA also increased their domestic freight charges from .5 percent of the value of merchandise to 3 percent in February 2004. This has forced most firms to switch to alternate means of transportation.

The SWOG proposes a revision in PIA's freight charges for both national and international routes. The SWOG has suggested that charges be made more competitive compared to other airlines in line with IATA rules. The SWOG has already submitted the specifications of the poly-fiber safe used by other airlines so that PIA can consider this as an alternative. It is also requested that PIA should reduce their local freight charges from 3 percent of value to the original 0.5 percent. Negotiations are underway with FedEx to initiate valuable cargo services.

Reduction in freight charges and courier cargo services will encourage movement of goods thereby leading to an increase in the overall level of exports. According to SWOG estimates, reduction in freight charges will significantly increase domestic business from the industry for PIA. It will also facilitate domestic movement of goods resulting in better linkages within the value chain.

5. Prioritization and Sequencing of Initiatives

In order to ensure successful implementation of the strategy and in view of limited resources, the SWOG has identified the following initiatives for immediate implementation. Preparatory work on some of these initiatives is underway.

Pilot Projects:

1. CFTMCs: Negotiations are underway with TUSDEC²⁵ to set up CFTMC(s). Initially CFTMCs will be established in Lahore, Quetta, Peshawar, Karachi and Northern Areas. Lahore will be focused on jewelry manufacturing, Peshawar and Quetta on gem processing and lapidary training, Northern Areas on mining, gem processing and lapidary training, and Karachi will have both elements.
2. Gem Identification and Certification Labs: MOST²⁶ has shown willingness to establish model gem labs in two areas selecting from Karachi, Peshawar, Quetta, Northern Areas and Lahore to assist the private sector. The Geological survey of Pakistan may also support the initiative. A concept paper has been prepared and submitted to PNAC²⁷ which is acting as the focal point on behalf of MOST²⁸ for projects related to testing labs for standardization and quality control.
3. Hallmarking: PCSIR is establishing model Hallmarking and Assaying facilities in Lahore. Private-sector stakeholder(s) working to establish assaying center(s) in Karachi. Peter Raw, an international Assaying/Hallmarking expert visited Pakistan in Feb'2006 to assist Gems and Jewelry SWOG in introducing Hallmarking and Assaying in Pakistan. As per his proposal, the SWOG will be working on writing a draft Hallmarking Act, constituting a controlling body for hallmarking (Pakistan Hallmarking Council) and assisting industry in setting up one or more Assaying centers (which ultimately may become Hallmarking agencies in Pakistan). A steering group has been formed from among SWOG members that will coordinate the above actions.
4. Branding and Marketing: Negotiations will be initiated with management institutions to prepare a framework for market survey. The SWOG has identified a number trade shows (IJS Show in India for 2006 and 2007, Thailand for 2006 and 2007, Bahrain for 2006 and 2007, and Hong Kong for 2007²⁹) and has initiated planning for participation at these trade shows.
5. Design and Gemology Institutes: Negotiations are underway for AIGS to set up an affiliate Gemology Training Institute in Pakistan and for GIA to give short-term courses... AIGS representatives have visited Pakistan to undertake need and market assessment. A memorandum of understanding has been agreed in principle between the SWOG and AIGS.
6. Regulatory Reforms: Proposal for second generation reforms to be submitted to the Government.

²⁵ Technology Up-gradation and Skill Development Company.

²⁶ Ministry of Science and Technology.

²⁷ Pakistan National Accreditation Council.

²⁸ Ministry of Science and Technology.

²⁹ It has been decided that Pakistan would participate in the Hong Kong Show in 2007 based on the premise that it will give the industry time to upgrade its product base in line with international standards.

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7. **Logistical Support:** Negotiations are underway with PIA and other domestic airlines to provide valuable cargo services at competitive prices and with FedEx to initiate valuable courier service
8. **Workforce Needs Assessment:** A detailed workforce needs assessment will be conducted by industry experts.

Along with preparatory work on the above pilot projects, critical linkages are being developed between academic and research institutions and the industry to upgrade the capacity of these supporting institutions to respond to industry needs more effectively. Linkages are also being developed between local academic institutes and international organizations and technical support to assist with curriculum and faculty development.

As work progresses on the priority initiatives, the SWOG will then be in a position to address the remaining projects as well as identify additional initiatives. In the medium term, the SWOG plans to work towards the following:

- Establish CFTMC in FATA;
- Conduct a geological survey.

The above list of initiatives is by no means exhaustive. It is expected that as the sector proceeds with the implementation of its strategy, new challenges and opportunities will be identified.

6. Expected Impact and Conclusion

The strategy is expected to have significant impact on value addition, productivity, income levels and exports. It is intended to reposition the gems and jewelry industry from a cost-based sector to a high value-added, competitive brand in the global market.

The overall impact of the strategy can be summarized as follows:

- Up-gradation of technology and processes;
- Up-gradation of skills;
- Higher productivity of the workforce leading to higher paying jobs;
- Employment generation due to new investments in gem processing and jewelry manufacturing;
- Availability of high-value, finished gemstones for the domestic and international market
- Diversification of the product base;
- Increase in domestic sales and exports;
- Presence of an institutional public-private partnership for continuous industry up-gradation (Sector Management Company);
- Strengthened linkages within the value chain as well as between the industry and training institutions and research and development organizations (local and international);
- Economic development and poverty alleviation in less developed regions such as Balochistan, NWFP, FATA and FANA through improved mining and gem processing, higher employment and higher export earnings.

Expected Impact on the Value Chain

The main driver of growth will be the value added in gems and jewelry manufacturing. It is forecasted that exports of finished gemstones will increase, wastage will reduce and more local gemstones will be used in jewelry and exported with greater value added. Similarly, in jewelry, formal trade will increase, production time and wastage will decrease and value addition will increase. The following table demonstrates the impact on the value chain on gems and jewelry over the next five years. The projections assume that the priority initiatives will be carried out leading to a higher level of skills, improved technology and processes, higher quality products and better branding/marketing.

Table 6.1: Expected Impact on the Gems and Jewelry Value Chain

| Current - 2005 | Projected - 2010 |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Gems: <ul style="list-style-type: none"> ▪ Old Mining Methods ▪ Rough exports: 75% of total mined ▪ Processed: 25% ▪ Wastage: 60% of processed ▪ Exported: 36% of processed ▪ Used in jewelry manufacturing: 4% of processed ▪ Value addition: 2-5 times | Gems: <ul style="list-style-type: none"> ▪ New Mining methods/Imports ▪ Rough exports: 40% of total mined ▪ Processed: 60% ▪ Wastage: 30% of processed ▪ Exported: 50% of processed ▪ Used in jewelry manufacturing: 20% of processed ▪ Value addition: 5-10 times |
| Jewelry: <ul style="list-style-type: none"> ▪ Formal Import: 30% ▪ Informal Import: 50% ▪ Recycled Gold Used: 20% ▪ Production Time: 15days ▪ Overall Losses: 10% ▪ Value Addition: 10-20% | Jewelry: <ul style="list-style-type: none"> ▪ Formal Import: 65% ▪ Informal Import: 10% ▪ Recycled Gold Used: 25% ▪ Production Time: 5days ▪ Overall Losses: 1.5-2% ▪ Value Addition: 20-30% |

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Value addition in gems will come from a higher percentage of gems being processed in Pakistan and exported as finished products and used in local jewelry manufacturing. Value addition in jewelry manufacturing will result from better designs, improved productivity, reduced wastage and better retailing and marketing.

The following two diagrams demonstrate the current and projected value chain analysis for gems:

Figure 6.1: Current Gems Value Chain Analysis

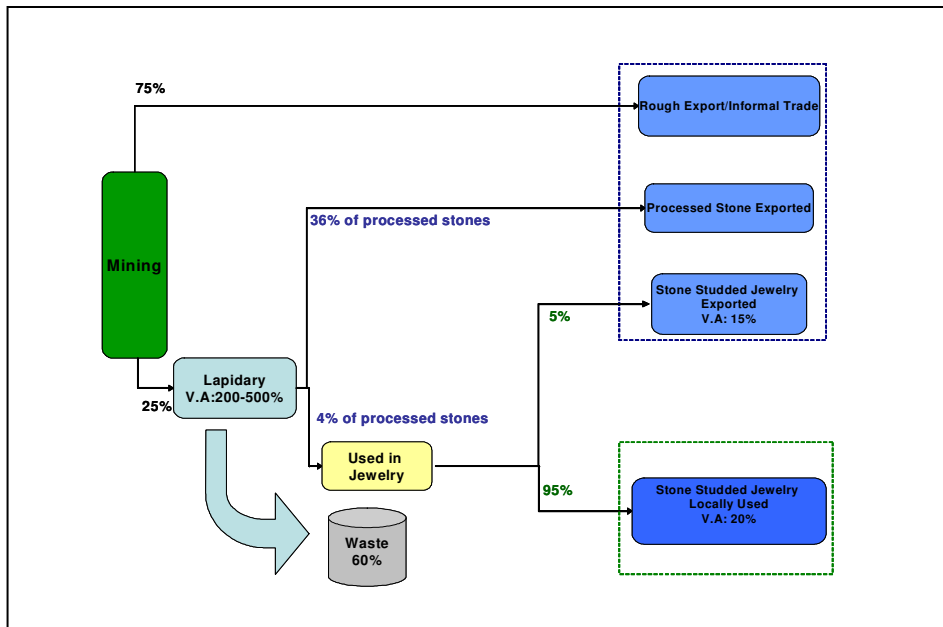
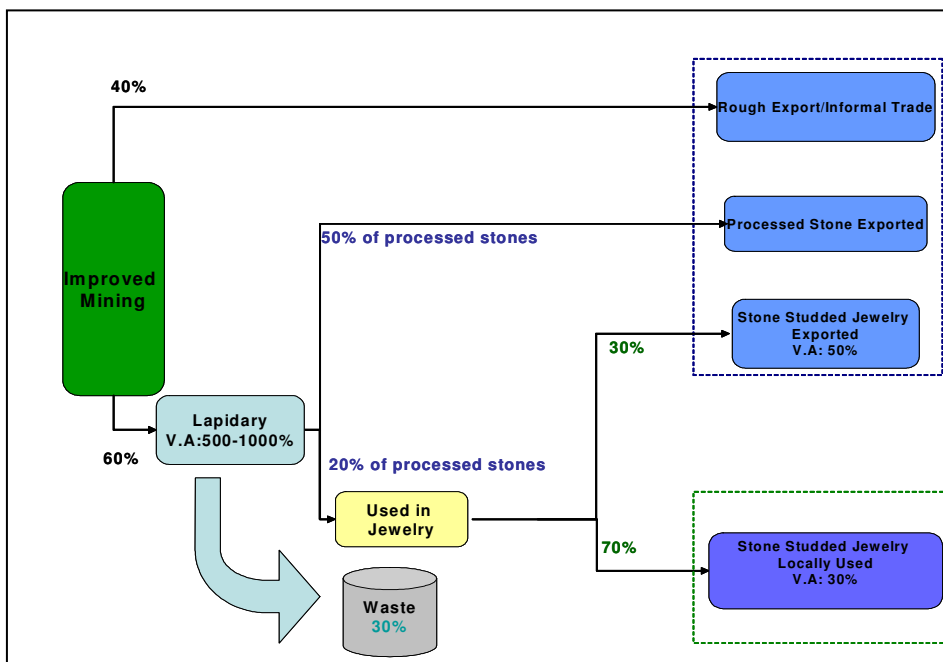


Figure 6.2: Projected Gems Value Chain Analysis for 2010



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With the implementation of the strategy, it is expected that the jewelry production process will become more mechanized and efficient. New high technology will be introduced in designing, molding/casting and finishing.

Table 6.2: Comparative Jewelry Production Analysis

| Current-2005 | Projected-2010 |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Production Process: <ul style="list-style-type: none"> ▪ Traditional Design ▪ Pattern Design ▪ Sheet Drawing ▪ Casting/Handcrafting ▪ High Quality Cast Products need lesser polish; low Production cost ▪ Finishing ▪ Polishing ▪ Studding (Gems) ▪ Final Product | Production Process: <ul style="list-style-type: none"> ▪ Computer Assisted Design (CAD) ▪ Pattern Design (CAM) ▪ Sheet Drawing ▪ Casting (Modern large casting units to be established in CFTMCs) ▪ High Quality Cast Products need lesser polish; low Production cost ▪ Finishing ▪ Polishing ▪ Studding (Gems) ▪ Final Product |

Expected Impact on the Economy

The CFTMCs will raise the level and number of skilled artisans. The SWOG also estimates that total exports of the sector will increase to 200 million in 2010 and 600 million in 2015.

Table 6.3: Expected Impact on Skill level and Exports

| | 2004 | 2010 | 2015 |
|--------------------------------------------------|---------|---------|---------|
| No. of artisans/miners/gem cutters/professionals | 100,000 | 103,115 | 110,615 |
| Total trained | | 6,230 | 15,000 |
| From the existing workforce | | 3,115 | 7,500 |
| New Entrants | | 3,115 | 7,500 |
| Gems and Jewelry Exports (USD million) | 28 | 200 | 600 |

Assumption: This is based on the assumption that five CFTMCs will be operational by 2010 and 50% of the total trained workers will be from amongst the existing artisans, while the remaining will be new entrants. The total artisan/miners/gem cutters/professionals increase by the number of new entrants.

Appendix

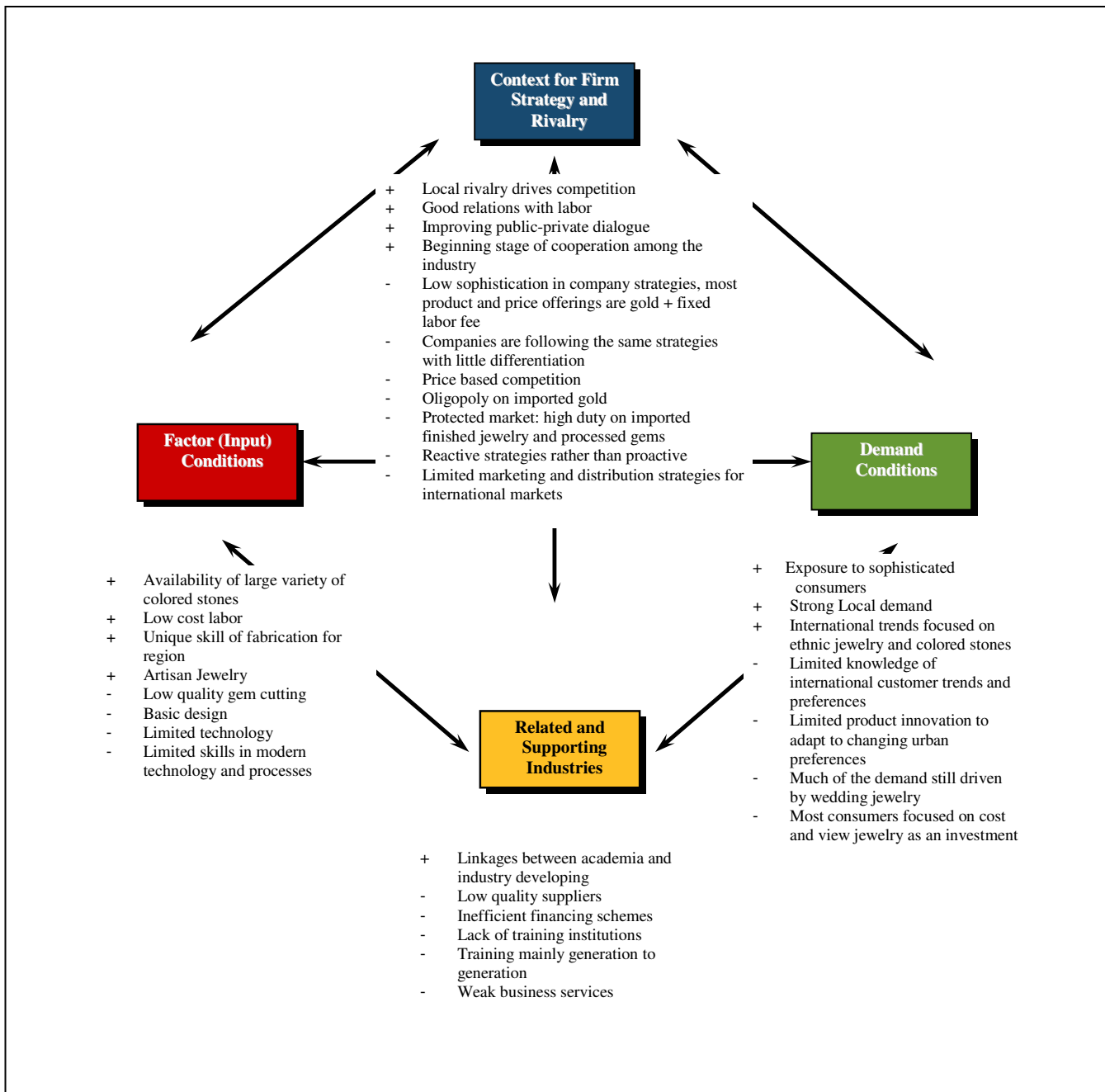
1. Overall Summary of Industry Competitiveness: Porter Diamond

To understand the current state of the competitiveness of Pakistan's gems and jewelry industry, this study uses the Competitiveness Diamond, often referred to as the Porter Diamond. The economic theory of the Competitiveness Diamond has been validated by numerous analytical and case studies and is now used by industries and governments worldwide to assess industry competitiveness and to develop strategies for improving competitiveness. It is structured around four pillars:

1. Factor (input) conditions: skilled labor, infrastructure, assets and resources;
2. Demand conditions: size and type of accessible demand;
3. Related / supporting Industries: presence of supplier and supporting industries;
4. Context for firm strategy and rivalry: conditions for conducting business.

The Porter Diamond framework demonstrates that the current weaknesses in Pakistan's factor conditions and related and supporting industries are weighing down productivity. Although strong local and international demand offer tremendous opportunities for growth, low levels of technology and skills, limited innovation, and poor marketing and branding inhibit the industry from developing.

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2. Industry Profile and Market Segmentation

2.1. Jewelry

Overview

Pakistan's jewelry sector is predominantly retail driven due to a huge local market. Karachi and Lahore are the main hubs for jewelry manufacturing. Pakistani designs are distinctive and highly differentiated from the Indian offerings and desired in western Pakistani and Indian expatriate markets alike.

Dubai is the main exporter of bullion to Pakistan. Sources of gold consist of authorized imports, unofficial imports, unrecorded personal imports, unofficial jewelry imports and recycled gold.

The domestic market is driven by demand for 22kt traditional jewelry. The primary reason for purchase of jewelry in Pakistan is marriage, as gold is perceived as a form of investment. It is accumulated for this purpose over several years. However, with increasing awareness and education, demand is evolving in line with international fashion trends.

The range of jewelry items produced by the jeweler is very wide. The most popular items of Pakistan's jewelry are Bangles, Earrings, Rings, Pendants, nose pins, necklaces, and teekas³⁰.

The Jewelry industry is highly fragmented, with very few players having complete in-house production facilities. Most of the players outsource manufacturing to small vendors. The use of high-technology machinery is missing throughout the value chain. A few exporters producing chains and bangles in large quantities have invested in modern production techniques. They are exporting successfully to markets in Dubai and UAE where some of them have established their own offices. These manufacturers hallmark their goods in order to comply with UAE regulations.

A niche export market has been developed by exporting traditional jewelry to retailers for Pakistani and Indian origin buyers in Canada, USA and Britain. Quality assurance is given by stamping the goods with the 21kt mark in addition to KDM. The latter denotes that the piece has been soldered with Cadmium solder where Cadmium evaporates and therefore does not contaminate the purity of the gold³¹.

Each of the major cities of Pakistan has a "Sarafa Bazaar"³², consisting of hundreds of small showrooms, bullion dealers and casting shops.

Presently, there are limited training opportunities for the jewelry sector. The age old *ustaad-shagird* (master-apprentice) method of teaching is most popular. A few leading shops have their own small training workshops where they teach students who are later employed by the same shop owners. These establishments provide on the job training rather than formal teaching.

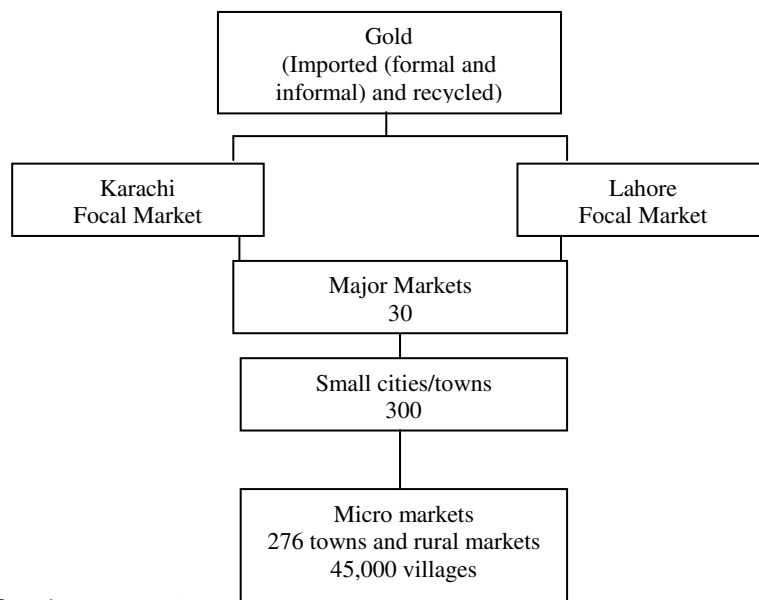
³⁰ Piece of jewelry worn on the forehead.

³¹ Internationally, cadmium is being replaced with Indium as cadmium is hazardous to health.

³² Sarafa bazaar refers to jewelry market. Jewelry markets in Lahore are Sooha Bazaar, Latif Market, Liberty Market and Commercial Building; Jewelry markets in Karachi are Saddar, Tariq Road, and Sarafa Bazaar.

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Figure 2.1.1: Segmentation of the Jewelry Market in Pakistan



Source: SWOG estimates, 2005

The following table gives an estimate of industry participants in the jewelry sector. These figures are based on a study conducted on behalf of the World Gold Council in late 1997 by a local company, TECHMA. No formal study has been conducted on the Gems and Jewelry sector since.

Table 2.1.1: Industry Participants

| | 1997 |
|---------------------------------------|---------|
| Jewelry retailers | |
| Showrooms | 8,750 |
| Jewelry manufacturers | |
| Skilled artisans | 100,000 |
| Fabrication units | 22,000 |
| Mechanized chain manufacturers | 4 |
| Jewelry wholesalers | 20 |
| Bullion dealers | |
| Major dealers | 30 |
| Other dealers | 500 |
| Refiners and bar manufacturers | |
| Major refiners | None |
| Small refiners | 1,000 |
| Jewelry exporters | |
| Significant exporters | 6 |
| Other exporters (sporadic) | 300 |
| Gold trade associations | |
| Significant associations | 10 |
| Other associations | 500 |
| Recognized by the Government | 2 |
| Bullion importers | 3 |

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Jewelry Manufacturers

Presently, the metropolitan cities of Lahore and Karachi are the major hubs of jewelry manufacturing. There are more than thirty major cities and nearly three hundred smaller cities/mandi³³ towns where jewelry manufacturing and trading clusters cater to domestic demand. In addition, there are at least 45,000 villages where jewelers operate as single-shop, manufacturing and selling units to meet the demand of rural population. With a rich tradition of craftsmanship in jewelry manufacturing, Pakistan's skilled/semi-skilled labor force is available at relatively lower rates, which offers a comparative advantage to the country.

The Jewelry industry is highly fragmented, with very few players having complete in-house production facilities. A small number of high-end retailers are pursuing backward integration along with efforts to brand their services and products. Most of the players outsource manufacturing to small vendors. The trade consists of small companies (generally up to 15 workers) with freelance craftsmen. The workforce works in the traditional manner sitting on the floor at low benches rather than seated at conventional workbenches, which are more comfortable and productive. The use of high-technology machinery is missing throughout the value chain. Pakistan was one of the first countries in the region to introduce the mechanized process of casting. However, casting technology in Pakistan has not kept up with international standards. The tools and techniques used are adequate for 22kt traditional jewelry manufacturing but not for the technology driven 14 to 18kt contemporary jewelry and for volume production. A few exporters producing chains and bangles in large quantities have invested in modern production techniques.

Designs are priced by the gold weight in units of Tola=11.664 grams at the 24kt market price but delivered to the customer in alloy of 21 or 22kt. All labor components along the supply chain, from casting, polishing, stone setting and lacquering are priced as a percentage of gold weight and wastage.

Design outside of local traditions is mostly derivative, taken from foreign mass-jewelry catalogues with in-house designers.

Retailers

In the local market jewelry manufacturers and retailers have three distinct consumer groups:

- Domestic elite favoring western inspired designs and aware of large foreign brands;
- Domestic popular (gold) customers accumulating gold for investment. The most lavish and prevalent designs are to be found in the wedding category;
- Foreigners working in Pakistan and Pakistani expatriates, mostly living in the US, Canada and UK or other EU markets.

³³ market

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The following table provides a breakdown of retailers on the basis of sales volume:

Table 2.1.2: Average Sales Turnover

| Jewelers | Volume in Kg |
|--------------------------------|-----------------|
| A type (large size) 10 percent | 35 Kg/year |
| B type 40 percent | 12-35 Kg/year |
| C type 50 percent | < 8 Kg per year |

Source: SWOG estimates, 2005

The local market is vibrant due to the social mandate or practice to invest in gold jewelry. This being the source of great demand, most jewelers pack their showcases with designs that adhere to strict design codes.

Retailers are constrained in charging sufficient margins. Customers exert constant pressure on margins since gold and diamonds have internationally standardized prices. Labor is standardized as a fraction of gold gram weight, average no more than 1\$ to 3\$ per gram depending on the level of intricacy. This is also the going rate for gold jewelry sold in Sri Lanka, where women regard gold jewelry also as a way to build personal assets.

Retailer/Consumer interaction differs in several key points from the West. Customers can return a purchase at anytime and get a refund of the purchase price minus 30 percent. Therefore, pricing strategies are completely different due to the focus on gold as the purchasing driver. During a purchase, non-branded retailers break up their pricing structure into gold, labor and stones with labor and stones contributing a small percentage to the final price. Since consumers are educated shoppers they can squeeze retailer margins along the cost structure. This leads to the historical industry practice of under-karating through which everyone along the supply chain gets to squeeze out additional profit. As a result there is an inefficient market where retailers let consumers dictate what they are willing to pay yet in the end do not give them what they believe they paid for.

Most local consumers are content with synthetic and low-grade precious and semi-precious stones. A synthetic premium stone brand launched under a joint venture of Golay and Swarovski, called Signity, is being used by several jewelers in an attempt to use a co-branding strategy to differentiate their collections from the competition.

Well-known retailers are proactively pursuing some form of branding by emphasizing on customer service, quality workmanship, adherence to industry standards such as marking and assaying and expanding through multiple stores and advertising. Proactive retailers have also started diversifying their products based on international trends.

2.2 Gemstones

Overview

Pakistan has been gifted with abundant resources of precious and semi-precious gemstones, at present found in Northern Areas and NWFP, with significant potential in Balochistan. Despite its enormous resources, Pakistan has been unable to penetrate the international market significantly. Mining technology and processes are rudimentary and unscientific resulting in significant wastage at the extraction stage. Indiscriminate blasting damages the gemstone crystals and mineral specimen thus drastically reducing their value. Gemstone cutting and polishing is done on a very limited scale and that too with obsolete machinery and tools. Due to lack of adequate processing facilities and skills, a majority of Pakistan's exports consist of unworked stones, representing a significant loss in value added. Commerce is mainly conducted on a person to person basis with no established pricing structures.

Mining

Pakistan produces Emerald of Mingora (Swat), Pink and Golden Topaz of Katlang (Mardan) and Aquamarine of Chitral and Neelam Valley. With the liquidation of Gemstone Corporation of Pakistan, with the exception of two significant deposits in Azad Jammu and Kashmir, all the identified precious stone deposits have been leased out to the private sector. In the absence of transparency in ownership and leasing policies, proper management of production activities and scientific exploration of mineral deposits, this sector remains underdeveloped and undervalued. Mining technology and processes are rudimentary and unscientific resulting in significant wastage at the extraction stage. Indiscriminate blasting damages the gemstone crystals and mineral specimen thus drastically reducing their value.

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The following table contains information on the available gemstone resources along with sites where these stones are found.

Table 2.2.1: Gemstone Resources of Pakistan

| Province/Area | District |
|---------------------|------------------------------------------------------|
| Ruby | |
| FANA | Between Hunza and Ishkuman Valley |
| Azad Kashmir | Shantor and Neelum Valleys |
| Aquamarine | |
| FANA | Gilgit, Skardu, and Hunza Areas |
| NWFP | Chitral District |
| Tourmaline | |
| FANA | Gilgit District |
| NWFP | Chitral District |
| Azad Kashmir | Upper Neelum Valley |
| Topaz | |
| FANA | Gilgit and Skardu Districts |
| NWFP | Mardan District |
| Spinal | |
| FANA | Hunza Valley |
| Pargasite | |
| FANA | Hunza District |
| Moonstone | |
| FANA | Gilgit District |
| Garnet | |
| FANA | Gilgit and Skardu Districts |
| NWFP | Chitral, Swat, and Malakand Districts |
| FATA | Bajaur Agency |
| Balochistan | |
| Quartz | |
| FANA | Hunza, Gilgit and Skardu districts |
| NWFP | Chitral District |
| Sindh | Nagarparkar |
| Balochistan | Lasbela |
| Epidote | |
| FANA | Gilgit and Skardu Districts |
| Emerald | |
| NWFP | Shamozai, Mingora, Gujar Killi, Makkad and Charbagh, |
| FATA | Mohmand and Bajaur Agency |
| Peridot | |
| NWFP | Kaghan Valley |
| Pink Beryl | |
| Azad Kashmir | Dunga Nar Area |
| Turquoise | |
| Balochistan | Chaghi Hills |
| Lapis Lazuli | |
| FANA | |
| NWFP | Chitral, NWFP Afghan Border |
| Balochistan | |
| Zircon | |
| FANA | Gilgit |
| Feldspar | |
| FANA | Gilgit, Skardu |
| NWFP | Chitral |
| Agate | |
| Sindh | Nagarparkar |
| NWFP | Dir Kohistan |
| Kunzite | |
| NWFP | Chitral (Garam Chashma ³⁴) |

Source: Investment Oriented Study on Minerals and Mineral based industries, Ministry of Industries and Production; SMEDA; GGIP, Industry Sources

³⁴ Major reserves lie in Nooristan, Afghanistan. The mines touch the border with Pakistan near Chitral.

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Trading

There is currently an absence of formal trading infrastructure due to which miners and dealers resort to temporary locations to conduct their transactions. There are several informal trading centers in Pakistan. Namak Mandi, the gem market in Peshawar is one of the main gemstone trading hubs in the country; it contains a cluster of dealers, miners as well as lapidary workshops. The second market place is Quetta in Balochistan. Dealers receive rough stones in small rooms along the main road, rented by real estate owners exclusively for processing transactions, get paid on 10 percent of value on completed sales transactions.

Dealers in Peshawar have established a reputation in international markets through the famous SWAT emeralds (the mine is closed), and Kashmir rubies (limited access to high altitude mines). It is recognized as a source for a large variety of semi-precious stones such as lapis, turquoise, champagne pink Topaz, Aquamarine and Peridot. Activities are in great part limited by dealers who sell rough to Thai and Sri Lankan traders, officially and otherwise. 90 percent of the traded stones are unprocessed. The most successful dealers are ones who deal in rare stones for which demand is steady. They are competing with African traders, targeting buyers directly in centrally organized market places of Thailand, Hong Kong and Sri Lanka. In Peshawar some assistance in quality assessment is given through a small gemological evaluation facility at the GGIP. In the absence of any testing facility at Namak Mandi, most trading is still based on practical and traditional experience.

Lapidary and Processing

Gems cutting and processing in Pakistan suffers from obsolete technology, limited skills, and lack of precision. Presently, there are more than 30,000³⁵ people involved with the industry and there are around 500³⁶ units involved in cutting and polishing of gemstones. Most of the gemstone processors are clustered in Karachi and Peshawar (Namak Mandi), with smaller clusters in Lahore, Quetta and Islamabad. Little value is gained by processing stones as cutting exists on a very limited scale in small one to 3 persons workshops.³⁷ The prevailing technique is cutting for yield to maximize weight, not value. The industry lacks expertise in precision and calibrated cutting and is not up to date with the latest treatments. The skill level of the craftsmen engaged in gems processing depends entirely on their experience and on what they have learned from their ancestors, mainly migrants from Jaipur, India. These local craftsmen are unaware of latest technologies and international quality standards. Most of the stones are recut, once they reach international markets. While the value addition which can be accrued through processing of these stones (cutting and polishing) starts from 10 percent and goes up to as high as 100 percent. This reduces the potential price a dealer is willing to pay to the Pakistani seller. Lapidary training is being offered at the Gems and Gemological Institute of Pakistan at Peshawar. Experienced dealers have voiced concerns over the institute's limited resources and training capacity.

2.3 Geographic Spread

Although jewelry manufacturers and retailers are spread all over Pakistan, Karachi and Lahore are the main hubs for these activities. There are more than thirty major cities and nearly three hundred smaller cities/mandi³⁸ towns where jewelry manufacturing and trading clusters cater to

³⁵ An Overview of the Gemstone Sector of Pakistan, Small and Medium Enterprise Development Authority (not-dated).

³⁶ *ibid.*

³⁷ *ibid.*

³⁸ market.

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domestic demand. In addition, there are at least 45,000 villages where jewelers operate as single-shop, manufacturing and selling units to meet the demand of rural population.

Gemstone deposits are concentrated in NWFP, Northern Areas and Balochistan. Most gemstone processors are clustered in Karachi and Peshawar (Namak Mandi), with smaller clusters in Lahore, Quetta and Islamabad.

3. Industry Statistics

3.1 Employment

The total number of persons employed in the gems and jewelry sector is estimated at 800,000³⁹. Presently, there are more than 30,000⁴⁰ people employed in the lapidary and processing sector.

3.2 Growth

The following table demonstrates growth in the gems and jewelry industry over 1997 and 2004.

Table 3.2.1: Industry Growth

| | Actual WGC figures for 1997 (81 tones) | Projected based on WGC figures of Gold consumption for 2001 (120 tones) | Projected based on SWOG estimates for Gold consumption for 2004 (170 tones) ⁴¹ |
|------------------------------|----------------------------------------|-------------------------------------------------------------------------|-------------------------------------------------------------------------------------------|
| Jewelry retailers | 8,750 | 12,960 | 18,360 |
| Showrooms | | | |
| Jewelry manufacturers | | | |
| Fabrication units | 22,000 | 32,640 | 46,240 |
| Mech. chain manufacturers | 4 | 6 | 9 |

Source: SMEDA

3.3 Exports

The following table provides Pakistan's exports in 2003 compared to the world as well as India, Thailand and Sri Lanka as these are our major regional competitors.

Table 3.3.1: Gems & Jewelry Exports for 2004 (USD million)

| | World | India | Thailand | Sri Lanka | China | Pakistan |
|----------------|--------|--------|-------------------|-----------|-------|-------------------|
| Jewelry | 27,341 | 2,998 | 1,290 | 18.6 | 1,825 | 24.4 |
| Gems | 68,166 | 10,535 | 735 ⁴² | 221.6 | 1,418 | 3.6 ⁴³ |
| Total | 95,507 | 13,587 | 2,025 | 240.2 | 3,243 | 28 |

Source: www.unstats.un.org; www.customs.go.th

³⁹ SWOG estimates for 2005.

⁴⁰ An Overview of the Gemstone Sector of Pakistan, Small and Medium Enterprise Development Authority.

⁴¹ 170 tons was reached based on WGC estimates for 1997 and 2001, extrapolating the growth between these years. Some industry sources claim that total consumption in 2004 was 200 tons.

⁴² Export figures for Thailand for 2004 were not available. This figure is based on 8% growth over the UNSTATs recorded figure for 2003.

⁴³ According to the All Pakistan Commercial Exporters Association, total formal export of gemstones from NWFP alone were USD 8 million in 2003-2004 and USD 11 million in 2004-2005. Informal exports are estimated at an average of USD 12 million per annum.

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Table 3.3.2: Jewelry Exports of Pakistan (USD), 2000 – 2004

| Years | Amount |
|-------|------------|
| 2004 | 24,387,250 |
| 2003 | 23,634,702 |
| 2002 | 29,962,060 |
| 2001 | 19,213,211 |
| 2000 | 23,753,572 |

Source: www.unstats.un.org

Table 3.3.3: Five Years' Cumulative Export of Jewelry Figures with Major Trade Partners (USD)

| Country | Amount |
|--------------------|------------|
| Utd. Arab Emirates | 56,533,407 |
| USA | 35,574,328 |
| United Kingdom | 21,572,519 |
| Canada | 3,523,701 |
| Singapore | 948,508 |

Source: www.unstats.un.org⁴⁴

Table 3.3.4: Gems Exports of Pakistan – 2000-2004 (USD)

| Year | Amount |
|------|-----------|
| 2004 | 3,613,530 |
| 2003 | 3,677,641 |
| 2002 | 2,057,290 |
| 2001 | 1,636,249 |
| 2000 | 2,870,659 |

Source: www.unstats.un.org

Table 3.3.5: Five Years' Cumulative Export Figures with Major Trade Partners (US\$)

| Country | Amount |
|-----------|-----------|
| Hong Kong | 6,122,726 |
| Germany | 1,729,011 |
| USA | 1,538,422 |
| India | 1,325,004 |
| Thailand | 783,565 |

Source: www.unstats.un.org⁴⁵

⁴⁴ '8973' SITC Code Revision 3.

⁴⁵ 667' SITC Code Revision 3.

4. Social Value and Role in Poverty Reduction

Developing the potential of the Gems and Jewelry sector will have a significant impact on Pakistan's economy in terms of increase in export revenues, employment and entrepreneurship, income generation, and consequently poverty alleviation. Consisting of mainly small and medium entities, growth of this sector will also have positive externalities for social indicators such as health and education.

Pakistan has been gifted with abundant resources of precious and semi-precious gemstones, at present found in Northern Areas and NWFP, with significant potential in Balochistan. These are the least developed regions in Pakistan. Up-gradation of the gemstone sector will have a direct impact on income levels in these areas.

Current mining technology and processes are rudimentary and unscientific resulting in significant wastage at the extraction stage. Indiscriminate blasting damages the gemstone crystals and mineral specimen thus drastically reducing their value. In majority of the mines basic machinery and equipment like compressors and drill sets are not available. A large number of mines are currently inactive due to lack of equipment. Training in modern mining practices will reduce wastage and improve the quality of extracted gems, thereby increasing the income of miners. It will upgrade the skills of the mining workforce, leading to an increase in productivity and consequently in salaries. Access to mining equipment will rehabilitate closed mines, causing an immediate impact on employment levels.

Due to lack of adequate processing infrastructure and skills, approximately 90 per cent of Pakistan's exports are in un-worked stones, representing a significant loss in value added. With the up-gradation of gemological and lapidary training and processing infrastructure, a higher volume of exports will be in processed stones, leading to tremendous value addition. By enhancing the income levels of those directly involved in mining and trading, it will have spin-off effects for the entire region.

Similarly, expanded training opportunities in jewelry manufacturing will upgrade the industry's skill level leading to higher worker's salaries. Jewelry Design programs initiated by BNU and PSFD will create new entrepreneurs and new employment opportunities. Employment will also be generated as a result of established manufacturers expanding into export-based, high-technology production.

5. Market Economics

5.1 Market Growth

Gold consumption in Pakistan rose from 81 tones in 1997 to 170 tones in 2004⁴⁶, representing an increase of 12.7 percent per annum.

5.2 Demand Drivers

Apart from universal factors such as population growth and increases in income level, weddings are an important driver for demand for jewelry in Pakistan. Gold jewelry is also often purchased as an investment. An expanding middle class, increase in consumer finance, and evolving fashion trends due to international influences also provide tremendous opportunities for the industry to diversify and expand its product base.

5.3 Supply Drivers

Supply is primarily driven by the availability of gold, access to competitively priced diamonds and international standard colored gemstones, import of finished jewelry, productivity of manufacturers, logistical infrastructure, access to finance and government policies.

5.4 Technological Advances

Use of modern technology is missing throughout the value chains of the gems and jewelry sectors. Mining machines are outdated; lapidary facilities are limited and underdeveloped. In jewelry manufacturing, there is little use of electrically powered tools such as flexible shaft motors although many workshops do use locally made rolling mills, belt-driven by electric motors. Alloy melting is done by charcoal fire furnaces in open air. Polishing is done by hand on electric motors. There is a need to improve polishing and finishing techniques, for which hanging motors are needed. For crude polishing, mechanical tumbling is used which damages the gold. This should be replaced by magnetic tumbling. There are no modern casting machines or ancillary equipment. The total amount of gold loss amounts to as much as 8 -10 percent⁴⁷ during manufacturing.

In recent years, a few exporters producing chains and bangles in large quantities have invested in modern production facilities.

5.5 Cost of Production and Margins⁴⁸

Pricing of all forms of gold and gold jewelry at every level is unfixed, determined by the prevailing gold price in Pakistan. Pricing and profitability of gold jewelry in particular is complicated due to the hidden element of reduced karatage and variable methods of payment in the forms of cash or old gold jewelry.

For standard gold jewelry, the following generally applies:

| | |
|---------------|-----------------------------------------|
| Labor charges | USD .71 - \$2.1 per gram (Rs. 43 – 129) |
|---------------|-----------------------------------------|

⁴⁶ According to World Gold Council estimates, total consumption of gold in Pakistan was 81 tons in 1997 and 120 tons in 2001, reflecting 12 percent growth per annum. Based on this growth rate, the estimate for 2004 is 170 tons.

According to some SWOG estimates, consumption of gold in 2004 was 200 tons.

⁴⁷ SWOG estimates.

⁴⁸ The following information is based on SWOG estimates.

6. Competitive Position of Domestic & Regional Competitors

6.1 SWOT Analysis

| | |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p style="text-align: center;">Strengths</p> <ul style="list-style-type: none"> + Abundance in skilled craftsmanship for manufacturing of 22kt traditional jewelry + Historical manufacturing tradition + Strong domestic market demand + Natural resources of precious and semi-precious gemstones + Distinct jewelry designs (stone-studded) + Availability of basic Infrastructure/Network + Low cost of Labor | <p style="text-align: center;">Weaknesses</p> <ul style="list-style-type: none"> - Lack of modern mining, gem processing and jewelry manufacturing technology and skills - Irregular availability of high quality raw materials, i.e., gems and gold - No authentic source of information on natural gemstones resources of Pakistan - Lack of skills in high technology, export-oriented jewelry manufacturing - Limited understanding of gemstone properties - Limited availability of skilled trainers - Low customer confidence in locally produced products due to lack of quality standards - Lack/absence of recognizable brands - Lack of awareness regarding latest trends and limited access to international markets - High levels of wastage - Weak linkages between industry and local and international training institutes, R&D institutes and service providers - Unsafe working environment and use hazardous solders |
| <p style="text-align: center;">Opportunities</p> <ul style="list-style-type: none"> ↑ Expanding domestic and international market ↑ Collaboration with internationally recognized institutions/bodies ↑ Increasing interest of foreign and local investors ↑ Joint ventures with international companies, training institutes, government agencies, etc ↑ Expansion/modernization of infrastructure/networking for the sector ↑ Willingness and excitement among stakeholders to move forward through mutual cooperation ↑ Establishment of an information sharing/dissemination mechanism ↑ Government focus on the sector | <p style="text-align: center;">Threats</p> <ul style="list-style-type: none"> x Industry may get more fragmented if the deliverables are delayed or suspended x Aggressive competition especially from India and China x Political Instability x Increased penetration of international products in the local market |

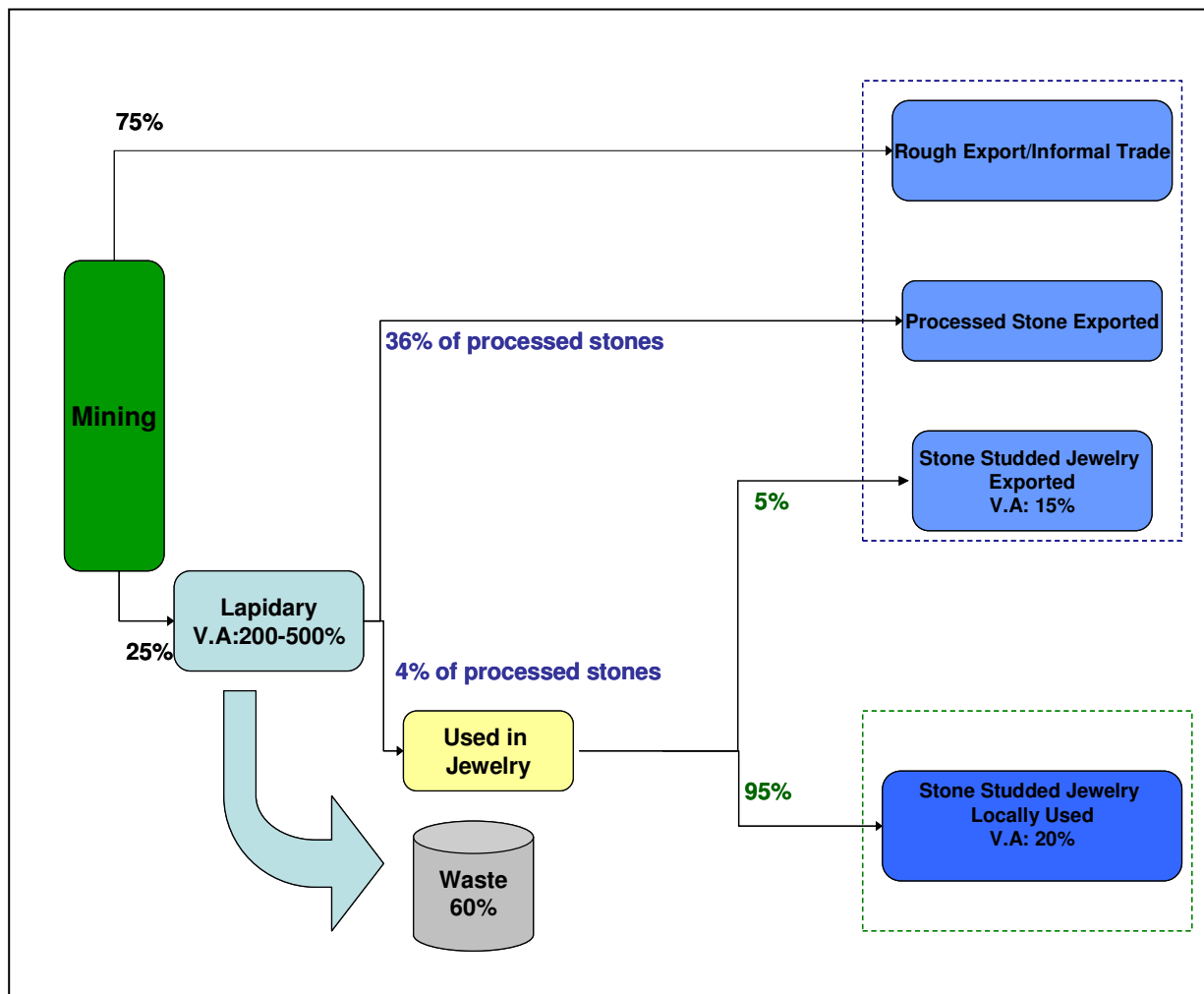
6.2 Value Chain Analysis

Currently, of the total gemstones mined in Pakistan, 75 percent are exported in the rough. Due to indiscriminate blasting the quality of the extracted stone is often substandard. Of the remaining 25 percent that goes into processing. Of the total stone that is processed, 60 percent is wasted; of remaining 40 percent, 36 percent is exported and 4 percent is used in jewelry manufacturing. Of the 4 percent that is used in jewelry manufacturing, 5 percent is used in jewelry that is exported and 95 percent is used in jewelry for local consumption.

In jewelry manufacturing, of the total gold consumed in Pakistan, 20 percent is recycled, 30 percent is imported through formal channels and 50 percent through informal channels. Total production time is 15 days on average with overall losses of 8 to 10 percent and value addition of only 10 to 25 percent.

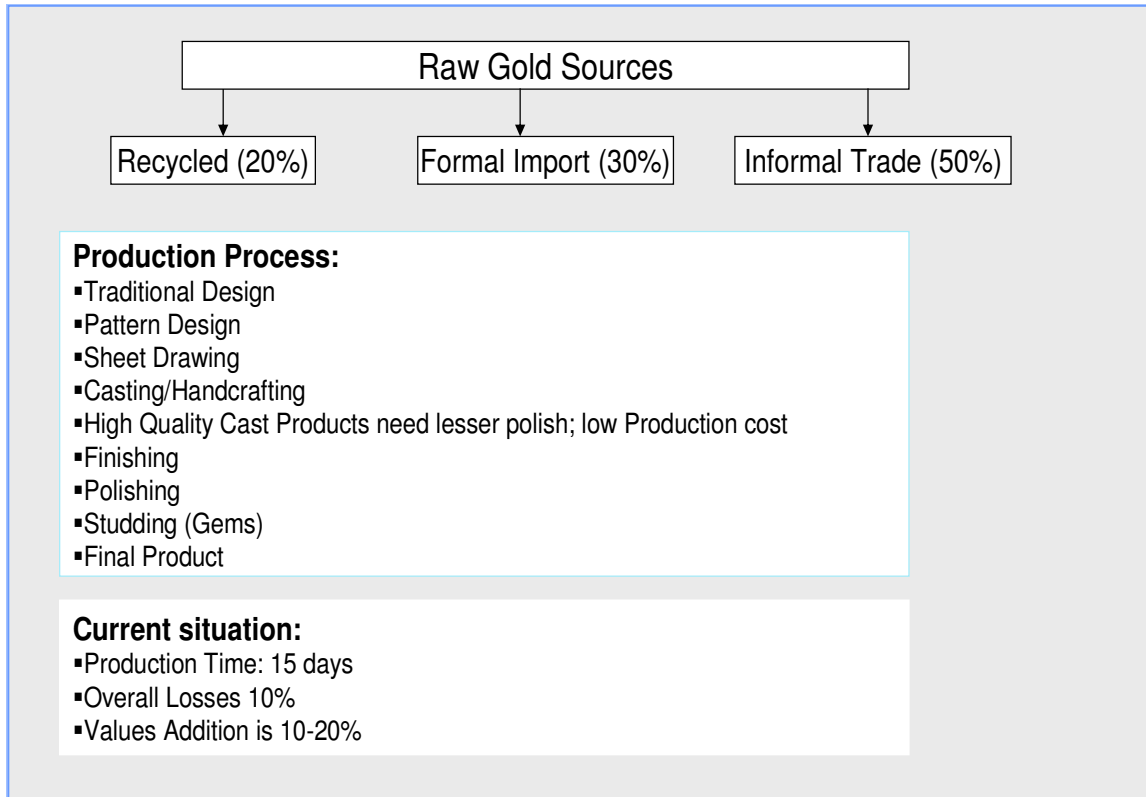
The following diagrams illustrate the current value chains of gems and jewelry:

Figure 6.2.1: Gems Value Chain Analysis



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Figure 6.2.2: Jewelry Production Value Chain Analysis



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6.3 Benchmarking

A benchmarking analysis of Pakistan's industry and regional competitors was conducted in order to identify gaps. The following table provides a summary of the study:

| Parameters | Pakistan | India | Sri Lanka | Thailand |
|----------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------|
| Gems and Jewelry Exports, 2004 (USD million) | Gems: 3.6 Jewelry: 24.4 Total: 28 | Gems: 10,535 Jewelry: 2,998 Total: 13, 587 | Gems: 221.6 Jewelry: 18.6 Total: 240.2 | Gems: 735 Jewelry: 1,290 Total 2,025 |
| Consumption of Gold, 2004 in tons | 170 | 520 tons (according to WGC); 800 (according to GJEPC) | N.A. ⁴⁹ | 100 |
| Employment in the Industry ⁵⁰ | 800,000 | 2,000,000 | 151, 350 | Chantaburi, a major cluster employs 55,000 people |
| Training Institutes | GGIP | 7 institutes | Gems & Jewelry Institute (CAD/CAM) | 6 institutes |
| Strength of Associations | 45 members APJMGA | 7,000 members GJEPC | 360 members SLGJA | 180 members TGJTA |
| Duties, Taxes & Incentives | USD 0.5 per tola (for 5 kg and above) import duty and USD .03 per tola income tax on gold import; Rough stones and diamonds at 0% duty; 5% duty on finished gemstones; sales tax of 15 % and income tax of 6 % on import of rough and finished gemstones, Gold and gemstones imported against exports are exempt from duty | 2% import of gold; 0% customs duty on rough diamonds and colored gemstones and 5% on cut and polished diamonds and colored gemstones; exporters of gems and jewelry can import duty free inputs; To boost exports of studded jewelry, there is a 100% tax exemption on export income for the next 10 years. | 0% duty on import of diamonds, colored gemstones gems; 2% duty on gold imports for local sales, no duty on gold for jewelry export | 0% duty and 7% VAT on import of diamonds and colored gemstones |
| Logistics/Financial Services | PIA (non-competitive freight charges) Swiss Air | Air India, Speed Post, UPS, FedEx, Brinks Arya | Air Lanka | Thai Airways, FedEx, Brinks |
| International Institutional Presence | None | WGC, De Beer, GIA | None | WGC, GIA, IGI |
| Hallmarking/Assaying | None | 35 Hallmarking centers | Initiated in 2004; 1 Assaying/Hallmarking center in Colombo | There is no hallmarking system in Thailand. |

⁴⁹ Not available.

⁵⁰ Includes allied industries.

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| Parameters | Pakistan | India | Sri Lanka | Thailand |
|----------------------------------------|------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------|
| Int. recognized Gem Certification Labs | None | 3 | None ⁵¹ | 6 |
| Product development & Diversification | 22kt gold jewelry (mainly ethnic), Limited processing, no calibration or treatment | 14, 18, 21, 22kt gold jewelry (ethnic and contemporary), platinum jewelry, high quality cutting; calibration and treatments | 14, 18, 22kt gold jewelry (contemporary), high quality cutting and processing; calibration and treatments | 14, 18, 22kt gold jewelry (contemporary), platinum jewelry, high quality cutting and processing, calibration, treatments |
| Indigenous Gem Resources | Emerald, Ruby, Peridot, Topaz, Aquamarine, Lapis amongst many others | Reserves of Ruby and 20 other gemstones including aquamarine and garnet believed to be in Orissa | Sapphires and rubies amongst many others | Sapphires and rubies amongst many others |
| Availability of Gold | ARY, Tessori, Pardesi | 13 Agencies, Banks | Agencies | Agencies and bullion banks |
| Special Export Processing Zones | None | SLEEPZ (Mumbai), MEPZ (Chennai), NEPZ (Noida) | Sri Lanka Export Development Board | Gemopolis (300 acres) |
| Trade Exhibitions | 1 in Peshawar | 3: Mumbai, Delhi and Jaipur | 1 in Colombo | 3 in Bangkok |

Source: UNSTATS, the Gem and Jewelry Export Promotion Council, India, World Gold Council, All India Associations of Industries, Board of Investment, Sri Lanka, National Gem and Jewelry Authority, Sri Lanka

⁵¹ Under The Competitiveness Initiative Project funded by USAID, establishment of an internationally affiliated gem lab has been identified as an initiative.