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PAKISTAN

NWFP Growth Policy Note

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Poverty Reduction and Economic Management Sector Unit
South Asia Region



PREFACE AND ACKNOWLEDGMENTS

The Government of the North West Frontier Province requested in the spring of 2007 an economic growth policy note as a follow up to the Provincial Economic Report of December 2005. The provincial government was in particular interested in analysis at the industry level of key industries with high growth potential, and a joint decision was quickly made to study the value chain of three industries – horticulture, furniture and gems and jewelry.

In addition to studying constraints to growth at the sector level the intent has been to also have an in-depth analysis of the provincial investment climate in a chapter on crosscutting constraints. This would draw on data from the survey that would form the basis for the Second Investment Climate Assessment to be produced by the World Bank. The data from this survey has been delayed so the crosscutting section of this policy note with the investment climate analysis will be presented in a follow up version of the policy note in the last quarter of 2008.

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1. Introduction and Overview

1. The North West Frontier Province (NWFP) of Pakistan is the poorest province in Pakistan with substantially lower income levels, worse social indicators and higher poverty incidence than in the rest of the country. GDP per capita is 30 percent lower than the national average, and unemployment at 12 percent is double the national rate, reflecting the weak employment generation capacity in the provincial economy. Although reduced in recent years, poverty rates remain much higher than the country as a whole.

Table 1: NWFP: Economic and Social Indicators

	NWFP	Pakistan
GDP per capita, 2005 (US\$) 1/	484	714
Poverty rate (World Bank)	38	29
Unemployment rate, % 2/	12	6

1/ Since no official estimates exist for provincial GDP the NWFP estimates provided here are made by the World Bank. They are unofficial and preliminary.

2/ Labor Force Survey, 2005/06

2. The province has a narrow economic base which contributes a mere 10 percent to Pakistan's economy, significantly less than the population share of 14 percent. The largest sectors in the provincial economy are relatively low value-added agriculture, manufacturing (incl. mining), trading, transport, and public administration and defense.

Table 2: NWFP -- Selected Economic Indicators

	Share in Provincial GDP, in percent					Per Capita Income, Rs	Poverty Headcount, %
	Agri-culture	Manufactg & Mining	Construc-tion	Electricity & Gas Distr.	Services		
1990/91	21.1	20.9	4.0	6.1	47.9	17,565	37.0
1993/94	20.7	21.1	4.3	6.2	47.8	18,442	27.0
1998/99	23.9	15.1	4.0	8.5	48.5	18,228	40.8
2000/01	24.4	16.6	4.0	5.3	49.7	18,498	40.8
2001/02	23.5	16.9	3.6	4.8	51.1	18,661	--
2002/03	23.5	18.2	4.0	4.0	50.3	19,393	--
2003/04	22.7	18.1	3.2	6.5	49.5	20,718	--
2004/05	21.2	18.8	3.6	7.0	49.4	21,594	38.1

3. Industrial development has been slow in the province with problems of attracting sufficient private investment. This is partly because production is far from major areas of population concentration in the country as well as the seaports for international trade. Given the state of the province's and the country's infrastructure this leads to high transport costs of outputs (and of imported) inputs which is a key constraint to industrial development in the province.

4. There is substantial potential for economic diversification and rapid growth in NWFP. There are substantial mineral, water¹ and forestry resources, and conditions are favorable for livestock and horticulture production. The significant mineral potential in the province includes sizeable deposits of marble, granite, coal, precious and semi-precious stones as well as minerals for construction materials.

¹ The substantial water resources can be used for developing hydroelectricity production.

However, the province has so far not fully taken advantage of its rich natural resources. This reflects a number of crosscutting and sector-specific constraints.

5. Crosscutting country-wide constraints to the investment climate (and hence, to growth) will be studied in the Second Investment Climate Assessment for Pakistan (ICA2), which is under preparation and will be ready by end of 2008. The ICA2 survey has boosted representation of NWFP. When available, this data will provide the basis for an in-depth assessment of the crosscutting investment climate constraints in NWFP that will be included in another policy note together with an assessment of administrative barriers to business.

6. Previous analytical work by the Bank has identified a set of economic activities where the province is likely to be competitive. This view is also reflected in the provincial government's medium-term Provincial Reform Program II, confirming the strategic focus on a small set of drivers of growth in the province. These growth-drivers include tapping the potential in mining, forest resources (wood-based products) and hydroelectric (hydel) energy; shifting the weight of agricultural production from cereals (where the province does not have a comparative advantage) more towards horticulture where it does; further developing the construction industry and – in a longer term perspective – tourism. It is also important to facilitate the development of urban centers to stimulate the growth process. Some of the above areas, such as hydel, construction, tourism, and urban centers, have been covered in previous work. Further analytical work is needed in other areas.

7. This policy note focuses on industry level analysis in a few industries within the broad areas sketched out above: horticulture and the potential for downstream value added in agro-processing, furniture production, gems and jewelry, and mining of marble, granite and other minerals. The reason for undertaking the analysis at the industry level, looking at the whole value chain, is that there are important industry/sector-specific constraints to growth in addition to crosscutting constraints. The value chain analysis helps prioritizing what are the most important constraints in each sector, and identify measures that can be taken to mitigate them and accelerate growth.

8. The value chain analysis (VCA) used in this report² provides a step-by-step mapping of the production and trading process in each industry, using a set of analytical tools. This framework provides enhanced scope and coverage of policy issues that traditional research methods might overlook, unique and actionable insights by examining inter-related business entities across the chain, and a disciplined and rigorous process that supports and reinforces data collection from traditional research instruments.

9. The lack of reliable data at the industry level specific to NWFP (mainly due to extensive informality in the sectors studied) has presented the analysis with unique methodological challenges. Overcoming this, in order to identify policy recommendations that are data-driven, has required a combination of interviews with local business (CEOs) or association decision-makers, policy-makers, and international and national sector experts; focus group sessions with industry stakeholders representing a wide range of value-chain actors recommended by sector Strategic Working Group (SWOG);³ reviewing existing data including recent survey data; estimation exercises; as well as rigorous structuring of available data using analytical frameworks such as business environment analysis (Porter Diamond),

² Reflecting the budget limitations for this study, the value chain analysis is more limited than the full-fledged value chain analysis described in "Moving toward competitiveness: A Value Chain Approach", Subramanian (2007). The latter would require comprehensive numerical data on costs, earnings, etc., that are not available in the largely informal sectors studied here.

³ SWOGs are industry working groups led by industry representatives, with the participation of the government. It was formed as a result of the USAID-PISDAC project to address coordination failures in several sectors at the national level. SWOG sectors include horticulture, furniture, and gems and jewelry.

competitive position analysis (Porter's Five Forces model), Product Cost Analysis, Product Flow Analysis, and Value Chain Mapping. A more detailed description of the industry level analysis for the four industries drawing on these tools is presented in the Annexes.

10. There is huge potential for additional value creation in these industries with better policies and practices as outlined in this policy note. For instance in the case of horticulture, by addressing one aspect of the value chain – reducing production losses from poor post-harvest preservation of produce with identified techniques – can translate into US\$ 150-200 million dollars in additional value or more than 1 percentage point of PGDP. In the furniture industry, improving the value chain with identified measures is estimated to potentially increase production value 10-fold (US\$ 200 million or 1½ percent of PGDP). In the case of gems and jewelry production, the potential impact of measures to improve the value chain could amount to more than a doubling in production value (an additional US\$ 225 million in earnings per year) within five years. Furthermore, the expected formalization of under-reported transactions (US\$200-250 million per year today) as a result of value chain improvements would increase the size of the formal gemstones sector 10-fold. Clearly, improved policies and practices in these industries will have a large pay-off.

11. Interestingly, the detailed analysis of each of the four industries reveals a common set of problems and constraints that are conceptually very similar across the industries. Four sets of generic issues were found with a role for collective action, either through the state (provincial or federal government) or of the collective set of players in the industry organized as a unit (e.g., a farmers cooperative or miners association):

12. *First, there would be a need to strengthen coordination within the industries analyzed.* Probably the most important finding is the lack of effective producer organizations in all the industries studied in NWFP. There has historically been a lack of cooperation and coordination of private agents in these industries which has undermined the efficiency of the entire value chain. This can effectively be addressed with producer organizations such as cooperatives or associations for farmers, miners and furniture producers. When effectively run, they can ensure stronger coordination and cooperation between producers and strengthen the value chain. Given the history of weak cooperation in the province there might be a role for the government to act as a catalyst to facilitate the establishment of new organizations where needed or strengthening existing ones.

13. *Second, players in each of the four industries could strengthen their competitive positions with better access to information and knowledge about markets, demand, production technology, and R&D.* This information should be provided by the producer organizations to their members or in some cases by the state, rather than individual firms because the related activities (e.g., gathering and disseminating information and knowledge, doing research) have public goods aspects. These activities therefore need a collective effort (i.e., collective cost sharing) and should be delivered by collective organizations such as producer organizations or by the state in some cases where there is merit (such as research, extension services etc).

14. *Third, stronger involvement of government (and in some cases producer and other organizations) in regulations (e.g., in enforcing protection of property rights) and certification (e.g., of product quality) can also induce higher value creation in the value chain.* For instance, by enforcing standards on product quality and certifying adherence, buyers' doubts are reduced, producers get a higher price, and over time a reputation of better quality is building.

15. *Fourth, there would be a need to address inefficiencies in input and output markets.* For example, in the horticulture sector the government approval processes for new varieties are slow, and in

the wood sector there may be a collusion in provincial wood auctions. The result is higher costs, lower competitiveness and lower value creation in the pertinent value chains.

16. The rest of the policy note discusses the main challenges facing each industry and provides policy recommendations. Sections II-IV cover the value chains of the horticulture industry (section II), the furniture industry (section III) and the gemstones and jewelry industry (section IV). Section V reviews the non-mining sector, and Section VI summarizes and concludes.

2. The Horticulture Value Chain

17. NWFP is endowed with eight ecological zones that are particularly suitable for horticulture. Horticulture is a major economic activity in the province, with 1.2 million tons of fruit and vegetables produced per year, valued at about US\$ 350 million (10 percent of national total) or 3 percent of provincial GDP. Most horticulture farms in NWFP are small and medium sized. The province grows and sells mostly fresh products, such as apple, mangoes, dates, potatoes, and onions, to the domestic market, while US\$155 million (about 40 percent) is exported. Given the size of horticulture and other minor crops in the provincial economy, reducing production losses from 50 percent to 25 percent across the board would in theory translate into US\$ 150-200 million dollars in additional value or more than 1 percentage point of PGDP. The demand environment is promising. Even beyond the current food crisis, demand for year-around horticultural products has been rising both domestic and globally, fueled by consumer habits for more natural products. NWFP currently competes mostly in fresh fruits and vegetables rather than agro-processed products.

Table 3: NWFP Horticulture Estimates

Production Value	US\$350 million
National Share in Agricultural Output	10%
Share of Provincial GDP (PGDP)	3%
Total Sector Employment	244,000 (estimate) ⁴
Share of Provincial Employment	4.7%
Export Volume	US\$15.5 million

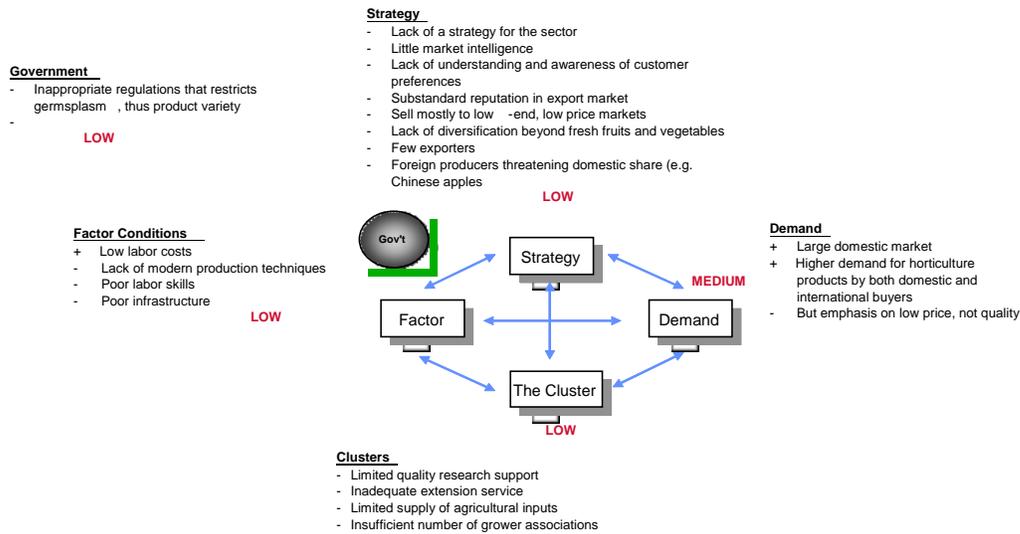
Source: Estimates by J.E. Austin

2.1 Business Environment

18. The horticulture business environment in NWFP is analyzed using Porter's Diamond Model (Figure 1). The business environment can be characterized by low labor costs and abundance of natural resources (rather than sophisticated know-how and R&D), low level of cooperation (rather than the presence of supporting firms and organizations), low level strategy (competing reactively to price-sensitive buyers, rather than pro-actively to sophisticated buyers), and a medium demand quality environment (growing demand for products locally and globally, but current buyers do not demand sophisticated products).

⁴ This is based in: (a) total employment in NWFP (5.22 million, computed from LFS 2003-04, 2005-06), (b) total employment in NWFP agriculture is 2.14 million based on 41% provincial employment share (adjusted to 2007, from Annual Review, 2004, Social Policy Development Center), (c) horticulture share in agriculture (national share) is 11.4%, (d) total estimate for employment in horticulture is 243,984 (or 11.4% of 2.14 million)

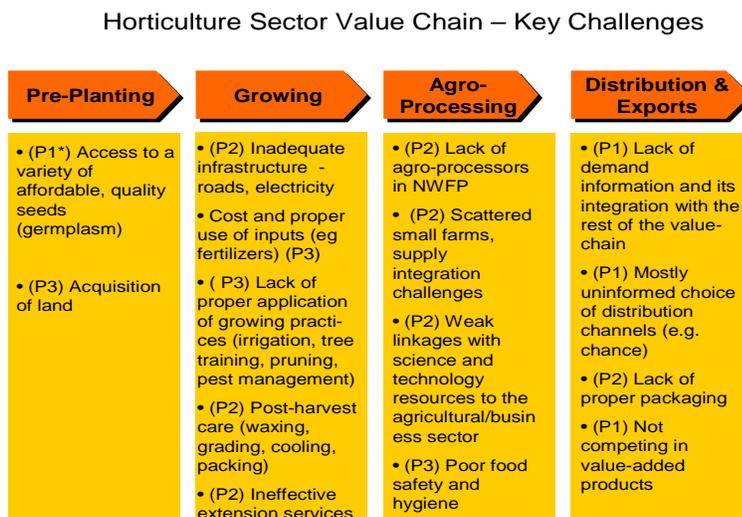
Figure 1. The Competitive Environment for the Horticulture Industry in NWFP



2.2 Value Chain Challenges

19. The NWFP horticulture value chain faces crosscutting constraints as well as constraints in different stages of the value chain. In addition to the main crosscutting constraint – lack of effective industry organizations – the most important ones in different stages of the value chain are indicated in Figure 2. Stakeholders have identified constraints in post-harvesting and marketing as the greatest challenges. In the following sections constraints are discussed in each stage of the horticulture value chain.

Figure 2. Horticulture Value Chain



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

2.2.1 *Pre-growing and Growing*

19. The main challenge in pre-growing is the unavailability of world-class cultivars (seeds) for NWFP (and Pakistani) farmers. Horticultural producers in NWFP suffer from a serious lack of high quality planting stock planted throughout the world in agro-climatic conditions similar to NWFP, putting the NWFP (and Pakistani) horticulture sector at a serious competitive disadvantage compared to other countries. These modern cultivars generate premium market prices as well as higher yields. The cultivars being planted by producers in NWFP are in general old public domain cultivars that capture the lowest prices in global markets and generate only a small fraction of the profit margin of the newer cultivars.

20. The key reason for the restricted access to the newer, globally planted fruit cultivars is insufficient intellectual property rights assurances in Pakistan. Foreign companies (e.g. UK, US) are reluctant to grant private-domain cultivars for use in Pakistan due to the insufficient intellectual property assurances. 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 proper legislation to protect the intellectual property rights of (foreign) private domain cultivars. Draft national legislation to that effect 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 intellectual property rights for foreign private domain cultivars, 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.

21. Availability of high-value and disease-free cultivars is also hampered by inefficiencies in input markets and insufficient certification. The federal government approves new plant 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*. There is also a lack of disease-free certified vegetable seeds and certified nursery plants. This seriously compromises the yield and crop quality of the infected planting stock. The government needs to streamline its approval processes for new cultivars in line with that of competitor countries, and put in place stronger certification and extension programs to ensure disease-free seeds and nursery plants.

22. Insufficient information provision and knowledge transfer to farmers contribute to low productivity. Horticulture farmers in NWFP have much lower yields per acre than competitor countries (half of that in Egypt and the lowest among provinces in Pakistan). The low yields are a result of only having old cultivars combined with poor growing practices due to farmers' lack of knowledge, reflecting insufficient extension services. There are too few extension officers—the majority of union councils (local jurisdictions) do not have any—and there are too few fruit crop extension specialists. This is a constraint because fruit and vegetable crop problems are often unique and require a specialist for diagnosis and problem solving. Also, while needed, there is currently no formal link between the agriculture university research institutes and the provincial government extension programs. These weaknesses reflect that local farmers' pressures on providers of training and information are weak because farmers are fragmented and uncoordinated. A central underlying reason is hence lack of coordination among industry agents (e.g., growers association). This is a recurring theme throughout the value chain.

23. Given the history of lack of coordination among economic agents in NWFP there could be a role for government to act as a catalyst for formation or strengthening of growers associations, drawing on lessons from local farmer interest groups (Malakand, for example), and world-wide experience. Establishing linkages to certification NGOs, such as fair trade and organic certification, could be helpful.

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 as well as hiring of additional extension staff.⁵ The coordination between applied research and extension should be improved: Model farms can be established near and work in collaboration with provincial research stations. The government should aim at passing the ownership to the private sector, while preserving the research and demonstration functions.

2.2.2 *Post-Harvest Interventions*

24. Fruit and vegetable farmers in NWFP incur huge losses of potential income (easily more than 50 percent) due to poor harvesting, handling and post-harvest care. Large quantities of the harvested fruits (40 percent) go to waste during harvesting, transportation, packaging, and storage. In addition product quality and hence unit value are negatively affected, altogether resulting in significant post-harvest losses of income to both smallholder and large-scale farmers.

25. Considering the entire value chain, constraints in the post-harvest area are currently the most limiting and in need of immediate attention. In addition to causing extensive product spoilage 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. The poor practices reflect deficiencies in two fundamental areas: deficient regulatory practices (lack of national or regional product grading standards) and again, lack of coordination among industry agents (e.g., growers association) 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.

26. The high losses due to poor post-harvest handling can effectively be reduced by organizing efforts for picking, waxing, packaging, and cool-chains in a growers association. The mentioned activities are best implemented when such an organization mechanism is present but stand-alone initiatives to provide forced air-cooling and cold storage units in strategic locations could also be considered.

2.2.3 *Agro-processing*

27. Encouraging agro-processing units could strengthen the horticulture sector in NWFP, not only through value-added products, but also through a “pull-effect” that adds steady demand, an additional market outlet for surpluses of fresh fruit, quality control, and often raises the bar to improve supply-chain linkages, including increasing the stakes for additional technical assistance to farmers. However, while there are some 25 agro-processing facilities for fruit and vegetable crops in Pakistan, there is not a single one in NWFP.

28. Significant potential exists for development of a frozen fruit processing plant in NWFP to utilize the diversity of raw material available. This section elaborates on two types of processors which could be suitable for NWFP: liquid (juice) and dry. An assessment of the cost competitiveness of Pakistani juice-producing companies *in international markets* (based on cost data for apple juice production compared to benchmarks of selected global and regional competitors) reveals that Pakistan does not have significant cost advantages for competition in *export markets*. Despite lower labor costs relative to some of its key competitors, Pakistan has high costs in both maritime freight and inland transport for exports; from Peshawar the latter cost is considerably higher than the national average. Moreover, inefficiencies in the

⁵ One expert estimate is that an additional 100-150 extension officers are needed to fill the current extension gap.

apple juice processing industry have been estimated at an opportunity cost losses of US\$70 million per year. However, Pakistani agro-business companies are competitive in *domestic markets* with good opportunities in the growing market for fruit juice and fruit drinks.

29. Establishing a dried fruit industry in NWFP may be the most logical type of value-added agro-processing industry to initially target. Demand for dried fruit and nut crops (such as dates, raisins, pistachios and apricots) is substantial both in Pakistan and in export markets with possibility for capturing high margins with proper packaging. The technology for drying is fairly simple and the initial establishment costs are not high. The major barrier in establishing such an industry is the lack of information about the potential market, technical know-how for proper drying process, and a supply consolidation mechanism (e.g. a farmers organization uses its own trucks to collect fruits from the various farmers in a coordinated fashion). These are functions that the government and farmers organizations can take on.

30. The government of NWFP could play an initial catalytic role in starting a public-private sector initiative to upgrade fruit drying equipment and mobilize existing organization mechanisms. These cooperation mechanisms, including candidates for model farms, district assemblies, and cooperatives, should be examined to receive initial technical assistance. In addition, considerable training and technical assistance need to be provided to growers, fruit handlers along the post-harvest value chain and agro-processors. In order to attract dry fruit processors a market feasibility-investment plan could be prepared for key high-value dry fruits, 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).

2.2.4 *Distribution Channels and Marketing*

31. As the world's sixth most populous nation Pakistan has a large domestic market for horticultural products. 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. 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 main barriers to tapping this potential: 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 regional export markets.

32. This large reflects lack of transparency and information/knowledge dissemination in the horticulture sector which hinders the grower in marketing of fresh produce. In order to help farmers make informed cropping decisions the government (and farmers organization) should improve dissemination of information on market intelligence and on new cultivars that are in demand in the various export markets as well as information about product quality and packaging requirements to meet buyer demand. This can be a public-private initiative, as in agro-business, involving similar stakeholders.

33. However, tapping export markets means that NWFP fruit and vegetable crops must meet stringent standards, e.g., regarding environmental sustainability of production as well as international labor, health and safety standards. Thus, in order for NWFP exporters to success-fully market their products abroad it is recommended that a credible system of government certification is developed to demonstrate compliance with these international norms. Furthermore, it is recommended to commission sector market research to enter into attractive market segments in both fresh fruits, and value-added niches (e.g. dry fruits, organic, and fair trade certification). This should result in a comprehensive value chain strategy, including a re-configuration action plan (e.g. what and how to plant, and other certification requirements).

3.3 Crosscutting Value Chain Issues

34. 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 productivity of NWFP’s horticulture sector. It results in 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. It is recommended that the government facilitate cluster initiatives and the strengthening or formation of growers associations, drawing on international experience. USAID and its work with clusters, including the case of the Kenyan Avocado sector, is an example of a successful international model to strengthen value-chains through market linkages in similar conditions as NWFP. The experience in Belize in strengthening grower associations, which can be a stand-alone effort or as part of the cluster initiative, can also serve as a reference.

35. Insufficient research and applied research links to the value chain: Horticulture crop growers in NWFP need the help of government research institutes to overcome numerous production constraints that compromise the yield and quality of their crops. However, due to budget and staff limitations, applied horticulture research at the national and provincial level has so far been insufficient. It needs to be strengthened with additional resources. Key areas that need to be addressed are stemming the threatening spread of fruit and vegetable crop diseases and strengthening linkages between agricultural research, extension, and farmers. Stronger linkages are needed so that research and extension priorities correspond with farmers' needs and market trends.⁶ The private sector should have input into research priorities and programs as part of official advisory committees.

3.4 Summary of Policy Recommendations

Key policy recommendations on the horticulture value chain are summarized in Table 4:

Table 4. Key Policy Recommendations for the Horticulture Value Chain			
Constraint	Recommendation	Key Actors	Short/Medium Term⁷
<i>Crosscutting issues and recommendations:</i>			
Lack of cohesiveness and effective cooperation among value-chain actors.	Strengthen the clusters, e.g. through strengthening of producer and marketing organizations, market linkages through lead firms; development of a cold storage, transportation and freight forwarding for utilization on a fee basis; provision of horticulture-specific extension support; introduction of new technologies and technical training.	Provincial Department of Agriculture, district agricultural bodies, Horticulture SWOG, local growers’ associations and cooperatives, consulting firms/NGOs	ST + MT
<i>Pre-planting and growing:</i>			
Lack of cultivar variety due to insufficient protection of intellectual property rights for foreign-private domain cultivars.	Ensure the passage of a national legislation protecting foreign-private domain cultivars in Pakistan (already submitted to the National Parliament);	National Parliament—approval of IP Laws Provincial Government—enforcement of IP rights	ST ST + MT

⁶ Additional lessons could be drawn from the Pak-Swiss Project, which echoes the recommendations in this report (e.g. prioritizing extension services and model farms needed to assist agricultural groups across the province).

⁷ Short term: activity up to one year. Medium term: activity up to 3 years. Longer than 3 years is defined as “Long term” for this purpose.

Table 4. Key Policy Recommendations for the Horticulture Value Chain

Constraint	Recommendation	Key Actors	Short/Medium Term ^{7/}
Fragmented farmers, low yields, and unstable demand.	Mobilize growers associations (see above). Establish linkages to certification NGOs such as fair trade and organic certification.	Provincial Agricultural Secretariat, extension agencies, MINFAL, private growers	ST + MT
Insufficient farming skills; weak technical support to farmers.	Strengthen capacity of local extension officers, in particular horticulture specialist. Establish model farms in collaboration with provincial research stations.	Provincial Agricultural Secretariat, extension agencies, growers' associations	ST + MT
Post-Harvest Interventions:			
High losses due to poor post-harvest handling.	Organize efforts for picking, waxing, packaging, and cool-chains in growers associations. However, stand-alone initiatives could be considered, by identifying funds to provide forced air-cooling and cold storage units in strategic locations.	Growers association; NWFP Agriculture Secretariat, Horticulture SWOG, district councils	ST + MT
Processing and Agro-Business:			
Lack of proper agro-processing firms.	Prepare a market feasibility-investment plan to attract possible investors in key high-value products, such as dry fruits (dates, raisins, pistachios, and apricots), comparing them with a traditional agro-processing opportunity (apple juice).	Public-private partnership (e.g. horticulture SWOG, NWFP Secretary of Industries, TDAP, SMEDA).	ST
Distribution Channels:			
Lack of market information and knowledge.	Implement public-private partnership to improve dissemination of market information to producers, including on new cultivars in demand, consumer preferences, channel preferences, market trends, sources of competition, and future outlook.	NWFP Department of Agriculture (marketing cell in every district); growers' associations, farmers, wholesalers	ST + MT
Access to markets.	Commission a market study on attractive market segments in fresh fruits and value-added niches (e.g. dry fruits, organic, and fair trade certification), which 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). Public sector agencies could facilitate this process for example through design of market access guidelines, mobilizing the private sector and federal agencies (TDAP) if needed.	NWFP Agriculture Department, TDAP (federal agency), farmers, exporters	ST+ MT

3. The Furniture Value Chain

36. 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. Demand prospects for furniture seem good both in domestic and foreign markets as judged on the trend of robust growth rates over the last decade. The potential impact of value chain improvements in the sector (nationwide) has recently been estimated by the industry to an increase of up to 10 times its current production value (US\$150 million) and exporting volumes (US\$14 million, out of which US\$1.5 million comes from NWFP).⁸ The potential growth in NWFP could be even larger. Despite its location advantage

⁸ USAID-PISDAC Report (2006), "Pakistan Furniture Industry Strategic Working Group," 2006, p. 7

and proximity to raw materials, less than 500 furniture assembly units – or 6 percent of the national total - are located in the province. They employ nearly 10,000 workers, mostly in small enterprises, highlighting the industry’s development impact.

Table 5: NWFP Furniture Statistics

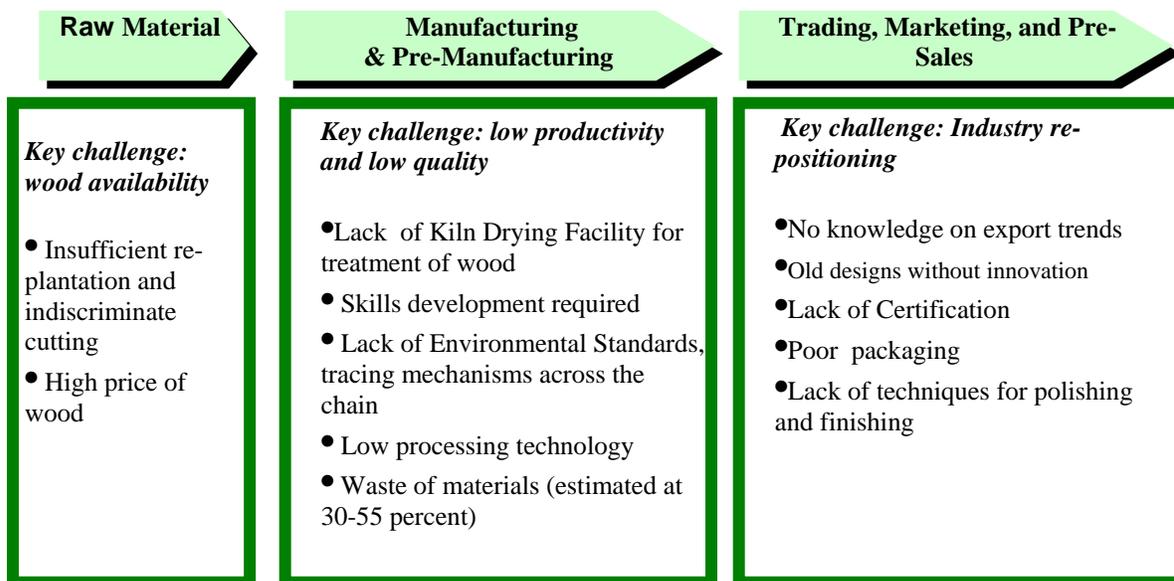
Production Value	US\$19 million
National Share in Furniture Output	12.7%
Share of Provincial GDP (PGDP)	0.3%
Share of Provincial Employment	0.2%
Export Volume	US\$1.5 million

Source: Estimates by J.E. Austin

3.1 Value Chain Challenges

37. The furniture value chain in NWFP 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. Figure 3 highlights this. Key challenges at each stage of the value chain and tentative recommendations are described in the sections below.

Figure 3. Key Challenges Across the NWFP Furniture Value chain (N=12)



3.1.1 Stage 1. Inputs - Raw Materials

38. 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 in the forestry industry and rigged auctions, reducing profitability and sales in the furniture industry. Sale and pricing of local 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. If the collusion is eliminated, the *overall cost* of furniture products could decline by 18 percent and sales could expand proportionally (or more for exports).

39. Two policy proposals have been presented to address wood collusion: one involves canceling the current royalty payment structure, possibly refunding invested amounts to local communities and timber merchants, and enforcing that contractors (who harvest the logs) do not own the logs. The other is to create a Wood & Component Bank with sufficient financial resources to effectively compete with “the Timber mafia” on the supply side. The Wood Bank would have public-private sector representation in its board, including high-level provincial government representatives.

40. The long-term threat to the furniture industry is the dwindling of wood supply from domestic sources, in particular in NWFP, due to depletion of the forests. At the present rate of deforestation (1.5 percent - 1.7 percent 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. The ongoing, rapid deforestation reveals two major constraints in NWFP’s forest management: long-lasting conflict between local communities and the provincial government (Forest Department), and weak institutional capacity of the Forest Department.

41. 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:

- (a) 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;
- (b) 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; and.
- (c) Incorporate effective community consultation and participation mechanisms in policy instruments and effective practice. Based on successful examples, start with the recognition of local rights, creating vested interest in the protection and conservation of the forest. 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.

3.1.2 Stage 2. Manufacturing and Pre-manufacturing

42. The main manufacturing issues in NWFP's furniture industry 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 but are more pressing in NWFP. Cross-regional data reveal that labor productivity in the Peshawar furniture cluster is 1/3 of the leading clusters (Lahore and Gujrat). Average scale of firm production in the Peshawar furniture cluster is less than ¼ of Lahore's. Hence NWFP firms are not able to take advantage of scale economies. Cross-regional data also indicate that workforce skills in NWFP lag significantly behind Lahore and Chiniot. Internationally, Peshawar is significantly behind countries like Egypt and Croatia in kilning of wood, materials handling, workforce skills, manufacturing techniques, design, finishing, and packaging.

43. Poor workforce skills and inadequate technology are issues that the furniture industry itself can address, e.g., through the furniture industry association, and possibly with some public sector involvement. In that regard the Pakistan Furniture Strategic Working Group (Furniture SWOG)⁹ has put forward two proposals for addressing these deficiencies. In order to address *poor workforce skills* the Furniture SWOG proposes to develop public-private training centers, labeled Common Facility and Training Centers, across Pakistan. The training would include Computer-Aided Design (CAD), manufacturing process and facilities, and equipment training from international experts. In the case of *inadequate technology*, the Furniture SWOG proposes to address the issue that almost no wood is kiln dried which (as in the rest of Pakistan) is a major reason for reduced furniture quality. Currently, less than 1 percent of wood is kiln dried. This is a constraint to exports as well as to competing effectively with imports on quality. A SWOG proposal to install kiln drying facilities across Pakistan with funding from the federal government and private sources has been accepted. While both proposals have merit, it will be important to ensure successful implementation and quality monitoring.

3.1.3 Stage 3. Sales, Distribution, and Marketing

44. 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 where it is being squeezed by competition from low-cost countries like China. This is a vulnerable position. As described below, this policy note argues that an industry re-positioning exercise is needed to clarify what would be the new, sustainable strategic position for the industry in coming years.

46. Domestic Distribution: Most NWFP furniture firms (75 percent) manufacture and sell their products locally, 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. Shifting out of this situation would require a set of actions. First, undertake the mentioned industry re-positioning exercise, as described below. Second, once the buyer and channel needs in the new markets are known, implement merchandising and forward integration mechanisms to improve product presentation and distribution arrangements, particularly to target markets beyond NWFP. This will require training which could be provided by SMEDA with some technical assistance by public agencies like TDAP and 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.

⁹ A PISDAC (USAID) forum composed by public-private leaders to formulate sector strategies.

47. **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. Another reason for weak direct export sales is partially attributed to the lack of proper facilities in Peshawar such as an export office which industry participants see as one of the most notable disadvantages compared to other provinces in Pakistan.

48. At the distribution stage, there is a role for government intervention in the area of regulations and certification. Instituting and enforcing mandatory kiln drying of wood for exports and local retail would raise quality and enhance competitiveness. This involves a mandatory moisture test of hardwood during custom inspections before the container is sealed, and issuing certificates to complying parties. The analysis for this policy note supports this recommendation.

3.2 The Strategic Position of NWFP's Furniture Industry in Global Markets

49. Analysis of the long-term sustainability of the NWFP furniture industry indicates that the NWFP furniture industry currently competes 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.¹⁰ 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.

50. Improving cost-efficiency alone will not help NWFP firms achieve global export competitiveness. NWFP is not well placed for such a strategy, lagging significantly behind other regions in Pakistan on productivity. NWFP should explicitly consider in which market segments (types of products, designs etc) it wants to compete. This would need a rigorous market and relative position analysis, commissioned by the industry association and with public sector support. The analysis would assess the merits of cost-based strategies and of differentiation through design or other aspects 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. Other niches to consider include "green product" certifications.

3.3 Crosscutting Value Chain Issues: Coordination and Certification Schemes

51. *Weak Coordination Mechanisms.* Many value chain inefficiencies – such as sourcing, low productivity, post-manufacturing handling, and sales and marketing – can be addressed through cooperation and coordination, e.g., in an industry association. In the case of the furniture industry in Pakistan, stakeholders have been quite proactive to address previously weak coordination and have already set up a Furniture Strategic Working Group (SWOG) with assistance from USAID. Subsequently, a sector development company, Furniture Pakistan (FP), has been established to coordinate and implement a number of strategic initiatives similar to the recommendations in this policy note. Creating a Peshawar-specific entity (e.g. a NWFP branch of FP) should be considered for the needed initiatives in NWFP.

¹⁰ This was assessed by analyzing industry attractiveness using Michael Porter's Five Forces Framework. This framework analyzes the industry in five dimensions: how difficult or easy it is to enter the industry (harder = more attractive for the incumbent), 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).

52. *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. 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.

53. The potential benefits for the furniture industry of both Forest Certification and Chain-of-Custody Certification include converting the current prospect of dwindling wood supply to guaranteed, sustained wood supply in the long term, improved competitiveness in international markets, higher margins for NWPF products, access to buyers that ask for certified products (and are willing to pay a premium) and stronger value chain linkages. Since certification is a club good with the benefits accruing to producers, the cost of certification should be carried by the industry.

3.4 Existing Furniture Initiatives in Pakistan

54. Several national initiatives to address challenges mentioned in this note are on-going: 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 Furniture SWOG has proposed a number of initiatives to improve the competitiveness of the furniture industry at the national level. The ones with the expected largest impact are:

- (a) *Coordination of players in the industry.* As mentioned, furniture producers have made considerable progress in organizing themselves at the national level. The Furniture SWOG was set up and has been active for some time, and Furniture Pakistan, a sector development company, has recently been set up
- (b) *Information / knowledge provision.* Furniture manufacturers lack awareness of foreign markets and trends in design and materials, as well as production best practices. To that effect the SWOG has made a detailed proposal for a comprehensive mechanism to capture industry and market information.
- (c) *Regulations and certification.* In order to penetrate export markets furniture producers need to document quality products as tested and certified by internationally accredited laboratories. The SWOG has proposed to establish such wood/furniture testing labs in public-private partnerships. This would ensure that furniture from Pakistan marketed for exports follow international quality standards.
- (d) *Inefficient input and output markets.* Many sources, including the SWOG, report collusion and inflated prices in the domestic wood market which hurts the furniture industry. 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, leading to lower wood input prices.

3.5 Summary of Policy Recommendations

A summary of key policy recommendations for the furniture value chain is provided in Table 6:

Table 6. Key Policy Recommendations for the Furniture Value Chain			
Constraint	Recommendation	Key actors	Short/Medium Term
<i>Crosscutting issues and recommendations:</i>			
Ineffective coordination throughout the value chain.	Develop and strengthen clusters, starting with an industry re-positioning exercise, including market research and competitiveness analysis, followed by value chain strengthening activities such as cooperative mechanisms tailored to NWFP/Peshawar, training and workforce development and attracting firms.	NWFP Secretary of Industries, Furniture Pakistan (SWOG), SMEDA Peshawar, international consulting firms with cluster/market-linkage expertise	ST + MT
Value creation undermined by poor forestry governance.	Shift towards a Chain of Custody System, starting with forestry management (forestry certification), and increase the number of firms tracing the wood and wood products (Chain-of-Custody).	SWOG, furniture companies, contractors, local communities; NWFP Forest, Fisheries, and Wildlife Department, Forest Development Corporation, Furniture Pakistan, NGOs (including the Forest Stewardship Council)	ST + MT
<i>Forest Management:</i>			
Reforestation programs constrained by unsettled property rights and social tension between local communities and government	Recognition of local rights, through mechanisms such as (a) national and provincial policy review, (b) study of community participation success cases, such as two-step process of recognition used in Chaprote Forest.	Federal Ministry of Environment, FDC, local communities, NWFP Forest, Fisheries, and Wildlife Department, Ministry for Local Government, and Rural Development (federal), NGOs	MT + LT
Institutional weakness of the Forest Department.	Shift from policing towards facilitating. Reform of policies and the organizational setup of the Forest Department to be considered.	NWFP Forest, Fisheries, and Wildlife Department; Ministry of Environment, Local Government, and Rural Development (federal), Forest Development Corporation, international experts	MT
Illegal trading from Afghanistan and Kohistan region.	Introduce and enforce a federal ban on illegal timber trade, and create working groups with the Afghan government to address this problem.	NWFP Forest, Fisheries, and Wildlife Department, Ministry of Environment, Local Government, and Rural Development (federal), Ministry of Foreign Affairs	ST + MT
<i>Manufacturing:</i>			
Weak workmanship	Establish a comprehensive workers training program,	Public-private: furniture	ST + MT

skills.	including (a) establishing and strengthening existing training facilities in manufacturing and design, and (b) awareness raising on international quality and socio-environmental standards. This could potentially increase NWFP productivity 3 times, matching those in Lahore and Chiniot.	firms, NWFP Secretary of Industries, furniture firms in Lahore and Chiniot, SMEDA, Furniture Pakistan (Sector Development Company), and international donors	
Scattered small firms, lack of coordination.	As part of cluster strengthening or separately, assess different organization options, including (a) creating a common NWFP brand under an umbrella entity (e.g. Peshawar branch of Furniture Pakistan), and (b) attracting an anchor firm through an investment prospectus, facilitated by the provincial government (Secretary of Industries) and public-private partners (Furniture Pakistan).	Public-Private: Furniture Pakistan (FP), Secretary of Industries NWFP, Furniture Pakistan (SWOG), IFC	ST + MT
Trading and Marketing:			
Competing in unattractive export market segments.	Conduct a market study, competitive positioning, and value chain mobilization and re-configuration exercise (i.e. cluster strengthening).	local furniture firms, TDAP, Furniture Pakistan, and NWFP Secretary of Industries.	ST + MT

55. *Current government capacity.* The Secretary of Industries, through its Small Industry Development Board (SIDB), oversees the furniture industry.¹¹ However, SIDB’s flagship activity is a provincial government-run furniture company (Pak-German Wood Training Company). The Pak-German Co. performs some training and SMEDA provides some business support-services. However, the government is viewed as being largely absent in supporting the industry. The presence of a Furniture Strategic Working Group (SWOG) and the creation of a sector company (“Furniture Pakistan”) to implement SWOG strategies are other indications of the lack of sufficient supporting mechanisms at federal and provincial level.

56. *Possible Role in Reforms.* The Secretary of Industries could play a consultative role in implementing reforms, including a local industry coordination entity (e.g. “Furniture Peshawar”) in cooperation with the Furniture SWOG and Furniture Pakistan. The provincial government could also be a vehicle to receive T.A. funding to introduce Certification Schemes, in cooperation with international NGOs such as the Forest Stewardship Council, an international umbrella certification organization for the forest and furniture sectors. The SWOG and Furniture Pakistan are likely to be important implementation partners.

4. The Gems and Jewelry Value Chain

57. NWFP has abundant reserves of precious and semi-precious gemstones and a rich culture of jewelry manufacturing. However, in spite of these advantages the province has so been unable to develop a competitive gems and jewelry industry, and gemstone mining has remained almost entirely an activity for low-productive artisanal and small miners (ASM). The economic and social impact from developing this sector is very high, including saving lives. In mining, improving current practices could significantly improve the health and safety of tens of thousands of miners in NWFP and Northern areas, as well as increase income up to five-fold. Overall, the potential impact of value chain improvements could amount to up to an additional US\$ 225 million in earnings per year within five years, excluding formalization of under-reported transactions (US\$200-250 million per year today), and access to new markets and buyers.

¹¹ The SIDB is mandated to promote and develop light industry in NWFP. According to the Secretary of Industries and Commerce, the SIDB has trained more than 20,000 trainees with practical and theoretical skills.

This compares to official figures of gems and jewelry trade of \$25 million and unofficial estimates of close to US\$200 million; i.e., value added would at least be doubled.

Table 7: NWFP Gems and Jewelry Estimates

Trading Value	US\$200 million (estimated)
NWFP and Northern Region Share in National Trading Value	N/A
Share of Provincial GDP (PGDP)	2.1%
Share of Provincial Employment	N/A
Export Volume	US\$200 million

Source: Estimates by J.E. Austin

4.1 Business Environment and Industry Structure

58. Analysis of the business environment and industry structure for NWFP’s gems and jewelry industry (which mainly consists of unprocessed gemstones) shows that its current industry competitive structure is an unattractive one in which to compete. The current gems industry in NWFP holds a weak bargaining power with buyers and suppliers, and faces high threat of new entrants and substitutes as well as intense rivalry with little differentiation. This highlights an 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, including an improved bargaining position in relation to buyers, and low threat of new entrants and substitutes.

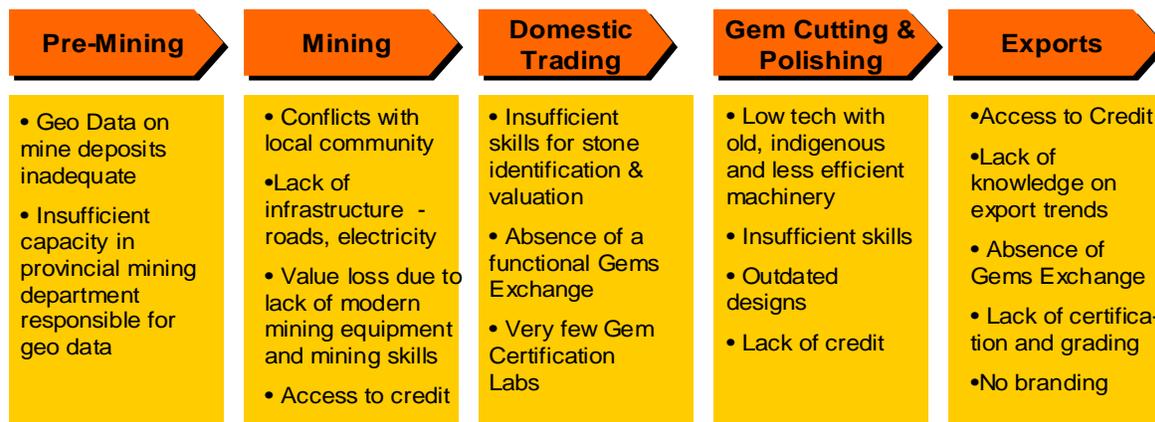
4.2 Trends in International Markets

59. International demand for precious and semi-precious gems has consistently been robust in recent years and the outlook is good with growth expected to remain significant. There is growing demand for transparency in the global value chain, including ethical, social, and environmental practices. Thus, global brands and certification (e.g. fair trade) are increasingly becoming important to top buyers. There is no fair trade certification for gems in place for Peshawar. Certification would bring benefits to the industry, both as a branding opportunity and as a lever to improve value chain efficiencies (particularly at the mining level).

4.3 Value Chain Challenges

60. The gems and jewelry value chain can be broadly divided into three stages: mining, processing or value addition (cutting and polishing), and trading/exports. The main challenges are shown in figure 4 and discussed below.

Figure 4. Key Challenges Across the Gems and Jewelry Value chain



Secondary reports (including SWOG Report, 2006, focus group meeting, Peshawar, March, 2008, N=8)

61. Lack of Representation and Coordination Mechanisms. The lack of effective mining cooperative associations across the whole value chain in NWFP is a serious problem – in consolidating supply, negotiating prices and offering health and technical assistance to miners. This constitutes a major missing link for the development and implementation of sustainable initiatives for sector development. Creating new or reforming existing mining/gems associations in NWFP should be assessed.

4.3.1 Stage 1: Mining and Pre-Mining

62. Conflicts between mine operators and the local community are common, and dispute resolution mechanisms are regarded by stakeholders as inefficient. Mining operations (including large scale mining) are often constrained and even abandoned due to opposition from local communities. The conflicts are normally about surface rents to be paid by the mine operator to the local community. They deter new investors (foreign and from outside the province) in the sector and also, due to the consequent lack of security of property rights affecting collateral, limit bank financing. This limits investment in opening up new mines and upgrading existing mines with newer technology.

63. Value losses from poor mining practices. Due to lack of know-how and proper equipment, miners use poor excavation techniques – such as uncontrolled blasting and inadequate extraction – that permanently damage the gemstones and lead to large economic losses. These losses are estimated at five times the current extraction value.

64. Inadequate infrastructure. The infrastructure (such as electricity, roads) 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. Thus, infrastructure weakness is a problem that slows industry growth and reduces the potential output from mines. However, this might not be addressed soon, given that miners are fragmented and uncoordinated, few firms are formally registered in NWFP, and it is difficult to estimate the impact of improved infrastructure on informal gemstone mining.

65. Lack of reliable geological data. The lack of reliable geological data has hindered national and international investment to come in to the gem sector in NWFP, delaying the introduction of modern and more efficient mining techniques.

4.3.2 *Stage 2: Lapidary and Processing*

66. Insufficient skills for value addition in cutting and polishing gemstones. The quality of cutting and processing gems in NWFP is well below international standards, reflecting limited lapidary skills and obsolete technology. Most of the stones are re-cut once they go abroad. This is estimated to cost the sector 10 percent to 100 percent of current trading value in Peshawar (US\$200 million). Current training institutions, such as the Gems and Gemological Institute of Pakistan, are inadequate to train world-class lapidary skills.

4.3.3 *Stage 3: Trading and Exports*

67. Lack of a Gems Exchange. Successfully setting up a Gems Exchange, as proposed by the industry, could be one of the most important measures to improve performance in the gem industry. It would provide a window of trade facilitation particularly to international buyers in a secure environment, including logistical firms and banking. By increasing the flow of international buyers, this could potentially raise the visibility of gemstones nationally and internationally, and increase the stakes to see a successful value chain, including mining investments, as seen for instance in Thailand. This is a unique window of opportunity which cannot be missed. However, if not properly implemented, Peshawar could lose its growing reputation as a regional trading hub. 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.

68. 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 (most valuable types of) gemstones would enhance their sales prices. In addition, consumer demand in main importing markets puts 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.

69. 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 and royalties is not paid. The relatively short duration of mining leases compared to international standard and the high all-inclusive license fees are important factors 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. The latter leaves the local community with no stake in the success of the mining operation and often leads to conflicts with the mine operator, affecting negatively operations and investment.

4.4 Policy Recommendations

Key policy recommendations for the gems and jewelry value chain are summarized in Table 8:

Table 8. Key Policy Recommendations for the Gems and Jewelry Value Chain			
Constraint	Recommendation	Key actors	Short/Medium Term
<i>Mining and Pre-mining:</i>			
Disorganization in the artisanal and small miners sector.	Explore cooperation mechanisms, such as cooperatives and mining associations, with assistance from NGOs and international entities that promote community development in mining areas.	Communities and Small Scale Mining Association (CSSMA), International Colored-Stone Association (ICA), Gems Exchange, PDGJC, NGOs (e.g. International Cooperative Alliance or Fair Trade Organizations)	ST + MT
Value loss from poor mining practices (large miners and ASM)	Provide training in gemstone mining techniques / principles for ASM and other miners. Incorporate mining training and community development in the local mining areas	Provincial DGMM	ST + MT
Inadequate infrastructure near or at mining sites reduces potential output	Improve, where economically viable, infrastructure near mines (in particular roads and electricity).	Government of NWFP	MT
Lack of reliable geological data deterring investment	Improve the provision of reliable geological data	Federal Government Provincial DGMM	ST + MT
<i>Lapidary and Processing:</i>			
Inadequate skills in value addition (cutting and polishing) leading to lost earnings between 10-100% of current trading value.	Foster skills development for value addition, particularly in cutting and polishing gemstones: Strengthen Gems and Gemological Institute of Pakistan at Peshawar through improved machines and teaching curriculum, have master trainers from gem cutting center train local instructors, and upgrade or replace processing equipment.	GGIP, APCEA	ST
<i>Trading and Exports:</i>			
Lack of a Gems Exchange	Establish a Gems Exchange in Peshawar (ongoing) in line with international best practice		ST
Lack of certification and grading of the quality of gems traded in NWFP.	Establish gemstone quality certification and a Fair Trade and other socio-ethical certification. Create linkages with international gem bodies to explore the potential to set up Fair Trade Certification and other ethical certification processes.	Communities and Small Scale Mining (CSMA), International Colored-Stone Association (ICA), Gems Exchange, PDGJC	ST
Lack of data on gems trade.	Move towards consolidating collection of royalty on gemstones and issuing of invoices in a single point in the value-chain, preferably at exports stage. Identify options to provide incentives for limited time (5-7 years) on a temporary basis to encourage formalization of gem exports	<u>Federal:</u> State Bank of Pakistan, Ministry of Finance, FBS, and TDAP <u>Other:</u> Gems Exchange, PDGJC	MT

70. *Current capacity.* The capacity of the Department of Geology and Mining (DGM) to implement reforms is extremely limited due to lack of staff, training, and equipment, and technical know-how. Given that Peshawar is Pakistan's hub for gemstones, the sector Strategic Working Group (SWOG) and its implementation organization, the Pakistan Gems and Jewelry Development Corporation (PGJD), are focusing their activities in Peshawar.

71. *Possible Role in Reforms.* The DGM could serve as a vehicle to receive T.A., such as cooperatives. NGOs – such as CASM and ICA – can implement cooperatives programs, in consultation with DGMM, SMEDA, and the SWOG. PGJD is already implementing a Gems Exchange in Peshawar. Pakistan's Customs Department (part of Federal Board of Revenues), is a critical partner to implement gemstone trade formalization component.

5. Review of the Non-Gemstones Mining Sector¹²

72. NWFP is endowed with extensive mineral potential. Main minerals being produced are marble, granite, coal, limestone, china clay and gemstones. However, the province has not yet been able to promote growth and alleviate poverty by fully exploiting its natural resources. The mining sector remains (officially) a small part of NWFP's economy although the sector's share has been growing over the last decade, reaching close to 4 percent of provincial GDP by 2005.

73. Nevertheless, the mining sector has a large untapped growth potential, and future returns from developing the sector are very high. While firm estimates of the potential for the whole sector are not available, just looking at one segment – the marble industry – gives a sense of the magnitudes. According to marble industry estimates, improvements and adoption of higher value added standards in marble mining and processing can help increase the national marble industry's revenues from about PKR 3 billion in 2005 to approx. PKR 160 billion by 2015; i.e., more than 50-fold. NWFP accounts currently for 75 percent of the national production and should be in a position to capture a large share of the increase as well.

74. Key Minerals. The major mineral commodities represented in NWFP include: dimension stones, industrial minerals, coal, metals, and gemstones. The latter group, gemstones, is covered in section 4.

- (a) *Dimension Stones.* Reserves of marble and granite – i.e., high-value stones used for tiles and in ornaments – are vast with a very long time horizon for continued extraction. In particular much of the marble is of high quality that with proper processing could yield high margins.
- (b) *Industrial Minerals, Coal and Metals.* In volume terms, industrial minerals dominate the mining industry in NWFP. The large volumes of extracted limestone, fire clay and gypsum supply the cement industry in the province, which makes it a leading producer of cement in the country. Coal resources of NWFP are also considerable. The province has recorded occurrences of a number of precious and base metallic minerals, including gold, silver, copper, platinum, tungsten.

5.1 Main Issues and Constraints in the Non-Gemstones Mining Sector

75. The substantial mineral resources in the province remain largely underexploited, reflecting a set of constraints and challenges facing the sector. The main ones are described below.

¹² The non-gemstones mining sector includes dimension stones, industrial minerals, coal and metals.

76. Growth in the sector has been constrained by **technological backwardness and use of low-productive extraction techniques**. This can be well illustrated in the case of marble. It is estimated that 73 percent of the marble volume is wasted at the extraction and transportation stages due to the underdeveloped quarrying methods (uncontrolled blasting) and antiquated technology. This results in extremely high wastage (volume) and loss of unit value due to cracks etc. Reflecting this, quarry production in Pakistan is 425 tons per month as compared to 2,000 tons per month in Italy.¹³

77. There are a number of reasons for the use of low-productive extraction techniques instead of modern, more efficient techniques. One reason is that many artisanal mining operations are too small to have the technical and financial capacity to improve performance (i.e. mining efficiency and reduced waste). Another is that industry participants' productivity is constrained by insufficient dissemination of information and knowledge – by the provincial authorities (e.g., training courses for small-scale miners) and as a result of disconnect between industry on one side and relevant academic institutions and vocational training institutes in the province on the other.

78. Lack of access to finance has also deterred adoption of modern mining techniques. An important reason for why banks lack interest in financing investments in mining is frequent conflicts between mine operators and the local community as described in section 4. The lack of bank financing is also linked with the fact that a mine is not an acceptable collateral to banking institutions as the mining investors do not own the mine but operate it under a lease which is time bound.

79. The issue of opposition by local communities and conflicts deters large investors from other parts of the country as well from abroad from entering in the provincial mining sector which delays introduction of newer and more efficient technology. In order to resolve the issues between local communities and mine operators the provincial government has tried to play a facilitator's role in helping set the framework for surface rent settlement. This has helped in managing the problem to some extent. However, there is still a strong need for additional government measures to ensure a smooth working environment for mining companies.

80. One promising proposal to resolve the recurrent issue of conflicts is to plough part of the royalty proceeds of mining from a certain community back into the same community, for instance through partially/fully funded community development projects. The modalities can be developed by taking local district governments and the community leaders into confidence. Thus, the communities will have an increased interest in the uninterrupted operations of mining companies in their areas.

81. Lack of market exposure hinders adoption of modern mining techniques. Most small and medium sized enterprises that dominate the provincial mining sector do not have much exposure to trends in the forward markets, especially the export markets. There is no formal market information dissemination network for these companies. Thus, mining companies do not remain abreast of information about better mining techniques, product diversification options, market appetite for different kinds of stones etc. The deficiencies in dissemination reflect that industry participants do not coordinate and effective associations are lacking at the cluster levels.

82. In light of the above there appears to be a role for collective action in two areas: (i) better coordination of players in the industry for instance by organizing themselves in miners' cooperatives and

¹³ As an anecdote: in some areas near marble mines the roads are pink. They are laid with pink marble gravel; i.e., wasted and damaged marble as a result of marble blasting. Undamaged pink marble has a high value.

strengthening the miners' association; and (ii) better information and knowledge provision to small-scale producers to be delivered by the industry association and government.¹⁴

83. Promotion of mining cooperatives can be effective in getting the industry to use more productive quarrying methods. Cooperatives can provide the scale economies that are necessary to adopt modern mining techniques in an economically viable way, including through pooling machinery and other resources for use by members, and can be a critical point of contact to receive and provide TA.

84. Knowledge provision to (small-scale) producers on production techniques, market information, mineral testing etc. remains a neglected part of the mining value chain. Useful initiatives could include government-provided small-scale mining training courses linked to micro-financing programs so as to encourage responsible mining, and a center for mineral marketing and research with close contacts with the local mining communities for information dissemination. Potential investors need better coverage of geological data to facilitate exploration and development. This requires improving existing geological data and covering potentially interesting areas that remain unmapped. Furthermore, mineral testing is absent in the province. This information is vital for many potential investors/joint venture partners for making investment decisions.

85. The government also needs to execute its regulatory role better in the sector on the institutional side, the Department of Industries, Labor, Mineral Development and Technical Education has conflicting internal mandates. The regulatory functions within the provincial Directorate General of Mines and Minerals (DGMM) (i.e., the Title & Licensing Division and Inspectorate of Mines & Labor Welfare) are not independent of the promotion functions of the Exploration Promotion Division. On the implementation side, strengthening the government's role as regulator and facilitator would have a beneficial impact on the sector. It appears that lack of capacity in DGMM for carrying out exploration and regulatory functions is a major impediment to more exploration of provincial mineral wealth, preparation of data for use of potential investors and regulation of mining operations in different parts of the province. Suggested measures are capacity building of the technical staff and provision of equipment and vehicles to carry out exploration and regulatory functions in a more effective way.

86. **Basic infrastructure:** The infrastructure (like electricity, roads etc) at most of the mining areas in NWFP is inadequate, often inaccessible in high altitudes, and thus makes mechanization of mining a challenge. Is there a role for government support in provision of basic infrastructure to remote mines? While it is understood that building basic infrastructure in these areas (i.e. bridges over a river or a tunnel through a mountain to ease access to a mine) would help boost mining (and in some cases could help other industries as well through improved connectivity), the merits of government co-funding would need to be assessed with an exhaustive cost-benefit analysis on a project-by-project basis. With this in mind, the government would need to look into various public-private partnership arrangements which will bring together several investors to develop shared-use infrastructure.

5.2 Key Recommendations

87. The key recommendations from the section on gemstones mining relating to the extraction stage of the value chain are pertinent also for the segments of the mining sector since most of the mining is undertaken by small-scale miners in both segments where they face similar constraints. Key recommendations are summarized in Table 9.

¹⁴ Although much more can be done, it is important to acknowledge on-going public-private cooperation efforts, such as the implementation of a Marble City in Risalpur and a marble & granite feasibility study in Manshera. (Source: Secretary of Industries, Commerce, Mineral Development, Labor, and Technical Education)

Table 9. Key Policy Recommendations for the Non-Gems Mining Sector			
Constraint	Recommendation	Key actors	Short/Medium Term
Frequent local conflicts around mining contributing to technological backwardness.	Facilitate conflict resolution by amending mining regulations and channeling part of royalties to local community: (i) Mining regulations should include (i) a framework for community consultation in mine planning, development, ongoing operations, closure, and post-closure and go beyond monetary negotiations (surface rents) to integrate communities into planning and execution of local development plans. (ii) Develop a mechanism through which part of the royalty paid by mine operators is mobilized back in an efficient manner into developmental projects in the community where the mine is located (iii) Enforce benefit sharing arrangements. Mining companies are required by law to participate in benefit sharing schemes, but, this is not enforced by the government	DGMM (Government of NWFP), mining sector associations, local communities, NGOs.	ST + MT
Fragmented (un-coordinated) miners destroy product value in extraction and lack formal access to finance.	Facilitate development of cooperatives. DGMM could Explore government programs for the sharing of equipment and cooperative approaches to consolidate operations into larger size for which financing is available.	DGMM, mining sector associations, Pakistan Stone Development Company	ST + MT
Low-efficiency, technologically backward extraction techniques.	Encourage modern, responsible mining practices through preparing and implementing small-scale mining training courses linked to micro-financing programs. A grant program could be investigated for artisanal and small-scale miners to improve efficiency and provide rudimentary equipment that would also improve performance. Explored for establishment of a center to research mining efficiencies, standardization of products, and new technologies and market end-uses for NWFP stone products.	DGMM	ST + MT
Lack of training in modern mining techniques	Increase the quantity, service range and quality of training provided through extension services	DGMM	ST; continue over MT
Potential investors hampered by lack of geological data	Increase compilation of historical geological data and collection of new geological data. Make available to the DGMM of NWFP the geological data stored and collected by the Geological Survey of Pakistan (GSP), including ensuring participation of the DGMM in the process of identification and selection of targets for future exploration by GSP, and sharing in the results.	Geological Surveys of Pakistan, DGMM	ST; continue over MT
Mining concession regulations combine all metallic, coal, industrial and construction materials and precious stones	Review the NWFP Mining Concession Rules 2005 to determine appropriate regulation of metallic minerals, coal, industrial and construction materials and precious stones.	DGMM	ST
The Secretariat of Industries, Labor, Mineral Development and Technical Education has conflicting internal mandates to set policies to pro-mote and	Undertake a functional management review to improve the institutional structure of mineral sector management. 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 and within DGMM.	Secretariat Industries, Labor, Mineral Development and Technical Education.	ST

Box 1. Corporate Governance

Good corporate governance¹⁵ improves access to capital, ensures benefit sharing among the stakeholders, promotes better performance within organizations through improved decision-making, and enhances the long-term prosperity of a particular industry as a whole. For family-owned businesses in particular, good governance makes all the difference. Family firms with effective governance practices are more likely to carry out strategic and succession planning. On average, they grow faster and live longer.¹⁶

An extract from the Corporate Governance Guide for Family-owned Companies, Pakistan Institute of Corporate Governance (2008)

Good governance directly helps the family-owned companies by:

- Integrating the strengths of family and business.
- Improving shareholder relationships through effective communication and conflict management.
- Systemizing wealth distribution mechanisms.
- Supporting growth and business diversification.
- Managing ownership and leadership transitions.
- Developing the next generation of managers, shareholders, and family members.

The following are amongst the initial steps for introducing corporate governance to the three industries:

1. It would be useful to draw the **critical elements of corporate governance** relevant to the three industries (e.g. annual audited financial statements, broad parameters of governance through a board of directors/family council, rights-recognition for employees and key stakeholders, and ethics and business practices, etc). These critical elements would provide the basis to strategize the overall approach and initial steps for introducing corporate governance. The newly issued guidance for family owned companies can be a good starting point.
2. Furthermore, identification of critical elements would be helpful in analyzing the existing rules and regulations relevant to these industries from the corporate governance standpoint and to come up with **major gaps**, which need to be bridged.
3. **Awareness raising and change management:** Dissemination of the business case for corporate governance in which all the key stakeholders have specific roles to play. The business case would focus on potential benefits of good corporate governance both from organizational as well as industry perspectives.
4. **Initial steps for regulation:** While in the long term corporate governance would be driven by intrinsic demand from capital and financial markets, and from their buyers, initially, in order to introduce the corporate governance principles, a registration/licensing authority may be identified as a regulator to invoke an enforcement mechanism. Alternatively, a greater leverage for compliance can be stimulated through the capital and financial market institutions in exchange for specific support from the government to these institutions.
5. Along the regulation regime, the need for **self-regulation** to be exercised by the business associations cannot be ignored.
6. **Capacity building:** Service providers like accountancy firms are likely to play an important role in helping their clients to comply with requirements of the corporate governance principles. Assessing and building the capacity of the accountancy firms catering needs of NWFP based industries would be useful.

¹⁵ In Pakistan, much has been done to analyze and improve the state of corporate governance as documented in the Corporate Governance Country Assessment by the Bank, ROSC, 2005 (http://www.worldbank.org/ifa/rosc_cg_pak.pdf) and IFC-commissioned survey, 2007 (<http://pakistan.accaglobal.com/pakistan/publicinterest/TA/CG/3063111>). Lately, the Pakistan Institute of Corporate Governance has issued the Corporate Governance Guide for Family-owned Companies (http://www.icap.org.pk/userfiles/file/CG_Guide.pdf), which is of greater utility for the three industries.

¹⁶ International Chamber of Commerce - <http://www.iccwbo.org/corporate-governance/id3179/index.html>

7. To incentivize better **disclosure of information, transparency, and corporate social responsibility**, one might think of an awards competition among the businesses.

6. Corporate Governance

88. As noted, the horticulture, furniture, and gems and jewelry industries in NWFP are largely undocumented, i.e., they are in the informal sector. This could reflect fear of administrative barriers, other barriers to formal sector businesses and preference to evade taxes. The vast majority of firms in these industries in the province are small, family-owned businesses.

89. While discussing the details of constraints to the investment climate goes beyond the scope of this policy note, it is useful to note the need for introducing corporate governance in the medium term to go along with the strengthening of the value chains. Family-owned businesses in particular, benefit from good governance. Box 1 (previous page) gives an overview of initial steps for introducing corporate governance to the three industries covered in this study.

7. Summary and Conclusions

90. This policy note looked at how NWFP can facilitate faster growth and higher value added in four industries with high growth potential and thereby accelerate overall economic growth in the province. The industries were selected based on provincial government's announced strategic focus, which is consistent with previous analytical work done by the Bank, and focused on a subset of those. The provincial government's strategic focus is on areas where the province likely has a comparative advantage such as horticultural production, manufacturing industries based on raw materials that are in relatively abundant supply in the province (minerals and wood), hydroelectric (hydel) energy production, the construction industry, regional trade, and in a longer term perspective tourism. It also includes facilitating the development of urban centers as engines of growth.

91. The note focused on industry level analysis in horticulture and the potential for downstream value added in agro-processing, furniture production, gems and jewelry, and mining of marble, granite and other minerals. The analysis at the industry level focused on the whole value chain since there are important industry-/ sector specific constraints to growth in addition to crosscutting constraints.

92. There is significant potential for additional value creation in these industries with better policies and practices. In the case of horticulture just addressing one aspect of the value chain—reducing production losses from poor post-harvest preservation of produce with identified techniques—can translate into US\$150-200 million dollars in additional value or more than one percentage point of PGDP. In the furniture industry, improving the value chain with identified measures is estimated to potentially increase production value 10-fold (US\$200 million or 1½ percent of PGDP). In the case of gems and jewelry production, the potential impact of measures to improve the value chain could amount to more than a doubling in production value (an additional US\$225 million in earnings per year) within five years. Furthermore, the expected formalization of under-reported transactions (US\$200-250 million per year today) as a result of value chain improvements would increase the size of the formal gemstones sector 10-fold. Clearly, improved policies and practices in these industries will have a large pay-off.

93. A number of constraints in different industry value chains would need to be addressed either by provincial or federal government or the private sector through various industry-related institutions. The key recommendations by industry are as follows:

Horticulture:

94. Key recommendations for the *provincial government* (in general in collaboration with the private sector) would be the following:

- ***Develop and strengthen clusters:*** In collaboration with the Horticulture SWOG and Growers Associations, develop and strengthen clusters, drawing on technical assistance and using international experts. This includes strengthening existing and helping forming new growers' organizations; strengthening market linkages and value chain improvements through lead firms; strengthening support entities; and market repositioning. The Provincial Department of Agriculture would act as a vehicle for TA and collaborate closely with the Horticulture SWOG. Consulting Firms or NGOs could deliver the TA. This would be a 2-3 year activity.
- ***Facilitate efforts to reduce the high losses due to poor post-harvest handling:*** In collaboration with the Horticulture SWOG and Growers Associations (the main actors) facilitate efforts to reduce the high losses due to poor post-harvest handling. The efforts include picking, waxing, packaging, and cool-chains in growers associations.
- ***Strengthen technical support provided by the provincial government to farmers.*** Address the insufficient farming skills by strengthening technical support provided by the provincial government to farmers. This involves strengthening the capacity of local extension officers, in particular horticulture specialists, and establishing model farms in collaboration with provincial research stations.

95. Key recommendations for the *federal authorities* would be as follows:

- ***Adopt national legislation protecting the intellectual property rights of foreign-private domain cultivars in Pakistan:*** This would be an effective step to address the lack of cultivar variety due to insufficient protection of intellectual property rights for foreign-private domain cultivars. The main actor would be the National Assembly. The draft legislation has already been submitted to the National Assembly and the action could be implemented in the short term – within one year. The provincial governments would ensure enforcement of the intellectual property rights.
- ***Conduct a review of other key concerns by international seed firms,*** and of the current MINFAL process for application and approval of new germ plasm varieties to farmers. (Short-term action.)

Furniture:

96. Key recommendations for the *provincial government* (in some cases in collaboration with the private sector):

- (b) ***Develop and strengthen clusters:*** In collaboration with the Furniture SWOG, Furniture Pakistan and SMEDA Peshawar, develop and strengthen clusters, drawing on technical assistance and using international experts. The initiative would start with an industry re-positioning exercise, including market research and competitiveness analysis (within 6 months), followed by value chain strengthening activities such as cooperative mechanisms tailored to NWFP/Peshawar, training and workforce development and attracting firms (overall 2-3 years).
- (c) ***Enhance institutional ineffectiveness of the Forest Department:*** This would require reforms of the Forest Department over the medium term. The process should start with assessing current institutional arrangement of the Forest Department, including the possibility of a drastic shift from current policing role towards facilitator and extension workers. The Forest Department should also increase its capability of to implement reforestation programs (e.g. tissue culture).

97. Key recommendations for the *industry* (in some cases in collaboration with the provincial government):

- ***Design and implement a Chain of Custody System for tracing and certification of individual logs:*** This would reduce illegal logging and improve wood supply. The measure should include involvement by the contractors / intermediaries who currently control most of the supply of raw materials after it leaves the auction area. Initiating key actors would be the Furniture SWOG, Furniture Pakistan, Forest Development Corporation, and the provincial Forest Department that could act as a vehicle for TA that could come from NGOs (including the Forest Stewardship Council).
- ***Establish a comprehensive workers training program,*** including (a) establishing and strengthening existing training facilities in manufacturing and design, (b) awareness raising on international quality and socio-environmental standards. This would over time raise productivity that has been stymied by poor workmanship skills. TA would be needed, going over 1-2 years.

Gems and Jewelry

98. Key recommendation for the *provincial government*:

- Provide **training in modern, more effective gemstone mining techniques** / principles for ASM and other miners. Incorporate mining training and community development in the local mining areas. This initiative should start in the very short term and could continue over the medium term. It would be undertaken by DGMM.

99. Key recommendation for the *industry* (main actor):

- ***Explore and strengthen cooperation mechanisms*** such as cooperatives and mining associations, with assistance from NGOs and other international entities that promote community development in mining areas. As a result of the current lack of cooperation in the industry, fragmented players destroy product value in extraction and risk personal safety and health due to improper practices. This would be a short to medium-term initiative over 1 -2 years. Key actors would be the Communities and Small Scale Mining Association (CSMA), International Colored-Stone Association (ICA), Gems Exchange, PDGJC and NGOs (e.g. International Cooperative Alliance or Fair Trade Organizations).

100. Key recommendations for the *federal government*:

- ***Encourage formalization of gem exports:*** Study the creation of an incentive mechanism for a limited period of time (5-7 years) to encourage formalization of gem exports, and subsequently move towards consolidating collection of royalty on gemstones and issuing of invoices in a single point in the value-chain, preferably at the exports stage. This would create incentives for traders to report on gems trade and increasingly bring traders from the informal to the formal sector and enhance government revenue collection. Action could be taken in the short term. The incentive can be gradually reduced and dismantled as formalization is consolidated (e.g. within 5-7 years as in other countries), and with stability of trade and business volumes. Key actors are the State Bank of Pakistan, Ministry of Finance, FBS, and TDAP. It would also involve the Gems Exchange and PDGJC.

- **Foster skills development for value addition**, particularly in cutting and polishing gemstones by strengthening the Gems and Gemological Institute of Pakistan in Peshawar (GGIP). This includes better machines and teaching curriculum; providing technical assistance through master trainers from gem cutting center to train capabilities of local instructors; and upgrading or replacing processing equipment. The key actor would be GGIP with federal funding and APCEA, and the activity could be implemented within one year.

Non-gemstones mining sector:

101. Key recommendations for the *provincial government*:

- **Carry out a functional management review:** Since further reform and progress in the mining sector is hampered by the weak institutional structure of mineral sector management, a functional management review is required. This would review applicable laws and regulations regulating the mineral sector; undertake a strategic review of the overall operation of the Secretariat of Industries, Labor, Mineral Development and Technical Education and the DGMM in relation to their mandate and functions in management of solid minerals; and determine whether existing roles and functions are sufficiently defined and thereafter spell out clearly the roles and responsibilities, lines of authority, reporting and accountability of Secretariat / DGMM for both mineral policy and sector licensing mandates. It would also assess current systems and procedures in the field of financial and asset management, enforcement of accountability measures (including code of conduct, complaints systems, discipline), and communication with the public; and determine what systems are to be used for key processes, such as: due diligence, licensing and contract negotiation, and reporting. This effort would be led by the Secretariat Industries, Labor, Mineral Development and Technical Education and could be done in 1 year.
- **Encourage modern, responsible mining practices:** DGMM could encourage modern, responsible mining practices through preparing and implementing small-scale mining training courses linked to micro-financing programs. A grant program could be investigated for artisanal and small-scale miners to improve efficiency and provide rudimentary equipment that would also improve performance, and funding could be explored for establishment of a center to research mining efficiencies, standardization of products, and new technologies and market end-uses for NWFP stone products. This effort would be led by the DGMM and would extend over the medium term (up to 3 years).
- **Address local conflicts around mining activities:** To address local conflicts around mining activities in NWFP, mining regulations should include: (i) a framework for community consultation in mine planning, development, ongoing operations, closure, and post-closure; including identification of stakeholders, assignment of roles and responsibilities; and (ii) community consultation beyond monetary negotiations (surface rents) that integrates communities into planning and execution of local development plans. This effort would be led by the Secretariat for Industry and Mining jointly with other relevant departments, including Social Welfare, and could be done in 1 year.

102. Key action to be taken by the *federal government*:

- **Promote geological data collection and its dissemination amongst potential investors:** Make available to the DGMM of NWFP the geological data stored and collected by the Geological Survey of Pakistan (GSP), including ensuring participation of the DGMM in the process of identification and selection of targets for future exploration by GSP, and sharing in the results. This effort would be led by the DGMM and would extend over the medium term (up to 3 years).