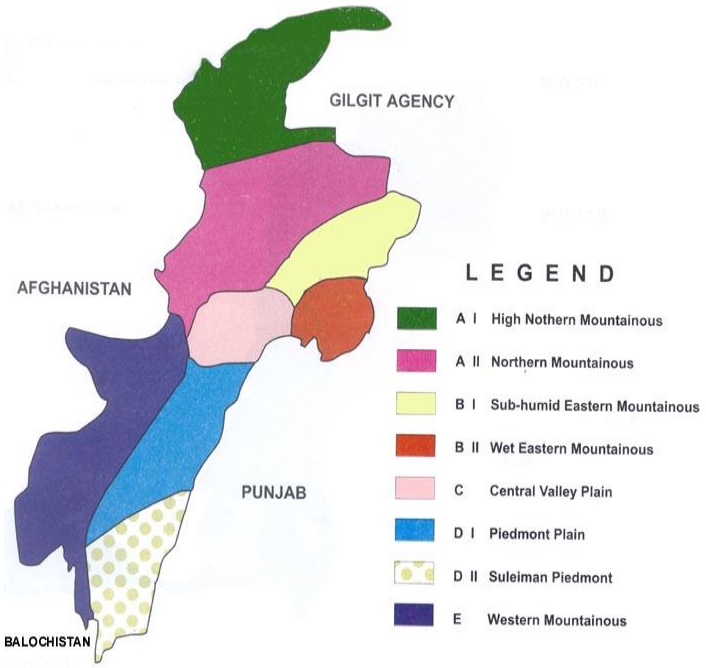
NWFP GROWTH POLICY NOTE: ANNEXES

ANNEX 1. HORTICULTURE VALUE CHAIN

1. Sector Overview

The Northwest Frontier Province (NWFP) of Pakistan is a climatically diverse province suitable for the commercial production of numerous temperate and sub-tropical fruit, vegetable, and floriculture crops. The province is comprised of 23 districts and has a highly diversified topography encompassing eight agro-ecological zones (Appendix Figure 2). These zones range from the piedmont plain at elevations less than 300 meters in the south (Dera Ismail Khan district) to the northern dry mountainous zone at elevations over 6,000 meters (Chitral district). The diversity in climates enables the wide range of horticulture crops produced in NWFP which spans temperate to sub-tropical fruits and warm-season and cool-season vegetables. The area planted for fruit crops in the province comprised 6 % of the total fruit area in Pakistan and the area for vegetable crops 15% of the total vegetable area in the country (2004/05).



Little change has occurred in the fruit and vegetable cultivars available to the producers, production technology, harvesting practices, packaging, and postharvest care within the NWFP horticulture sector over the last several decades. This stagnation has not allowed the horticulture sector to position itself in a competitive market position, particularly in the global market. Public sector institutions responsible for supporting the horticulture sector are unable to develop new cost-effective cultivars of fruits and vegetables. The problem is further compounded by the lack of research and development of modern technology in horticultural crop production and post-harvest care. Growers do not have access to many of the internationally accepted and planted cultivars, which are demanded in the global marketplace. In addition, horticulturists with knowledge of the latest technology and field experience are not available to the farming community at district level.

The domestic fresh market continues to remain the primary market outlet for the vast majority of NWFP-grown horticultural products. However, the higher costs of production inputs (i.e. seeds, nursery stock, fertilizers, pesticides, irrigation equipment, etc.) and transportation of input supplies and finished products to/from NWFP place the participants in the horticulture sector value chain at a comparative disadvantage to participants from the other provinces. There is also increasing international competition from China, India, Iran, and other countries. The horticulture sector in NWFP must modernize and give preference to the highest valued crops and value-added products in order to remain competitive and increase market share. Crop yield and quality must be improved for all commodities in order to be able to provide the various market outlets with consistent supplies of high quality products.

Increasing the volume of exported fruits and vegetables from NWFP will have a significant impact on the horticulture sector. Small volumes of product are currently exported to neighboring Afghanistan by truck and to Dubai by air. However, the exported items typically are sold at discounted prices since quality and value is lost due to inadequate post-harvest care.

With regard to agro-processing operations, there are no medium- to large-scale fruit juicing, preserve, canning, drying, or freezing facilities in the province. However, several processing options still exists, for instance of juices and dry fruit.

The domestic and global market for fresh fruit and value-added agro-processed fruit and vegetable products continues to increase as population grows and per capita income rises. Significant domestic and export market opportunities exist for those NWFP producer/exporters that can provide consistent supplies of high quality product at competitive market prices. This bodes well for the future growth potential of the NWFP horticulture sector.

2. *Rationale for Selection*.

The horticulture sector represents one of the greatest potential sources of economic growth in the province. The characteristic high value per unit area of horticultural crop production is particularly important to those areas where available land for cultivation is limited. A largely unskilled but adequate workforce is generally available to perform the numerous cultural practices, harvesting, and post-harvest care needs of the labor-intensive horticulture sector. This sector offers opportunity to increase income, enhance employment, and distribute the benefits among the relatively poor segment of the population.

NWFP stands for about 10 % of national total horticulture production by weight (2004).[1] Although its exact value is not precisely defined, rough estimates indicate that NWFP's share of the national total also is around 10% or US$350 million.[2] Exports are estimated at US$15.5 million.[3]

If the key challenges discussed in this section are addressed, the future of this sector - including favorable overall demand trends – is particularly promising. Demand for horticultural produce is rising, both in the domestic and international marketplaces. In developed countries, a desire for year-round availability and increased diversity of foods, as well as a growing awareness of the relationship between diet and health, all contribute to the increased consumption of horticultural products. Increasing participation of women in the labor market of developed economies has created demand for processed, ready-to-eat convenience products, including fresh-cut and minimally processed fruits and vegetables. Many work tasks associated with adding value to fresh produce, such as chopping, washing, labeling, and bar-coding, are being transferred to developing countries and are generating new jobs.

[1] Pakistan Agricultural Statistics, 2004/05

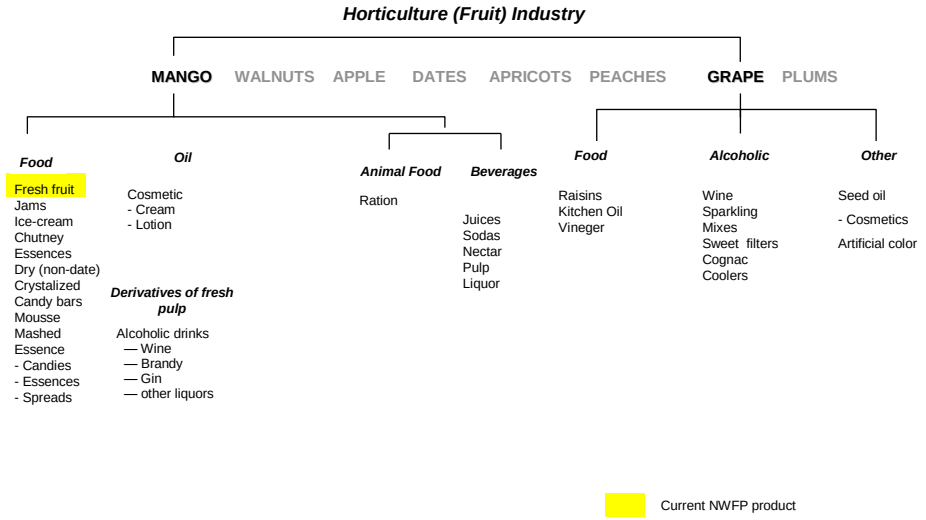
[2] The estimation is based on the following: Horticulture is part of minor crops in the national agricultural classification. In total - including oilseed, mung and masoor – minor crops are estimated at US$3.5 billion. Out of US$142.9 billion GDP (market price), 21% agriculture share translates in US$30 billion. Minor crops is 11.4% of total agriculture production - hence, about US$3.5 billion.

[3] Pakistan exports US$155 million in horticultural products nationally. US15.5 million is estimated from NWFP's share in national production (10%).

3. *Key Products*

The leading fruit crops in terms of production area are apple, peach, citrus, plum, persimmon, pear, guava, apricot, date, walnut, loquat, banana, mango, almond, grape, and lychee. The main vegetable crops in terms of production area are potato, onion, tomato, muskmelon, garlic, peas, turnip, okra, arum, spinach, cauliflower, radish, eggplant, watermelon, tinda, bitter gourd, and pumpkin. The NWFP currently competes mostly in fresh fruits and vegetables, rather than agro-processed products. As an illustration, the following diagram illustrates the potential areas of value added for the mango and grape crops:

Product Map - NWFP Horticulture Products



Source: field interviews in Peshawar (2008), framework by FGV/Monitor Group, "Nordeste 2002: Competitividade Auto-Sustentada," Ministerio da Integracao, 2000.

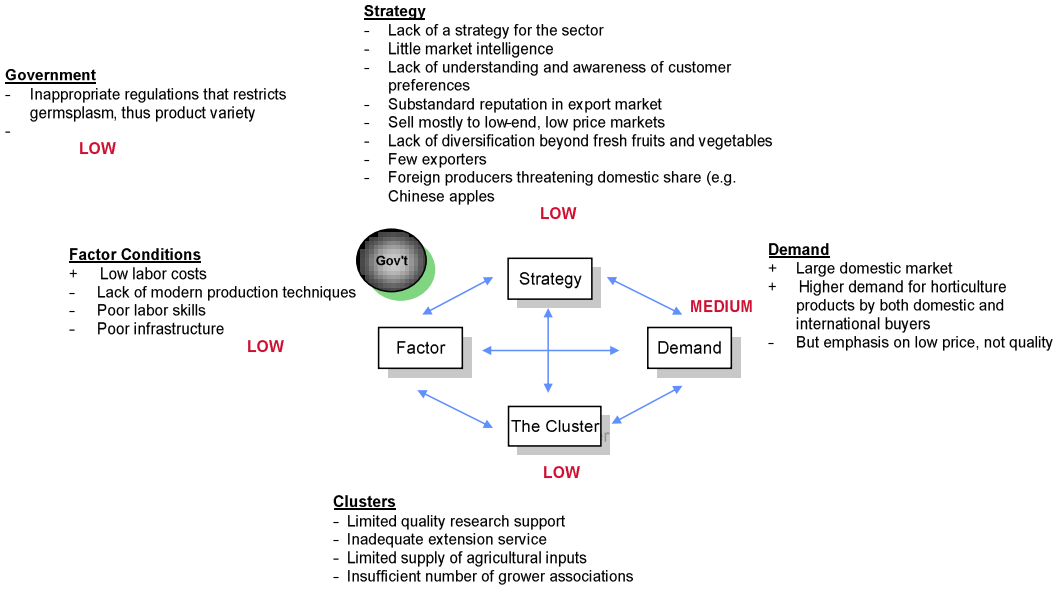
4. *Business Environment*

Michael Porter's Diamond model is a practical tool to analyze NWFP horticultural business environment. Rather than using factor endowments (comparative advantage model) which are inherited,[4] the Diamond uses four inter-connected competitiveness factors (competitive advantage model): (a) Firm Strategy, Structure and Rivalry (the intensity of local competition), (b) Factor Conditions (low factor conditions such as natural resources, cheap labor, vs. advanced factor conditions such knowledge entities as research and academic institutions), (c) the demand condition (intensity and sophistication of local demand, and (d) the presence of supporting and cooperation mechanisms (e.g. presence of effective input firms or industry associations). The business environment for the Horticulture Industry in NWFP is characterized by low factor conditions (competing based on lower forms of competitive advantages such as cheap labor, and natural resources), low quality of strategy, low level of cooperation, and medium demand environment (thanks mostly for favorable external conditions). Moreover, the government seems to be doing harm through its restrictive germplasm (seed) policy. This translates into a very vulnerable environment, based on easily imitable advantages (basic factors) coupled with sector

[4] E.g. land, location, natural resources, and population size

inefficiencies such as lack of strategy, competitive positioning, lack of shared vision, and low sector cooperation.

The competitive Environment for the Horticulture Industry in NWFP



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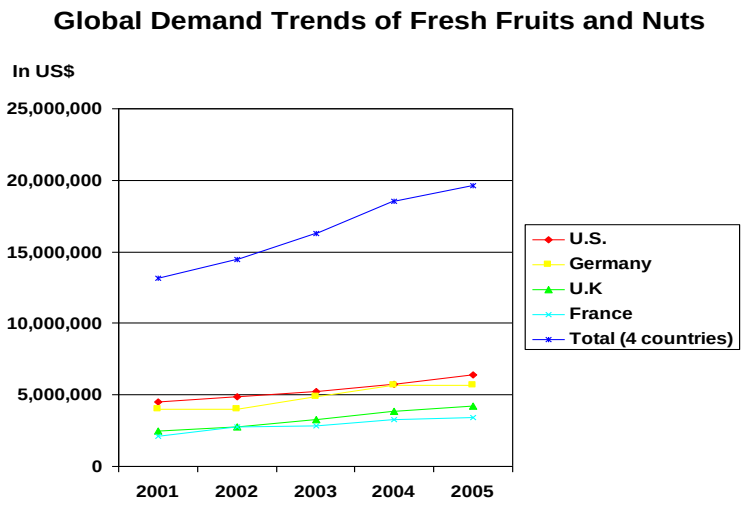
Note: + (-) signifies a factor that strengthens (weakens) competitiveness of the industry.

5. *Global Trends*

With the rise of global GDP in the past five years, the demand for food and commodity products has been soaring. The demand for fresh and dried fruits and nuts have increased by 50 % in top importing countries, as shown in figure [x]. Market demand for organic products is increasing annually throughout the world, but particularly in the E.U. and North America. Demand exceeds supply for many products and grower/exporters typically receive a premium of about 30 % above conventionally-grown produce. Effort should be undertaken in NWFP to significantly increase the production area of organically-grown fruits and vegetables for the high-value export market.



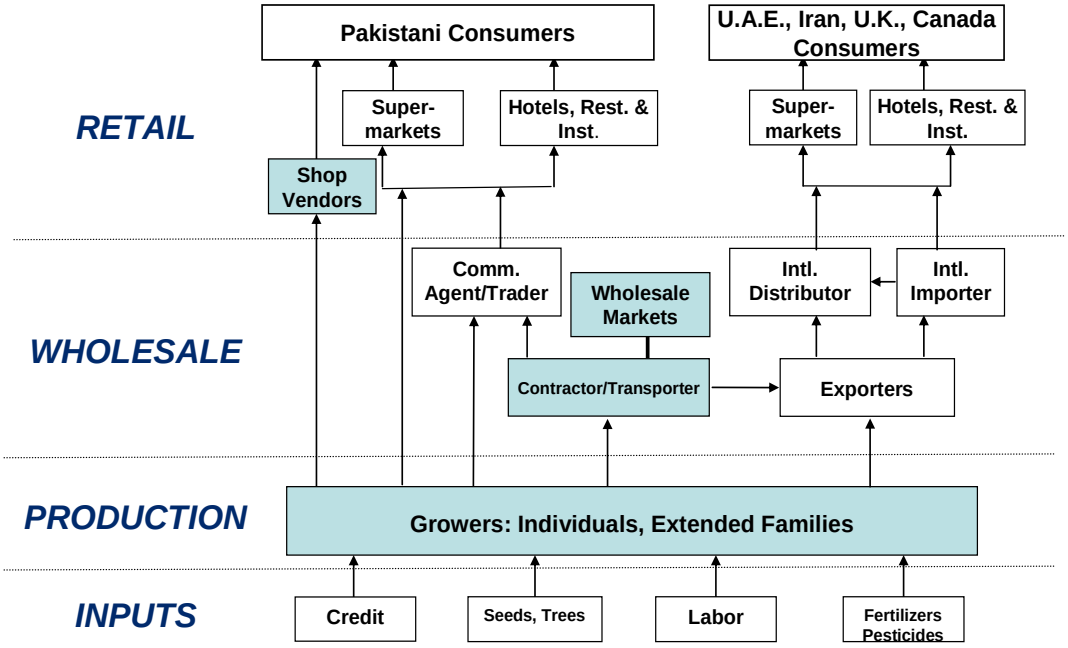
Source: ITC (2008), www.intracen.org, under product code 057 [3]

Fair-Trade labeled products also represent potentially strong market opportunities, both in fresh form for the export market, and in value-added agro-processed forms.

6. Horticulture Industry Value chain

The principal components of the NWFP horticulture value chain are illustrated below.

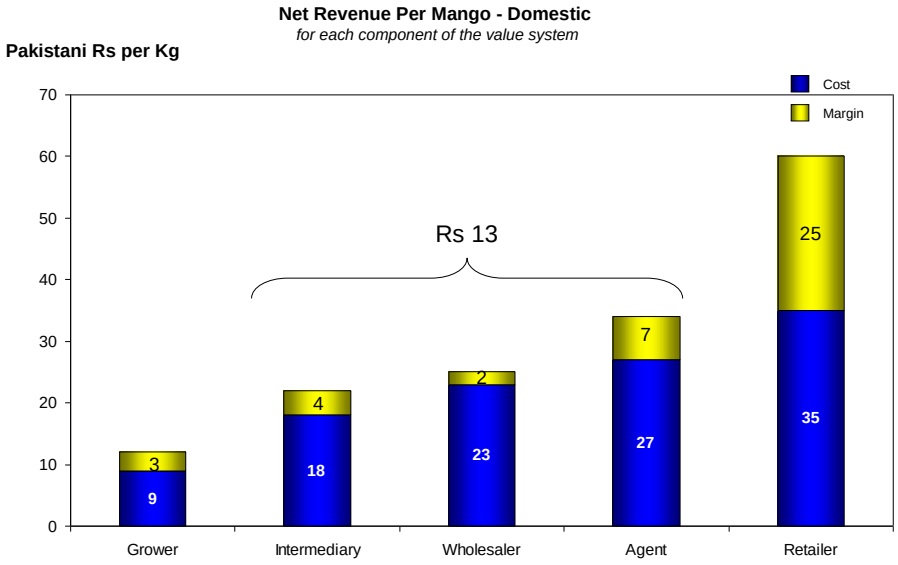
Pakistan NWFP Horticulture Value Chain



The horticulture value chain is characterized by multiple intermediaries between growers and retailers. This include up to three layers of intermediation, starting with contractors (who usually pick the fruit and then often pre-purchase the fruit from growers), who sell to commission agents, who in turn transport and sell products in the wholesale markets. [5] Wholesalers then sell products to a wide range of retailers, such as large supermarket chains, restaurants, shops, and informal vendors. The contractor purchases the fruit in bulk from the landowner in the production areas, either pre-harvest or postharvest. In turn, the contractor arranges for harvest and packing labor and the truck to transport the product to the wholesale market.

The cost and margin analysis across the value chain, using the example of mango, is described below:

[5] Four main categories of wholesale markets exist: primary, secondary, district assembly, and rural assembly. Within regulated market structure, there are 203 markets established under statutory acts, out of which only 1 is located in NWFP.



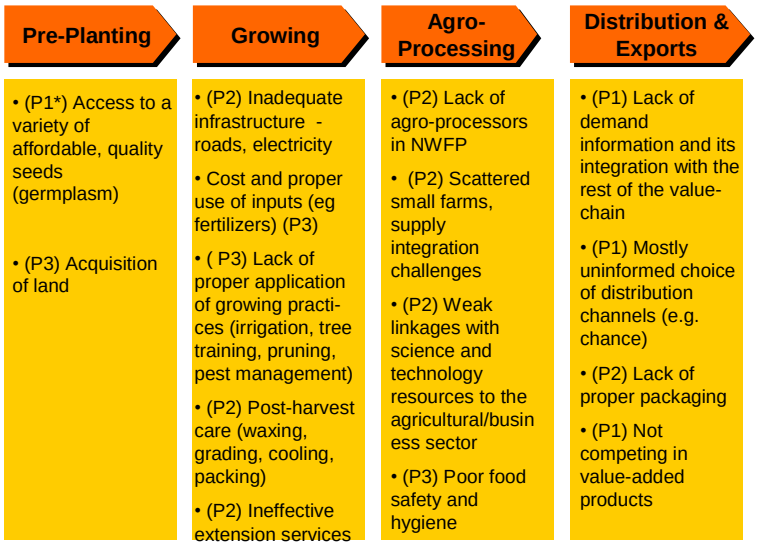
Source: SWOG survey, 2008

This value analysis shows that intermediaries are capturing more than four times the grower's earnings, pointing to the potential benefits of direct retailer relationships. Interviews with large retailers such as super-market chains indicated interest in direct relationships with growers, if they could be organized.

6.1 Overview of Value Chain Challenges

Numerous constraints exist along the NWFP horticulture value chain. The most important constraints are indicated below in the proposed flow diagram depicting the preferred flow of product from farm to market.

Horticulture Sector Value Chain – Key Challenges

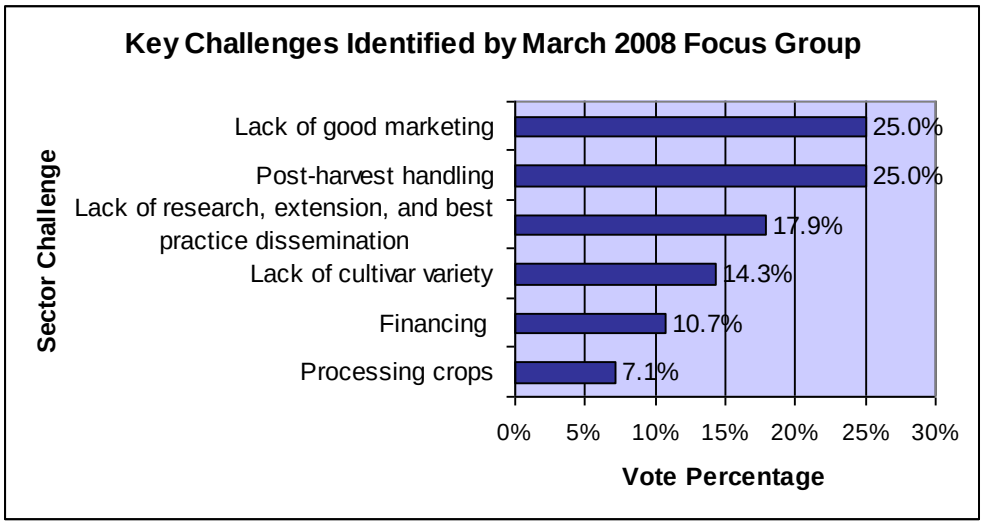


Priority 1 (P1) =high impact strategic sector solutions, including organization mechanisms, sector re-positioning through market interventions, and product variety; 2=post-harvest handling or sequencing actions after priority 1; 3=impact in yield production or sequencing actions after priority 2; 4=financing; 5=other

Sources: Secondary Reports, Draft Horticulture SWOG Strategy Report, 2008, Focus group meeting, Peshawar, March, 2008, N=8

In the March 2008 Focus Group, the following challenges were prioritized in terms of votes as shown in the figure below.

In order to further strengthen the horticulture sector in NWFP, interventions will be needed to strengthen all links of the value chain. This will include overcoming constraints in production practices, post-harvest care, agro-processing, and marketing. Constraints in the areas shown above must be overcome in order to realize sustained horticulture sector growth and rural poverty reduction.



March 2008 Focus Group (N=15). Each participant was given 2 votes to select the top challenges facing the horticulture sector

[2]

6.2. Pre-growing and growing.

The main challenge in pre-growing is the inability of NWFP (and Pakistani) farmers to buy world-class cultivars (seeds). This reflects two issues where there is a role for government intervention -- insufficient protection of property rights, and related to that, inefficiencies in input markets. Government also needs to improve its systems for certification of seeds and plants and information provision and transfer of knowledge to farmers.

Insufficient germplasm (seed) availability.

Horticultural producers in NWFP suffer from a serious lack of high quality planting stock. A large percentage of the fruit and vegetable crop volume in the province is based on old cultivars introduced years ago. There is a noticeable absence of modern cultivars planted throughout the world in agro-climatic conditions similar to NWFP. Also, there is an obvious lack of fruit and vegetable crop cultivar diversity which limits the portfolio available for marketing.

The newer globally planted fruit cultivars have strong world demand and generate premium market prices. The cultivars being planted by producers in NWFP (and in general in Pakistan) are in general old public domain cultivars and the least attractive ones in global markets. They generate only a small fraction of the profit margin of the newer cultivars. The lack of access to private-domain cultivars puts the NWFP (and overall Pakistani) horticulture sector at a serious competitive disadvantage compared to other countries, including the neighboring competitors of China, Iran, and India.

Insufficient protection of property rights. The key reason for the restricted access to the newer, globally planted fruit cultivars is institutional: insufficient intellectual property rights assurances in Pakistan. Foreign companies (e.g. UK, US) are reluctant to grant private-domain cultivars

(usually the most attractive and profitable in global markets) due to the insufficient intellectual property assurances in Pakistan.

Inefficiencies in input markets. There seems to be a perception among farmers that the lack of availability of cultivars is largely due to restrictive processes for approval (as voiced in the March focus group) of new plant varieties. The federal government approves new varieties many years after horticulture producers in other countries have started commercial planting, leaving Pakistani producers at a competitive disadvantage. It has only released a handful of world class cultivars *over the past decades*.

In order for NWFP growers to be competitive in the international marketplace, they must have access to and plant the appropriate cultivars which have strong world demand. This can be addressed with ensuring appropriate intellectual property rights of private domain cultivars. A draft national legislation to protect the patent rights of foreign cultivars has been submitted by all agricultural provincial departments to the National Parliament. It is critical for the new Parliament to approve a provision that safeguards foreign private domain cultivars intellectual property rights, thus making them available in Pakistan. Furthermore, the latest developed and globally-planted fruit and vegetable cultivars should be introduced and trialed in both the government research stations and private sector Model Farms.

Insufficient certification. There is also a lack of disease-free certified vegetable seeds and certified nursery plants. As a consequence, viruses and other diseases are more prevalent and seriously compromise the yield and crop quality of the infected planting stock. The most important item influencing the yield potential of any fruit or vegetable planting is the vigor and health of the planting stock. This should be addressed with stronger certification and extension programs by the government.

The cost of seeds is a major component of a farm product, reaching 40% of total costs (almost twice as land rent, which is normally the most expensive item):

Information provision and transfer of knowledge

Technical Assistance and Extension Services at the Growing Stage.

Lower yield per acre, which approaches about half of what countries like Egypt are producing (and the lowest compared to other provinces in Pakistan), [6] has been a result of old cultivars combined with poor growing practices. The cultural practices of rootstocks, soil preparation, plant establishment, irrigation method, fertilization, tree training and pruning, pollination, and pest management all need to be significantly improved by the vast majority of growers. Lack of grower knowledge in these areas as well as about the best cultivars and marketing information is a serious limitation to the advancement of the horticulture sector in NWFP.

It is critical to expand and improve extension services, practical training in horticultural crop production and other technical services (e.g. Model Farms, and links with research institutes) to farmers that so far have been insufficient to overcome farmers' lack of knowledge. The current extension structure needs to be expanded. Less than half of the union councils (local agriculture

[6] Source: World Bank report "-----", 200x. For example, potato yields in NWFP are only about half those obtained in Egypt, while tomato yields in NWFP are less than one-third of the Egyptian yield.

groupings) in NWFP are now covered by extension officers).[7] Lack of extension agent knowledge is also an issue. There are too few fruit crop extension specialists at the provincial level. Most extension agents are agriculture specialists, but have not had the training to be in-depth specialists. This is a constraint because fruit and vegetable crop problems are often unique and require a specialist for diagnosis and problem solving. While close links between applied research and extension are critical to strengthening the horticulture sector, there is currently no formal link between the agriculture university research institutes and the provincial government extension programs.

Information dissemination to the grower needs significant improvement, extension agent training at the provincial government level needs strengthening, and the coordination between applied research and extension needs improvement. Model farms can be established near local research stations. The governance should aim at passing the ownership to the private sector, while preserving the research and demonstration functions.

It is essential to design interventions with a strong capacity building emphasis. The aim is to ensure that capacity is built both within commercial supply chains and in the institutional environment within which they operate. Thus, the target groups should span the entire supply chain from producers to retailers, as well as researchers and extension workers in government agencies.

In order to fill the knowledge gap, both at the producer and agriculture extension agent level, technical assistance and training to the producers in crop specific cultural practices and post-harvest care is strongly recommended. Expatriate experts and/or local specialists should be employed to provide this technical assistance and training to the growers. This information dissemination process should involve providing workshops or intensive short courses on individual fruit and vegetable crop production, harvesting techniques, and post-harvest care.

Summary of Policy Recommendations -- Pre-planting and growing

- Lack of cultivar variety. *Recommendation*: ensure the passage of a national legislation protecting foreign-private domain cultivars in Pakistan (already submitted to the National Parliament);

- Fragmented farmers, low yields, and unstable demand. *Recommendation*: Strengthen existing growers associations and / or develop new associations, from lessons of local farmer interest groups (Malakand, for example), and world-wide experience. Linkages to certification NGOs, such as fair trade and organic certification, could be helpful. Box 2 points to the role of grower associations in Belize;

- Weak technical support to farmers. *Recommendation*: (a) Strengthen the capacity of local extension officers, particularly those specializing in horticulture. One expert estimate put an additional 100-150 extension staff is needed to fill the current extension gap; (b) Establish model farms in collaboration with provincial research station. Box 1 illustrates a successful USAID TA intervention in Kenya to strengthen the entire value chain through a comprehensive value chain intervention driven by market linkages and by attracting lead firms (multinational corporations).

[7] Interview with Deputy Director, MINFAL Seed Certification Division for NWFP, March, 2008. Approximately 100-150 additional extension personnel is needed to properly cover the missing areas.

Box 1: The Kenyan Avocados Clustering Initiative

In 2002, USAID provided support to small Avocado farmers in Kenya to establish market linkages through an international consulting firm specializing in clustering and value-chains. The initial situation was characterized by:

- Lack of information and knowledge of the markets
- Competing in a unfavorable market position through products with a declining global demand
- Low yields and inadequate extension support
- Lack of trust and coordination mechanisms across the value-chain
- Excessive layers of intermediaries

The firm led a comprehensive intervention program to address market and coordination failures in a situation similar to NWFP. This started with the identification of lead firms to provide extension services to small farmers, including East African Growers (EAGA) who was interested in direct supplying relationships to improve EuroGAP eligibility. Later, other firms like Indu-Farm Ltd joined the market linking activity, who provided guaranteed supply contracts and a dedicated agronomist to support the farmers. This resulted in a two to three-fold increase in prices as compared to selling to local brokers, and the entry of other supporting entities such as inputs (chemical) firms.

This initiative was led by the consultant through project-specific cluster and working groups, including representatives from the private sector (the local export association), the government (e.g. Kenya Plant Health Inspectorate, the Pest Control Department, and the Horticultural Development Authority), as well as academic and research institutions.

As a result, the Kenyan avocado sector enjoyed not only increase in prices, but re-positioned itself in a higher-value added segment, increase fruit yields from less than 15% to 65% per tree, cheaper and faster access to inputs, improved market information and coordination mechanism, as well as a steady market for the growers.

Source: J.E. Austin, in "Using Value-Chain Approaches in Agribusiness and Agriculture in Sub-Saharan Africa," prepared for the World Bank Value-Chain Guide

6.3 Post-Harvest Interventions

There are huge losses of potential income in NWFP's fruit and vegetable production due to poor harvesting, handling and post-harvest care. According to university and industry sources in NWFP, an estimated 30 to 40 % of the harvested fruits (quantity) go to waste during harvesting, transportation, packaging, and storage. For mangoes, the amount of waste may approach 50 %. In addition product quality and hence unit value is negatively affected, altogether resulting in significant post-harvest losses of income to both smallholder and large-scale farmers. Significant improvements in these areas are needed in NWFP to extend market life and improve consistency of supply and product market quality. This would ensure higher prices and hence incomes for farmers.

Considering the entire value chain, constraints in the post-harvest area are currently the most limiting and in need of immediate attention. The lack of appropriate product grading, waxing, cooling, packaging, cold storage and temperature/humidity control severely limit the capability of fruit producers to provide the market with consistent supplies of high quality products and also result in high amounts of product spoilage. This reflects deficiencies in two fundamental areas: regulatory (lack of national or regional product grading standards) and

coordination among industry agents (cooperative mechanisms for farmers) to ensure provision of industry-specific infrastructure (equipment for waxing, cooling, packaging, cold storage and temperature/humidity control) and a more efficient collection system through proper scheduling of the harvest if adequate transport vehicles are available. Given the history of lack of coordination among agents in NWFP there could be a role for government to act as a catalyst for formation of cooperative mechanisms. In addition there is the issue of poor rural roads affecting transport costs and loss of production value. The poor road quality is a crosscutting infrastructure constraint and should be addressed by the government.

It is important to note that one senior NWFP agriculture department official has pointed out that financing and technical support for post-harvest handling management is available (including scaling up ADB's SPL II program), "if the private sector can be organized."[8] Similar to what was noted about pre-planting and growing, the lack of cooperative mechanisms, such as growers' association, seems to be undermining efficiency also in the area of post-harvest handling solutions.

Recommendation: Reduce the high losses due to poor post-harvest handling (30% of production) by organizing efforts for picking, waxing, packaging, and cool-chains in an organization such as a growers association. These activities are best implemented when an organization mechanism is present (e.g. growers association). However, stand-alone initiatives could be considered, by identifying funds to provide forced air-cooling and cold storage units in strategic locations;

6.4 Agro-processing.

Encouraging agro-processing units could be a strategic approach to strengthen the horticulture sector in NWFP, not only through value-added products, but also through a "pull-effect" that add steady demand, quality control, and often raises the bar to improve supply-chain linkages, including increasing the stakes for additional technical assistance to farmers. Establishment of small and medium-scale agro-processing operations in the rural villages near the fruit production areas will also provide jobs for unskilled workers and result in more economic development for the local villages and towns. Finally, agro-processors could serve as an additional market outlet for surpluses, as apple growers (for example) may not be able to sell 20-40% of their crop to the fresh market in any given year.

A noticeable absence of agro-processing facilities for fruit and vegetable crops in NWFP limits the market alternatives available to the producers. Most of the agro-processing units in Pakistan, around 25 small and medium industrial units, are concentrated around the major cities in Punjab and Sindh.[9]

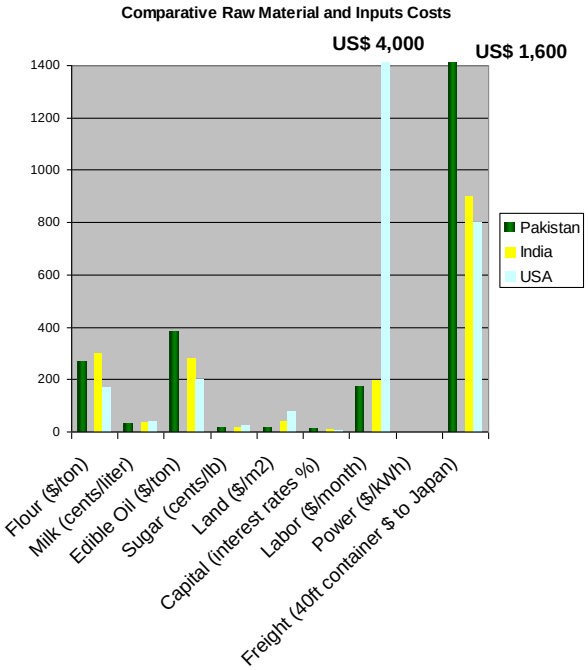
Significant potential exists for development of a frozen fruit processing plant in NWFP, to utilize the diversity of raw material available and to encourage planting of additional high-value fruits like raspberries, blueberries, strawberries, and blackberries. Fruit juices, nectars and other types of preserves (jams, jellies, and marmalades) are also widely consumed throughout the country. In addition, there is a solid international market for frozen asparagus and a growing domestic market

[8] Muhammad Israr, Provincial Coordinator, FATA, Agribusiness Development and Diversification Project, interview in April, 2008.

[9] Agro-processing facilities may include operations for fruit drying, juice, concentrates, pulp, nectar, puree, paste, jams, jellies, preserves, vinegar, canned products, and various forms of frozen fruit (block frozen and individual quick freeze).

for frozen French fry potatoes to meet the needs of the fast food and restaurant business. This section elaborates on two types of processors which could be suitable for NWFP: liquid (juice) and dry.

Figure 4 Apple juice production costs



Source: Competitiveness Support Fund, 2008,
J.E. Austin analysis (2008)

An assessment of the competitiveness of Pakistani agro-business companies in international markets reveals the following: domestic raw material and input costs compared to benchmarks of selected global and regional competitors indicate that Pakistan does not have significant cost advantages. This puts Pakistan's agro-business industry in a dubious position to compete in export markets based on cost advantages:

Despite lower labor costs relative to some of its key competitors, Pakistan have high costs in other areas, such as maritime freight cost. Inland transport for exports is expensive, as well. The cost of in-land transport for a 40-foot refrigerated marine container from the Punjab to the port of Karachi is about $1,000 which is high compared to competitors. From Peshawar the cost is considerably higher.

Other productivity constraints in the juice sector include weak labeling standards, poor road conditions (including pre-process losses), and lack of continuous supply of fresh fruits. The opportunity cost losses for apple juice production, for example, can be estimated at around US$70 million per year:

Table 1: Opportunity Cost Losses for Apple Juice

Weak labeling standard	**$6,500,000**
Increase in juice sales (tons)	10,000
Selling price ($/ton)	$650
Poor road conditions/pre-processing loss	**8,786,979**
Production of apples	315,430
Transport losses	30%
Apple-juice conversion ratio	7
Selling price ($/ton)	$650
Lack of continuous supply of apples	**$39,000,000**
Installed capacity of juice processing facilities (tons)	400,000
Capacity utilization	35%
Current capacity utilization	20%
Potential production volume (tons)	60,000
Selling price ($/ton)	$650
Increased price of sugar	**$15,576,600**
Selling price ($/ton)	$650
Margin (%)	77%
Estimated production cost	500.5
Reduction in sugar cost	22%

Source: Global Development Solutions

However, Pakistani agro-business companies are competitive in domestic markets with good opportunities in the growing market for fruit juice and fruit drinks.[10] The fruit drink industry is expected to grow by 20-25% a year, the market for pure juice ("nectar') may grow only slowly, reflecting income elasticity and prevailing income levels in Pakistan.

There are several key distortions that impact the competitiveness of the juice sector. The three major distortions include: weak labeling standards; poor road conditions/pre-process losses; and lack of continuous supply of fresh fruits. A recent World Bank/Global Development Services study (World Bank, 2005) estimated that these distortions lead to an opportunity cost of as much as $69.8 million per annum for the apple juice industry alone.

The type of processing plants appropriate for the province will likely be small to medium-scale. These operations will require considerable hand labor for preparation of the raw product, including a high percentage of women.

Dried fruits

Dried fruit and nut crops, including dates, apricots, raisins, figs, apples, walnuts, and almonds are very popular in Pakistan and the neighboring countries. Dried peaches, pears, and tomatoes also have significant demand in the export market. Dried fruits and nuts is a $6.6 billion trading

[10] The juice industry sells about 100,000 tons of fruit juice in Pakistan each year, as compared to about 900,000 tons for the fruit beverages (i.e., in all 6 litres per person per year). "Fruit drink" contains 10% - 15% pure juice and "fruit juice" contains 100% pure juice. Data from Global Development Studies (2005).

industry (2003).[11] Despite at times volatile prices for some products, a great deal of value can be captured from the dried fruit markets. For example, the local retailer in India can capture nearly 29 times more margins with proper packaging than the exporter to the Indian wholesaler with a poorly packaged product. Margins can be even higher in sophisticated markets like the U.K.

The establishment of a dried fruit industry in NWFP may be the most logical type of value-added agro-processing industry to initially target. A diversity fruit crops already exist in the province and therefore the supply of raw materials will not be a constraint. The technology for drying is fairly simple and the initial establishment costs are not high. Small-scale enterprises can begin operating in a short period of time, provided the market for the finished product has already been established. The major barrier in establishing such industry is the lack of information about the potential market, technical know-how for proper drying process, and a supply consolidation mechanism (e.g. farmers organization uses its own trucks to collect fruits from the various farmers in a coordinated fashion), given that most horticulture farms in NWFP are small and medium sized.

Significant improvements are needed in the equipment and technology used for date drying in Pakistan, such as energy or controlled-temperature forced-air ovens. A public-private sector initiative could pilot the initial equipment. The government of NWFP could play an initial catalytical role in putting forward this idea through information generation and dissemination. Existing organization mechanisms, including candidates for model farms, district assemblies, and cooperatives, should be examined to receive initial technical assistance and mobilization for this effort. In addition, considerable training and technical assistance will need to be provided to growers and agro-processors. Appropriate post-harvest handling methods will need to be taught to date handlers all along the post-harvest value chain.

In order to attract dry fruit processors to NWFP, a market and feasibility study, with the objective of turning them into an investment plan, should be carried out.

Policy Recommendations -- Processing and Agro-Business

- Lack of proper agro-processing firms in NWFP region. *Recommendation*: Prepare a market feasibility-investment plan to attract possible investors in key high-value products, such as dry fruits (e.g. dates, raisins, pistachios, and apricots), comparing them with a traditional agro-processing opportunity (e.g. apple juice). This could be carried out as a joint public-private exercise (e.g. Horticulture SWOG, NWFP Secretary of Industries, TDAP, SMEDA). Initial funding for this study could be co-funded between public sector/donors (e.g. Agriculture Development Bank, provincial or district secretariats, IFC, a bilateral donor) and the private sector (Chambers).

6.5 Distribution Channels and Marketing.

As the world's sixth most populous nation with a population of about 166 million people, Pakistan has a large domestic market for horticultural products. The recent entrance of the hypermarket retailers Makro and Metro in the larger urban metropolitan areas and the expected opening of hypermarkets by the giant French retailer Carrefour will give producers additional domestic market opportunities. These large supermarket retailers will create significant domestic market opportunities for those NWFP growers able to provide the chain stores with consistent

[11] Data from USAID Trade Map.

supplies of high quality fruits and vegetables. However, growers must be able to meet the quality, packaging, and food safety standards of these large supermarkets (and of consumers) in order to establish a market presence – if not, the fruit is likely to be imported.

Domestic demand for high quality fruits, gift packs, or value-added fruit products is very likely to increase along with rising disposable income in the growing Pakistani economy which represents a market opportunity for the NWFP horticulture sector. In addition, there are additional export markets in the rapidly developing economies of the neighboring Gulf countries, China, and Southeast Asia. However, there are two barriers to tapping this potential - both with a public good aspect that can justify government intervention: lack of information dissemination and lack of skills formation/training and experience. The vast majority of horticulture crop growers in NWFP have no experience or expertise in marketing and are unaware of prices, transport costs, and the packaging and grading required by major domestic markets and the more demanding regional export markets.[12]

The horticulture crop sector currently has a poor market information system. There is no transparency in the prices of fruits, vegetables and their processed products offered in different domestic markets in Pakistan. This lack of transparency hinders the grower in marketing of fresh produce. In horticultural farming, where prices are rarely regulated, financial viability depends as much upon business and marketing skills as on the farmer's technical expertise.

The government should implement policies to improve dissemination of market information to producers in the supplying areas. Market intelligence information should also be obtained by the government and disseminated to the private sector on new cultivars which are in demand in the various export markets, and the product quality and packaging requirements to meet buyer demand. Market intelligence information on consumer preferences, market trends, sources of competition, and future outlook are all required by the growers to make informed cropping decisions.

Currently, NWFP growers have a narrow export market base. It will be important for the horticulture crop producers in NWFP to diversify export markets beyond the present narrow range of products and small number of destinations. The competition spawned by globalization means that NWFP fruit and vegetable crops must meet stringent international standards. Many consumers in export market destinations are environment-conscious and concerned about adherence to international labor, health and safety standards. Thus, compliance with these international norms as demonstrated through government certification will be necessary for NWFP exporters marketing their products abroad.

Summary of Policy Recommendations -- Distribution Channels

- Lack of market information and knowledge. *Recommendation*: Implement instruments to improve dissemination of market information to producers in the supplying areas, including on new cultivars which are in demand, consumer preferences, channel preferences, market trends, sources of competition, and future outlook. Again, this can be a public-private initiative, as in agro-business, involving similar stakeholders;

- Access to markets. *Recommendation*: Commission a sector market research to enter into attractive market segments in both fresh fruits, and value-added niches (e.g. dry fruits,

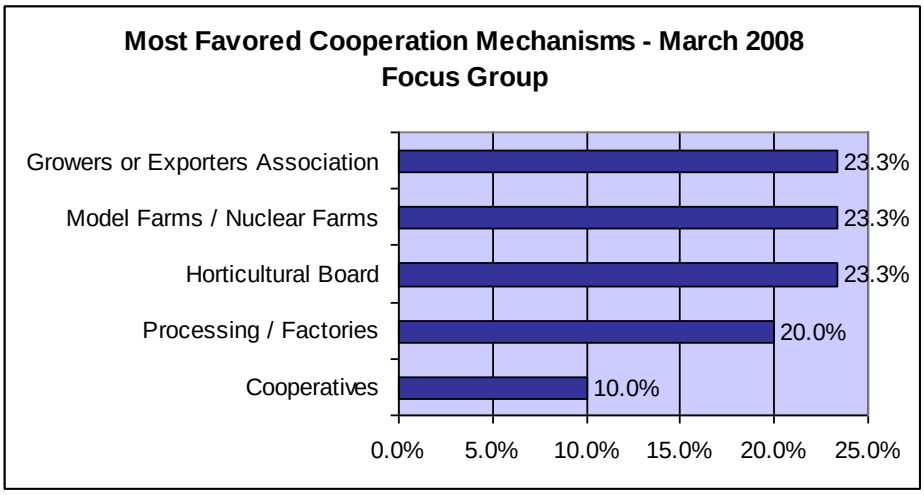
[12] A poor marketing system and low price returns to the grower was mentioned as a main constraint to the horticulture sector during the horticulture Focus Group meeting in Peshawar.

organic, and fair trade certification). This should result in a comprehensive value chain strategy, including a re-configuration action plan (e.g. what to plant, how to plant, and other certification requirements).

6.6 C*ross-cutting value chain issues.*

A) Low cooperation across the value chain. The lack of cohesiveness and effective cooperation among growers and other entities in the horticulture cluster (i.e. value chain plus other related entities such as universities) seriously limits the efficiency and productivity of the NWFP's horticulture sector. In the March 2008 Focus Group, Growers Association was among the top preferred methods of coordination among growers:[13]

The lack of a coordinating mechanism results in the failure to leverage economies of scale, inability to attract investors, agro-processors, and financing, lack of government attention, and difficulties in articulating needs and receiving technical assistance.



March 2008 Focus Group (N=15). Each participant was given 2 votes to select the most preferred organization mechanism to provide common marketing and consolidate supply

Interventions related to forming grower's associations should be considered, with the following illustrative activities in mind:

- Assistance in formation/strengthening of producer or marketing organizations;
- Developing models that strengthen relationships among local input providers, processors, and producers;
- Promoting and facilitating the development of efficient cold storage, transportation, freight forwarding and other services that can be utilized on a fee basis,
- Introduction of new technologies,
- Training on techniques in production, post-harvest care, and marketing of specific fruit crops,

[13] The low preference for cooperatives may reflect negative experiences with such efforts in the past

- training on quality requirements, grades and standards,

- Training on agro-processing technologies (i.e. fruit drying, juicing, preservation, freezing).

Box 2 provides additional details on international solutions in forming or reforming grower organizations.

Box 2: Growers Association Governance and Reforms – The Case of Belize CGA

The case of the Belize shows the importance of creating the right environment to introduce professional management in Grower Associations by defining the roles of the Board of Directors (influential farmers) and management (led by a highly qualified CEO recruited from the NGO world with a strong financial/banking background, in the case of CGA). Although the CGA grew organically without donor assistance, it has inspired donor T.A. activities, such as the DFID-funded Institutional Strengthening of the Belize Sugar Cane Farmers Association (BSCFA) in 2006-07, involving an international management consulting firm.

The Belize citrus industry before 1990s was characterized as a highly fragmented and disorganized sector, a dysfunctional association where politics rather than business prevailed, heavily indebted, poor governance, lack of service to farmers, and weak negotiation position against banks and processors. In mid-1990s, prompted by drastic fall in citrus prices, a few visionary Directors from the Citrus Growers Association (CGA) brought in an NGO executive to manage the organization. The following table shows what the situation was before and after the intervention:

Before	After
Financially illiquid, spending $300,000 a year	Sound financial organization, lending over $10 million per year at single-digit non-collateralized rates
Minimum or no services to farmers	Extension services, credit, R&D program
Perceived as being taken advantage from processors	98% ownership of the processing facility
General Assembly was a theatrical stage to validate pre-arranged candidates from Director's cliques.	Directors are elected by active participation by farmers in the Annual Assembly
Dominated by bigger growers' interests	Serves interests of both small and larger growers
"Open checkbook policy"	Effective financial controls in place
Nepotism	Merit-based recruiting

Source: "BSCFA Institutional Strengthening Scoping Report: Analysis and Recommendations," DFID report, (August, 2006)

One of the key success factors in CGA has been to create a supportive environment where a professional management could be brought in and given managerial autonomy. Due to existing historical and cultural practices among farmers, separating ownership (Board) and management functions has been a challenge. A combination of a capable CEO, support from a few key Board members, and a Board-Management Retreat contributed to the successful reforms in the CGA. The CGA's experience inspired similar reforms in the sugar industry, leading to the successful recruitment of a CEO for the Belize Sugar Cane Farmers Association.

Source: "Institutional Strengthening of the Belize Sugar Cane Farmers Association", DFID, 2007

B) Insufficient research and applied research links to the value chain.

Horticulture crop growers in NWFP need the help of the government research institutes to overcome numerous production constraints that compromise the yield and quality of their crops. Due to budget and staff limitations, there is insufficient applied research being conducted at the national and provincial level to support the horticulture sector. Some problems are extremely threatening to the horticulture industry, particularly the spread of fruit and vegetable crop diseases. There is a need for significant infusion of resources to understand the pathology of a disease and its control. Another constraint is the lack of coordination between the different research organizations. The strengthening of linkages between agricultural research, extension, and farmers need to be emphasized in order to ensure that research and extension priorities correspond with farmers' needs and market trends. The private sector should have input into research priorities and programs as part of official advisory committees. Horticultural crops should be prioritized in government research programs in order to increase the sector's competitiveness and economic growth potential.

6.7 Policy Recommendations

The list of policy issues and recommendations listed below is divided into different stages of the value chain (growing, processing, and distribution/marketing). They are intended to complement the existing initiatives that are specific to NWFP. Rough estimates of the potential impact of the reforms are also provided.

1. *Pre-planting and Growing*

Issue to be solved	Rationale	Recommendation	Steps	Key Leaders
Lack of cultivar variety	International firms are reluctant to sell private-domain cultivars to Pakistan's horticulture farmers due to a weak intellectual property environment. As a result, NWFP farmers have only access to public-domain cultivars, which are the least attractive in the market.	Ensure passage of legislation protecting foreign private-domain cultivars in Pakistan	Approve existing draft legislation submitted to the National Parliament Impact: successful new crops can have an impact into millions to hundreds of million of US$ per year	National Parliament
Poor cultural practices at pre-growing, growing, and harvesting	Poor practices at roostocks, soil prepration, plant establishment, irrigation method, fertilization, tren training and pruning, pest management, and harvesting significantly affect crop yield and quality (thus, value).	Strengthen (i) capacity of local extension offices and agents (including horticulture-specialists), particularly on soil preparation, fertilization, tree training & pruning, pest management, and harvesting methods & maturity; (ii) establish model farms and/or provincial research stations, to, among others, introduce & evaluate roostocks, plant establishment / density, irrigation techniques, fertilization, and tree training and pruning.	Asses current extension needs Assess model farm pilots in the region Identify sources of funding, including private farmers, federal government and international agencies	Provincial Agricultural Secretariat Provincial Extension Agencies MINFAL Private growers

			Impact: non-post harvest losses are estimated at 10%. If this was reduced to 5%, applying to total minor crops (US$3.5 billion), this could have a potential impact of up to US$175 million	
Large post-harvest losses	The lack of post-harvest cooling and cold storage infrastructure – particularly on-site - is a serious constraint to the sector. Not only there is an estimated production losses of 30% (50% for mangoes), but a very high loss in product value, in the form of low bargaining power towards intermediaries and merchants, as well as being forced to sell in high harvesting season (when crop prices are the lowest, and transportation cost the highest). Existing post-harvest technology initiatives (e.g. under ADB's SPL II loan) must be scaled up and disseminated.	Funds must be made available (public-private partnership?) to provide access to forced-air cooling units and cold storage facilities near farming areas. Self-enclosed modular forced-air cooling and cold storage units are recommended for NWFP. They are readily available and widely used throughout the world for perishable horticultural crops. Because the cost of cool/cold chains can be recovered through fees, a tax or revenue transfer mechanism could be applied for a limited time to finance the necessary installations.	Establish program design from many studies available on cold-chain issues Setup mechanism to mobilize farmers on the usage of cold-chains Identify one-time sources of funding aiming this to become self-sustainable (e.g. fees through usage) Impact: post harvest losses are reduced to 20% of total production. If applied to total minor crops (US$3.5 billion), this could have a potential	NWFP Agriculture Secretariat (funding is available if growers can be mobilized) Private growers (cooperation mechanism must be developed first, e.g. growers association)

			impact of up to US$350 million	
Poor roads and insufficient cold-chains for product delivery (land, port, and airports)	The combination of poor quality packaging materials, overloading, and lack of refrigeration results in significant product quality loss during transport to market	Develop a collection system through proper scheduling of the harvest if adequate transport vehicles are available.	Identify key locations (pref. near cold-chains) Develop a system of collective centers needs to be established at key locations (to be determined).	Private sector; District Secretariats
Lack of cohesiveness and effective cooperation among value chain actors	Small and fragmented farmers represent a serious limitation in terms of economies of scale, attracting investors / agro-processors, government attention, ability to articulate needs	Strengthen existing and help develop new grower's organizations (e.g. farmers interest groups by product, using lessons from existing pilots. Malakand has some success, but it is not sustainable financially) Illustrative activities could include: • Assistance in formation/strengthening of producer or marketing organizations; • Developing models that strengthen relationships among local input providers, processors, and producers; • Promoting and facilitating the development of efficient cold storage, or controlled atmosphere storage, transportation, freight forwarding and other services that	Detailed assessment of existing structures and gaps. Case studies of national and international lessons in setting up growers association. Design pilot programs Impact: critical component to reduce pre and post-harvest losses in the sector (estimated up to US$ 525 million from above ($175 m + $350 m), or up to 20% improvements in	Provincial and District Agricultural Bodies, local grower's associations

		can be utilized on a fee basis, • Introduction of new technologies, • Technical training on production, post-harvest care, and marketing of specific fruit crops, -training on quality requirements, grades and standards, • Technical training on agro-processing technologies (i.e. fruit drying, juicing, preservation, freezing).	production reaching markets. Plus, new market opportunities domestically and internationally.	
Insufficient and lack of coordination in research	Common problems to the sector that are extremely threatening to the horticulture industry need to be addressed, such as the spread of fruit and vegetable crop diseases.	Assess and strengthen existing research bodies and/or develop new approaches to develop and disseminate applied agricultural research that correspond with farmer's needs and market trends. This can be done by leveraging (a) the district and provincial agricultural forums, which is composed by local farmers, (b) executive district officers, the coordinator to the farmers, including on research, and (c) Model Farm Service Centers in each district, which is being finalized Potential areas include Chitral, Swat, Dir, Bunner, and D.I. Khan	Asses current gaps in research and dissemination Incorporate gaps, including from international best practices, using existing structures whenever possible.	Provincial agricultural bodies, universities, national research institutes, MINFAL

2. Processing and Agri-business

Issue to be solved	Rationale	Recommendation	Steps	Key Leaders
Lack of agro-processors in NWFP region	Agro-processors will help optimize value chain inefficiencies and value-added products through "pull-effect" that add steady demand, quality control, and raises the bar to improve supply-chain linkages. Also, source of employment, including skilled employment. Finally, processors serve as additional market outlet for surpluses	Prepare a market and feasibility study, with the objective of turning them into an investment plan to attract possible investors. Possible processing facilities include dates dehydration plant (e.g. D.I. Khan), other dry fruits, and liquid processing where high losses are incurred (e.g. appl, plums, and apricots), comparing it with a traditional agro-processing activity (e.g. apple juice)	T.A. to design investment prospectus and strategy Impact: a 10% share in the national juice market would translate into US$4 million. A 1% share in the global dry fruit market is US$66 million.	This should be public-private sector partnership. Initial funds could be co-shared (e.g. Agriculture Dev Bank, MINFAL (agribusiness project unit). Other partners include horticulture board, SMEDA, Chambers of Commerce Horticulture, Chambres of Industry, and the World Bank / IFC

3. Distribution Channels

Issue to be solved	Rationale	Recommendation	Steps	Key Leaders
Lack of market knowledge	Lack of market knowledge is hindering growers on what to produce, to whom to sell, and for how much to sell	Implement instruments to improve dissemination of market information to producers in the supplying areas, including on new cultivars which are in demand, consumer preferences, channel preferences, market trends, sources of	1. Evaluate market information generation and dissemination approaches (including use of	Department of Agriculture NWFP (marketing cell in every district, responsible in all districts, computer

		competition, and future outlook.	mobile access) 2. Link to a market access program, which links demand with value chain configuration changes as necessary	and mobile systems)
Access to markets	It is important for the horticulture crop producers in NWFP to diversify export markets beyond the present narrow range of products and small number of destinations	Conduct Market research to enter into attractive market segments in both fresh fruits, and value-added products, with a comprehensive strategic horticulture value chain re-configuration plans according to market research results	Identify key products and local partners for a pilot market research Impact. In dry fruit alone, 1% of world markets is US$66 million with higher margins across the value chain	Private sector solution; public agencies like World Bank or TDAP could help market access guidelines, and identification of experts/consultants

ANNEX 2. FURNITURE VALUE CHAIN

1. *Sector Overview*. The furniture industry in NWFP has considerable potential for growth. There are extensive forests in the province that provide wood input to both the local and national furniture industry, and the province has a tradition of woodworking craftsmanship for furniture production at low labor cost.

Forests in NWFP account for 40% of the country's forested area. However, the forest coverage is currently shrinking at a relatively fast rate, around 1½ % per year. Despite its location advantage and proximity to raw materials, less than 500 furniture assembly units – or 6% of the national total (8000) - are located in the province. The large majority of these units are small operations with less than 15 employees. 70-80 % of the firms are informal. Overall, the furniture industry in the province is perceived as a cottage industry with inconsistent quality and without the capacity to increase production in line with recent years' growing domestic and international demand. Most firms sell locally (75%) while only a few (17%) sell to the national market. About 30% of firms export indirectly through another national firm while 5% of local firms export directly.[1] Total provincial furniture exports are 11% (US$ 1.5 million) of its current production (US$19 million at ex-factory prices in 2006).

2. *Key Products.* The furniture industry comprises a multitude of trades and sub-industries with differing styles and end-products. Furniture is manufactured on these main styles: antique / reproduction, Mughal, ethnic, modern (Italian), and oriental style. In Pakistan, apart from the furniture of the Mughal period, European reproduction furniture with regional characteristics has a special demand. Pakistan furniture based on regional and ancient/ethnic designs has also foreign demand. However, the bulk of the national and provincial furniture production is in low-price, easily-imitated furniture. The recent influx of mass imports, competing in this market segment, is already having a significant impact on the industry. Many local manufacturers are already rapidly losing market share against import competition.

The vast majority of furniture produced in NWFP is wood-based products. Furthermore, all (95) NWFP furniture firms surveyed recently reported that they depend on their raw material supply (wood) from local sources.[1] Also at the national level dependence on wood is high: it is by far the main material in Pakistan's furniture exports (70% of the $14 million in exports).

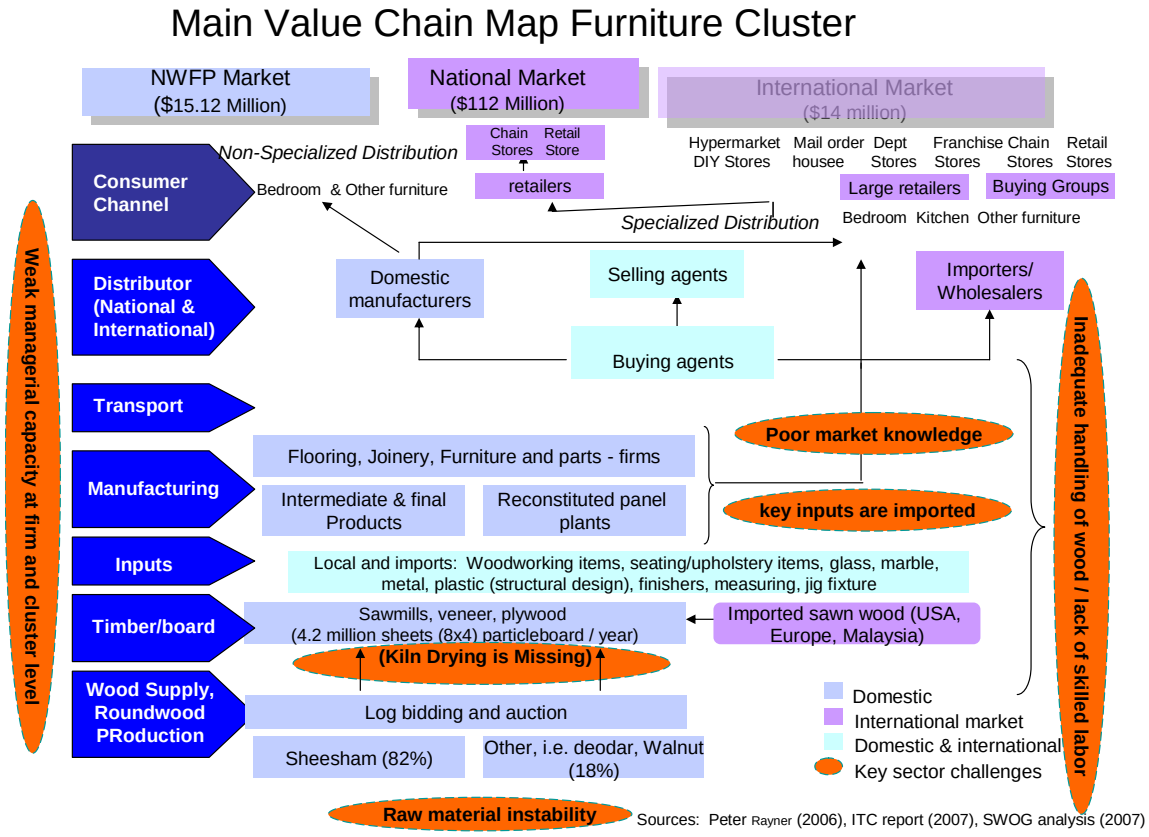
3. *Trends in Global Furniture Demand.* Wooden furniture trade is a big global business and still a largely untapped export opportunity for Pakistan. Between 1995 and 2000, global trade in furniture grew by 36%, faster than general merchandise trade (26.5%), apparel (32%), and footwear (1%).[2] Between 2001 and 2004, furniture imports grew by 29% (ITC), to US$31 billion in 2004. About 60% of all production comes from seven industrialized countries.

Demand for ethnic furniture is rising in industrialized countries (particularly in the EU), which is a significant market opportunity for ancient design products in NWFP. Also, environmental standards have become an important factor in purchasing decisions in Europe. There is a growing consumer interest in guarantees / certification, e.g. *FSC label* (Forest Stewardship Council) that furniture is made of natural and environmentally friendly materials and finishes, and that the wood used comes from areas with sustainable forestry practices.

[1] Based on sample estimates in a recent SMEDA survey of 95 furniture firms in NWFP.
[2] Kaplinsy and others, "The Global Wood Value chain: What Prospects for Upgrading by Developing Countries," UNIDO, Vienna, 2003, p. 1

4. *Growing Domestic Demand* Mirroring Pakistan's GDP growth in the past years, NWPF's and the national furniture market have been growing by about 25% a year. The national market reached $160 million in 2005 (ex-factory prices).[3] However, due to its "cottage industry" structure Pakistan's furniture sector has rapidly been losing share of its growing domestic market against aggressive imports from China and Southeast Asia. Foreign imports grew to 12.5% ($20 million) of the domestic market in 2005, up from essentially 0 in 2002. This is both a threat and an opportunity for Pakistan. The influx of imported furniture has strengthened cooperation among producers in the sector, such as starting to implement a proposal to set up a single sector-coordinating organization for the development and promotion of furniture manufacturers (i.e., a Sector Development Company, called " Furniture Pakistan").

Figure 1.



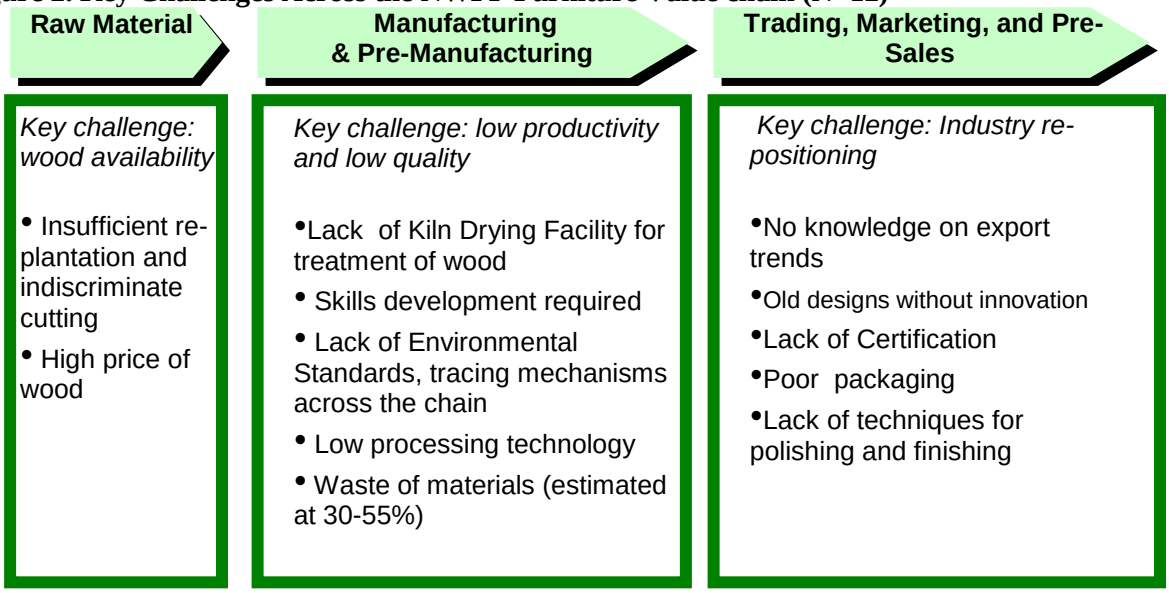
[3] IFCA estimates (Dec. 2006), analysis by the Furniture Sector Strategic Working Group (SWOG), (2007)

5. The Industry Value chain.

Figure 2 gives an overview of the key elements of the furniture value chain in NWFP. As depicted in the figure, the value chain is characterized by (a) unstable raw material (wood) supply due to unsustainable logging practices and inadequate reforestation programs; (b) high wood input prices due to the presence of a "timber mafia" during the timber auction process; (c) low enterprise productivity relative to other regions in Pakistan reflecting low labor skills; and (d) the lack of a competitive strategic position, particularly in export markets.[4]

Existing reports, corroborated with a focus group meeting [5] and interviews with company CEOs, identify the following as the most pressing issues in the NWFP furniture value chain, organized around different stages in the value chain:

Figure 2. Key Challenges Across the NWFP Furniture Value chain (N=12)



The challenges above are corroborated by the following assessment of the furniture industry in Peshawar by a 2006 USAID field study, where the lowest scoring constraints are highlighted in yellow (1 = excellent, and 5 = poor):

[4] USAID/PISDAC (2006) describes four strategic challenges as (1) sourcing and acquisition of materials for conversion into furniture products, (2) production sector output (part. kiln drying), (3) workmanship skill, and (4) quality standards for international trade.

[5] Focus group meeting on March 11, 2008. Stakeholders present included furniture manufacturers, forestry department officials, and local chamber of commerce representatives

Attributes	Best - Worse Firms	
1.Kilning to the demands of each market	1	5
2. Wood species related to product sectors	1	2
3. Wood-based materials, metal and fillings.	1	3
4. Materials handling within the factory (inc. waste)	3	4
5. Workforce skills	3	3
6. Working conditions	2	3
7. No Child labour to be used/or visible	N Visible	
8. Manufacturing techniques	3	3
9. Design credibility	3	3
10. Sample conversion	2	2
11. Replication – serial/batch production	1	3
12. Finishing conditions (if required)	3	4
13. Packaging	4	5
14. Export handling	3	3
15.Export office existence for sales /dispatch /buyer handling	4	4
16. Costing procedures	2	3
17. Management awareness	2	3
18. Management capability	2	2
19. Quality control systems	3	3
20. Quality product assurance	3	3
21. Product standards	4	4
22. Banking arrangements	2	2
23. Company brochure materials	2	4
24. Communications (min. is fax/english)	1	2

Source: USAID PISDAC, August, 2006. Based on expert visits and field interviews in 4 factories

Key challenges at each stage of the value chain and tentative recommendations are described in the sections below.

5.1 Stage 1. Inputs - Raw materials: Key challenges

Wood Availability and Sourcing. Wood sourcing presents the NWFP furniture industry with both a near-term challenge and a long-term threat. The near-term challenge is inflated wood prices due to apparent collusion and rigged auctions, reducing profitability and sales. The long-term threat is the dwindling of wood supply from domestic sources, in particular the province, due to depletion of the forests. At the present rate of deforestation (1.5% - 1.7% per year), Pakistan's forest areas are expected to be halved in 30 years if indiscriminate logging practices and illicit trading are not eliminated and effective reforestation programs not implemented. This section discusses these challenges and options, including foreign supply of wood.

a. Near-term challenge: Alleged Collusion in Wood Sourcing. There appears to be collusion at the timber auctions in the province.[6] Thus, competition is undermined and higher prices are passed on to timber buyers (e.g. furniture manufacturers).

The evolution of a timber cartel

Rapid increases in timber prices in the 1980s triggered events that led to the development of a "timber mafia" and a timber cartel in the province. Four things happened:

- First, the NWFP government established a royalty payment system which greatly benefited the original concessionaires in tribal communities./
- Second, realizing the potential gains, harvesting contractors quickly took advantage of this by negotiating with (often illiterate) tribal leaders to purchase their concession rights. Tribal leaders preferred up-front and steady income at nominal prices over future and possibly risky returns.
- Third, these contractors also consolidated harvesting and transportation control by registering their or their relatives' names as contractors with the provincial government, and manipulating the bidding to win the harvesting contract, at low rates that no other contractors not backed by a royalty purchase could compete with (Hasan, 2001). Through these ad-hoc agreements and bidding schemes, these contractors became de facto owners, cutters, and distributors of the logs.[2]/
- Fourth, once these new owners controlled the concession rights, harvesting, and distribution to the Forest Department Depot, they started to control the auction of logs. By setting up substantial barriers to entry for other purchasers and having the resources to buy logs in bulk at the auction, they could effectively lock out other potential buyers (such as furniture producers). The "timber mafia" would then sell the logs at an artificially high price (twice the estimated market price) to the factories. At the end, on top of forest concession revenues, this scheme more than covers the cost of purchasing forest concessions from tribes/local communities, the cost of artificially lower harvest bidding contracts (including possible bribes), and sufficient earnings to gradually own and finance most of the wood distribution system in NWFP.
- Fifth, the current setup puts strong barriers for private furniture firms to participate in auctions. First, small furniture firms in Peshawar lack the economies of scale to purchase wood during the auctions. Second, the auction process seems to be rigged, favoring the timber cartel, and leaving the lowest quality wood at high prices to private buyers. Second, transportation of timber to furniture clusters such as Peshawar can be costly, with up to 14 checkpoints along the way. Private individuals who attempted to participate in such auctions vowed to never to return. [3]

1/ Moving away from fixed-price payments to payments over earnings after taxes, where 60% went to the concessionaires and 40% to the government.
2/ They are known today by the furniture manufacturers as the "Timber Mafia."
3/ March 2008 Focus Group.

Sale and pricing of Sheesham wood is now at the hands of a few contractors who are de facto owners at every single point in the wood supply-chain. This includes forest concession rights, tree harvesting, acquisition of wood, and distribution of logs, and hence controlling the wood supply in NWFP. (See the box on how this market setup evolved.)
If the collusion problem is eliminated, this would translate into an estimated 18 % reduction in the overall cost of furniture products[7] which could lead to proportional expansion in sales (or more for exports) both by the provincial and the national furniture industry.[8]

[6] Reports which have documented the prevalence of alleged collusion practices include Khan and Zurflueh (1994), Kalam Integrated Development Project (KIDP), Van Dijk and Hussein (1994), and Lubna Husan, PIDE, "Analyzing Institutional Set-up of Forest Management in Pakistan" (2001).

Two ideas have been proposed for how to address the issues of wood price collusion and excessive logging. One proposal is through regulatory action. This involves canceling the current royalty payment structure, possibly refunding any invested amounts to local communities and timber merchants, and enforcing that contractors (who harvest the logs) do not own the logs.[9]

The other proposal is to create a Wood & Component Bank with sufficient financial resources to effectively compete with "the Timber mafia" on the buy side at the timber auction.[10] The Wood Bank would have public-private sector representation in its board, including high-level provincial government representatives. By adding competition, it is hoped that this approach would bring down timber prices to a more reasonable level (around PKR 560 vs. PRK 800-1200 per cubic feet)

b. Long-term threat of deforestation and dwindling wood supply. The ongoing, rapid deforestation reveals two major constraints in NWFP's forest management: (1) conflict between local communities and the provincial government (Forest Department) and (2) weak institutional capacity of the Forest Department.

1. Social conflicts and bottlenecks in forest management. The conflict between local communities and government about unsettled property demarcations is one of the major barriers to successful forest management and reforestation programs. This directly undermines the sustainability of raw material supply to the furniture industry in NWFP. Reflecting the long-time lack of trust, local farmers have even rejected planting trees on communal lands to regenerate the forest since they feared they would lose possession or control over their land to the government once it was planted by the Forest Department (as part of a World Bank pilot program).[11] The sources of the conflict date back to colonial times. Failure to create accepted and enforceable demarcation lines, as well as effective policies to correct this, has resulted in unregulated grazing and encroachments. Given the vast size of NWFP's lands, enforcement of forestry demarcations and other policies is essentially impossible without the active cooperation of local communities.

A second consequence of the social conflict is the prevalence of illegal timber trading in NWFP. The annual volume of illegal timber trade in the province is estimated at about 2 million cubic feet which compares to about 3 million cubic feet of timber being cut legally in Pakistan each year. Most of the illegal timber appears to be cut in NWFP but there are also significant illegal inflows from Afghanistan. While a Timber Ban was imposed in 1992 it has been largely ineffective in curbing illegal timber cutting.

2. Weak institutional capacity of the Forest Department. The Forest Department is ineffective in managing provincial forests for sustainability, including putting into practice effective reforestation programs. It has weak management (particularly enforcement) capabilities, lacks technical capacity, and is mostly viewed by the local communities as an adversary, playing more

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[7] From Rs 1000 to Rs 550 in wood inputs, out of Rs 2,540 total cost per chair.
[8] Using the example of the Peshawar chair cost structure in Figure 6.14 below, the cost of wood is 40% of total costs. By reducing the collusion price of Rs1000 to the market price of Rs550 (SWOG estimates), manufacturers are able to reduce their total cost by 18%. With a unitary price elasticity of demand (=1) this would translate into a volume increase of sales of 18% and similar increases in earnings for the industry.
[9] Proposal forwarded by Dr. M. Iqbal Sial, a forestry expert from the Forest Development Corporation.
[10] Proposal forwarded by the Furniture Sector Strategic Working Group (SWOG).
[11] Muhammad Iqbal Sial, "Thematic Background Paper on Commercial Forestry," unpublished draft, Peshawar, June, 2007, p. 9.

a policing role rather than enabler of good forestry practices. It has therefore not been able to ensure critical cooperation from local communities for effective forest management, and attempts to resolve conflicts, demarcation, and other forest management activities have largely failed.

Addressing deforestation. In order to curb illegal logging and implement effective reforestation programs the key is to solve the social conflict and reorient the provincial Forest Department while strengthening its institutional capacity. Policy and institutional reforms could be considered in at least three areas. Indicative broad suggestions are:

First, create an enabling institutional environment for community participation, including by reforming the Forest Department. The reform process can start with an assessment of the institutional environment and design of a reform program. Community participation can also be fostered through pilot programs with TA from NGOs and international development agencies, including value-chain certification schemes.

Second, reorient forest management policies – both federal and provincial - away from single-purpose (i.e. timber) to multi-purpose (e.g. timber, eco-system, and recreational) objectives. This has been done successfully in the case of Malaysia and other countries.

Third, incorporate effective community consultation and participation mechanisms. Both existing policy instruments and effective practice (at federal and provincial level) should reflect this. Based on successful examples, this should start with the recognition of local rights, creating vested interest in the protection and conservation of the forest.[12] The example of Chaprote Forest can be insightful: a two-step process of recognition included a village committee which was first involved in the management of the forest and later given a complete charge of the forest.[13]

c. An alternative to wood supplied from domestic sources: Importing wood. One approach to mitigate raw material shortages could be to import wood inputs. Currently Pakistan imports about 3% of all wood inputs for local furniture manufacturing. Wood and wood-related products are currently subject to import tariffs ranging from 0 to 25% and sales tax of 15%. It has been proposed to reduce the import tariff on these goods. However, this is not likely to be optimal policy in a holistic policy framework taking into account the country's fiscal and macroeconomic constraints and the need for a level playing field between industries. Furthermore, at 3% of total raw materials, importing wood is not a substitute to addressing core forest management issues.

5.2 Stage 2. Manufacturing and pre-manufacturing: Key challenges

NWFP's main manufacturing issues are low productivity and low product quality. These are driven by (1) poor workmanship skills and (2) inadequate production technology which mirror national furniture challenges. However, low productivity is particularly an issue in NWFP.

Benchmarking NWFP Productivity with International Comparators. In a cross-country study across different dimensions in industry productivity, Peshawar's relative weaknesses lies in insufficient kilning of wood, materials handling (inc. waste), workforce skills, manufacturing techniques, design credibility, finishing, and packaging.

[13] Ibid. This program has been reported as successful by Mumtaz and Nayab (1992)

Comparison With Global Comparators

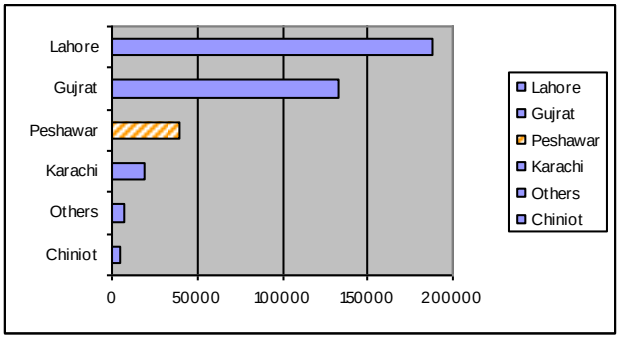
Attributes - subjective, visible, opinions. **Attributes**

	1.Kilning to the demands of each market	2. Wood species related to product sectors	3. Wood-based materials, metal and fillings.	4. Materials handling within the factory	5. Workforce skills	6. Working conditions	7. No Child labour to be used/or visible	8. Manufacturing techniques	9. Design credibility	10. Sample conversion	11. Replication – serial/batch production	12. Finishing conditions (if required)	13. Packaging	14. Export handling
Relative numbers and scores for Egypt - Damietta														
Egypt 2004/5	1	2.9	4.7	2.9	1.9	3.1	**none**	2.2	2.2	2.2	2.2	3	3.1	2.4
Ave 1.6														
Relative numbers and scores for Bosnia across 3 clusters														
Bosnia 2005/6	1.2	1	1.9	2.4	2	2.6	**none**	2.3	1.6	1.7	1.9	1.5	1.7	1.5
Relative numbers and scores for Pakistan across 5 clusters.														
Pakistan 2006	3.6	1.6	2.2	3.6	2.1	3.5	**2.9 YES**	2.5	2.7	2.5	2.2	3.2	4.2	3.2
Relative numbers and scores for Chiniot Pakistan.														
Chiniot 2006	5	1	2	5	1	5	**5 YES**	3	3	2	2	5	5	5
Relative numbers and scores for Peshawar Pakistan.														
Peshawar 2006	2.5	1.5	1.5	3.5	3	2.5	**none**	3	3	2	1.5	3.5	4.5	3

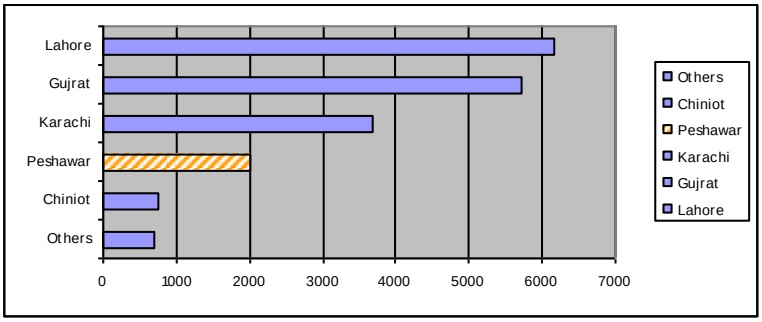
Benchmarking NWFP Productivity With Other Regions in Pakistan. A USAID/PISDAC cross-regional study of the five main furniture clusters in Pakistan (Peshawar, Lahore, Chiniot, Gujrat, and Karachi) found Peshawar lagging behind in both the scale of firm production and labor productivity (output per worker). Figure 3 shows that the Lahore and Gujrat furniture clusters have both the highest labor productivity and the largest scale of output per firm. The Peshawar cluster is ranked fourth out of five on labor productivity. Its average scale of firm production is less than ¼ of Lahore's and less than 1/3 of Gujrat's. Hence NWFP firms are not able to take advantage of scale economies.

Figure 3. Firms' scale of production and labor productivity in major clusters in Pakistan

Firm scale of production (output per production unit)



Labor productivity (output per worker)



Source: Peter Rayner, USAID/PISDAC data (2006), JE Austin analysis (2008)

1. Need for skills development and training: Poor workmanship skills. The low labor productivity in the Peshawar furniture cluster can be explained through another nationwide cross-cluster benchmarking exercise that assessed 24 dimensions in furniture manufacturing and sales.[1] This study shows that workforce skills in NWFP lag significantly behind Lahore and Chiniot.[2]

Peshawar is relatively less developed than other major furniture clusters in Pakistan in terms of technology and automation.[3] All major processes of furniture manufacturing are performed based on traditional patterns or hand carving and basic manufacturing methods. Because of traditional

[1] Source: "Pakistan Furniture Industry: Benchmarking and Assistance in Strategizing an Action Plan," 2006.
[2] Using a scale where 1 = Excellent and 5 = Poor, Peshawar scores 3.0 in workforce skills on average while the national average is 2.1.
[3] SWOG Strategy Narrative, November, 2007.

methods, there is a lot of raw material wastage and no innovation in the designing and manufacturing techniques.

Currently, a proposal to develop 25 training centers across Pakistan (including NWFP), labeled Common Facility and Training Centers, have been drafted by the Pakistan Furniture Strategic Working Group (Furniture SWOG)[4] to address workforce skills, including Computer-Aided Design (CAD), manufacturing process and facilities, and equipment training from international experts. These training facilities would improve overall productivity, help reduce waste, while improving quality including pattern making, cutting, and manufacturing techniques. SMEDA, SIDB, and current and potential foreign buyers (particularly from the Gulf) could be potential partners for such investment. This initiative would include the following activities:

- Establish four mechanized 'model' furniture factories for key regions to rehabilitate the local population;
- Deliver on-site practical training in modern furniture production practices and technology through on-going furniture training programs;
- Develop world-class valuation (manufacturing and planning) expertise in Pakistan to support future investment in the sector.

However, no action towards implementing this proposal has been taken. Poor workmanship remains one of the main constraints in NWFP's furniture production.

2. Inadequate Technology. Like the rest of Pakistan, the lack of kiln drying of the wood is a major reason for reduced furniture quality. Kiln drying is a key requirement for any furniture item for export markets as well as to compete effectively with the current inflow of imports on quality. Currently, less than 1% of wood is kiln dried. This constraint is now being addressed. A SWOG proposal to install kiln drying facilities across Pakistan has been accepted. It will receive funding from the federal government and private sources, and be implemented by Furniture Pakistan.

5.3 Stage 3. Distribution: Key challenges

Sales, Distribution, and Marketing. One of the priority challenges facing the NWFP furniture industry is changing its market position which is currently in unattractive segments at home and abroad. Both in domestic and export markets, NWFP furniture competes primarily in mass-furniture market segments and is being squeezed by competition from low-cost countries like China. Current efforts focus mostly on improving productivity through cost-cutting, and there is little emphasis on creating additional value by re-positioning into higher-paying market segments. As shown below, it is important to first define a targeted market position and then follow through with operational improvements tailored to those market objectives.

Domestic Distribution. Most NWFP furniture firms manufacture and sell their products locally,[5] directly retailing their products to the public. Reflecting their small scale and state of quality assurance, few local firms are able to meet the volume and reliability requirements to sell outside NWFP. Poor finishing (done manually), storage, preservation, and packaging (often in variable temperatures), contribute to waste and loss of product value. Wood waste can reach 50% according to one estimate by the Hard Wood Furniture Association. About 17% of local firms sell their products (including semi-finished goods) to national wholesalers and retailers.[6]

[4] A PISDAC (USAID) forum composed by public-private leaders to formulate sector strategies.
[5] Approximately 75% of local firms sell their products locally, according to a SMEDA survey (2008).
[6] Source: the 2008 SMEDA survey. USAID/PISDAC (2006) reports 35%.

Improving merchandising and distribution should start after the industry re-positioning exercise, as described in section 4 below. Once the buyer and channel needs in the new markets are known, merchandising and forward integration mechanisms should be implemented to improve the currently poor product presentation and sub-optimal distribution arrangements, particularly to target markets beyond NWFP. This will require training. The training should cover storing, packaging, labeling, and managing business orders. It could be provided by SMEDA with some technical assistance by public agencies like TDAP and be funded by private firms and the furniture industry association. Warehousing and showcasing products locally and nationally/internationally should complement the training. Furthermore, NWFP could explore forward integration opportunities by developing direct channel relationships (rather than using middlemen) for national and international orders. It could also develop a web site in order to receive orders on line (this should come from existing private sector mechanisms or by establishing a local branch of Furniture Pakistan[7]).

Foreign Distribution. About one-third of NWFP firms export their products. By and large, this is done indirectly through other furniture clusters in Pakistan (e.g. Karachi and Lahore). A key reason for choosing the indirect route is that although the provincial manufacturer is competitive on product quality and cost, it lacks the knowledge to access export markets. In a typical direct export channel, buying agents link local manufacturers to selling agent and importers. Some times, large retailers and buying groups buy directly from the source (by-passing intermediaries).

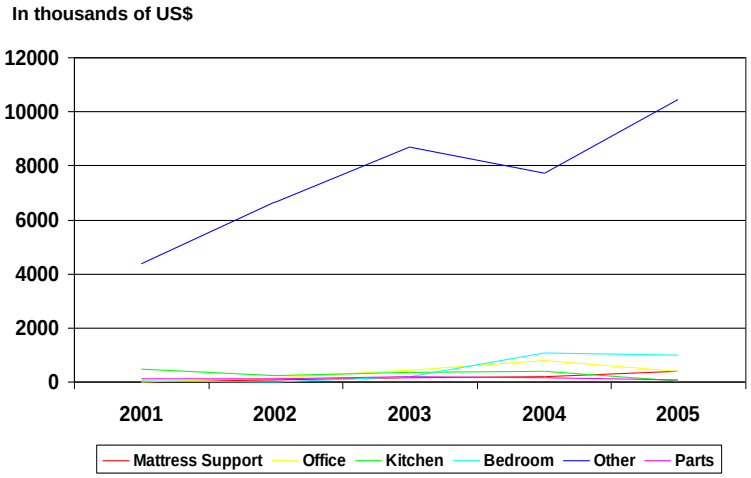
Another reason for weak direct export sales (via buying agents) is partially attributed to the lack of proper facilities in Peshawar. In a benchmarking exercise conducted by USAID-PISDAC, the lack of an export office and workmanship skills in Peshawar were identified as two of the most notable disadvantages compared to other provinces in Pakistan.

With regard to **regulations and certification**, one possible government intervention suggested by the SWOG is mandatory kiln drying of wood for exports and local retail. This involves a mandatory moisture test of hardwood during custom inspections before the container is sealed, and issuing certificates to complying parties. This would substantially improve the quality and durability of NWFP and Pakistani furniture and strengthen its image abroad. Currently less than 1% of locally sourced wood meets basic international criteria (8-12% moisture content).

[7] If initial funding is involved to establish these mechanisms, this could be co-shared between firms and government (Secretary of Industries, SMEDA, and/or TDAP)

Figure 4.

Unstable Furniture Export Performance, 2001-2005



Exports have been growing, but growth has not been stable

Source: ITC Report (2007), SWOG analysis (2007)

Export Trends. NWFP firms export about US$1.5 million, or 11% of the national volume.[8] Indirectly, NWPF exports mostly to Gulf countries and neighboring Afghanistan. Nationally, the country exports primarily to Afghanistan (16%), United Arab Emirates (15%), the U.S. (12%0 and the U.K. (12%), and Saudi Arabia (8%). Pakistan's national furniture exports have more than tripled since 2001, from just above $4 million to $14 million in 2007. However, export growth has not been stable (see figure 4 above) as demand often depends on one-time, sporadic orders. Large cancellations in the past years have been common. This has been particularly true in NWFP. Some of the most efficient firms in the region, such as the government-run Pak-German Wood Training Center (under the Small Industry Development Board), do not export at all, as it sells mostly to the public sector. Even among the best national firms export levels have not been stable.

5.4 NWFP's Strategic Position In Global Markets

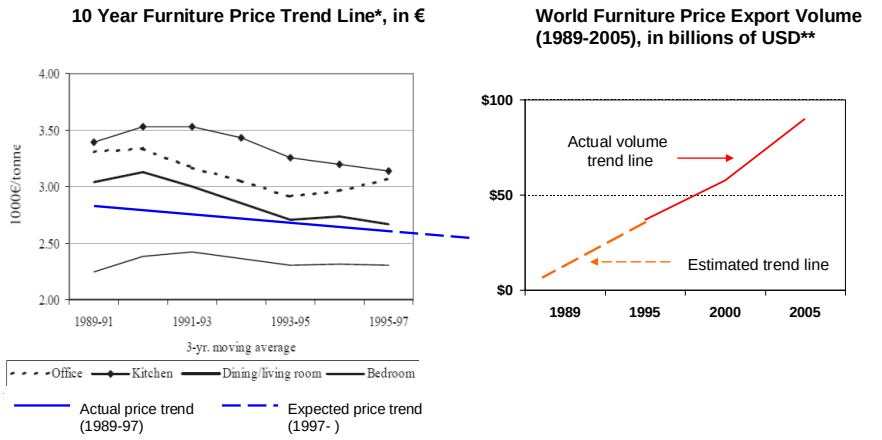
NWFP Competitive Position in the Furniture Global Markets. Some of the largest and best local firms have been struggling to catch up with the national market through mass furniture production where volume and price are among the most important factors. Given NWPF's relatively low output capacity the Peshawar cluster should be cautious in following the strategy of the best firms in Pakistan. The latter focus mainly on productivity improvements through easily imitable advantages such as cheap labor in high-volume markets. Global furniture trends show that competing in such market segments is very difficult to sustain for regions like NWFP. With intensifying global competition in particular from China, Vietnam and Malaysia, margins are being squeezed in most volume-based, generic furniture which constitutes most of NWPF products (e.g. imitation furniture). ITC data indicates the price in all categories of furniture, except bedroom furniture, has been falling due to intense global competition.

[8] Peter Rayner, USAID-PISDAC report, p. 11-13 (2006)

Figure 5.

Figure 7: World Furniture Price and Export Volume Trends

"…(the industry) is in the throes of an intense global competition…moving towards a common and falling global prices… rising exports will not necessarily result in profitable production…" - UNIDO report (2003)

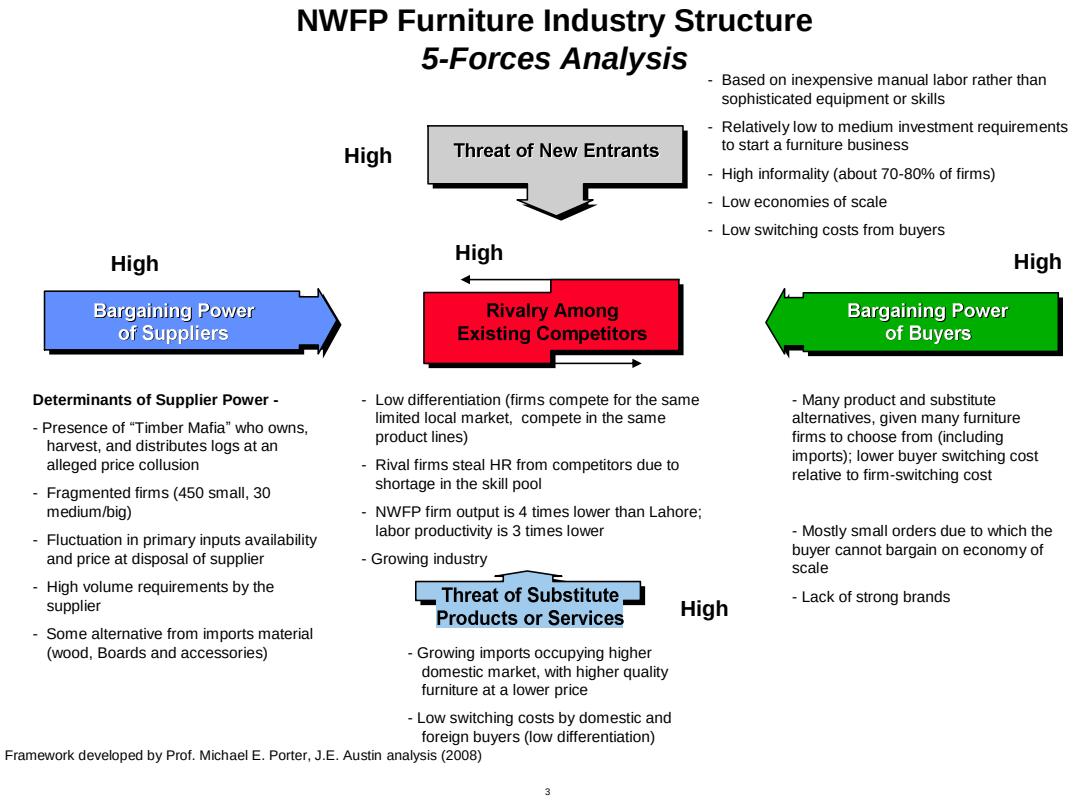


Although world furniture trade grew by 36% in 1995-2000, and by 67% in 2001-2005, world prices have been falling

** Furniture price trends here uses intra-EU imports as a proxy to world markets, as one of the largest markets and availability of information (Kaplinsky, 2003)
**Including non-wooden items (all 821 ITC product group). Wooden furniture categories – 821.16, 51, 53, 55, 59. – show similar trends, with total $20 billion 2000 and $30 billion in 2004. Source: ITC data, Kaplinsky and others (UNIDO report on Global Wood Furniture Value-Chain, 2003), SWOG analysis (2007)

A more comprehensive analysis of industry attractiveness using Porter's Five Forces Framework is useful to assess the long-term sustainability of the NWFP furniture industry. This framework analyzes the industry in five dimensions: how difficult or easy it is to enter the industry (harder = more attractive), supplier bargaining power (lower = more attractive), buyer bargaining power (lower = more attractive), rivalry among competitors (lower = more attractive), and availability of substitutes (lower = more attractive).

Figure 6.



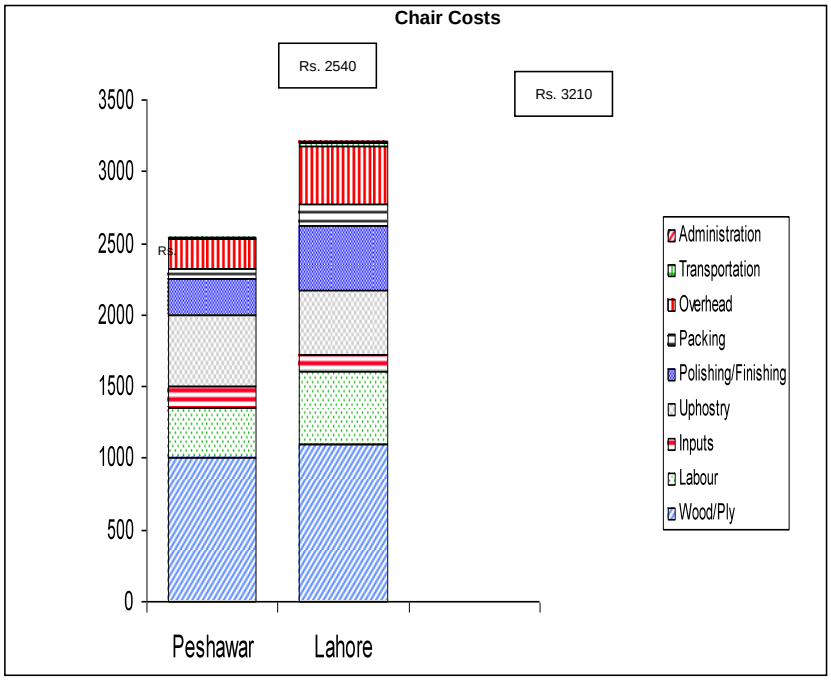
The Five Forces analysis above indicates that the NWFP furniture industry is competing in a highly unattractive strategic position that is characterized by low barriers to entry, high rivalry, low bargaining power relative to suppliers and buyers, and high threat of substitutes. Unless the NWFP furniture industry re-positions its products (for example, through differentiation), it is likely to continue a trajectory of fluctuating sales and diminishing margins.

Re-positioning NWFP's Furniture Industry. Improving cost-efficiency alone to match Pakistan's best exporting companies will not help NWFP firms achieve global export competitiveness. The NWFP furniture industry would be ill-advised to follow the strategies of the leading national exporters. They are pursuing volume-based strategies in the world markets, competing with countries with superior economies of scale, such as China. NWFP is not well placed for such a strategy, lagging significantly behind other regions in Pakistan on productivity. Most furniture industry reform proposals in Pakistan have focused on improving the operational efficiency of Pakistan's furniture sector (*how* to compete), but have missed assessing its competitive positioning in global markets (*where* to compete). Rather than letting the market determine Pakistan's competitive position, NWFP should explicitly consider where it wants to compete. This would need a rigorous market and relative position analysis. This includes assessing the merits of cost-based strategies (not just on labor and raw materials, but all elements of its cost structure) and of differentiation through design or another aspect of unique value to buyers who are willing to pay a premium. For example, given its traditional design capacity and relatively low air transportation costs (to markets in the Middle East and Europe), NWFP could explore ancient or ethnic design furniture (e.g. high-margin, low quantity) markets. Pakistani furniture is

perceived by EU manufacturers as having craftsmanship quality in Colonial style furniture.[9] Other niches which Pakistan could consider include "green product" certifications.

Moreover, NWFP furniture has one distinct local advantage and three national advantages that could give a competitive edge in export markets. The local advantage is the province's location and proximity to raw material sources, potentially translating into better control of wood supply (i.e. lower transport cost and closer supplier relationship) and lower initial transport cost, if high-value products are exported directly from Peshawar international airport. Figure 7, which is based on data provided by a furniture manufacturer in NWFP, shows the cost advantages of firms in NWFP over Lahore and that they are primarily driven by lower labor costs in NWFP.

Figure 7.



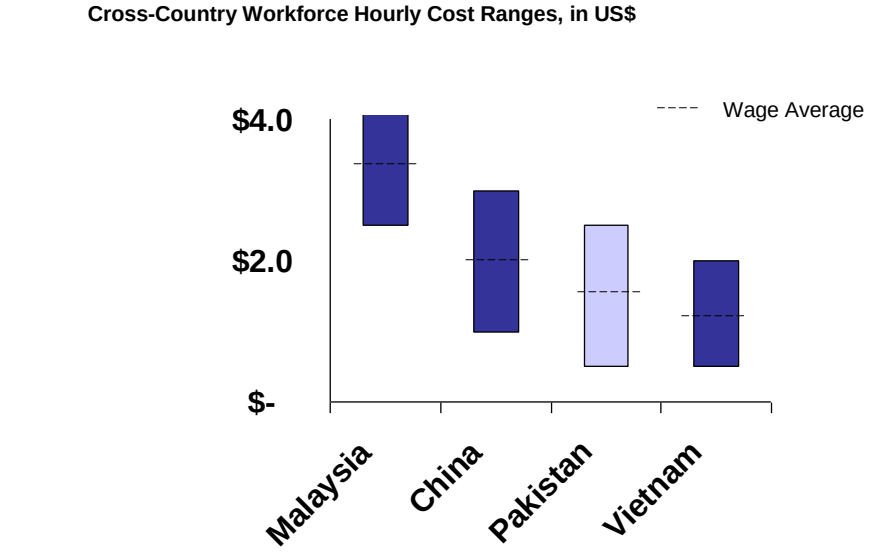
Source: Local NWFP Manufacturer, 2008

8

Comparative advantages of Pakistan's furniture industry. Cost advantages in Pakistan – including NWFP – are not absolute. For example, cross-country data (figure 8) indicate that Pakistan does not necessarily have cost advantages (including wages on labor) over other countries.[10]

[9] Peter Rayner, USAID-PISDAC Draft Report (2005).
[10] Data on furniture unit costs or even on physical output per worker were not available across countries.

Figure 8.



Source: JE Austin/USAID draft report (2007), SWOG analysis (2007)

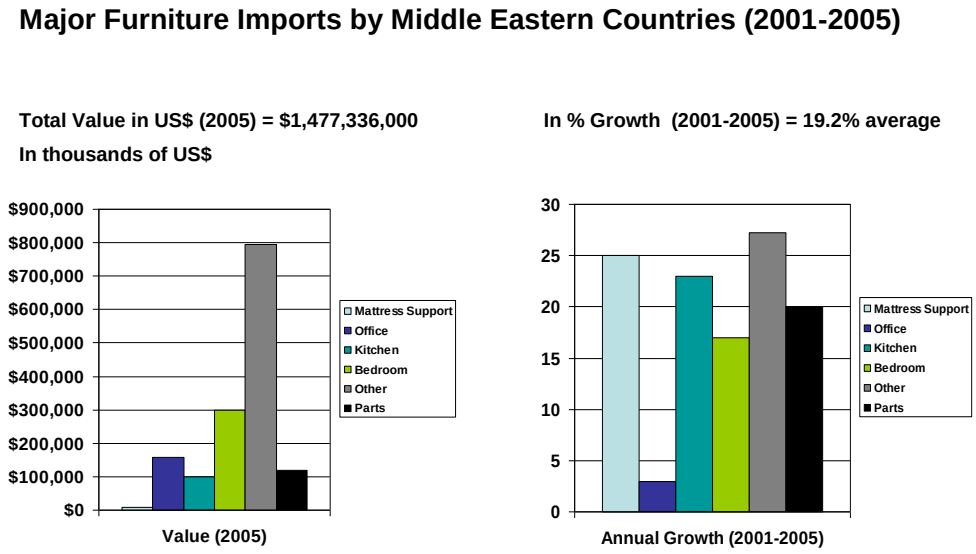
China is currently leading in the volume and price-based strategy. It holds an absolute competitive advantage on volume relative to other countries. The point to note here is that a volume and price-based strategy is a very vulnerable competitive position in an industry like furniture (see Porter's 5 forces, figure 6), where high export volumes usually leads into a temporary illusion of positive export performance, while putting pressure to lower wages and towards smaller margins, eventually being displaced by cheaper competitors.

Instead, NWFP should explore moving into a competitive position which is difficult to imitate. Countries and sectors achieve sustained competitive advantage by choosing to compete in market positions with complex competitive advantages. This includes patents, a unique story, branded design or product of origin, ability to meet standards or certification, specific logistical requirements, and packaging. Such value should be built by first understanding the preferences of sophisticated buyer channels and most importantly, *meeting their preferences better than competing options targeted buyers might have* such as products from competitors or substitutes. A good option for targeted geographical markets seems to be the Gulf States where the furniture industry in NWFP and the rest of the country could take advantage of its close proximity.

Proximity to Gulf Markets. In recent years, furniture import demand in the Gulf States has seen an annual growth rate of almost 20%, driven by rapid economic development and construction in the region. Furniture imports doubled to US$ 1.5 billion (annual sales) over 4 years (see Figure 9).

Further segmentation analysis in the Gulf markets should be undertaken to assess the prospects for potential product niches, particularly those preferring ancient designs tailored towards a Muslim population.

Figure 9.



Source: ITC Report (2007), SWOG analysis (2007)

(c) *Unique design and craftsmanship.* Although this applies to most Pakistani furniture, this is particularly important to NWFP given its unique tradition in ancient and oriental design styles, which needs to be leveraged by identifying attractive buyers willing to pay a premium price for a product experience that only Pakistan could deliver. In order to realize this potential in export markets, further research needs to be done on how the country could seize this opportunity.

The practical implication is that in order to re-position the furniture sector in NWFP over time it needs to start with a market learning exercise. This would include rigorous market research and an assessment of its competitive position, including markets (choice of geographical market), buyers (choice of channels), products (choice of product), scenarios (choice between volume or quality), and competition. The private sector - Strategic Working Group and Furniture Pakistan (FP)[11] – should lead this effort. This is a priority for the sector. Except for must-do items such as kiln-drying, productivity improvement programs (e.g. design, manufacturing process and machinery) will depend upon the market learning exercise, and the required product specifications coming out of this. Given the strategic importance of finding the right competitive position for NWFP and to help FP to start establishing its credibility, technical assistance funds could be provided by the provincial government (through NWFP Commerce or Industry Secretaries).

[11] An industry coordination organization created by SWOG with the mandate of implementing SWOG strategies. FP is responsible for executing many of the proposals put forward by the SWOG.

5.5 Cross-Cutting Value chain Issues: Coordination and Certification Schemes

(i) Weak Coordination Mechanisms. To address many value chain inefficiencies – such as sourcing, low productivity, post-manufacturing handling, and sales and marketing – Furniture Pakistan has been established to coordinate and implement many of the strategic initiatives proposed by the Furniture Strategic Working Group (SWOG) mentioned in this annex. It is still in its early stages and its implementation capabilities are yet to be tested.

Regarding the governance structure of Furniture Pakistan, this sector development company would have on its Board key industry cluster individuals (including manufacturers and input suppliers) who are able to identify, interact, prioritize, solve and execute important issues raised by the SWOG. Provincial representatives are part of the FP Board. Nevertheless, creating a Peshawar-specific entity (e.g. a NWFP branch of FP) should be considered, to effectively coordinate and implement many of the needed initiatives in NWFP.

(ii) Certification. As demonstrated in Malaysia and other countries, Forest Certification schemes can improve value chain productivity through timber tracking systems, formalization, training on material handling, and collaboration mechanisms. Key elements in Malaysia's successful certification process include export commitments from sustainable sources to the International Tropical Timber Organization and the Forest Stewardship Council (FSC). FSC is a non-governmental international entity that issues certifications such as Forest Certification and Chain-of-Custody (CoC). It also serves as an umbrella for international inspection agencies that evaluates local practices as objective third parties (e.g. Soil Association, SGS Forestry).

Forest Certification ensures that the forest is managed to high standards covering social, environmental, and economic concerns. *Chain-of-Custody Certification* traces the individual log with mandatory records from the forest through all stages of the value chain, including processing and distribution. CoC can be used to curb illegal timber acquisition which contributes to deforestation. The potential benefits for the furniture industry of both Forest Certification and CoC include converting the current prospect of dwindling wood (input) supply to guaranteed, sustained wood supply in the long term, improved competitiveness in international markets, higher margins for NWPF products, higher foreign exchange earnings, access to buyers that ask for certified products (and are willing to pay a premium) and stronger value chain linkages.

Certification provides benefits to the producers in the industry that make it a club good. The cost of certification should therefore be carried by the industry. Although certification can be initiated by a single firm, an association or a mother timber processing firm (or another form of organizing mechanism), is the best match to start a certification process for a particular area or cluster.[12]

6. Economic impact of the reforms and industry initiatives:

Estimates from the Pakistan Furniture Strategic Working Group indicate that sector improvements stemming from implementing the measures recommended in this annex would more than quadruple the industry's production value in 5 years.[13] Moreover, using a conservative

[12] For a full description and step-by-step on how CoC works, see http://www.fsc-uk.org/download.php?documentId=59

[13] SWOG projects that under improved productivity conditions Pakistan's furniture production would grow from US$160 million today to US$700 million in five years. Given that reforms in NWFP are likely to help bridge the productivity gap to the leading clusters in the country, it is likely that NWFP's share would increase substantially over the next five years.

estimate, the NWFP industry could increase per worker value of US$2,000 to US$3,500 in five years. Some estimates put this considerably higher.[14]

7. Existing Furniture Initiatives in Pakistan

There are several on-going national initiatives to address challenges mentioned in this report:

The Pakistan Forest Institute (Ministry of Environment) is planning to develop a national vision 2025 to integrate Sustainable Forest Management (SFM) and Biodiversity principles and practices. The Vision 2025 will include (i) Forest management and biodiversity; (ii) Forest policy and legislation; (iii) Participatory forest management (access and benefit); (iv) Environmental Forestry (watershed/landslide/carbon capture); and (v) Commercial Forestry.

The furniture SWOG has presented a number of ideas for initiatives to improve the competitiveness of the furniture industry at the national level. The ones with the expected largest impact are described below:

(i) Coordination of players in the industry

In this industry, at the national level producers have made considerable progress in organizing themselves and have established the mentioned Furniture SWOG for the industry. They were also instrumental in proposing to establish Furniture Pakistan which has now materialized. Furniture Pakistan is a sector development company that will follow up on implementation of measures for improvement in the industry that are or will be developed in the public-private sector dialogue.

(ii) Information / knowledge provision**:** *Initiatives to improve industry market information*

Furniture manufacturers lack awareness of foreign markets and trends in design and materials, as well as production best practices. The provision of such information to the industry can facilitate better targeted and well informed decisions about what to produce and where to market. The SWOG has proposed to develop a comprehensive industry and market information capture mechanism to address this issue. The information would cover foreign markets, trends and other critical business information on marketing, management, cost, design, workforce skills, furniture styles, types, sizes and specifications, hardware, materials, tests, standards, certification, book translations of working manuals, working procedures, health, safety and environmental standards. This is expected to help formulating the industry's strategic / competitive positioning in international markets vis-à-vis key competitors.

(iii) Regulations and certification

Certification of quality. Furniture producers face difficulties in penetrating international export markets. Doing that successfully requires consistent supply of quality products as tested and certified by internationally accredited laboratories. Such testing labs do not exist in Pakistan for the furniture industry. The industry working group has proposed to establish wood/furniture testing labs. This would ensure that furniture from Pakistan marketed for exports follow international quality standards. Potential institutional partners could be provincial Department(s) of Industry; Pakistan Institute of Quality Standards; Board of Investment (for facilitation to establish international linkage); and off-shore labs.

[14] USAID/PISDAC (2006) contemplates an increase in labor productivity up to US$20,000 per worker in optimal conditions. Pakistan's best clusters reach US$6,000 per worker today.

(iv) Inefficient input and output markets

Many sources, including the SWOG, report collusion in the domestic wood market. This results in inflated wood input prices to the furniture industry. It undermines the industry's original comparative advantage that was based on relatively low wood prices in a distortion-free input market. It is proposed to establish a Wood & Component Bank that would purchase from Government the rights to log on assigned forest lots. The Wood Bank could then compete with the contractors on the wood supply side. This would weaken the monopolistic position the timber cartel as a group currently has at the timber auction. The Wood Bank would have public-private sector representation in its board, including high-level provincial government representatives. By adding competition, it is hoped that this approach would substantially lower timber prices.

8. Policy Recommendations

Policy recommendations to address the issues discussed in this annex are presented in table 1**.** Several industry-wide challenges have been already identified and started to be addressed by the industry. The list of policy issues and recommendations listed in the table supplements the existing initiatives that are specific to NWFP, and with a particular emphasis on policy actions. It tries to avoid duplication of on-going efforts. The recommendations in the table are divided according to different stages of the value chain. The set describes the issues to be solved and the rationale for solving them, and explains the recommended actions including detailed "next steps" for implementing them.

Table 1. Policy Recommendations for the Furniture Value Chain

8.1 *Raw Material Sourcing*

Issue to be solved	Rationale	Recommendation	Potential Impact	Steps	Key Leaders
Resolve the conflict between local wood-owning communities and the provincial Forest Department (FD) to ensure effective forest management in order to stem the current deforestation and illegal logging.	Long –term wood supply to the furniture industry is threatened by deforestation and illegal logging which dysfunctional forest management is not capable of stemming due to tension between the NWFP Forest Department.	First, create an enabling institutional environment for such community participation. Second, reorient forest management policies – both federal and provincial - away from single-purpose (timber) to multi-purpose (e.g. timber, eco-system, and recreational) objectives. Third, incorporate effective community consultation and participation mechanisms.	Reforestation will help ensure raw material supply and possibly the very existence of a furniture industry in Pakistan.	Assess current situation in more detail, identify best practices, start a regional dialogue on the state of forests (e.g.workshop), identify pilot projects. T.A. needed	Ministry of Environment, Forest Department, FDC, local communities, NWFP Forest, Fisheries, and Wildlife Department, Ministry of Local Government, and Rural Development.
Institutional ineffectiveness of the Forest Department which is preventing effective forest management	Forest Department is ineffective in managing provincial forests for sustainability, and in ensuring critical cooperation from local communities.	Review current institutional set up of the Forest Department, including possible reorientation from the current policing role towards facilitation and extension. Increase the department's capability to implement reforestation programs.	Same as above.	Further studies on FD's insti-tutional environment; identify best practices in reforms T.A. needed	NWFP Forest, Fisheries, and Wildlife Department Ministry of Environment, Local Government, and Rural Development, Forest Development Corporation.
Possible collusion at wood auction	The collusion is driving prices up, twice the estimated market value.	Investigate and address this practice at the national and provincial level, including assessing whether it violates the Competition Law.	Reduction in cost of individual firms by up to 20%.	Investigate; if col-lusion, enforce the Competition Law.	Competition Commission of Pakistan

8.2 Manufacturing

Issue to be solved	Rationale	Recommendation	Estimated Impact	Steps	Key Leaders
Poor workmanship skills	Poor workmanship skills hinders needed productivity and quality improvements	Identify funds to establish a comprehensive workers training program, incl. (a) establishing and strengthening existing training facilities in manufacturing and design, (b) meet international quality and socio-environmental standards	Increase worker productivity ten-fold from $2,000 per worker/year today to $20,000.	NWFP to aim at matching its productivity with best performers (Lahore and Chiniot). T.A. needed	Furniture firms, NWFP Secretary of Industries, Furniture Pakistan, and international donors

8.3 Trade and Marketing

Issue to be solved	Rationale	Recommendation	Estimated Impact	Steps	Key Leaders
Competing in unattractive export market segments, mainly in volume and price based business,	Currently, most NWFP products are uncompe-titive against low-cost /large-volume compete-tors. The sector should seek to position itself in attractive niches (e.g., specialized design, fair trade certification), which allows higher margins for less wood.	Conduct a comprehensive industry re-positioning exercise, including market research and competitive analysis, as well as value chain mobilization and re-configuration	Substantial earnings potential and more sustain-ed competitive advantage in new market positions.	1. T.A. for market study and cluster streng-thening program 2. Identify funding sources for implement-tation of cluster / value chain strengthening.	Public-private Secretary of Industries, TDAP, Furniture Pakistan (SWOG), SMEDA Peshawar.

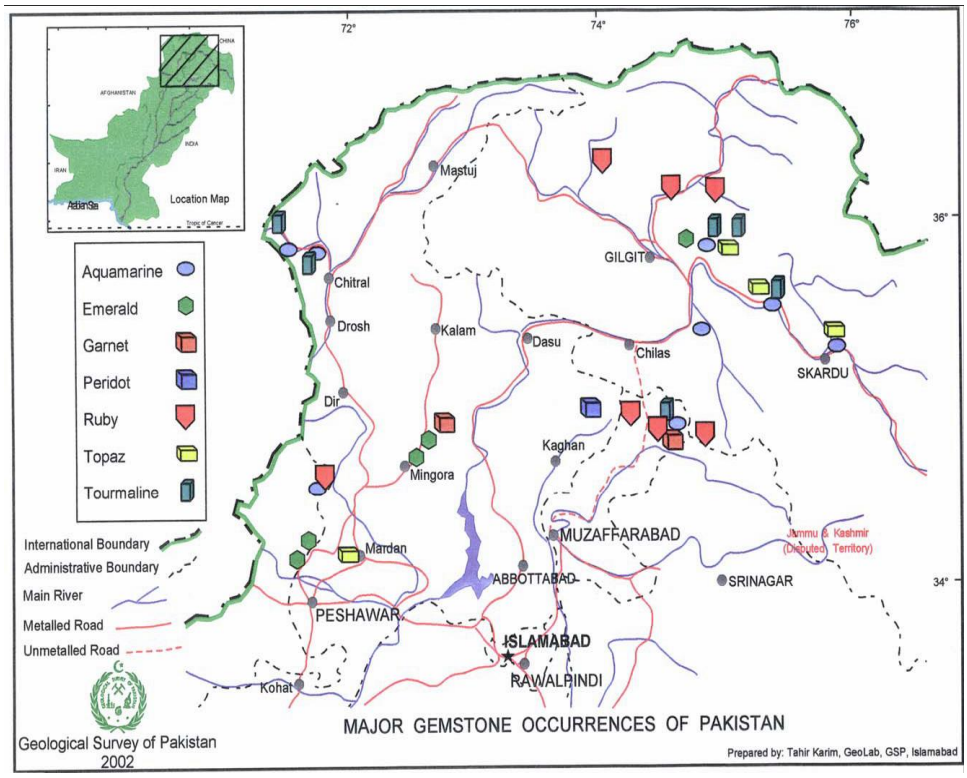
8.4 Cross-Cutting Value chain Issues

Issue to be solved	**Rationale**	**Recommendation**	**Estimated Impact**	**Steps**	**Key Leaders**
Unsustainable forestry practices (environmental damage), wood waste across the value chain, and lack of value-addition, high cost of inputs, and intermediaries that add little value	In addition to preserving long-term wood supply with sustainable forestry practices, the NWFP furniture industry can also capture higher prices by meeting consumers' demands for certified, environmentally sound products	Design and implement a Chain of Custody (CoC) System that traces individual logs. Include a plan that includes involvement the contractors / intermediaries who control most the supply of raw materials after it leaves the auction area.	Conservation of raw material to guarantee sustained supply of wood to the industry beyond the next sixty years; Higher export earnings.	1. T.A. for CoC in NWFP and for NWFP firms 2. Identify sources of funding to implement CoC	Private sector. SWOG, furniture companies, contractors, local communities NWFP Forest, Fisheries, and Wildlife Department, Furniture Pakistan.
Scattered small manufacturing entities / fragmented industry without consistent local and export demand, inefficiencies due to lack of skills and technology usage across the value chain	Consolidated production and marketing (timber processing or furniture production) can help establish quality patterns and best practices, incl. sourcing wood, manufacturing, training, and integrating SMEs in a global value chain. International timber processing companies can play important role in industry developmt	A) Establishing a common brand through a single entity (e.g. a Peshawar branch of Furniture Pakistan or similar entity), consolidating supply and establishing common marketing. B) Attracting an anchor firm through an investment prospectus and facilitation / promotion strategy (IFC, local provincial body – preferably a public-private sector entity)	Increase export sales by 30-50%.	T.A. to assess these two options, then design investment prospectus and strategy	Public-Private Furniture Pakistan (FP), Secretary of Industries NWFP, Furniture Pakistan (SWOG), IFC

ANNEX 3. GEMS AND JEWELRY INDUSTRY

1. Sector Overview

The map below shows mining clusters of gemstones in NWFP. As seen, they are concentrated in the northern part of the province and in areas adjoining FATA.



Despite its abundant reserves of precious and semi-precious gemstones and rich culture of jewelry manufacturing, NWFP has been unable develop a competitive gems and jewelry industry. Globally, Pakistan is becoming known as an emerging gems trading hub (but not as a mining opportunity). Gems trade from Pakistan is officially recorded as US$5 million in 2005 (from US$ 2 million in 2002), with an updated 2007 estimate of around $10 million. Jewelry reached $15.5 million in 2005 (down from US$30 million in 2002). [1] However, official figures reflect a significant under-reporting of the real trade value. The Geological Survey of Pakistan and international expert estimates indicate real gemstone trade to be closer to US$ 200 million a year in Pakistan,[2] with Peshawar serving as a major trade center. The lack of data across this value chain is a serious problem, but this is even more so in gemstone mining. Using trading values reaching Peshawar, the combined mining value in NWFP and northern areas can be roughly estimated to be around $24.7 million a year.[3]

[1] ITC data, product code 667. Jewelry exports (product 897) reached US $15.5 million in 2005. International Trade Center, product 897 for Pakistan (2005 data). Also used by the TDAP (2007).

[2] Geological Survey of Pakistan, http://www.gsp.gov.pk/resources/gems.html

[3] This is based on the following assumptions: (b) US$200 million a year is being traded in Peshawar, (b) with about 20% of this is coming from NWFP and northern areas (i.e. US$40 m), (c) with approximately 90% of gemstones mined in NWFP/Northern areas reaching Peshawar (i.e. About US$44.4 million is produced in NWFP/North, of which US$40m in final trading value goes to Peshawar), and (d) given that the price of stones reaching Peshawar is worth about twice than mining (1.8 for emerald); thus, US$44.4 /

Gemstone mining has the potential to bring revenue to the economy, in the form of royalty payments and foreign direct investment. However, they are yet to bear fruit beyond a few miners operating in NWFP. Thus far, only 2 mining licenses have been granted, both in the Swat area for emeralds. This compares to 315 registered firms in the Northern Areas.

Unlike large scale mining, artisanal and small scale mining (ASM) puts a good portion if not all of the revenues back to their communities. However, there have been only about 40 exploration licenses granted to ASM, while none has reported back with findings. Most of the mining in NWFP is done as informal mining. Excavation of existing mining is extremely rudimentary, consisting mostly of informal artisanal mining. Entire families are involved. They operate in precarious health conditions, lacking even basic accessories such as dust masks (which could prevent Silicosis, an incurable lung disease inflicted by mine dust). Financing is mostly through miners' own earnings, as formal financing is rarely available. Due to a lack of precise geological data, small miners usually attempt trial and error in areas where it is commonly known that deposits exist. The use of uncontrolled blasting and poor excavation techniques are widespread, resulting in irreparable losses in a non-regenerating natural resource. Small cracks and fissures can reduce the value of a gemstone by several times. **If mining were more efficiently excavated, miners could obtain an estimated five times from current revenues**.[4]

NWFP's gems sector faces many of the similar challenges facing the rest of mining sector in Pakistan: improper mining exploration and excavation techniques (leading to losses in health and economic value), widespread informal mining, difficulties in enforcing provincial mining regulations, lack of supporting infrastructure combined with harsh terrain in several mining areas, and lack of knowledge about mineral potential.[5] What is unique about the gems sector is the greater culture of secrecy that exists than the rest of the mining sector, as well as an acute under-reporting of gemstone deposits from mining to export transactions. Also, most gem stones traded in Pakistan are from other countries. About 80% of the $200 million in gems trade volume per year is believed to come from another country (e.g. Afghanistan, Tajikistan, and China).[6] Afghanistan alone, for example, trade 95% of its gems in Peshawar.

The precarious state of gemstone mining in NWFP is augmented with limited investment in research, product development and training, low levels of technology in mining and processing, traditional mining techniques, underdeveloped lapidary facilities and skills, poor international marketing and branding, underdeveloped designing capabilities, poor infrastructure with domestic and international markets, and limited identification and certification processes.

In mining, significant opportunities exist, however, to reduce waste and obtain at least five times more value than the currently trading volume, if proper techniques were introduced. Better

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1.8 give us an estimate of US$24.7 million for the mining value coming from NWFP/Northern areas per year.

[4] The value at stake due to inefficient mining includes under-extraction compared to proper mining techniques (approx. 100% of current volume) + Loss Due to Indiscriminate Mining (current volume + under-extraction value x Loss rate due to indiscriminate mining (approx. 100%)). Thus, US$31ml+ ((31ml + 31ml) x 2) = US$155 million. A more precise estimation exercise in the future should take into account under-utilized supply inventories, i.e. gemstones which miners do not or cannot sell.

[5] Some of these challenges were also identified by Stanley and Koryukin, "Mineral Sector in Balochistan: A Path to Sustainable Growth," World Bank unpublished draft, March 14, 2008

[6] 95% of Gemstones mined in Afghanistan are sold or processed for final export via Peshawar . Source: UNDP/Altai consulting Market assessment (Gemstones) 2005, Ministry of Mines, Afghanistan. Geological Survey- USAID/Sibley consulting, Assessment of Afghanistan Gemstone Industry, July 2007

mining technologies should also be tied to improvements in health conditions of workers and local community development.

In processing, the opportunity for Peshawar by improving cutting and polishing techniques could add up to an additional US$20 million a year, even if only 10% of the current trading volume was polished (see section 6.3). Overall, the International Colored Stone Association (ICA) estimates that if proper industry infrastructure was put in place (e.g. gems exchange, processing facilities, gems testing facility), gems trading in Peshawar could increase from today's US$200 million to US$ 472 million or more in five years.[7]

In trading, most gemstones and mineral traded, processed and exported from Peshawar come from outside NWFP, either from surrounding countries or from other provinces of Northern Pakistan and Kashmir. However, Peshawar is already recognized as the major gemstone hub for the area and would benefit greatly from its consolidation as an international processing and exporting center since international buyers traditionally prefer gem trading hubs where large offer of different material and services is provided.[8]

The development of a gemstone industry in Peshawar could not be achieved without the business volume provided by third areas or third country gem sources. Moreover it is doubtful that the local gemstone trade and industry of NWFP could survive within the boundary of its own mineral resources and availability.

Distribution channels rely on the development of sustainable commercial linkages with the international gem dealers and jewelry manufacturing communities. This can be achieved by an export strategy that integrates (i) a selected offer of properly manufactured gemstones, (ii) the participation of Pakistan gem professionals to international trade fairs in the U.S., EU, Japan, Thailand, and Hong Kong (among others), and (iii) the consolidation of a local gem buying center for large foreign gemstone buyers (e.g. Gems Exchange).

2. Rationale for Selection

The potential returns in developing this sector remain very high. In mining, improving efficiency among existing miners alone could increase income up to five-fold. Improvements from current mining practices could double the value of current transactions (from approximately US$25 million to US$50 million a year). In processing, proper cutting and polishing of only 10% of the current trading volume could lead to a gain of up to US$20 million a year. In trading, with appropriate interventions, this would result in the formalization of gems trade with real reported values in three years, from approximately US$15 million in official exports today to about US$200-250 million, increasing approximately 20% each year. This would result in a potential impact of value chain improvements up to an additional US$ 225 million in revenues in five years, excluding formalization of under-reported transactions (US$200-250 million per year today), and access to new markets and buyers.

[7] International Colored Stone Association (2008), estimating a realistic growth of 20% in exports if proper structures and conditions were put in place. Ranges reflect the estimated current trading volume of US$200 million to US$250 million.

[8] Bangkok and Chantaburi in Thailand, where gemstones from all over the world are available, illustrate perfectly these phenomena.

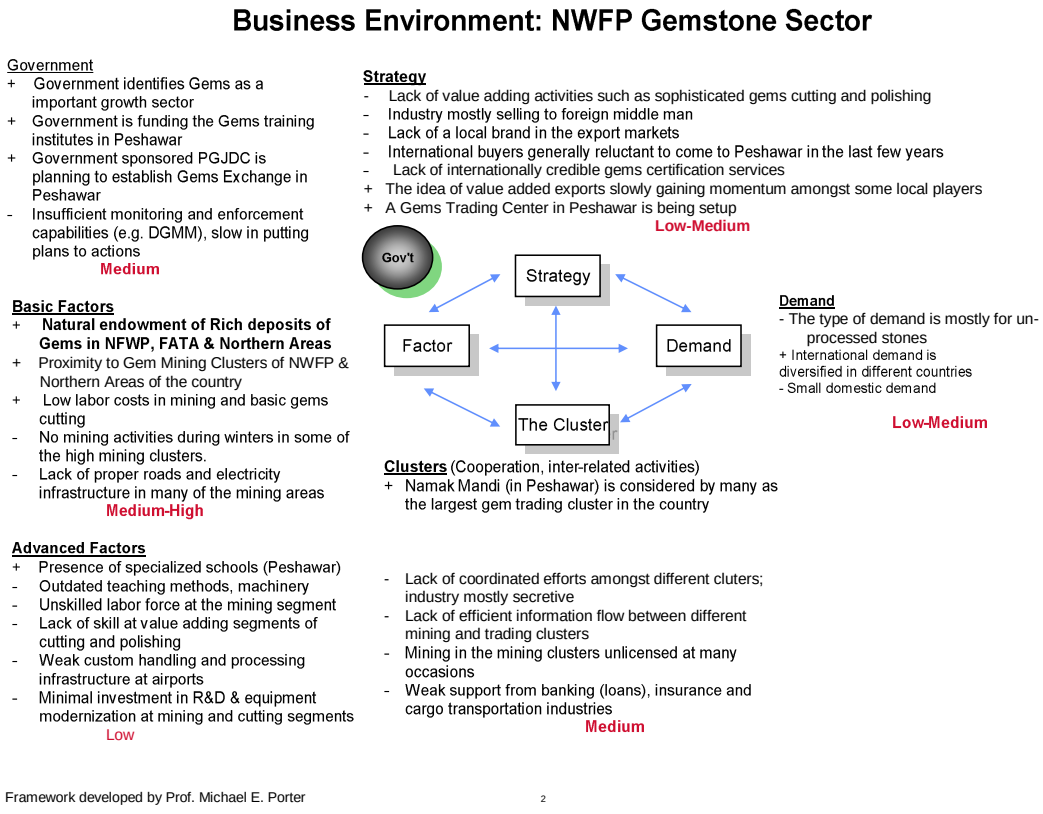
3. Key Products

Currently, NWFP competes mostly in uncut or semi-cut stones and gem specimens. It is also making small forays into the more value added segments of mosaics as well as export of cut stones, but the size of these segments as part of the total export figure is still small. They also cover a very small part of the range of potential value added products that could be produced in the province with further development of the industry. The current combined total of value-added products is likely to be less than 10% of total trade; hence unprocessed gems account for 90%.

Dealers in Peshawar have established a reputation in international markets through the famous Swat emeralds, 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 lazuli, champagne pink topaz, tourmaline, aquamarine and peridot. Foreign sources play an important role, as large quantities of ruby, emerald, tourmaline, spodumene, and lapiz lazuli come from Afghanistan, ruby and spinel from Tajikistan, turquoise from Iran, and a variable quantity of emerald from China.

4. Business Environment and Industry Structure

Figure 1.



4.1 Business Environment.

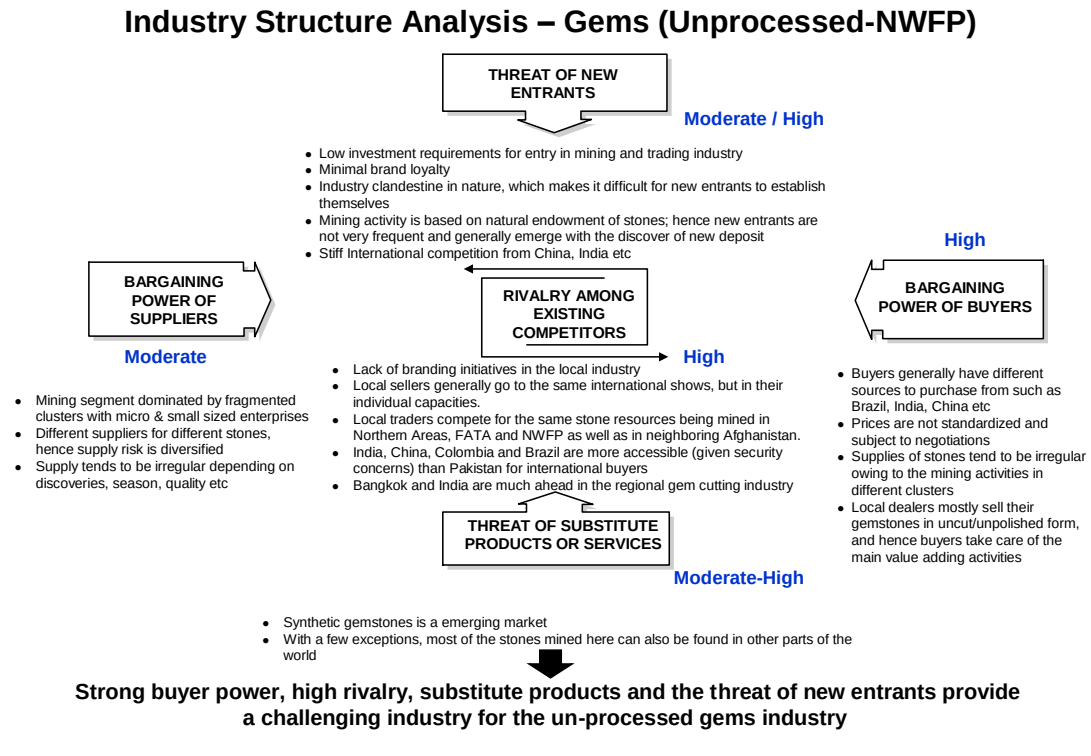
One tool to examine the business environment of the gem sector in NWFP is the Porter Diamond (figure 1). Assessing the four different parameters of the Diamond, it is clear that the overall gems business environment in NWFP is characterized by basic factor advantages such as abundant natural resources and low labor costs (*competing with basic factor advantages*), with a

notable absence of technical know-how in extraction, value-addition, and trading of gems. The type of competition is mostly on price, with little value-addition (*low strategy and rivalry*). Also, there is an inadequate information exchange at all levels, due to secretiveness or lack of technology or skill, such as pricing, valuation, and sharing of best practices. The level of cooperation and trust (*weak cluster, cooperation mechanisms*) is extremely low, particularly at the mining sector (again, a culture of secretiveness exists), although the proposed gems exchange in Peshawar is an attempt to make the market transaction more open and also to make the process easier for the buyers. Gems trade is driven mostly by external demand, with only a small domestic demand.

4.2 Industry Structure.

Another Porter model, the Five Forces framework, is helpful to analyze the competitive position of an industry. By applying this to the *un-processed* gems sector, the result shows that its industry competitive structure is clearly an unattractive one in which to compete. The following diagram shows that the current gems sector in NWFP is competing with a weak bargaining power with buyers and suppliers, high threat of new entrants and substitutes, as well as intense rivalry with little differentiation:

Figure 2. The current strategic position for the gems industry in NWFP

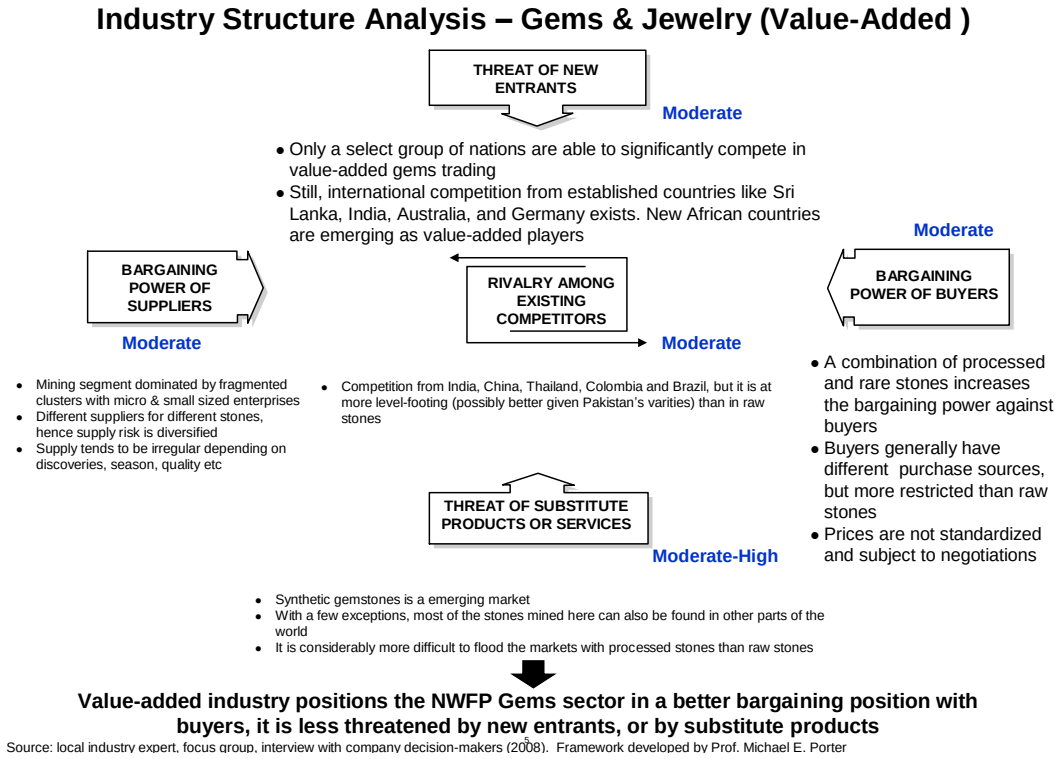


Source: local industry expert, focus group, interview with company decision-makers (2008). Framework developed by Prof. Michael E. Porter

This highlights an even greater urgency for NWFP's gem sector to move towards value-added segments: it is not only leaving value on the table, but its bargaining power and market position as it currently stands (un-processed stones) is likely to fall, along with declining margins.

However, if the sector were to migrate towards world-class value-added products (e.g. cut, polished) like Sri Lanka and Thailand, this would be much more attractive in terms of sustained competitiveness to the sector, including an improved bargaining position in relation to buyers, and low threat of new entrants and substitutes:

Fig. 3. Proposed new strategic position for gems and jewelry industry and its implications

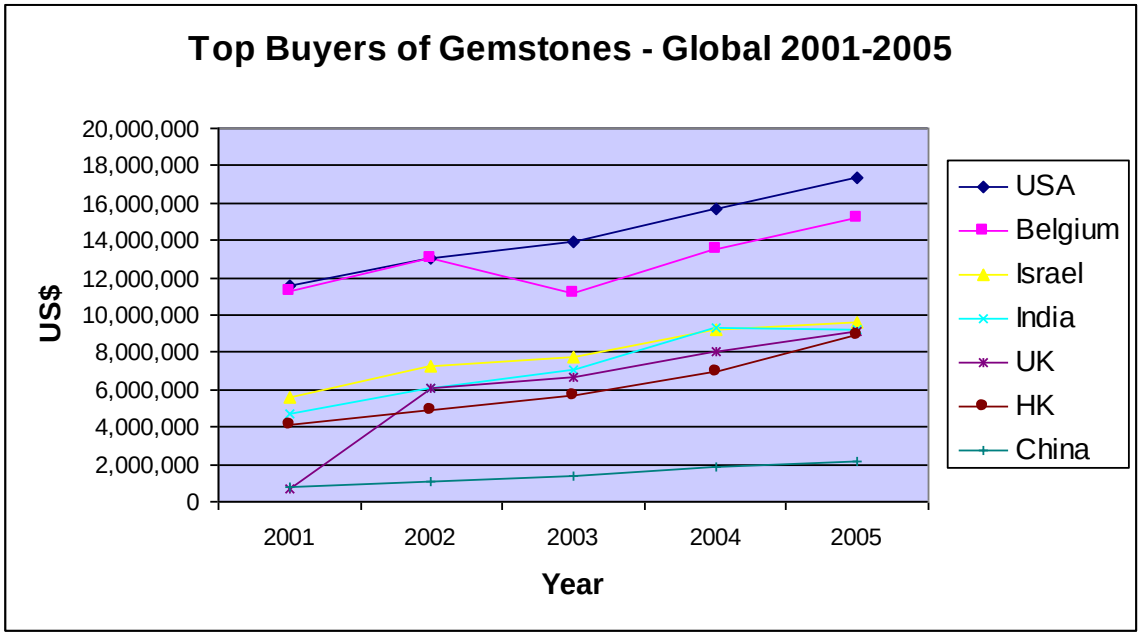


5. *Global Trends.*

Trade Statistics. International demand for precious and semi-precious gems has consistently been robust in recent years. Trading by the top 7 importing countries increased at an annual rate of 13.9% (in US$ terms) between 2001 and 2005. The US has been leading this demand, followed by Belgium, Israel, and India.

Channel Trends. Business enterprise trends for gemstone include vertical integration of the production and marketing chain. The growing demand for transparency and guarantee to the consumers has led large jewelry firms to join forces with gemstones organization that can ensure stable service and supplies of quality material with constant standards. While high end jewelry using very high value gemstones is still manufactured in consuming countries like USA and the EU, the vast majority of jewelry is now produced in Thailand, with the largest portion of mass production of the mid to low end made in China. Branding in the distribution and retail has become more crucial than ever. Large or franchised chains are gradually dominating the market. For Peshawar Traders and its raw material regions (NWFP and Northern areas), this may imply the growing benefits of certification, which may help in branding and to attract established international firms.

Figure 4.



Source: ITC (www.intracen.org, 2008). Analysis by JE Austin (2008)

Large international gem suppliers in consuming countries buy rough material and outsource the cutting and polishing of gemstones in countries like Thailand or China. Large jewelry manufacturers also buy cut and polished gemstones from processing centers where they can develop long term arrangements with local gemstone dealers or brokers. Thus, the creation of the Gems Exchange is a critical step to attract more international buyers to Peshawar.

Product Trends. Approximately 70% of the world colored gemstone business value is still represented by ruby, emerald and sapphire (precious stones), however the portion and value of so called semi-precious stones is increasing substantially.

The market potential for NWFP remains with emeralds, ruby, and new sources of sapphire and red spinel from surrounding countries. The volume of business generated by these stones or origins could not be met by gemstones potential of NWFP alone. The NWFP could focus on emerald, from the Swat area, even though the quality and over-color saturation of the material do not place them in the best value position of this category. Pakistani Peridot ranks are among the top ranked origin for this category, just after Burma, and this represents a branding opportunity.

Potential markets for rough stones (the most important gem processing centers) include India, China, Thailand, as well as Germany for high quality stones. Potential markets for cut and polished stones include USA, EU, Japan, and Thailand.

Competing supplier countries are Zambia, Tanzania, Mozambique, Madagascar, Colombia, Brazil, Burma. If Pakistan were to lose its trading hub position in the region, it would need to compete with surrounding countries like Afghanistan and Tajikistan.

Gem Quality Certification. Certification of gemstones applies to diamond, ruby, sapphire, and emerald, commonly called precious stones. Certification is currently lacking in NWFP but could be applied to emeralds, rubies, and perhaps peridots.

Only high market value gemstones require a Certification at the final stage of the marketing chain that confirms their exceptional and rare natural and untreated properties as well as their origin. These factors command exceptional prices.

Fair Trade and Other Socio-Ethical Certification. There are several on-going ethical certification processes being developed for the gemstone industry. Some examples include ethical, fair trade, green, sustainable, peace, development, responsible, origin, and fair made certification.

Among the on-going initiatives to promote responsible mining is The Madison Dialogue. The Dialogue is a cross-sector initiative established to promote communication and collaboration among companies, civil society groups, and other stakeholders, to encourage best practices; sustainable economic development; and verification sources for responsibly mined gold, diamond, and colored gemstones.

There is no fair trade certification process in place as yet for gems, and the criteria of verification processes are being studied and developed by professional committees under gems international institutions and trade organizations.

However, Fair Trade and ethical issues are quickly becoming branding opportunities for jewelers as the consumer requires more and more information, transparency and guarantee regarding mine to market channels related to ethical mining, environment, human conditions, welfare, and process treatments. On average, sales of (non-gems) Fair Trade products increased by 40% in 2006, accompanied with increasing demand for 'ethical' jewelry in the UK, USA, and Europe.[9]

[9] Estelle Levin, Communities and Small-Scale Mining (CASM), (2008). Detailed information on certification can be obtained by contacting CASM.

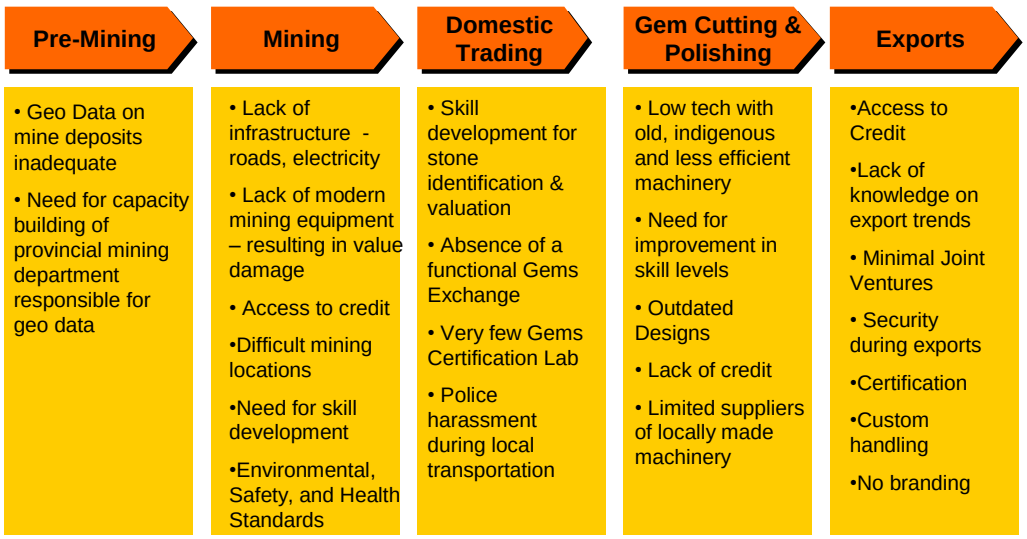
6. Gems and Jewelry Industry Value Chain

6.1 Overview of value chain challenges

The gems sector can be broadly segmented in three segments: mining, processing or value addition (cutting and polishing), and trading/exports. A summary of the value chain and the main issues (main challenges) are described below:

Figure 5.

Gems Sector Value Chain – Key Challenges



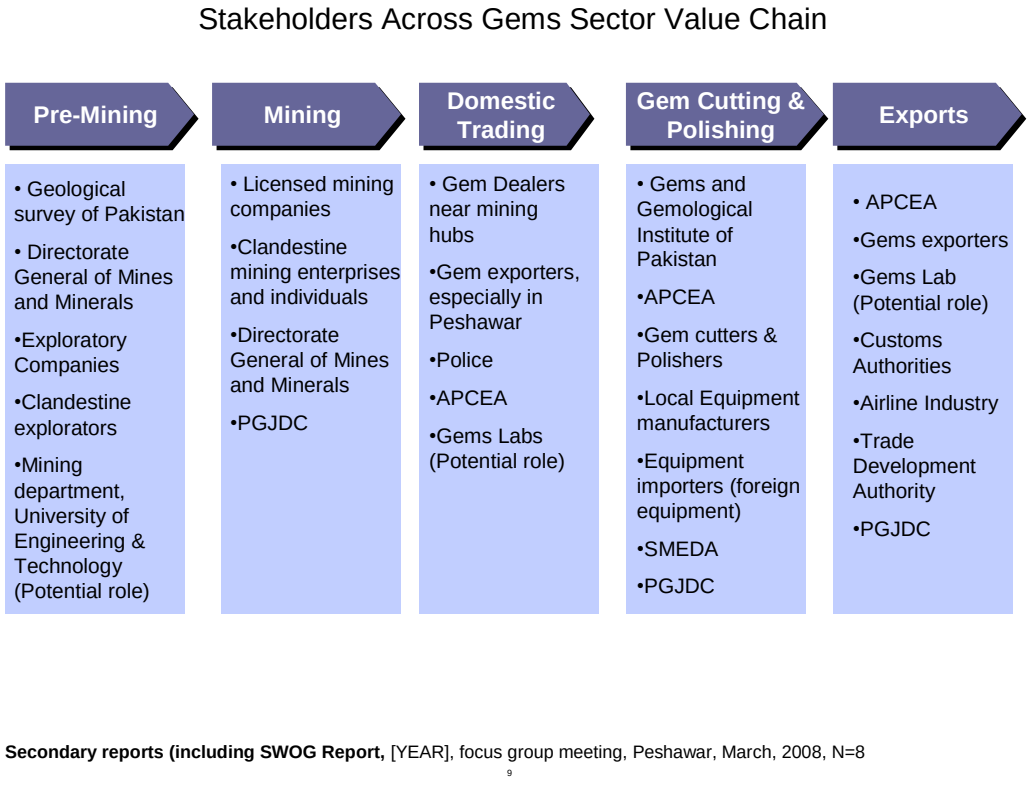
Secondary reports (including SWOG Report, [YEAR], focus group meeting, Peshawar, March, 2008.

[8]

A survey of gemstone miners and traders conducted by a World Bank Mining Mission in April, 2008, identified the same challenges but also that "disputes between communities and mines" and relatedly "inefficiency of dispute resolution mechanisms" were main challenges in the value chain. Other lesser challenges identified in the survey include, in order of priority, (a) lack of information about mineral deposits, (c) incidence of corruption (law enforcement), and (d) limited impact of umbrella organizations.

The key stakeholders in this sector are identified in figure 6.

Figure 6. Key Stakeholders Across the Gems and Jewelry Value Chain

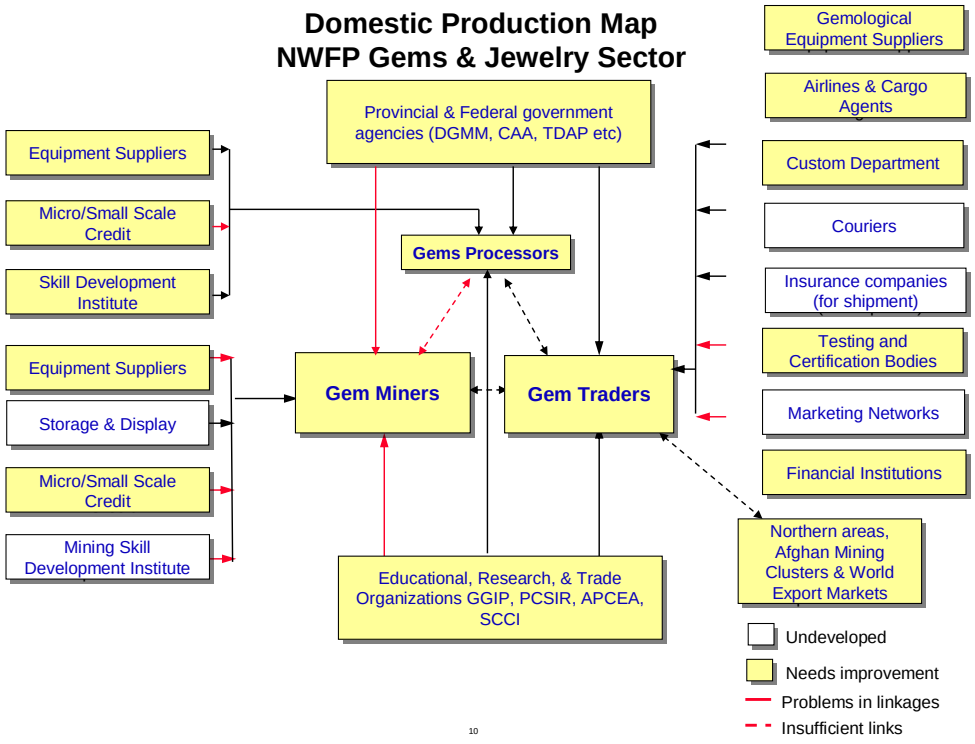


Secondary reports (including SWOG Report, [YEAR], focus group meeting, Peshawar, March, 2008, N=8

[9]

Figure 7 presents a more detailed value chain map of the gems sector which helps put the challenges or issues listed above into an overall context of inter-related entities in the value chain:

Figure 7. Production map of NWFP's gems and jewelry sector



In the following section the most important challenges and issues are described in their respective stage in the value chain.

Issue # 1: Lack of representation and coordination mechanisms

One of the major issues across the value chain is the lack of effective coordination amongst players (specifically, the lack of representation and coordination mechanisms, from associations or cooperatives at the mining level, to cooperation mechanisms across the value chain), including existing gem miners associations. Possible benefits of such associations include consolidating supply of small miners, better representation and negotiation capabilities with traders (including setting a time for auction), and as a central point to receive and provide technical assistance. **The lack of effective associations is a major missing link for the development and implementation of sustainable initiatives for the sector development.** The creation or reforming current gems associations in NWFP should be assessed. In creating cooperatives or similar associations, there are lessons to be learned from existing associations in the Northern Region and international experience, including failures. One such project, a donor-funded ASM Diamond Cooperatives Project in Sierra Leone, provides lessons in setting up gem-stone cooperatives. This includes inadequate socio-cultural preparation, design and implementation difficulties, inadequate prospecting and exploration, donor delays, and removal of support for the revolving loan fund by the donor.[10]

Pakistan Gems and Jewelry Development Company (PGJDC), a federally funded program with considerable private leadership at the board, is trying to keep the value chain players on one

[10] Estelle Levin, international mineral expert (2008).

platform. However, it is in its initial stages of strategy implementation, and it has yet to prove itself.

6.2 Value chain stage 1: Mining and Pre-Mining

Except for a few emerald mines in the Swat, and perhaps ruby deposits in the Hunza valley,[11] the vast majority of mining deposits in Pakistan are suitable for ASM and not large scale mining due to extreme mountainous and altitude conditions. Currently, most of Pakistan's gemstone mining consists of informal small scale operations. In NWFP, about 2 large scale mining licenses have been given by DGMM, to emerald mines in Shamozai and Gujarkili (both in Swat). A third is in the process of being auctioned shortly. About 40 small licenses for small miners have been issued,[12] but only about 20-30 small miners are believed to be operational. There is an acute under-reporting of gemstones transactions including among the licensed miners, thus exacerbating the challenge of collecting revenues and obtaining accurate information.

ASM mining in NWFP. The major hubs of mining activity in the province are Swat Valley, Chitral Valley, Kohistan and Hazara (including Kaghan valley). The mining activity in these areas is on micro and small scale and is marred by lack of equipment and mining skills. The stones will usually pass through one or two consolidators in the local mining area before reaching gems trade areas in Peshawar. Well established extracting and selling mechanisms exist, but there is very little reliable data on how such networks work. Most of the mining activity is clandestine, controlled by a few dominant players in each area. Cooperation mechanisms among ASM , such as cooperatives, are needed. However, this must be done with care (see Box 3: "Lessons Learned From Sierra Leone Cooperatives").

Issue # 2: Value losses from poor mining practices

There is significant loss at the mining stage as cracks appear in the crystal structure due to indiscriminate mining practices. Local miners use conventional mining techniques that should not be applied to gemstones. The miners apply blasting rather than gentler techniques of gemstone extraction. They do not follow proper mining phases, including exploration, development, and exploitation. Much of the value loss from such practices is unrecoverable, as value addition depends on the quantity of unbroken gemstones with limited natural fractures and fissures. **If current practices for exploration and extraction were improved, the existing miners would increase its revenues by an estimated five times**.

Issue # 3: Inadequate infrastructure

The infrastructure (like electricity, roads etc) at most of the mining pockets is inadequate, often inaccessible in many mining locations at high altitudes, and thus makes mechanization of mining a challenge. Feeder roads from the main roads to the mines are often either absent or in poor conditions. In some cases, transportation is seasonal, with travel possible only a couple of times during the year. The lack of infrastructure restricts mining activity and transportation of goods during winter due to snow, reducing the overall productivity of a particular mine by several times its potential value. Thus, infrastructure weakness is a problem that slows industry growth and reduces the potential output from mines. However, having a case for significant infrastructure investments in gemstone mining is unlikely to happen in the foreseeable future, given the fragmented structure of ASM miners, few firms that are formally registered in NWFP, and difficulties of estimating the impact of improved infrastructure on informal gemstone mining.

[11] Which still needs to be assessed and demonstrate its feasibility.
[12] Source: DGMM.

Issue # 4: Lack of reliable geological data

The lack of reliable geological data is a major obstacle for large foreign mining companies to invest in country's gem deposits. Due to lack of know-how and proper equipment, miners use uncontrolled explosions, often permanently damaging the gemstones. The loss of value from inadequate mining is estimated at 100% of currently trading value (est. at US$24.5 million in NWFP and Northern areas).

Box 3: Lessons Learned From Sierra Leone Cooperatives

This box outlines the lessons learned during a USAID-funded cooperative scheme for the Artisal Miners in Sierra Leone.

In 2005, as part of USAID peace-building activities, the Integrated Diamond Management Programme (IDMP) - a diamond mining cooperative scheme – was launched to formalize and rationalize the artisanal mining sector, in order to bring revenues to the government and benefit the community. An international consulting firm was brought in to implement this initiative. The project components included:

- Training and organization for mining activities;
- Improving access to finance
- Providing opportunities for youth
- Bypassing traditional intermediaries
- Empowering miners with greater financial diversification;
- Linking miners with international markets
- Increasing community participation in countering illegal activities

The project had mixed results. The cooperative started to self-sustain itself, primarily from non-mining activities such as farming. There were economic benefits such as increased employment as well as visible community improvements, such as building a school, a revolving loan scheme, rice and plantain agriculture, HIV campaign, and sports facilities.

However, a 2007 independent review considered the project as a failure. The initial private investor lost money, as the cooperative did not find enough diamonds to pay back the loans or turn a profit.

This case study highlight key lessons in designing cooperatives for the mining sector. This includes the importance of project design with a nuanced knowledge of the target beneficiaries and its operational context, aligning incentives between the individual and the cooperative, appropriate governance policies and organization, and proper financial planning.

Source: Estelle Levine with Ansumana Babar Turay, "Artisanal Diamond Cooperatives in Sierra Leone: Success or Failure?"

6.3 Stage 2: Lapidary and Processing

Issue # 5: Insufficient skills for value addition in cutting and polishing gemstones

Gems cutting and processing in NWFP (and elsewhere in Pakistan) suffers from obsolete technology, limited skills, lack of precision, and it is not adapted to modern cuts and shapes. Most of Pakistan's gemstone processors are clustered in Karachi and Peshawar (Namak Mandi), with smaller clusters in Gilgit, Chumar Bakor district, Skardu, Faisalabad as well as Lahore, Quetta and Islamabad. Little value is gained by processing stones as cutting exists on a very limited scale (1 to 5 people workshops). 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

shape and proper enhancement techniques for low grade material. The skill level of the craftsmen engaged in gems processing depends entirely on their experience and on what they have learned from their ancestors, including migrants from Jaipur, India. As a result, most of the stones are re-cut, once they reach international markets. **If an additional 10% of currently traded gems were properly cut, the sector would yield gains estimated between US$2 to 20 million**.[13] 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.[14]

6.4 Stage 3: Trading and Exports

Issue # 6: Lack of a Gems Exchange

Much of the potential development of the gems trading segment in the province as well as channeling it into the formal sector has been left untapped due to the lack of a Gems exchange. It is proposed to establish a Gems Exchange in Peshawar. The idea behind the Gems Exchange is to provide one-window trade facilitation to the buyers (including foreigners) in a secure and comfortable environment, including gems shops, cargo processing, and banking.

The development of a Gems Exchange has potential to improve the entire value chain, as it aims to significantly increase the flow of international buyers. As it happened elsewhere (e.g. Thailand), as more international traders become acquainted with Pakistan's potential, this increases their stakes to see a successful value chain, including mining investments. However, this is a unique window of opportunity which cannot be missed. If not properly implemented, it could also turn into a disillusion, diluting Pakistan and Peshawar's image internationally. International best practices for a Gems Exchange show that a proper environment for international buyers must include a number of practical facilities and arrangements to ensure business transactions and brokerage services in a "confidential" and adequate setting. In the process of setting up a Gems Exchange in Peshawar it is recommended to seek relevant technical advice to ensure that the Gems Exchange meets international standards and the needs of the key players.

The establishment of gems exchange has been a demand of the gems sector stakeholders of NWFP for the last few years. The need has been raised at many fora, including the March 2008 Focus Group. A key proponent is the Pakistan Gems and Jewelry Development Company (PGJDC)[15].

Issue # 7: Lack of certification and grading

Gems traded in NWFP are so far not subject to stringent grading and certification of their quality. Reliable certification of the quality of the gems would enhance their sales prices. In addition, consumer demand in several of the main importing markets (UK, USA and continental Europe) put a premium on gems and jewelry whose value chains have been certified to be consistent with Fair Trade or other socio-ethical considerations. Such certification is also lacking in NWFP.

[13] Proper cutting can add from 10% to 100% of current sector trading volume, estimated at $200 million by the International Colored Stones Association, in other words, between 10% and 100% of US$20 million.
[14] Including the head of Gemological Institute of Great Britain and the President of International Colored Gemstone Association, ICA, Head of Research and Education Material and Gemological Science of the University of Nantes (France), and the Asian Institute of Gemological Sciences. They have all visited the GGIP, and essentially shared the same conclusion.
[15] The PGJDC is funded by the Federal Ministry of Industries and Commerce. The company's board of directors has significant representation by the private sector of the gems and jewelry industry.

Exports

According to official statistics, Pakistan's gem exports grew by 68% from 2001 to 2005, while jewelry declined by 26%. However, official figures substantially underestimate the true level of trade. Official export levels for gems and jewelry in Pakistan is US $5 million in 2005, from $2 million in 2002. [16] Export sale proceeds are often remitted to foreign accounts outside the Country. The lack of proper declaration of gemstone trading value distorts the real value being traded in the sector, which is estimated to be around $200 million in Peshawar alone by international experts and dealers (thus, exports could be under-valued by more than 40 times).

Box 4: Formalizing Gemstone Trade – International Best Practice

Informal gemstone trade hinders sector growth and government revenue collection. In Peshawar, over 90% of gemstone trade is informal. Given the lack of transparency and even greed characterized in this sector, formalizing gemstone trade is a major challenge. Other gemstone trading countries – starting with Colombia in 1980s, then with Nigeria and Sri Lanka – have been in Pakistan's situation before, but they have successfully formalized their gemstone trade. The critical instrument to achieve this has been the use of temporary export incentives.

Export incentives for the purpose of gems sector formalization are given by governments to exporters in the form of tax rebates (when the sector is used to paying taxes) or any other mechanisms best applicable to the country and the sector. Incentives schemes are for a limited period of time, and exist or have existed in the gemstone sector of different producing countries. For example, Colombia used import duty certificates which a gems trader could use as a credit to import other products. The main government entities responsible for this initiative were the airport authority and the customs agency. The amount of time involved varies from country to country, but getting to a point where the sector cannot revert back to informality takes at least five years.

In Nigeria, export incentives on the face value of invoices have been set according to the level of gemstone processing:

1. 5 % : Raw material.
2. 15 %: On semi processed, mineral specimen, cleaned and trimmed, tumbled material, tumbled, sawed sorted and cleaned ornamental stones.
3. 30 %: On cut and polished gemstones bead stings, ornamental, decorative, handicraft stones, etc. jewelry products with gemstones.

It is important to keep in mind that the percentage and incentive modalities vary from country to country. For example, in Sri-Lanka, export incentives for gemstones were at one time up to 50% of export value and was gradually reduced and abolished as the Industry started showing official and measurable results. As a result, formal exports figures in Sri Lanka increased dramatically.

Source: International Colored Gems Association (ICA), 2008

Issue # 8: Substantial evasion of revenue payments to government

Reflecting that the bulk of the gemstone sector is informal, most of the revenue that should accrue to government from mining leases, surface rent and royalties is not paid. The relatively short duration of mining leases compared to international standard and the high all-inclusive license

[16] Trade and Development Authority of Pakistan (http://tdap.gov.pk/v1/news/details.php?param=MjMzi), International Trade Center statistics (http://www.intracen.org/tradstat/sitc3-3d/ep897.htm)

fees (that bundle surface rent and royalties instead of separating them which is international practice) are an important factor behind the extensive non-payment and non-declaration of sales and findings by miners. Currently revenue collection is not consolidated in a single point and little accrues to the local mining communities or municipalities.

Distribution channels

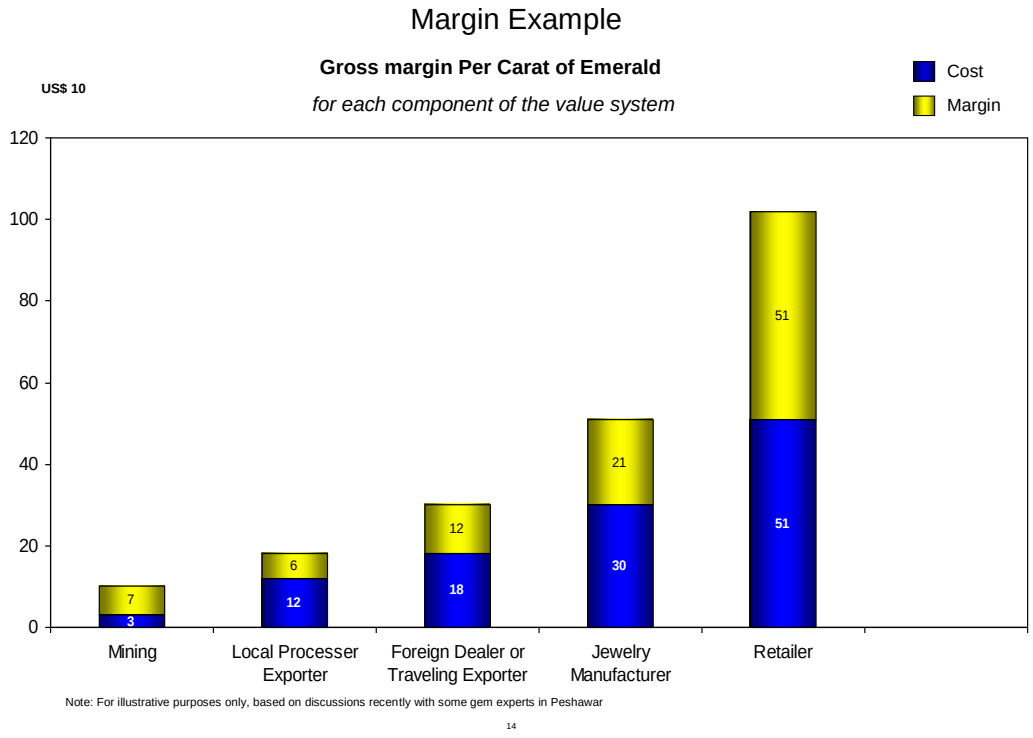
The selling price of a cut and polished stone varies along the processing and marketing chain according to the specific level and buying power of each customer. This leads to a wide range of profit margin opportunities for the same gemstone.

The impact of distribution channels in the type of added value brought to gemstones after processing is described in the following table (margin ranges by channel type) and graph (margin across the value chain):[17]

[17] ICA Consulting Survey, 2007. ICA is an international gemstone manufacturing and trade association)

Domestic market:	
Within the country	100 - 300%
Exported from the country (internet sales included)	150 - 400%
Export market within the country:	
Large wholesale to visiting international buyers	50 - 150%
Large National exporters	40 - 100%
Exhibit sales in International gem shows:	
Sales to Wholesalers or large manufacturers	100 - 150 %
Sales to Jewelers	200 - 250 %
Sales to Designers and public	250 - 500 %
International Sales trips by National traders/exporters	
Sales to large wholesalers	80 - 150%
Sales to manufacturers	100 - 170%
Sales to Jewelers/ designers	150 - 300%

Figure 8. Profit margins at different stages of the gems and jewelry value chain



Thus, the type of distribution channel which Pakistan chooses to compete matters. For example, in-country exports from NWFP including internet (150%-400%), sales to designers and final consumers (250%-500%) seems in principle is much more attractive than sales to large national exporters (40%-100% or sales to large wholesalers (80%-150%).

7. Existing Gem Initiatives in Pakistan

Some of the challenges highlighted above are being addressed by different public and private sector bodies. A list of existing initiatives to address some of the sector challenges include:

Problem	**On-going action**	**Status**
Disorganized trade, lack of foreign buyers	Establishment of a Gems Exchange (*private-public initiative, SWOG*)	Gems exchange in Peshawar (Namak Mandi) is planned to be formed. It is yet to be operational.
Informal mining, smaller players	Small Scale Mining Policy (*DGMM*) (Concession Rules)	Mining policy is in effect, but little has been reported back from miners (thus, no significant revenues to the provincial government).
Lack of coordination in the value chain	Establishment of a Sector Coordination Company (*PGJDC) (public-private initiative, SWOG*)	Strategy has been formulated, but activity implementation is in its initial stage
Lack of knowledge of buyers, distribution channels, and NWFP's competitive positioning	Sector Marketing Study, (*TDAP, Gems SWOG*)	Consultants submitted proposals to TDAP, which in the process of selection as of April, 1, 2008
Master Trainers of Gem Cutting & Polishing	PISDAC funded short term training by Sri Lankan master trainers	Expected to be implemented soon.

8. Policy Recommendations

A detailed set of policy recommendations is set out in table 1. The recommendations are divided according to different stages of the value chain: mining, processing and trading. The set describes the issues to be solved and the rationale for solving them, and explains the recommended actions including detailed "next steps" for implementing them.

The potential impact of these recommendations includes:

1. Change from informal "smuggling" to formal "visible" exports;
2. Boost gem and jewelry exports;
3. Attract large gem and jewelry international buyers into Pakistan
4. Royalty payments are more likely to be sustained since they are linked to the value extracted. A share of the royalty payments is channeled back to the district governments in mining areas;
5. Create a visible business and profit volume for future monitoring and tax collection on revenues (approximately within 10 years);
6. Growth, consolidation and sustainability of the sector;
7. Formalize grey gem trade estimated above $ 200 million within 3 years;
8. Export real growth by 20 % annually.

Table 1. Policy Matrix For The Gems And Jewelry Sector

Policy Recommendations Summary

Issue to be solved	Rationale	Recommendation	Steps	Estimated Impact	Who
1. Disorganization in the Artisanal and Small Mining sector – Lack of representation and coordination mechanisms for miners	Fragmented players destroy product value in extraction and risk personal safety and health due to improper practices. They lack formal access to finance, provide unstable supply, and are taken advantage of due to lack of proper information in the value chain (information asymmetry re.prices on gem products).	Explore cooperation mechanisms such as cooperatives and mining associations, with assistance from NGOs and other international entities that promote community development in mining areas	1. Start establishing contacts with possible sources of TA. 2. Identify sources of funding 3. Assess readiness in NWFP to receive such technical assistance, including conditions necessary to start such a process	Better organized players, training in health, personal safety, better excavation techniques (i.e. higher productivity), collective marketing and stable buyer, reduce information asymmetries on the price of gem products	Communities and Small Scale Mining (CSMA), International Colored-Stone Association (ICA), Gems Exchange, PGJCD, NGOs (e.g. International Cooperative Alliance or Fair Trade Organizations)
2. Value loss from poor mining practices (large miners and ASM)	Lack of training in modern and more effective mining techniques and lack of associated equipment	Training gemstone mining techniques / principles for ASM and other miners. Incorporate mining training and community development in the local mining areas	Implement Master Gemstone mining training program, including ASM. Provide field training and assistance to ASM registered communities/miners	Improvement of mining conditions, Improvement in yield and profitability of mining activities, encourage gemstone mining	*Provincial Gov't* DGM *Federal Gov't* *Other* International NGOs and gems organizations, e.g. Communities and Small Scale Mining (CSMA), International Colored-Stone Association (ICA). National organizations: Gems Exchange, PGJCD

3. Artisanal and small miners do not declare findings and sales and do not pay license fees and royalties due to the Government	Lack of training and leasing agreement conditions do not allow most small miners to operate successfully during the lease terms	Incorporate mining training and community development in the local mining areas Incorporate new leasing conditions (fees, leasing terms and duration) in the agreements	Same as above	Same as above	Same as above
4. Inadequate infrastructure near mines	Infrastructure bottlenecks – particularly roads – are a major detriment to sector productivity, in some cases several times the current output value. Also, infrastructure benefits not only to the gems sector, but other industries and communities (e.g. access to schools).	Share infrastructure costs by the private and public sector. Cost-sharing estimates should be driven by a market analysis i.e. if costs justify the returns. Government contribution could be estimated based on revenue collection potential (both local and federal).	Analysis of mining operations and infrastructure needs Cost-benefit analysis of infrastructure solutions Involve community in planning mining infrastructure activities, ensuring that benefits are communicated and realized.	Gemstone mining in some areas could increase several times.	Private Sector Miners (share costs), communities (participate in planning) Provincial DGMM Federal FSB
5. Lack of reliable geological data	This is a significant barrier for mining companies to make decisions to invest in NWFP, or at least provide enough information to start prospecting or reconnaissance activities	Complete and integrate existing geodata compilation efforts, and address gaps (such as increasing compilation of historical geodata) Design and implement an investor promotion plan, including an investment prospectus based on mapped gem deposits.	Review existing geodata compilation efforts, including testing its usability to key audiences (e.g. investors). Identify gaps. Design & execute an investor promotion plan	Increase mining investment by domestic and foreign investors	Provincial DGMM Federal GSP, PMDC
6. Inadequate skills for value addition, particularly in cutting and polishing gemstones	The lack of proper value addition results in opportunity cost to the sector between 10-100% of current trading value,	Strengthen the Gems and Gemological Institute of Pakistan at Peshawar (GGIP), including better machines and teaching curriculum	1. Training need assessment of the GGIP Instructors 2. Engage Master	Conservative estimate of additional US$208 million (annually) by 2012 if 20% of	Others GGIP APCEA Federal:

	or tens of millions of dollars per year today (if only 10% were properly cut/polished), potentially hundreds of millions more if the sector grows with other reforms in place in the next 3-5 years.	Technical assistance through master trainers from gem cutting center to train capabilities of local instructors. Upgrade or replace processing equipment	trainers for training 3. Conduct Training 4. Follow Up and Evaluation	current trade were properly polished (assuming 50% increase in revenues due to value addition)	Trade Development Authority of Pakistan (TDAP)
7. Lack of a Gems Exchange	Organizing gemstone trade will impact the entire value-chain by first attracting international buyers. As happened elsewhere, this increases the stakes to upgrade the value-chain, including potential mining investments.	Ensure the implementation of an effective Gems Exchange.	Gems Exchange currently being built in Namak Mandi (Peshawar)	Increase in sales of gemstone trade volumes Raise the stakes for a more efficient value-chain, thus higher productivity	Federal government & private sector PGJDC (public-private sector company)
8. Lack of certification – lost opportunities in the growing market for socio-ethical certification, including Fair Trade	The market for socio-ethical certification has been growing in the international markets. Fair Trade for non-gem products, for example, grew by 40% in 2006.	Create linkages with international gem bodies (e.g. ICA, CASM), to (a) assess NWFP's potential to benefit from Fair Trade Certification, and (b) explore the possibility of having NWFP as one of the pilots in Fair Trade and other ethical certification processes.	1. Start establishing contacts with key international gem bodies 2. Assess NWFP potential for fair trade and other ethical certification, including conditions necessary to start such process	It is too early to determine the exact impact in fair trade, but the benefits include higher margins to gem products sold, as well as creating ethically responsible processes (labor, environmental standards) across the value chain.	Communities and Small Scale Mining (CSMA), International Colored-Stone Association (ICA), Gems Exchange, PGJCD

Other issues and policy recommendations

Mining / Raw Material Sourcing

Issue to be solved	**Rationale**	**Recommendation**	**Steps**	**Estimated Impact**	**Who**
Miners do not finish their leasing terms [1]	For proven reserves; Current licensing agreements include high all-inclusive license fees at the time of mining operations, including royalties. This increases the amount of installments that companies have to pay each year . If a company is unable to pay this price because of failure to find adequate quantity of stones due to various reasons then they can choose to abandon the mine.	Conduct further studies to explore alternative ways of pricing the mines, during mine auctions. Allow flexibility to re-evaluate lease periods under special circumstances (including longer periods for foreign investment)[2]	Review concession laws (NWFP).	This would encourage mining activities, increase legal lease / formal mining activity, improve visibility of deposits, and encourage investors.	*Provincial Gov't* DGM (review concession rules) *Federal Gov't* Ministry of Mines (consultative role)
Difficulties in enforcing agreements between provincial government and miners for both large mines and ASM	Lack of regulatory monitoring and enforcement capabilities increases the problem of non-reporting	Further strengthen the capability of DGMM to enforce the regulations Capacity building of staff, provision of equipment and inspection capabilities. Training of gemstone mining techni-ques, including principles for ASM.	Structure an inspectorate procedure. Design a program to receive and provide related training	Ability to enforce the current and future emerald mines	*Provincial Gov't* DGM, local municipal authorities

[1] The mining activities by different companies (who received mining licenses for proven reserves through auction) have come to an end much before the mining lease tenure of ten years.

[2] Some international investors will be looking for lease periods of 30 years, as it is the case in Colombia and elsewhere (source: Jean-Claude Michelou)

Processing, Value-Addition, Trading and Marketing

Issue to be solved	**Rationale**	**Recommendation**	**Steps**	**Impact**	**Possible Stakeholders**
Non-payment of royalty, Informal trade, lack of data on gems trade, resulting in loss federal and provincial government revenues	Current taxation and fee collection system across the value chain does not encourage miners and traders to pay royalties and other taxes	Study the creation of an incentive mechanism for a limited period of time (5-7 years) to encourage formalization of gem exports. This would create incentives for traders to report on gems trade. Incentive can be gradually reduced and dismounted as formalization is consolidated, and with stability of trade and business volumes Appropriate mechanisms for Pakistan needs to be examined, such as import duty certificates or other appropriate local industry examples such as in textiles..	1. Create in the Buying/Exchange platform (Gems Exchange) a one stop shop export control and royalty collection office 2. Develop criteria of eligibility and rules for incentives beneficiaries	Formalization of gems trade, valued at US$200-250 million a year, and projected to grow to about US$500 million by 2013.	Federal government: State Bank of Pakistan, Ministry of Finance, FBS, and TDAP Other Gems Exchange, PDGJC

Annex 4. Non-Gemstones Mining Sector [1]

This annex presents a more detailed set of policy recommendations than the summary, key recommendations in section 4.

The non-gemstones mining sector in NWFP: Issues and recommendations

Issues	Recommendation
I. Geological data and Resource Potential	
There is poor access to historical geological data and therefore the Province's mineral resource potential is under-utilized	• Increase compilation of historical geological data • Undertake increased sector promotion in international markets
Some smaller deposit types do not lend themselves to industry-led prospecting and exploration since the miners are almost exclusively small-scale enterprises	• Some government assistance in the form of GSP and DGMM led prospecting may be warranted
There is weak enforcement of regulatory compliance with government's requirement for the industry filing of reports and exploration outcomes	• DGMM needs to ensure periodic filing of industry assessment reports (i.e. expenditures, survey outcomes, maps) • DGMM needs to ensure adequate protection of industry assessment reports and other information while a license holding remains in good standing
There is strong industry desire for a gemstone laboratory	• Existing GSP and NWFP laboratories in Islamabad and Peshawar should assess mutual capabilities and promote their services, and thereafter assess what tests could be moved closer to operations in the field
II. Institutional Structure	
As currently structured, the Secretariat of Industries, Labor, Mineral Development and Technical Education has conflicting internal mandates to set policies to promote the sector while also mandated to regulate.	• A functional management review is required to map out and clarify the roles and responsibilities of key government functions that are currently grouped together under the Secretariat of Industries, Labor, Mineral Development and Technical Education • This review should be undertaken both at the Secretariat level and within DGMM.
The regulatory functions within DGMM (i.e. Title & Licensing Division and Inspectorate of Mines & Labor Welfare) are not independent of Exploration Promotion Division. There is an inherent conflict at the DG level should a required regulatory action by the Mines Inspector conflict with broader sector promotion or the mandate of DG Mines.	• Based on the functional management review (above), some restructuring should be expected to create arms-length independence of the Title & Licensing Division and Inspectorate of Mines & Labor Welfare divisions (perhaps with Secretary of Labor versus D.G. Mines with Secretary of Industries). The level of independence would be determined by the above functional review.
There are seven district offices that combine Title & Licensing Division and Inspectorate of Mines & Labor Welfare to address (a) local disputes, (b) receive and verify license applications, and (c) field inspections. These offices lack the technical capacity for effective regulatory enforcement.	• As part of the functional management review (above), an analysis should be made of: o What field capacities are needed in regional offices and what staffing / logistical support is required o The coordination between district offices and

[1] The non-gemstones mining sector includes dimension stones, industrial minerals, coal and metals.

	district magistrates in solving local mineral-based disputes o Opportunities for improved service delivery in remote mining areas, including extension services
One of the key services of DGMM should be the provision of geological data to the private sector to facilitate exploration and development. At present, the mandate for mapping and sharing of geological information between GSP and DGMM and private sector is not clearly defined.	• Establish a geological data center, similar to that proposed for Balochistan, in which (a) historical information from GSP and (b) DGMM archives are jointly digitized and housed within a provincial database, and updated regularly with industry assessment reports and new geological data as they become available from either GSP and/or DGMM.
III. Legal and Regulatory	
Environmental impact assessment regulations require clean-up and rehabilitation, but do not have provisions for financial surety of closure	• NWFP Mining Concession Rules 2005 should be amended to include financial surety of closure
Small-scale miners do not undertake land reclamation because of knowledge and financial resource deficiencies. Environmental impact assessment regulations for small-scale mines have a provision for collective environmental rehabilitation program, but there is no mechanism for implementation	• The NWFP government needs to develop an implementation plan for land reclamation from artisanal and small-scale operations
The NWFP Mining Concession Rules 2005 require 30 day notification of licensing actions to the local Forest Officer. In addition, the Forest Department has taken authority on mineral licensing in forest areas. There is now jurisdictional dispute on mineral licensing.	• A review is needed of the NWFP Mining Concession Rules 2005 and all Forest legislation to clarify mineral licensing across all NWFP lands
Mining regulations currently combine all metallic, coal, industrial and construction materials and precious stones.	• A review is needed of the NWFP Mining Concession Rules 2005 to determine appropriate regulation of metallic minerals, coal, industrial and construction materials and precious stones.
Many artisanal mining operations are too small to have the technical and financial capacity to improve performance (i.e. mining efficiency and reduced waste).	• DGMM could explore government programs for the sharing of equipment and cooperative approaches to consolidate into larger operations for which financing is more available
IV. Inspections	
Extension services, as currently offered by DGMM are deemed by the industry to be highly valuable, but limited in scale (coverage and depth of issues) and tend to be ad hoc in response to a particular need rather than systematic	• Extension services would benefit from development of a systematic workbook in which trainers systematically cover an array of topics through the production chain • There is a need for DGMM to increase the number and quality of trainers
Inspections are problematic as many operations are non-compliant and a punitive approach does not work.	• The functional management review (above) should explore a voluntary regulatory compliance approach, in which extension services are used to improve industry performance rather than a policing system based on fines
Mining inspectors regulate the "petty	• A review is needed of Mines Inspectorate functions

contractors" who operate the mine and not the license holder; reducing the incentive to find qualified miners.	and regulations to ensure incentives for mine safety, including performance based award of coal licenses through auction
V. Fiscal Regime and Revenues Management	
Benefit sharing agreements require annual contributions by mine operators towards the funds for local social development and community welfare projects (schools, water supply, roads etc). These contributions are not paid.	• DGMM and NWFP Finance Division need to build the requisite capacity to monitor such payments; and link non-payment to licensing compliance
The auctioning system used to award royalty collections to a private contractor, have inherently low target values (see collection of excise duties versus royalties versus target values)	• DGMM Title and Licensing Division needs to develop and implement transparent financial models for the estimation of target values; using mine production statistics versus relying on the private contractor collecting royalties • DGMM should enforce the provision that all large industrial scale operations have a weigh bridge and record / report production
VI. Mining Sector Performance	
Current dimension stone mining operations waste up to 80% of resources through primitive, inefficient mining processes	• DGMM and the DG Mines MPNR should consider preparation of a small-scale mining training course from which mine certification can be linked to micro-financing programs to encourage responsible mining • A grant program should be investigated for artisanal and small-scale miners to improve efficiency and provide rudimentary equipment that would also improve performance • The industry could explore the establishment of a center to research mining efficiencies, standardization of products, and new technologies and market end-uses for NWFP stone products
There are no regulations on the use of blasting in mining resulting in gross waste. Attempts to police through the ban of explosives has had minimal impact.	• Regulations for responsible use of explosives supported by extension service training on techniques need to be developed • Alternative mining technologies that lessen reliance on blasting need to be investigated
Industrial minerals and dimension stone production is limited by growth in downstream markets. Historically mines have been price takers and independent from downstream processing.	• DGMM should further initiatives towards cluster-driven integration by fostering networking and partnerships towards larger supplies for larger construction projects, or recurrent large-volume retailers having uniform, standard products • DGMM work with industry to explore opportunities for producer cooperates for selling products of small-scale miners in international markets at improved product prices
VII. Sustainable Development	

Dissatisfied communities feel that the industry is not contributing sufficiently and unchecked disputes persist around the payment of surface rents. Communities would support mining subject to direct participation.	• Mining regulations should include:
	  • a framework for community consultation in mine planning, development, ongoing operations, closure, and post-closure; including identification of stakeholders, assignment of roles and responsibilities
	  • community consultation beyond monetary

	negotiations (surface rents) that integrates communities into planning and execution of local development plans.
Mining Regulations have no provision for economic closure planning.	• Mining Regulations should require the preparation and execution of mine closure relating to fostering local economic development and the transition from mining to other economic activities • Mining Regulations should require the orderly transfer of infrastructure, facilities and lands on mine closure, including re-skilling and redeployment of labor, provisions for education partnerships and incentives for re-conversion of closed facilities
There is a significant number of unlicensed miners.	As part of the functional management review, an analysis is needed of the rates charged to artisanal miners in considera-tion of scale of operation and prospective area size.