Tajikistan: Strengthening export competitiveness of SMEs in the textile and clothing sector and enhancing trade support institutional capacity

Improvement and enhancement of operations of textile companies in Tajikistan

Mission Report by
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Mission Carried Under Guidance of Dr. Rajesh Bheda, International Consultant Productivity
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1. Introduction

1.1 Background of the previous mission held in November, 2014
The Consultant had undertaken a detailed mission of visiting the mill operations of nearly 12 textile and clothing in Tajikistan during November, 2014. Based on the diagnostics done then, a number of operating gaps were observed in the mill planning, operational practices and marketing weakness. For the same, detailed recommendations were provided for which the mission report can be referred.

1.2 Aim of International Consultant’s mission for April 2015
Based on the background notes detailed and highlighted, as above, ITC’s international consultant for Textile sector [Munish Tyagi] undertook a detailed Mission in April 2015 with inside the Mill study and delivery of practical operational solutions to the mill staff of 8 (6 pre-selected) Textile & Clothing companies with focus on spinning intensive mills in the Sugd region.

1.3 Project Background
The present project is component FOUR of SECO’s Trade Cooperation Program (TCP) in Tajikistan and aims to increase the export competitiveness of the textile and clothing (T&C) sector, by providing sector specific support to SMEs and relevant trade support institutions (TSIs), as well as supporting respective stakeholders in taking a strategic approach to the sector’s development. It will also explore the challenges and development potential of the tourism and handicraft sectors in Tajikistan, outlining relevant trade related technical assistance priorities.

Two main expected outcomes of the project are as follows:

Outcome 1: The strategic and institutional framework of the T&C sector is improved
The export strategy for the T&C sector will be revised and a formal structure for its implementation monitoring established.

TSIs will have reinforced their expertise and expanded their services in product development supply management, sector specific marketing and quality management. International and regional networks and strategic partnerships will be established with leading world institutions, consulting companies and experts specialized in T&C.

A comprehensive study will be conducted to understand the current situation with trade finance in Tajikistan and recommendations provided on industry specific technical assistance needs.

Outcome 2: SMEs in the T&C sector are more export competitive and have access to new markets
The capacities of a broader group of enterprises, including T&C related handicraft enterprises, will be enhanced in the areas of product development, productivity, sector specific marketing and quality production.
management. Exporters will then be connected to target markets in order to ensure that the improvements are linked to practical trade-based results.

A feasibility study will be conducted in order to determine the potential of integrating Tajik organic-cotton producers into the T&C sector value chains and recommendations provided on existing market opportunities.

Within the framework of this project, the services of an international consultant on textile sector are required to provide assistance to spinning, waving, dyeing and knitting companies as well as to decision makers, TSIs and other stakeholders during the design of the T&C sector strategy for Tajikistan. In particular, during the strategy design process, the international consultant will provide a multiplier role to ITC Export Strategy advisers by providing expertise and thought leadership and the second stakeholders' consultation, and bringing international high-level proficiency to the analysis undertaken.

2 Duties and Responsibilities of the IC

Advisory services to textile companies including:

- Plan the mission approach in consultation with IC Productivity and ITC field office
- Develop training materials on improving the technical processes and KPI for textile companies (spinning, dyeing and knitting) and submit to ITC
- Provide in-factory technical advice to technicians and managers of six selected textile companies for two days each and supervise the introduction of better practices. Develop action plan
- Provide long distance support to NCs
- Prepare mission report, including activity report as per TOR and submit to ITC
3. Approach used for Mission

For addressing the technical and operational gap areas in the mills of the target 6 textile & clothing companies, the international consultant Munish Tyagi, had undertaken the baseline mill wise orientation study during the Nov.2014 mission. As explained in the `overview` section, this diagnostic Study had brought out a practical and realistic floor level assessment of the textile and clothing (T&C) industry in Tajikistan ,and highlighted the key gaps and constraints in the textile mill units.

During this assessment study in November,2014; the gap areas and operating problems of the various T&C Co s were detailed, and perspectives for way forward provided in terms of long term/midterm and short term interventions possible and to highlight the solutions for improvement of operations.

For a recap, the status of the target 7 T&C companies are summarised as below:

Table 1: Status of 7 Textile and Clothing companies covered in the April, 2015 mission

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Name</th>
<th>Type of Textile Activity</th>
<th>Location</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Rahimov Textile Company</td>
<td>Weaving, Fabric Dyeing and Garment making</td>
<td>Khujand, Sughd Industrial zone</td>
<td>In Running</td>
</tr>
<tr>
<td>2</td>
<td>Nassoji Spinning</td>
<td>Cotton Yarn SPG Mill</td>
<td>Just Started but low potential</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Textile City</td>
<td>Yarn and Fabric Dyeing</td>
<td>Khujand</td>
<td>In Running, Good potential</td>
</tr>
<tr>
<td>4</td>
<td>Nohid Knitting Company</td>
<td>Knitting, fabric dyeing and Knit garment making</td>
<td>Isthraivsan</td>
<td>In Running, Good potential</td>
</tr>
<tr>
<td>5</td>
<td>Olim Textiles</td>
<td>Cotton yarn spinning</td>
<td>Mastcoh</td>
<td>In Running, Good potential</td>
</tr>
<tr>
<td>6</td>
<td>Hima</td>
<td>Cotton Yarn Spinning</td>
<td>Yovon distr</td>
<td>In Running, Good potential</td>
</tr>
<tr>
<td>7</td>
<td>Ortex</td>
<td></td>
<td>Examined but not considered as core textile mill operation</td>
<td></td>
</tr>
</tbody>
</table>

**T&C companies 1,3,4 and 5 with high potential are recommended as Role model for further hand holding support, and continued Technical assistance (preferably over next 2-3 years).**

Other 3 T&C mill companies of Resandai Kurgantube; Spitamen Textiles, at Spitamen and Nassoji Khujand in the Textile City complex were also visited and found as not running. These are considered as low potential companies, till they are revived and observed to be in running.

3. Purpose of the company level visits and details

The purpose of the company level visit was to provide them an opportunity to interact with International Consultants and NCS on the progress made till now and bring out areas where they many need further support under the project. The visit was also used to provide need based training and recommendations to factories depending on the needs.
4. Key inherent gaps and challenges faced by the Tajikistan T&C units

Despite good availability of fairly good quality cottons, the nexus between the cotton exporters and domestic traders makes the price of cotton to the local spinning mills remains rather high at $1.10 to 1.20/kg on landed basis. This tends to make the final Yarn produced rather un-competitive and unprofitable due to average export price going above the globally accepted FOB price of $2.55/kg to $2.50/Kg, for 20s cotton yarn.

One of the weakest links observed was over dependence on markets of Russia, China and Turkey leading to a passive `make to orders expected` syndrome. There is an absence of hard Sell or aggressive marketing. In fact, this has opened the doors for entry of and unfair competition from China, esp. non cotton textiles with polyester focus.

The other key challenge to be addressed is the acute shortage of `specialist` textile workers and Technicians like foreman, fitters, jobbers needed to attend to and provide running maintenance to machines and for getting out production with clear technical understanding on potential of technology and production machinery. This is a common and critical issue impacting the operations and capacity utilisation of majority of the spinning mills, both new and the old. There is hardly any activity for Training and skill up gradation for either workers or technicians. This would call for individual Co s initiatives to induct team of foreign consultants and/or mill technicians for 2-3 year period and avail their training expertise. This has negatively impacted the optimum output and utilisation of mill capacity [which in case of spinning mill is to be 90-95%]. The industry and the academic institutes also seem to be out of sync and having serious `disconnect`.

However, the major limitation to the export market success for T&C companies in Tajikistan and esp. the yarn spinners (despite the advantage of good quality local cottons) seems to be absence of `value addition` in the textile chain. For example, there is almost complete absence of large dia knitting or high speed air jet weaving or latest rotor spinning and/or `compact` ring spinning to make superior yarns for yarn or fabric dyed textile fabrics. Also, the yarn dyeing has gone amiss except for Textile City, Khujand; having an outdated 30 year old plant which has outlived its technology and usefulness.

It is quite evident that only with the `value addition` in the forward textile chain, the textile exports from Tajikistan can be sustainable and competitive vis a vis competition from Turkey or China and India, Pakistan and Vietnam etc.

The above was highlighted in the previous mission report where key challenges and gaps were identified as discussed above. The present mission looks into the interventions and short term solutions in the mill operational practices and highlights the improvements implemented and scopes for further improvements per mill company.

Other than the yarn spinning sector, the other two smaller but active sectors are weaving, and garment making. The fabric production is done by half a dozen textile mills, set up in Soviet era and which did not modernise with newer looms and/or with value addition via modern textile dyeing and
finishing Process house etc. There is only a nascent knitting activity due to lack for knit fabric dyeing cum finishing units.

As per the company wise assessment, the road map for textile industry in Tajikistan is clearly to leverage their good quality cottons to produce ‘value added’ fabrics and garments rather than expand the spinning capacity. Though the Govt. has come out with an incentive package to exempt 15% VAT for 12 years on value added textiles; getting the actual investment cycle moving into textile sector is a challenge considering present day uneconomic operations and high cost of credit. It is imperative that hand holding support is provided by international textile experts to selected role-model textile companies for next 5 years to this vital sector, with long term potential, via deployment of technical experts and skill development experts. The production of, and domestic acceptance of woven and knitting garments, by the consumers is the final destination to be for the static textile sector in Tajikistan. This is the key driver to be for the future growth, development and overall competitiveness of Tajikistan T&C companies.

5. Individual factory visit reports
The following section summarises the observations and recommendations for the factories visited in the Dushanbe and Sughd regions.

5.1 Resandai Kurgantube, Khatlon Region
Resandai Company is a soviet era multiple textile product manufacturing Co, using older to average level technology. Initial factory diagnostics and assessment visit was undertaken by the consultant in November, 2014. In the follow thru’ visit under April 2015 mission, the Textile complex was found not operating and not working, and assumedly being offered by the banks to a new management.

While the textile products comprised of cotton yarns, cotton fabrics, socks and school uniform garments etc; a clear product focus is missing and the capacity for products are thus mismatched and not balanced. The new management that takes over the company needs to focus only on 2-3 products as core export products which are ‘recommended’ to be cotton yarns from new spinning plant from China which can yet deliver quality yarns for domestic markets, and school uniform garments for schools and/or hospitals. In the near future dyed yarn can be added as the 3rd key product line.

Presently, cotton yarn from China plant and school uniforms from outsourced fabrics are the only 2 production and product lines which can be considered useful and profitable for future operations under the new management that will take over Resandai.

Resanda has good and more than required availability of floor space and building area that can be created by removing out the old unusable machineries and bringing in the future new plants for yarn spinning and yarn dyeing in these big halls of 38700 Sq Mtr and 90x36 meters.

Another good asset of Resanda is availability of own 5000 hectares of cotton growing land which can grow and supply ‘good quality cottons’ to Resanda for own captive use. The land is an area having adequate and sweet fresh water to grow cotton of long fibers. This will help produce good quality yarn
for export and also reduce cost of yarn spinning by providing captive raw materials. Such full integration will make Yarn spinning and it’s dyeing, competitive and profitable to Resanda. The above captive land offers in near future, to grown organic cotton and become a dedicated spinner of the premium ‘organic’ yarns for exports to European markets.

Interventions and solutions proposed:

1. Resanda had been producing yarns and fabrics on older generation textile machines of Soviet times. The product quality is average and, has not created the right export opportunity due to high cost of manufacturing and Not being able to sale products.

2. However, there is a relatively new spinning plant of 6500 spindles imported from China and has worked for about 1 ½ year only. This can produce export Yarns after adding 2 Autoconer machines.

3. A wide variety of textile products, had created a mixed up product basket which did not allow a specific product to be core focus and core driver of the company’s business. Resanda has to focus only on cotton yarns and school uniform segments as the core products with domestic markets as the focus.

4. Resanda also has about 70 weaving looms, which were imported second hand from China. These have not been able to make good quality fabrics and are not in operable condition. It is recommended to remove out these machines and free the production hall area of 90x 36 meter, for future use for expanding the yarn spinning plant capacity by 9000 spindles.

Action Plan/ Recommendations:

Long term action plan

1. Considering the present configuration of plant and technology at Resanda, this company needs to have a clear long term plan of doing business in uniform garments using its own woven cotton fabrics (along with some imported polyester fabrics); and spinning yarn for own socks and knitting end use.

Medium term action plan

1. Also, Resanda needs to consider to set up a yarn dyeing plant of 2-3 ton/day to cater to the nascent yet emerging demand for dyed yarns in the domestic weaving segment.

2. Resanda offers a good opportunity of acquiring its better value via immediate renewal with available buildings, along with the new spinning plant from China. Also garment making business of school uniforms, and using captive 5000 hectares of land for growing normal and organic cottons for in-house use by the company to reduce raw material costs is advisable.

3. With a market oriented new management, Resanda has the potential and infrastructure to become a leading fully integrated textile company to give good future profitability from cotton to yarn to garments. There are opportunities for even becoming a dedicated ‘Organic’ brand company.

Short term action plan (Immediate)

1. Resanda was advised to improve its present quality of its carded ring spun yarns by ‘conditioning of cottons for 24 hours’ before spinning processes on Chinese machinery; and to add a small
combing line for spinning export quality yarns. This will make full 4 ton/day yarn production, of higher quality and fit for exports to Turkey and Russia.

2. The profit vision would require Resanda to plan and consider setting up of an additional yarn spinning plant of 9000 new spindles, and also develop a dedicated ‘organic cotton yarn’ producing line once the company has been revived and mills re-started.

5.2 Nassoji Khujand & Textile City, at Khujand city, Sughd region

Observations:

1. The textile complex of Nassoji Khujand, along with the Textile City, is observed to be a typical set up of a large and older technology Textile units of the older ‘soviet era’. While this textile complex is for multiple textile products, here too and like Resanda, the focus on key textile products is missing. This has been perhaps the reason for losing the past active collaboration Textile City had with reputed Carera of Italy.

2. With taking over of ‘Textile City’, Nassoji can go for rationalisation of the varied product mix and bring out 2-3 textile products for both the domestic and the export markets.

3. Considering the existing infrastructure and its upgrade capability, the right road map for Nassoji Khujand and Textile City as one combined business, will be to go for and achieve full integration and valued addition from Yarn spinning to yarn dyeing to weaving and garment making with 30s to 40s count Shirting as the focussed and key products for sale.
Mission report Munish Tyagi, Sr. Advisor, Rajesh Bheda Consulting

Action Plan/ Recommendations:

Long term action plan

1. The long term mission and road map for Nassoji +Textile city combined textile complex is to become a preferred supplier of dyed/finished woven fabric for shirt manufacturers in the country and also as Job work unit for fabrics and yarn dyeing.

   The above action plan would require setting up a new 1.5 ton/day yarn dyeing plant; and replacing 50% of the existing older 160 weaving looms by new cost effective rapier type looms from China. Once this quality production is available, the company can plan its own stores under its own brand etc.

2. The company has the potential to surely integrate its existing 3000 TPA yarn capacity to produce yarn dyed cotton shirting fabrics, which are processed and finished in Textile City dye house on the same site, and then made into shirts in the existing 80 machine garment making unit.
Medium term action plan
1. In the midterm planning Nassoji + Textile City complex has to retain its focus on 100% cotton textiles and not venture to compete with the polyester textiles being imported from China.
2. The yarn spinning unit of Nassoji Khujand at Industrial zone; is very old and for average carded yarns. It requires revival/renewal by new machinery investment in steps. The existing Yarn dyeing plant is nearly 25-30 years old and having obsolete technology of centrifuge hydro with the chamber type yarn dryer.
3. Also, the existing dye house of Textile City needs to be upgraded and modernised with a new Yarn dyeing plant and 1 new digital printing machine absorbed into integration planning of Nassoji Khujand Company.

Short term action plan (Immediate)
1. The immediate interventions suggested for Nassoji +Textile City combined entity is to upgrade their cotton yarn spinning unit in the Industrial Zone, Khujand. The company is already working to implement these suggestions and inducted an Indian technical head.
2. To be able to take benefit of the growing and expected demand for dyed yarns in fabric sector, Textile City, part of Nassoji; wants to start upgrading its existing old yarn dye house
3. In the short term, it is vital for the company to go for import of minimum 32 cost effective rapier looms, from China, for weaving of medium count yarn dyed and plain shirting fabrics for conversion into shirts and home textiles and using such better quality fabrics to produce more of yarn dyed shirt fabric and made up shirts in the existing garment plant.

5.3 Ortex Company – Khujand City

Observations:
1. Ortex is a new start up and a small company having focus on ready-to-wear garments.
2. The company has only 9 weaving looms for producing the 100% cotton fabrics for trousers and kimonos, and has an output of 80 pieces/day of such garments.
3. Due to its small and not viable weaving capacity, the company is buying the weaving yarn from local spinning mills and using the dyeing house facility at Textile City/Nassoji Khujand for procuring the dyed fabrics for garment making.
4. Keeping its focus on the garment business, Ortex has set up a small Garment dyeing plant of China make and, also its own showroom/store where such garments are being sold under its brand name ‘ORTEX’.
5. Growth via development of its brand and showroom needs to be the future road map for Ortex. Both, continuing with weaving and own fabric dyeing are not a future workable/viable option for ORTEX.
**Action Plan/ Recommendations:**

**Long term action plan**
1. The company needs to focus on garments and remove the obsolete weaving setup.
2. Based on acceptance of its garment products like trousers, there is an emerging opportunity for ORTEX to move into production and selling of yarn dyed shirts and also fashion Knitwear in the future.

**Medium term action plan**
1. The company needs to set up a modern and upgraded garment dyeing and washing plant since the existing plant has older machines that are not capable of giving higher quality demanded in fashion garment business.

**Short term action plan (Immediate)**
1. The company was advised to do more of fabric dyed garments and to patronise the fabric dyeing and finishing facility, at Textile City Khujand, for its requirements in small quantity.
2. They are doing so regularly and, there has been a perceived improvement in overall garment quality and acceptance by the domestic consumers buying from the company’s showroom in Khujand.
3. The company was also to diversify into knit garments by sourcing the knit fabric from India or China and selling it via the present showroom in Khujand and the proposed/upcoming one in Dushanbe. The company has started work on this recommendation too.

**5.4 Knits Company – Nohid Knitting Company, Istaravshan,**

**Observations:**
Nohid Company is an interesting and unique example of a knits focussed company, having integration from spinning to knitting and knit fabric dyeing to knit garment making. Though the company location is in the cotton growing area, yet its spinning and circular knitting unit are in different locations about 15 kilometers away at Ganchi. The company is also having knit towel fabric in its product mix, but this product line does not seem to be selling at all ad remains a marginal manufacturing activity.

**Action Plan/ Interventions:**

**Long term action plan**
1. Having chosen knits segment as its core business, the long term road map and mission for Nohid Company is to achieve full integration from yarn spinning to knitting to fabric dyeing and knit garment making. This would require, setting up a ring spun combed yarn facility at the existing site at Istaravshan and, also relocating the existing knitting unit to the same site where the dye house is sited outside Istaravshan.

**Medium term action plan**
1. In the midterm, the Nohid Co is required to improve the quality of its present day knit fabric and finished knitwear products, visually underwear, and knit apparels for children and ladies. This is a
good and highly saleable product range but requires improved circular knitting, fabric dyeing and finishing and product design knowledge esp. for fashion fabrics like cotton-spandex blended.
Short term action plan (under implementation)

1. The immediate interventions suggested for improving the products quality and business of Nohid Co. are clearly for up-gradation of existing dyeing house esp. for Lycra blended fabric dyeing and finishing with stabilisation of fabric shrinkage before making of knit garment etc.
2. The advice and solutions were given via transfer of knowledge for `heat setting’ of blended fabrics before dyeing; and also `compactor’ based shrinkage control after dyeing process on soft flow type machines. This has been duly accepted by the company and they are starting the process of acquiring compactor for fabric stabilisation use. A cost effective machine of up to $140,000 from Bianco Italy been suggested.
3. Also, Nohid was advised and guided on upgrading their existing older relax dryer by replacing the felt fabrics. The process for availing it from Albany Italy is starting.
4. Another two Interventions advised and duly implemented by Nohid company has been to improve the quality of `whiteness’ in their fabric bleaching process. The company has implemented the changes in % OBA to be used, and also use of Glauber salt as input to replace the normal caustic soda etc.
   The other being the induction of a `second hand ‘ Raising machine like Lafer for napping of two thread jersey fabric/Fleece fabrics for use in sports and athletic knit fabric
5. Use of low cost Reactive dyes, to be sourced from branded Indian companies instead of high cost/same quality supplier like Benzema in Switzerland was suggested which also has been implemented

5.5. Spinning Company – Spitamen Textiles Co.

Observations:
1. Spitamen Textiles is having an average size yarn spinning mill of average technology, from Marzoli Italy, and which is able to produce presently the average quality cotton carded yarns. The factory is ideally located in the cotton growing region of Sughd which produces cotton of right quality.
2. However, the company has not been able to fully leverage its good location due mainly to the ‘bottleneck’ situation on the output end of its Mill where the yarn spinning capacity remains much below the pre-spinning capacity.

3. Considering its low capacity of approx 7056 ring spindles; the company needs to add min of 4000 spindles plus to achieve the min economic viability of its production line using existing Blow room.

4. Also, in medium term plan, Spitamen needs to upgrade from the low value carded yarns to combed yarns by adding 1 Comber line for better quality combed yarns which will allow Spitamen Textiles to enter exports markets of Turkey in competition to India.

**Action Plan/ Recommendations:**

**Long term action plan**

1. The long term road map for the company would surely require investment towards expansion to become a min 10 to 12000 spindle yarn spinning unit, with in-house one combing line.

2. With the above Capex plan to take the production to 9 to 10 ton/day of yarns, it will be imperative for company to set up a knitting to knit fabric dyeing to garment making unit to achieve ‘value addition’ to its business and entry into export markets of Turkey and Russia, and also emerging UAE textile centres.

**Medium term action plan**

1. Having achieved the capacity expansion by adding 4000+ spindles and in immediate Phase 2 in the medium terms, Spitamen Textiles need to add more value to its business by setting up a yarn dyeing plant of 2-3 ton/day to achieve better value realisation on its lower quality cotton yarns presently. This will help the company become a preferred yarn supplier despite its lesser capacity versus the competitors.

**Short term action plan (Immediate)**

1. The immediate interventions required at the Spitamen Textiles are to increase the present yarn output of only 3.5 ton/day to the optimum achievable of 6.5 ton/day. This is possible from the existing machinery set up.

2. The yarn output of achievable 6.5 ton/day then needs to be divided into 50% for combed yarn, with better value realisation, by inducting one comber line for making the unit export capable.

5.6.1. **Technical advisory provided on key technical issues of proposed `Textima` based expansion project, of Spitamen Textiles, Sughd region**

5.6.1.1. **Status of Spitamen Textile Mill [STM]**

As an overview, STM is having a cotton yarn spinning mill of rather small capacity of 7056 spindles. This has the potential to produce only a max of 5 to 5.5 tonne yarns per day. This small spinning capacity limits the production of only 1 to 2 types of yarn and leads to higher cost of production versus the larger spinning mills. In fact with fluctuations in capacity utilisation, the cost of production can even exceed the international sale price of yarns, thus restricting the export potential despite a good and growing demand for cotton yarns out of Tajikistan.
It has therefore become important for STM to upgrade and remove ‘bottlenecks’ in its capacity by adding 5040 new spindles along with 1 line for 5 combers under the scope of the discussed ‘Textima’ expansion project. Also, to create more ‘value addition’, the Textima expansion project proposes to induct 2 sets of doubler and twisters for producing doubled yarns like 2/20, 2/40 etc, and 1 OE spinner for using the process waste especially from the new comber plant of 5 combers for producing high value comb yarns.

To save on cost and implementation time, the built up area is already ready and available at STM. However, it will require additional cost for fitting of false ceiling, lights and electrical panels.

5.6.1.2. Visit of ITC Consultant[ Munish Tyagi, [MT]

Under the technical support initiative of ITC, international consultant MT visited the STM yarn spinning mill on 27 April, 15 as a follow up to the earlier visit in last week of Nov.2014. Based on the existing floor layout of the STM mill and its existing infrastructure for plant type and numbers, he examined the technical plan and machinery configuration proposed under the Textima expansion project.

Technical opinion and consultancy solutions offered are below:

A] Regarding Technology: The level of technology offered for STL expansion project by Textima, Germany, is nearly contemporary based on 4 long ringframes from Zinser, with autodoffer fitted. However, this will need creating a separate production line right from cotton opening and up to new autoconers. The existing blowroom will be required to work on 2 cotton mixings that is separate for carded yarns and for the new to be added comb yarns. Also, the induction of 2 doubler winders and 2 TFO twister machines will help to create ‘value addition’ via extra products of ‘doubled’ yarns for the domestic and export market. Technical consultant endorsed the technology level offered in Textima project.

B] Regarding Plant balancing and, Machinery suppliers

It is observed that Textima expansion project on 4 x1260 spindles will comprise of a total 14 set of machines to be added including 5 combers, 2 sets of doublers and TFO twisters, and 1 OE Spinner for recycling the cotton process waster of carded & comb yarns.

The number of main machines is balanced, as per the Spin Plan based on average count of 20 ne. Also, the complete balanced SPG mill, after Textima expansion will have total of 7056 +5040 spindles. This will increase the yarn output from existing 4 ton/day to about 8 ton/day, due to higher productivity of new add-on spindles. However, overall power load will increase with above machine additions to level of 2050 KW.

Thus, after balancing via Textima expansion project, the Installed capacity will become 240 ton/Month and, of which 40 TPM for value adding doubled yarns and 40TPM for recycled/ value creating OE yarns for local domestic markets.
C) Recommendations

Technical consultant endorsed the proposed technology of the production plant, and machinery models of chosen suppliers, as also the number of machines for balancing the production lines.

It is also advised that the SPG plant machines [except for autoconers] are also available of contemporary technology from India and China at more reasonable cost which is assumed at 30-35% lower than the machines being offered by Textima in the project package. While exact comparison and cost analysis is not possible in absence of machine quotations from all 3-4 major suppliers including Lakshmi of India, Jingwei of China and Toyoda of Japan; it was strongly recommended to reduce overall investment cost for reducing future interest cost.

5.6 Olim Textiles, in Mastchoh district

Observations:
Olim Textiles is a modern yarn spinning unit of 30,000 ring spindles with capability to produce 14 ton/day of export quality yarns. The Co. is exporting fully `combed` yarns to Italy, Turkey and Russia. If the production of combed yarn was higher, then the company would surely gain in the export markets.

OLIM is one of the largest Yarn spinning mills in Tajikistan and also has cotton ginning and trading as its strength in the cotton to yarn value chain. The mill has been under producing at level of 10 TPD and, needs to add 1 more Comber line.

Figure 11: Discussing Roving bobbin quality

Figure 12: Discussing Autoconer yarn parameters
Figure 13: Discussions on cotton and yarn quality with lab staff

Figure 14: Examining the quality of roving bobbin

Figure 15: Explaining difference between good and bad ring frame bobbins

Figure 16: Explaining free withdrawal of roving at ring frame

Figure 17: Explaining package density feature in winding

Figure 18: Explaining the setting at the winding machine
Action Plan/ Recommendations:

Long term action plan
1. Considering that Olim has an economically viable size of 30,000 spindle for its yarn spinning unit, its future road map requires it to go for forward integration either via weaving or knitting, and eventually with its own in house fabric dyeing and finishing plants. To remain sustainable and competitive, Olim Textiles needs to convert min 50% of its yarn output value added Combed and/or TFO doubled yarns, and thus create flexibility for selling into both domestic and target export markets.

Medium term action plan
1. In the midterm perspective, Olim Textiles will gain from setting up its own yarn dyeing plants for marketing dyed yarns, both knitting and weaving types, into domestic and export markets.
2. OLIM Textiles needs to increase its combed yarn output to nearly double by adding 1 more combing line. This will put less stress on the present business which competes in carded yarns. Under consultant’s advisory, the mill is implementing to increase and sustain the ratio of combed yarns and TFO doubled yarns in the output to desired 50%.

**Short term action plan (Immediate)**

1. The immediate interventions required at the Olim Textiles are to be for increasing the present Yarn output of only 3.5 ton/day to the optimum achievable of 8 ton/day. This is possible by addition of 4000 Spindles, 1 Comber line that can be fed from the same the existing pre-spinning machinery set up.

2. The yarn output of achievable 8 ton/day then needs to be divided into combed yarn, carded yarn and TFO doubled weaving yarns with better value realisation, for making the mill export capable.

**5.7 Rahimov Textiles Company, Khujand city**

**Observations:**

1. Rahimov Company is an integrated textile company within house weaving, fabric dyeing and garment making for sportswear.

2. The company has been able to define and achieve the product focus with garments like Kimonos produced from its in-house woven fabric; and also sportswear produced from imported synthetic polyester fabrics. However, the weaving looms are is of outdated low productive Chinese technology.
Action Plan/ Recommendations:

Long term action plan

In the long term, Rahimov has the potential to emerge and grow its business as a dedicated producer and exporter of speciality garments like cotton Kimono and socks using polyester fabrics. However, this would require up-gradation of its old and obsolete fabric dye house to produce min 5000 meter/day of dyed fabrics using ‘closed Jigger of high temp type’.

Presently they are using medium quality 16s and 20s cotton ‘carded’ weaving yarns, of both ring spun and open endspun types from indeg spinning mills. They can move to weave higher quality fabrics using the combed yarns from modern units like Olim Textiles or Fayzi Istiklol.

To achieve the long term action plan, Rahimov Company has been advised to

1. Upgrade their fabric dyeing house by installing high temperature closed vessel type dyeing jigger machines, preferably of low cost from India or China, and also set up a small yarn dye house of 2 ton/day capacity.
2. Optimise their sourcing of reactive dyes for cotton fabrics and chemicals to reduce the cost of such inputs.

The company has started work, with consultants guidance, to install new fully automatic closed HT type dyeing jiggers in lot size of 300,500 and 1200 Kg for handling the dyeing of polyester and poly-cotton type fabrics and, the later requiring two times dyeing process i.e. for cotton and polyester separately for processing 5000 to 8000 meter/day of cotton and polyester blended fabrics. To be able to gain the advantage of low capital cost, and subsequent higher dyeing quality, such dyeing Jiggers from India are recommended.

With its technical knowledge gained for knits and polyester, the company can also actively consider to produce polyester based outerwear Knits apparels, with its own brand for domestic market.
Medium term action plan

1. In midterm, the company also consider to diversify its product range using imported denim or jean fabrics.

Short term action plan (Under implementation)

The company was given advice for import from Indian mills their requirements of reactive dyes to reduce their cost of dying process. They have been put in touch with Indian dyes manufacturing companies like Jay chemicals, CHT and others in the dyes cluster of Ahmadabad in India.

5.8 Hima Textiles Company, Yovon district, in Khatlon region

Observations:
Hima Textiles Co. is another good example of a modern Yarn spinning mill, based on the planning and past collaboration with Italy’s market linkages. Hima Textiles, in fact, has been the 1st modern spinning mill that came up before other modern mills like Olim Textiles and Faizi Istiqlol. The mill is essentially based on exports of its yarns to markets of Turkey and Italy; and consuming local area cottons.

While the mill is capable of producing 5 to 5.5 ton/day on its 10,000 ring spindles; it was observed to be doing only 3 ton/day on average 20s Ne count. Also, the value adding comber line was observed as not working, and leading to loss of opportunity for creating in-house value addition on otherwise good cottons. It was also observed that the Co. is suffering from high power cost, and shortage of working capital etc. The present level of under capacity utilisation needs to be arrested to sustain the operations.
Figure 27: Explaining good practice for centring of draw frame cans

Figure 28: Explaining importance of Comber shaft setting to reduce vibrations

Figure 29: Explaining the concept of average count

Figure 30: Fluff deposition in under casing

Figure 31: Importance of stretch free sliver feed into roving machine

Figure 32: Risk of cotton contamination from Poor Housekeeping
Figure 33: Showing high silver stretch at draw frame

Figure 34: Use of own branded packing and cartons advised

Figure 35: Wrong practice of overflowing filter press

Figure 36: Cleaning of fiber in the pneumafil box of ring frame

Figure 37: Value loss from unused combers
Action Plan/ Recommendations:

Long term action plan
1. In the long term, the company has to follow the road map of increasing the capacity to min 18000 spindles in phase 1 and, thereafter go for integration into fabric weaving and dyeing and Garment making to achieve the value addition in the textile chain and also to create a wider and flexible product basket.

Medium term action plan
1. In the midterm planning, the Co is required to undertake aggressive marketing to sell all of 5 to 5.5 ton/day as fully Comber yarns to bring down its raw material to sale ratio to within 60%.
2. It will be thus vital for the company to utilise all the 8 combers fully, to achieve better value yarns.

Short term action plan (Immediate)
1. The company has been guided to source the spare parts for the Combers to be able to run all the combers and produce higher value comb yarn for better viability.
2. The company has been advised to increase productivity per spindle by use of lower diameter rings to achieve higher spinning speeds, and company has accepted to take such replacement on 2-3 ringframes.
3. To condition the C=cotton received, for 24 hours before using it into spinning process.
4. The Mill has also implemented the advice for partitioning the ring frame section from the auto winding section to maintain required humidity levels etc.

6. Overall recommendations and practical common solutions for all spinning companies:

Observations:
1. All spinning mill companies have high dependence on only Italy, Turkey and Russian markets. There is an acute and immediate need to market aggressively to new markets like UAE, Ethiopia, North Africa and others.

Action Plan/ Recommendations:

Long term action plan
1. In the long run, the future road map for spinning mills will be to create more value addition by in-house yarn-dyeing [of part capacity] and/or set up fabric manufacturing units with part Garment making,
2. This will require technical knowhow transfer from textile mill experts; as also creating specialised Facility for common training for Skill up-gradation of technical manpower for these mills.

Medium term action plan
1. All spinning mill companies need to upgrade in midterm to fully combed and comb/compact yarns.
2. Also, market leaders and new projects need to examine the possibility of spinning cotton rich yarns in blends with polyester and viscose fibres [which can be imported to mix with the local cottons].

**Short term action plan (Immediate)**

1. On immediate basis, it is imperative for spinning mills to remain competitive in export markets, of Italy, Russia and Turkey, by controlling their raw material to sale ration to within 60% of sale value.
2. There is an acute and critical need to increase the capacity utilisation to target 90% of the installed capacity in order to defray the fixed cost and earn sustainable and workable operating margins.

**7. Road map for 6 target companies**

To be able to leverage the available surplus cotton in the country and makes it presence felt in both domestic and export markets, it is now the high time for the T&C companies in Tajikistan to really forward into the high speed action gear. Also to be competitive versus the bigger peers like China, India, Vietnam, Pakistan, Turkey and others, the Tajikistan T&C sector needs to embrace the `value addition` in its textile supply chain. The way forward and road map for future sustenance and viability of Tajikistan textile mill companies is proposed on the following lines:

1. All spinning mill companies have high dependence on only Italy and Turkey and Russian markets. There is an acute and immediate need to market aggressively to new markets like UAE, Ethiopia, North Africa and S Korea.

**7.1 Plan of action and way forward for core textile mill companies**

7.1.1. **Short term plan of action [for implementation over 1 year time line]**

1. All the textile mill companies to create business plan to produce more of Combed yarns, if the combers are available for example; at Hima Textiles and Olim Textiles. Where the combers are not available, e.g. at Spitamen Textiles; they need to induct and operate the combers on priority basis.
2. There is an acute shortage of technical staff, and technicians e.g. mechanical fitters in the mills and this is leading to loss in productivity, quality and eventual saleability of the yarn products. Some of the mills like Olim Textiles have duly realised and started working on sourcing a small key technician’s team from leading spinning mill focussed countries like India.
3. On immediate basis, it is imperative for spinning mills to remain competitive in export markets of Italy, Russia and Turkey, by controlling their raw material to sale ratio to within 60% of sale value.
4. There is an acute and critical need to increase the capacity utilisation to target 90% of the installed capacity in order to defray the fixed cost and earn sustainable and workable operating margins.
5. It is also imperative that looking into the value chain in textiles, most of the spinning mills need to consider installing short fiber opening and carding lines for polyester fiber so as to produce the `much in demand `cotton-polyester` or PC blended yarns for knitting etc.
7.1.2. **Medium term plan of action [for implementation over 2-3 years period]**

1. Upgrade 25% to 30% output in volume and value from single to doubled yarns, and keep tight controls on `conversion` costing between the raw materials and product sale value. Raw material and sale price ratio to be maintained from 60-65%.
2. Keep providing spare parts in operating budget to maintain the productivity and quality of the machines.
3. Acquire running technical assistance from international consultants/experts for improved mill practices and hiring the key mill technicians wherever shortage is.
4. To adopt ‘aggressive’ marketing into both domestic and export markets.

7.1.3. **Long term plan of action [for implementation over 3-5 years period]**

1. Expanding spindle capacity to reach optimum level of 18-20000 spindles
2. Setting up yarn dyeing or knitting or shirt fabric weaving units
3. Keep investing in upgrading Technicians skills, and also plant & Machinery via 1 to 1 replacement with new versions

7.2 **Summary of the practical interventions and solutions delivered to the assigned 7 T&C Companies in Tajikistan**

Table 2: Summary of interventions in six T&C factories

<table>
<thead>
<tr>
<th>ASSIGNED COMPANY</th>
<th>INTERVENTIONS DELIVERED</th>
</tr>
</thead>
</table>
| 1. RAHIMOV CO, KHUJAND | 1. Advisory, with plan for induction of HT HP closed vessel type of dyeing Jiggers.  
2. Guidance on sourcing of low cost Reactive dyes from branded Co s in India |
| 2. NOHID KNITTING CO | 1. Advisory, with plan to realign the process and machinery for better fabric stabilisation  
2. Use of right % of OBA to achieve better fabric whiteness, and replace of caustic soda by Glaubers salt in some dyeing colours. |
| 3. NASSOJI KHUJAND [+TEXTILE CITY combined into it] | 1. Advisory on restarting of spindles for carded yarn at industrial zone location  
2. Upgrading its yarn dye house at Textile City,  
3. Use of low cost reactive dyes from India companies at its fabric dye house in Textile City. |
<table>
<thead>
<tr>
<th>Company</th>
<th>Services Provided</th>
</tr>
</thead>
</table>
| 4. OLIM TEXTILES CO | 1. Advisory on the plan to induct 1 line of combers for producing more value added yarn  
2. Advisory and tech support for understanding key technicians requirement and support for inducting a small technician’s team from India. |
| 5. SPITAMEN TEXTILES CO | 1. Advisory and plan for removing bottleneck between pre spinning and main spinning lines  
2. Guidance and analysis given on their proposed Textima based expansion project for 150 TPM. |
| 6. ORTEX CO | 1. Advisory on use of fabric dyed and finished at Textile City and then used for garment making.  
2. Guidance on the business plan to diversify into yarn dyed shirting and knitwear by outsourcing of fabrics from within Tajikistan or from India. |
| 7. HIMA TEXTILES CO | 1. Advisory and guidance on cotton conditioning, methods and use of small diameter rings for improving ring frame speeds,  
2. Advisory and practical guidance of sourcing spare parts of combers and rework the combers for achieving in-house value-addition. |
| 8. RESANDAI Kurgantube CO | 1. Advisory and guidance given to improve working of existing spinning line from China  
2. Practical guidance given for creating a 2-3 product focus with only cotton yarns and school uniform production and organic cotton in future. |

8. **Future areas to be addressed for study and feasibility documentation**

With the present day challenges and difficulties being faced by the traditional cotton to yarn spinning sector in Tajikistan, it is now the right and high time to consider fast emerging global opportunities in the textile and cotton field.
It will be thus important to study and prepare relevant Feasibility Reports, with detailed diagnostics, all the resources and strengths in Tajikistan cotton to textile supply chain for exploiting emerging market opportunities in the line of,

1. Setting up technical and medical textile units in the small and medium investment range.
2. Upgrading the existing spinning mills for producing premium [brand focussed] organic cotton yarns, as one of the value-adding lines in their mills. This will require a detailed techno economic feasibility study covering backwards from markets to Spinning to cotton.
3. Encouraging the new spinning mill promoters to consider projects capable of producing blended yarns with cottons e.g. cotton-polyester, cotton-acrylic and cotton viscose where the manmade fibers like polyester, acrylic and viscose can be imported from China or India.
4. Encouraging the promotion of fast emerging and low cost Knitting units in the small and medium scale investment range. Knitting and knitwear is one sub sector which can drive the domestic fashion needs and also be a consumer of the combed yarns form Tajikistan spinning mills. Knitting can be a driver of domestic growth in the national T&C sector and will also lead to setting up of a number of small knit garment making units for fashion knitwear.

Consultant strongly endorses the case of setting up a SSI/MSME focussed `mini Textile Park` project to be set up preferably in Khujand Industrial Zone where there is a good scope of setting up few knitting units, using yarns from the Sughd region, and a no of small scale garment making units using such knit fabric. It is advised to have a detailed project feasibility report done for such mini Textile Park which will surely attract private sector investment from a good number of small/medium entrepreneurs in this low cost sector.

9. Briefing meeting with SECO
The meeting covered the approach used by International Consultants and observations on the progress experienced in the participating enterprises. Mr. Munish Tyagi IC Textiles ITC and Sr. Consultant RBC explained that the textile companies supported under the program were showing good interest in taking forward the short term recommendations and certain improvements are visible. He also expressed that at least 3-4 textile companies would be able to show sizable improvement in their manufacturing practices and report good improvements in various processes.

Dr. Bheda IC Productivity and Quality explained the new approach of practical on floor improvement implementation through Kaizen event for:

- Learning by doing and
- Rewarding more proactive companies with deeper improvement support

He explained that the participating clothing companies being small have a thin management team and find it difficult to assimilate the recommendations or best practices explained in the seminars. The new approach helps them experience the implementation process of these principles/ methodologies on
shop floor through direct participation. SECO team was also briefed about the successful organisation of Creative Pattern Styling workshop by Prof Asha Baxi of RBC in Khujand and Dushanbe.

10. **Strategy Meeting**
The presentation “Selected potential activities to address identified constraints and opportunities” was delivered by Dr. Bheda (IC and team Leader) supported by Mr. Munish Tyagi focused on the activities that can be taken up to achieve the operational objectives of the T&C Strategy. The presentation provided examples of best practices from different countries in terms of public private partnership, initiatives for technology up-gradation, strengthening of TVET institutes and role of industry associations. The presentation was very well received.

![Figure 38: Strategy Meeting at Dushanbe](image)
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Mission report Munish Tyagi, Sr. Advisor, Rajesh Bheda Consulting

Annexure I: Terms of Reference for the International Consultant

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<th>Project</th>
<th>TAJ/61/135 Tajikistan: Strengthening export competitiveness of SMEs in the textile and clothing sector and enhancing trade support institutional capacities</th>
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<td>as soon as possible to 31/12/2015</td>
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<tr>
<td>Assignment Type</td>
<td>International Consultant</td>
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<td>Title of Assignment</td>
<td>International consultant on textiles and clothing</td>
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<tr>
<td>Section/Division</td>
<td>OEECA/DCP</td>
</tr>
<tr>
<td>Place of Work</td>
<td>Home based with travel</td>
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<td>Contract Type</td>
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Background

The present project is component FOUR of SECO’s Trade Cooperation Program (TCP) in Tajikistan and aims to increase the export competitiveness of the textile and clothing (T&C) sector, by providing sector specific support to SMEs and relevant trade support institutions (TSIs), as well as supporting respective stakeholders in taking a strategic approach to the sector’s development. It will also explore the challenges and development potential of the tourism and handicraft sectors in Tajikistan, outlining relevant trade related technical assistance priorities.

Two main expected outcomes of the project are as follows:

**Outcome 1: The strategic and institutional framework of the T&C sector is improved**

- The export strategy for the T&C sector will be revised and a formal structure for its implementation monitoring established.

- TSIs will have reinforced their expertise and expanded their services in product development, supply management, sector specific marketing and quality management. International and regional networks and strategic partnerships will be established with leading world institutions, consulting companies and experts specialized in T&C.

- A comprehensive study will be conducted to understand the current situation with trade finance in Tajikistan and recommendations provided on industry specific technical assistance needs.

**Outcome 2: SMEs in the T&C sector are more export competitive and have access to new markets**

- The capacities of a broader group of enterprises, including T&C related handicraft enterprises, will be enhanced in the areas of product development, productivity, sector specific marketing and quality management. Exporters will then be connected to target markets in order to ensure that the improvements are linked to practical trade-based results.
A feasibility study will be conducted in order to determine the potential of integrating Tajik organic-cotton producers into the T&C sector value chains and recommendations provided on existing market opportunities.

Within the framework of this project, the services of an international consultant on textile sector are required to provide assistance to spinning, waving, dyeing and knitting companies as well as to decision makers, TSIs and other stakeholders during the design of the T&C sector strategy for Tajikistan. In particular, during the strategy design process, the international consultant will provide a multiplier role to ITC Export Strategy advisers by providing expertise and thought leadership and the second stakeholders’ consultation, and bringing international high-level proficiency to the analysis undertaken.

**Travel Information**

Travel to Tajikistan

**Duties and Responsibilities**

The consultant will work under the overall supervision of the Chief, Office for Eastern Europe and Central Asia (OEECA), the direct guidance of the OEECA Programme Coordinator and the Senior Officer in Export Strategy (ES), and with nominated ES personnel. The consultant will be expected to carry out the following duties:

**Advisory services for T&C strategy**

- Review of the draft Plan of Action to be validated by stakeholders during the 2nd consultation.
- Prepare a Power point presentation based on the Response Paper findings and the 1st consultation, connecting the issues and opportunities identified with concrete responses. The aim is to justify the proposed activities in the draft Plan of Action.
- Co-animate, contribute and provide thought leadership during the second stakeholders’ consultation, in particular with the textile sub-sector group.
- Review of the draft strategy document, with a specific focus on the market perspective section and the Plan of Action.

**Advisory services to textile companies**

- Plan the mission approach in consultation with IC Productivity and ITC filed office
- Develop training materials on improving the technical processes and KPI for textile companies (spinning, dyeing and knitting) and submit to ITC
- Provide in-factory technical advice to technicians and managers of six selected textile companies for two days each and supervise the introduction of better practices. Develop action plan
- Provide long distance support to NCs
- Prepare mission report, including activity report as per TOR and submit to ITC
### Outputs and Timelines

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<th>Expected Outputs</th>
<th>Timeline</th>
<th>Number of days</th>
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<td><strong>Advisory services for T&amp;C strategy</strong></td>
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<td>1. Draft Plan of action reviewed</td>
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<td>2. Power Point Presentation prepared connecting the issues and opportunities identified with concrete responses</td>
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<tr>
<td>3. Co-animation, contribution and thought leadership during the second stakeholders’ consultation.</td>
<td>3</td>
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<td>4. Draft strategy document reviewed and quality of analysis ensured.</td>
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<td><strong>Total strategy</strong></td>
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<td><strong>Advisory services to textile companies</strong></td>
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<td>5. The mission approach planned</td>
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<td>6. Training materials on improving the technical processes and KPI for textile companies (spinning, dyeing and knitting) developed in consultation with IC productivity and submitted to ITC</td>
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<td>7. Mission to Tajikistan conducted – In-factory technical advice provided to technicians and mangers of six selected textile companies for two days each and introduction of better practices supervised. Action plan developed</td>
<td>6</td>
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<td>8. Long distance support to NCs provided</td>
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<td>9. Mission report, including activity report as per TOR prepared and submitted to ITC</td>
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<td><strong>TOTAL</strong></td>
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### Payment Schedule

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<th>Description</th>
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<td>1</td>
<td>1st payment, on satisfactory completion of outputs 1 &amp; 2 and on receipt of countersigned contract</td>
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<tr>
<td>2</td>
<td>2nd/final payment, on satisfactory completion of duties and submission and acceptance of the final report</td>
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</tr>
<tr>
<td></td>
<td><strong>Total Amount:</strong></td>
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### Skills

- Good communication and presentation skills
- Ability to develop and conduct trainings courses
- Working with minimum supervision, competence and integrity
- Availability, commitment and flexibility

**Education**

Advanced degree (MA/MSc or other): Advanced degree in manufacturing management, industrial engineering, international trade and/or management, or related fields.

**Experience**

Number of years of experience required for this task: 15+

Other:

- At least 15 years of experience with productivity improvement in the garment and textiles industry.
- Experience of working with factories in developing countries to improve their productivity and quality management methods. Understanding of development projects and experience of working with development agencies to implement productivity improvement and quality management programmes in textile and garment sector globally. Prior experience of working on ITC projects. Prior knowledge of Central Asia projects in Kyrgyzstan would be an added advantage.

**Languages**

Fluency in spoken and written English
Annexure II: Recommended Model for Tajik Spinning Mills to `Add Value’ via forward Yarn Dyeing (Proposed Cost and Profit Model)

<table>
<thead>
<tr>
<th>Cost heads</th>
<th>Purchase cost</th>
<th>Tons per month</th>
<th>Tons per year</th>
<th>US dollars</th>
<th>COST PER TON,DYED</th>
<th>% Break Up</th>
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<tbody>
<tr>
<td>COTTON YARN</td>
<td>2.35 $</td>
<td>100</td>
<td>1,200</td>
<td>28,20,000.00 $</td>
<td>2,350.00 $</td>
<td>46.66%</td>
</tr>
<tr>
<td>WORKERS</td>
<td>300.00 $</td>
<td>32</td>
<td></td>
<td>1,15,200.00 $</td>
<td>96.00 $</td>
<td>1.91%</td>
</tr>
<tr>
<td>TECHNOCIANS</td>
<td>600.00 $</td>
<td>4</td>
<td></td>
<td>28,800.00 $</td>
<td>24.00 $</td>
<td>0.48%</td>
</tr>
<tr>
<td>MANAGERS</td>
<td>1,000.00 $</td>
<td>2</td>
<td></td>
<td>24,000.00 $</td>
<td>20.00 $</td>
<td>0.40%</td>
</tr>
<tr>
<td>WATER</td>
<td>60,000.00 $</td>
<td></td>
<td></td>
<td>60,000.00 $</td>
<td>50.00 $</td>
<td>0.99%</td>
</tr>
<tr>
<td>PACKAGING MATERIALS</td>
<td>80,000.00 $</td>
<td></td>
<td></td>
<td>80,000.00 $</td>
<td>66.67 $</td>
<td>1.32%</td>
</tr>
<tr>
<td>PERMISSION AND OTHER COSTS</td>
<td>10,000.00 $</td>
<td></td>
<td></td>
<td>10,000.00 $</td>
<td>8.33 $</td>
<td>0.17%</td>
</tr>
<tr>
<td>CHEMICALS</td>
<td>12,60,000.00 $</td>
<td></td>
<td></td>
<td>12,60,000.00 $</td>
<td>1,050.00 $</td>
<td>20.85%</td>
</tr>
<tr>
<td>BOILER ( COKE )</td>
<td>MAX POWER 6 TONS PER HOUR STEAM</td>
<td>3,60,000.00 $</td>
<td>300.00 $</td>
<td>3,60,000.00 $</td>
<td>300.00 $</td>
<td>5.96%</td>
</tr>
<tr>
<td>EE POWER</td>
<td>0.07 $</td>
<td>580</td>
<td>335</td>
<td>2,44,818.00 $</td>
<td>204.02 $</td>
<td>4.05%</td>
</tr>
<tr>
<td>to add cost of ,Credit 20%</td>
<td></td>
<td></td>
<td></td>
<td>2,82,000.00 $</td>
<td>235.00 $</td>
<td>4.67%</td>
</tr>
<tr>
<td>depreciation+</td>
<td></td>
<td></td>
<td></td>
<td>1,40,000.00 $</td>
<td>116.67 $</td>
<td>2.32%</td>
</tr>
<tr>
<td>transportation costs</td>
<td></td>
<td></td>
<td></td>
<td>3,96,000.00 $</td>
<td>330.00 $</td>
<td>6.55%</td>
</tr>
<tr>
<td>,and applicable Taxes</td>
<td></td>
<td></td>
<td></td>
<td>2,22,877.70 $</td>
<td>185.73 $</td>
<td>3.69%</td>
</tr>
<tr>
<td>USD / Kwh Kw DAYS HOURS</td>
<td></td>
<td></td>
<td></td>
<td>60,43,695.70 $</td>
<td>5,036.41 $</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>INVESTMENT</th>
<th>COST PER MQ</th>
<th>SQUARE METERS</th>
</tr>
</thead>
<tbody>
<tr>
<td>BUILDING</td>
<td>80.00 $</td>
<td>3,000</td>
</tr>
<tr>
<td>MACHINES ( water treatment, dye machines, centrifuga, RF dryer, laboratory, winding and rewinding )</td>
<td>21,00,000.00 $</td>
<td></td>
</tr>
<tr>
<td>BOILER, GRINDER, SOME INTERNAL JOB</td>
<td>2,50,000.00 $</td>
<td></td>
</tr>
<tr>
<td>office, furnitures, computers, printers, etc…</td>
<td>20,00.00 $</td>
<td></td>
</tr>
<tr>
<td>STOCK OF YARN FOR START-UP</td>
<td>75 TONS</td>
<td></td>
</tr>
<tr>
<td>STOCK OF CHEMICALS FOR START-UP</td>
<td>1,20,000.00 $</td>
<td></td>
</tr>
<tr>
<td>CONES, CARTON BOXES, POLIETHILENE BAGS, ETC…</td>
<td>40,000.00 $</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>29,46,250.00 $</td>
</tr>
</tbody>
</table>

2,686.41 $ Dye cost per Ton

<table>
<thead>
<tr>
<th>TONS</th>
<th>$/Kg.</th>
<th>5.30</th>
</tr>
</thead>
<tbody>
<tr>
<td>SALES OF COLORED YARN ( TONS/YEAR )</td>
<td>1,200</td>
<td></td>
</tr>
<tr>
<td>*** AVERAGE PRICE</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SALES</th>
<th>PROD`N COST</th>
<th>MARGIN</th>
</tr>
</thead>
<tbody>
<tr>
<td>63,60,000.00 $</td>
<td>60,43,695.70 $</td>
<td>3,16,304.30 $</td>
</tr>
</tbody>
</table>

MARGIN 3,16,304.30 $

Total Pay Back, years 29,46,250.00 USD

9.31 YEARS
<table>
<thead>
<tr>
<th>INSTALLED CAPACITY</th>
<th>2,500 Kg./Day</th>
</tr>
</thead>
<tbody>
<tr>
<td>WORKING DAY</td>
<td>CYCLE PER DAY</td>
</tr>
<tr>
<td>250</td>
<td>1</td>
</tr>
<tr>
<td>250</td>
<td>2</td>
</tr>
<tr>
<td>250</td>
<td>3</td>
</tr>
<tr>
<td>300</td>
<td>1</td>
</tr>
<tr>
<td>300</td>
<td>2</td>
</tr>
<tr>
<td>300</td>
<td>3</td>
</tr>
<tr>
<td>340</td>
<td>1</td>
</tr>
<tr>
<td>340</td>
<td>2</td>
</tr>
<tr>
<td>340</td>
<td>3</td>
</tr>
</tbody>
</table>
Annexure III: Format proposed for value addition via 10 knitting machine add on

Line 1: For basic knits, like Single Jersey, Interlock an Rib

Line 2: For value added knits, like open cut spandex fabrics, and of dyed yarns

Table 3: Format for Value Addition via 10 Knitting machines

<table>
<thead>
<tr>
<th>S. No</th>
<th>Basis</th>
<th>Key Considerations</th>
<th>Basis</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Proposed as in-house value addition to SPG mills</td>
<td>Ideally, in phase 1, 50% of yarn is suggested for knitting considering balancing of 1 Finishing line of 4-5 ton/day. In later Ph2 dye house etc.</td>
<td>Thus Phase 1 would require 10 circular Knitting machines of average 400 Kg/Day in 23 hour. In phase 2, a 5 TPD Fabric dye house is suggested to be added</td>
<td>Phase 1 will lead to value add of $0.25/kg</td>
</tr>
<tr>
<td>2</td>
<td>Machinery Plan</td>
<td>Both segments that are Basic fabrics market and fashion market to be covered. Thus 2/3rd Mc nos. to be basic mcs for Single Jersey, Interlock, Polo, Rib etc and 1/3 rd for A/striper/Fleece/Open cut lycra fabric knitting.</td>
<td>Such mcs to be split into different Dia and gages and 50% to be mcs with Lycra feeders. Also, of total 2/3rd to be on Large dia. of 30” plus, and finer 28 Gage</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Plant, and Machinery origin</td>
<td>For cost effectiveness, and same quality knitting features, like from Europe mcs, we recommend SE Asia Mcs like Unitex, Keomyong which are very profitably working in Knit units in India, Bangladesh etc.</td>
<td>Avg cost of such mcs will be approx $26000/each, before duty etc. 20% of all Mcs to carry extra cylinder of lower/higher Gage</td>
<td>For first set of 10 mcs, cost will be at $260,000</td>
</tr>
<tr>
<td>4</td>
<td>Utilities and engineering installations</td>
<td>Utilities like Electricals, Humidification, Compressor, LAB, workshop &amp; Stores, can be extended and availed from existing spinning mill at the same site.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>New Building</td>
<td>For knitting mc, floor area needed is 25x25 feet.</td>
<td>The Hall area suggested to be 625 x mc no’s x 1.25 times for yarn + fabric storage and inspection/despatch.</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Spl. feature</td>
<td>All grey fabric after knitting need to be conditioned before despatch</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Success actor</td>
<td>Each Mc to be fitted with Groz needles, German Sinkers and cams and ready for Lycra feeder.</td>
<td>[and to be run at avg speed of 25-28 rpm] {avg output per mc 350 kg}</td>
<td></td>
</tr>
</tbody>
</table>
Annexure IV: Format for ‘Value Addition’ in Knitting and Dyeing unit

Format proposed for ‘value add’ Plan for an existing Spinning Mill in Tajikistan for an integrated circular Knitting and knit fabric dyeing/finishing project of 5000 Kg per day

1. **Background:** existing Spinning mills in Tajikistan like OLIM, SPITAMEN TEXTILES, HIMA TEXTILES, and others are having a modern Cotton Yarn spinning mill from 7 x 1008 spindle upwards, for spinning of 20s to 40s cotton ‘carded’ yarn. These Spinning mills can produce from 4 tpd to 10 tpd of cotton yarns.

2. **Proposed ‘value add’ project /product** Diversification to dyed/finished knit fabrics

Based on good quality cottons, in the Sughd region, there is good market Scope for setting up new and modern integrated circular knitting, dyeing/finishing unit of approx 5 ton/day, for Knit fabrics. Such unit will have a good demand from fashion garment and knit underwear industry in Tajik and also importing countries like Turkey, UAE and Russia. Such new project will also bring in ‘value addition’ to existing business of existing Spinning mills producing 4 tpd to 10 tpd basic yarns.

Such a project for expanding the existing Spinning mill will bring in additional sale income of +2.5$ per Kg, and of which 15% will be extra profit

3. **Raw Material required:** Cotton knitting Yarns of counts 20s, 24s, 30s and 40 from local area cottons of 28 to 31mm. Such yarns of carded type will be spun in existing spinning mill. After allowing for the process loss till finished fabric, the Yarns to be consumed will be average 7% more than finished fabric output

4. **Knit fabric products:** The proposed integration project of 5 ton/day of knitting and knit fabric dyeing/finishing plants [from overseas] mainly SE Asia and India will produce ‘tubular’ knit fabric of types Single jersey, interlock, ribs and with 3-5% Lycra in blend. Fabrics can be knitted in cotton, polyester, viscose and their blends with Lycra and will require 14 No. large diameter circular knitting mcs in diameter 26”, 30”, 34” and gage no. of 20, 24 and 28 gage.

5. **Special Technology and imported plants:** The manufacturing of high quality Knit fabrics, in demand for making knitted fashion garments, and would require wide diameter circular Knitting mc of source S Korea, Singapore, China or Taiwan. Approx 14 such Knitting machines will be needed for making 5000+7% more raw knit fabrics which will go to dyeing and finishing.

However, the heart of a modern Knit fabric unit is the latest ‘Soft flow’ type dyeing mcs of HT/HP type followed by Padder/squeezer, relax Dryer and finally Compactor for stabilising the ‘shrinkage’ and control in finished knit fabrics. In Tajikistan e.g. Nohid Knitting has such process but nearly obsolete with no ‘stabilization’ plant for knit fabrics.

6. **Imported plant recommendations:** For producing high quality of raw knit fabric and, finally dyed/finished knit fabrics, we technically recommend:
   a) 14 Circular Knitting machines in diff diameter & gauge from China, Taiwan, S Korea
   b) Soft Flow Dyeing machines, from DongA Korea or Fongs, China
   c) Relax Dryer of Tung Sheng, of Taiwan
d) Tubular compactor of Bianco Italy, or HAS, Turkey

e) A modern Colour matching unit and Laboratory for sample dyeing.

The above main plant can be supported by low cost Engineering equipments like Air compressor, DM Water unit, Boiler etc from India, preferably.

The Import cost, before import duty etc, for above modern plant to produce 5 Ton/day of quality finished fabrics, is estimated at USD 1 Million.

7. Other Supporting or utility machines, to be from India: 1 Steam Boiler of 4 Ton/Hour capacity, 2 Air compressors, 2 fabric reversing machines, 2 Fabric inspection machines and 2 Hydro-extractors.

8. Project execution period: the building is already ready and available with some of the existing spinning mill; and therefore, the project can be setup and started in 6 months from date of placing purchase orders for imported machinery with applicable advance payment.

Total project planning and execution support, including placement of Technicians and engineers for 1 year after start-up, can be done from India.

9. Electric Power requirement: will be approx 320 KW, including knitting machines.

10. Man Power requirement: Total- 30 per Shift, for 3 shift operation per Day.

11. Recommendation for future viability: will be to add a 50 garment making machine unit in phase for producing fashion knitwear, for both domestic and export markets.
### Annexure V: Format for ‘Business Plan’ of cotton yarn spinning mill

Proposed Format for preparation of detailed business plan for expansion of a cotton yarn spinning mill in Tajikistan via added-on 15552 ring spindles

#### Executive Summary

<table>
<thead>
<tr>
<th>Name of the Existing Spinning Mill Co.</th>
<th>M/s ABCD, Tajikistan</th>
</tr>
</thead>
<tbody>
<tr>
<td>Present Capacity</td>
<td>XYZ: spindles</td>
</tr>
<tr>
<td>Nature of activity</td>
<td>Cotton Yarn manufacturing</td>
</tr>
<tr>
<td>Registered Office</td>
<td>Xxxxxx, Tajikistan</td>
</tr>
</tbody>
</table>

#### Brief details on the Project

The Company is proposing to increase its existing Cotton yarn manufacturing facility by installing additional 15552 spindles for added-on Combed yarn line on Imported Ring spinning machinery plants for reputed global suppliers.

#### Estimated Fixed capital cost of project

USD $ XXX Million

#### Proposed D/E ratio

3:1

- **Equity** – proposed 25% of project
- **Term Loan/Debt** – 75% of project

#### Source of technology and Plant

From Germany, Italy, Europe, Turkey and India

#### Destination for exports

Italy, Europe, Russia, Ukraine and others

#### Techno-Economic Viability

Yes

(The new Greenfield project is techno-economically Viable under the eligibility of Imported plant and machinery, and assumed VAT and other concessions available for forward integration of existing Cotton spinning mill.

---

**ABOUT PROMOTER COMPANY**

XYZ is a domestic Company, incorporated in Tajikistan, and proposing to undertake the setting up of an expansion project for adding on 15552 spindle to produce additional 1960 Metric Tonne/Year of cotton yarns to be sold into both domestic and export markets.
THE PRODUCT MIX

The new project will be manufacturing `value added ` cotton yarns of types combed and compact [ for exports ] to serve the end uses in woven and knitted fabrics.

LOCATION

The expansion project is to be set up preferably at the existing mill location which is in proximity to cotton sourcing areas. The existing site has availability of good infrastructure and communication links.

INSTALLED CAPACITY

The ‘add-on’ project under reference will have an installed capacity of 15552 spindles. Based on 3 shift working per day and assumed 355 working days per annum, the Installed capacity works out to 5.5 Ton/day, or 1960 Tons/Year for average spinning count of 40s combed/compact and exportable.

PROJECT IMPLEMENTATION

The Company will shortly initiate the process of finalization of Mill layout and construction of the building for the expansion project and will also initiate the selection/finalization for import of main plant and machinery from Italy.

The Company will also engage the reputed international technical consultants for the project management and implementation and initiate the process for inviting the quotations for supporting plant and utility equipments from countries like Europe, Turkey, India and others. Based on the present initial steps being taken, the new Spinning mill project of company is targeted be commissioned within 15 months of placing machinery orders.

PROJECT COST & PROPOSED MEANS OF FINANCE SUMMARY

The fixed capital cost has been estimated at USD $ XXX Mln, and as below –

Table 4: Project Cost (In Million $)

<table>
<thead>
<tr>
<th>Description</th>
<th>Basis</th>
<th>IMPORTED</th>
<th>$, Mln.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Land</td>
<td>Existing</td>
<td>Indigenous</td>
<td>0</td>
</tr>
<tr>
<td>Buildings &amp; Civil Works</td>
<td>Sq Mtr</td>
<td>-</td>
<td>5</td>
</tr>
<tr>
<td>Plant &amp; Machinery, including. MFA and Utilities</td>
<td>Of which $9 Mln to be, Imported</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>Erection, Engg and Installation costs</td>
<td></td>
<td></td>
<td>0.25</td>
</tr>
</tbody>
</table>
Pre-operative expenses, incl. Interest during project period | Incl. ICDP | - | 0.75
---|---|---|---
Provision for contingency | Avg 5% | - | 0.75
Margin Money for Working capital, for Year 1 | To be added as per bank norms
Total Fixed capital Cost | Excl. WC funds | 16.75

The Project is proposed to be funded via a Debt-Equity Ratio of 3 to 1.

PROJECT RATIONALE

Tajikistan is an important producer of good quality cottons, of length 28 to 30mm. Such cottons are ideal for making fine quality yarns like 40s combed/compact and knitting yarns. Such cotton yarns have growing demand and consumption in Europe and CIS countries for end uses in woven and knitted fabrics. The production of cotton in Tajikistan is fallen down to 0.40 Million tonnes from nearly 1 million tons in last 10 years, and also further ‘value addition’ in the textile chain is rather minimum. It is, therefore, important for an Existing spinning mill to be successful by adding min viable ‘spindles’ for producing value added yarns like combed or compact and directed at European export markets like Italy, Russia and others.

Supportive policy measures by the Govt. are favouring such forward integration, presently.

PROJECT TITLE, CAPACITY & PRODUCT MIX

The project envisages setting up of an expansion Spinning project on 15552 ring spindles based on long ring frames equipped with 1296 spindle each and with Automatic doffers for ensuring high productivity.

The key products are knitting and weaving end use yarns spun from mid length local Cotton fibers of length 28 to 30 mm. As per the market assessment, the 4 major and market popular yarn products that can be manufactured are:

- 1/40s Comb weaving yarn,
- 1/40s Comb knitting yarn,
- 1/30s Comb weaving yarn
- 1/30s Comb knitting yarn

In terms of daily production, the 100% or Installed capacity for all above yarn products will be at 5.5 Ton/day, which works out 1960 Ton/Year based on working days of 355/Year.
Some of the modern and existing Spinning mills like OLIM Textiles, Spittamen Textiles and Hima Textiles and others need to work on such business plan.

The market aligned Manufacturing Plan, proposed for such ‘expansion’ Yarn spinning mill project is suggested to be is as below:

The process flow diagram for the above described manufacturing process for grey ‘combed’ and carded type yarns has been provided in the exhibit below –

![Process Flow Diagram](image)

**Source: Munish Tyagi**

Salient features of the manufacturing process being adopted for the proposed Project have been listed as under –

- Long ring-frames of 1600 + spindles
- Ring-frames fitted with Auto-doffer units and [‘diverse yarn making units, in future ].
- 100% of yarns to be combed and can be valued added as ‘compact’ or cotton-Lycra and cotton Slub yarn
- 100% of yarns to be electronically cleared via Autoconer or directly from ring-frames to LinkConer
Table 5: Manufacturing Plan

<table>
<thead>
<tr>
<th>Sr.</th>
<th>Process Particulars</th>
<th>NE</th>
<th>NE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Cotton</td>
<td>40</td>
<td>30</td>
</tr>
<tr>
<td></td>
<td>Carded</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Weaving</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

(A) **Ring Frame**

<table>
<thead>
<tr>
<th></th>
<th>Machine make.</th>
<th>MARZOLI</th>
<th>Model</th>
<th>[Option]</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Spindles per Ringframe</td>
<td>1296</td>
<td>1296</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Spindle RPM.</td>
<td>18,500</td>
<td>17,500</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Twist Multiplier.</td>
<td>4.20</td>
<td>3.65</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Twist per Inch.</td>
<td>26.56</td>
<td>19.99</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Expected Efficiency %</td>
<td>95.00%</td>
<td>94.00%</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Expected gms / Spindle / Shift.</td>
<td>119.09</td>
<td>197.48</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Expected Kgs / machine / shift.</td>
<td>154.35</td>
<td>255.93</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Expected Kgs / machine / Day.</td>
<td>463.04</td>
<td>767.80</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>No. of Machines to work.</td>
<td>12.00</td>
<td>0.00</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>No. of spindles to work.</td>
<td>15396.48</td>
<td>0.00</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>Total kgs per day.</td>
<td>5556.43</td>
<td>0.00</td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>TOTAL KGS PER YEAR</td>
<td>1960 Tonnes</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**INFRASTRUCTURE REQUIREMENTS AND, PLANT & MACHINERY CONFIGURATION:**

Table 6: Proposed Break up of building, section wise

<table>
<thead>
<tr>
<th>Particulars</th>
<th>Number of Unit (Sq. mtrs)</th>
<th>Total equivalent ($ mLN.)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Building</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Production Halls for 25000 spdl. (@ 0.60 sq.mtr. per spdl), incl. False ceiling</td>
<td>9,450.00</td>
<td></td>
</tr>
<tr>
<td>Fiber &amp; Yarn Godowns (Including Waste Godown)</td>
<td>3,000.00</td>
<td></td>
</tr>
<tr>
<td>Electricals &amp; Substation yard</td>
<td>500.00</td>
<td></td>
</tr>
<tr>
<td>Compressor House</td>
<td>150.00</td>
<td></td>
</tr>
<tr>
<td>Humidification Plant</td>
<td>1,500.00</td>
<td></td>
</tr>
<tr>
<td>Training Centre, R&amp;D and QC LAB</td>
<td>200.00</td>
<td></td>
</tr>
<tr>
<td>Workers &amp; Staff Canteen</td>
<td>150.00</td>
<td></td>
</tr>
<tr>
<td>Time &amp; Security cum cash Office</td>
<td>100.00</td>
<td></td>
</tr>
<tr>
<td>Administration Block</td>
<td>600.00</td>
<td></td>
</tr>
<tr>
<td>provision for Guest House facility</td>
<td>500.00</td>
<td></td>
</tr>
<tr>
<td>U/G and O/H water Tanks</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Mission report Munish Tyagi, Sr. Advisor, Rajesh Bheda Consulting
The above proposed project would have the plant and machinery configuration as below, with total installed Power load of KW, leading to consumption of 38000 units/day.

Table 7: Detail of Power load - for add on/expansion project of 15552 spindles.

<table>
<thead>
<tr>
<th>NAME OF MACHINE</th>
<th>Load per Machine (KW)</th>
<th>No. Of machines</th>
<th>TOTAL LOAD (KW)</th>
</tr>
</thead>
<tbody>
<tr>
<td>BLOW ROOM ,lines</td>
<td>70</td>
<td>1</td>
<td>70</td>
</tr>
<tr>
<td>CARD , incl. Aero feed chute</td>
<td>12</td>
<td>4</td>
<td>48</td>
</tr>
<tr>
<td>LAPFORMER</td>
<td>15</td>
<td>1</td>
<td>15 One combing line</td>
</tr>
<tr>
<td>COMBER</td>
<td>12.5</td>
<td>4</td>
<td>50</td>
</tr>
<tr>
<td>WCS ,for Blowroom, Cards &amp;Combers</td>
<td>32</td>
<td>2</td>
<td>64</td>
</tr>
<tr>
<td>SPEED FRAME</td>
<td>45</td>
<td>2</td>
<td>90</td>
</tr>
<tr>
<td>RING FRAME, with Auto doffer (of 1296 spds. each)</td>
<td>70</td>
<td>12</td>
<td>840</td>
</tr>
<tr>
<td>OHT Blower units+Pneumafil</td>
<td>2.2</td>
<td>18</td>
<td>39.6</td>
</tr>
<tr>
<td>WCS unit for Ring Spg deptt.</td>
<td>20</td>
<td>1</td>
<td>20</td>
</tr>
<tr>
<td>Fire Diversion units- set</td>
<td>5</td>
<td>2</td>
<td>10</td>
</tr>
<tr>
<td>Finisher Drawframe AL,1Dlvry</td>
<td>9.4</td>
<td>2</td>
<td>18.8</td>
</tr>
<tr>
<td>Breaker Drawframe-w/out delivery</td>
<td>9.3</td>
<td>2</td>
<td>18.6</td>
</tr>
<tr>
<td>AUTO CONER</td>
<td>40</td>
<td>4</td>
<td>160</td>
</tr>
<tr>
<td>YARN CONDITIONING MACHINE,24 tpd</td>
<td>160</td>
<td>1</td>
<td>160</td>
</tr>
<tr>
<td>H. PLANT</td>
<td>60</td>
<td>4</td>
<td>240</td>
</tr>
<tr>
<td>COMPRESSOR</td>
<td>37</td>
<td>1+1</td>
<td>74</td>
</tr>
<tr>
<td>LIGHTING</td>
<td>20</td>
<td>1</td>
<td>20</td>
</tr>
<tr>
<td>MISC.LOAD-incl. Borewell, bale press, Workshop, LAB, Guest house, canteen, Warehouse etc.</td>
<td>30</td>
<td>1</td>
<td>30</td>
</tr>
</tbody>
</table>

Total,KW 1968

RUNNING LOAD FACTOR 80% - average
1574.4 KVA

TOTAL UNITS PER DAY 37785.6
,that is, 38,000
PRODUCT CONFIGURATION & YARN COUNTS

The expansion project proposes a 15552 spindle Cotton yarn manufacturing unit, which will utilize locally grown cottons as the basic raw material for manufacturing of grey Cotton yarn products, of type combed and/or compact. The project configuration as envisaged by the Company has been provided in the exhibit below –

Table 8: project Configuration

<table>
<thead>
<tr>
<th>Particulars of count</th>
<th>No. of spindles</th>
<th>No. of ring frames</th>
<th>Kgs/ Day</th>
</tr>
</thead>
<tbody>
<tr>
<td>40ne Cotton Combed</td>
<td>15552</td>
<td>12</td>
<td>5525 *packed</td>
</tr>
<tr>
<td>Or, Alternatively</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>40ne Cotton comb</td>
<td>7776</td>
<td>6</td>
<td>{combined</td>
</tr>
<tr>
<td>30ne Cotton comb</td>
<td>7776</td>
<td>6</td>
<td>{5.5 ton/day</td>
</tr>
<tr>
<td>Total</td>
<td>15552</td>
<td>12</td>
<td>Abt. 5.25 Nett, Ton/day</td>
</tr>
</tbody>
</table>

The yarn production range of the proposed Project matches the global market trends and demand in both Domestic and export markets for end uses in both weaving and knitting segments. There is an assured and growing demand for such Cotton yarns of combed types both domestic and international markets.

The project will have the flexibility to opt for spinning of ‘specialty and value adding yarns’, especially those of ‘slub’ and ‘compact’ type by adding such attachments on ringframes. The Installed capacity for all the yarn products for the operational viability of the Project stands at 5.25 MT/day, from total of 12 ringframes of 1296 spindles each.

FINISHED PRODUCT SALE ARRANGEMENT

The Company needs strong marketing efforts to sell 100% of products into both the domestic and exports market through dealers, buying agents and distributors. Any existing network with dealers and agents in various countries like Italy, Turkey, Belorussia and Russia will be helpful in selling of additional output of 5.5 ton/day. It is to be noted that the overall yarn capacity of Phase 1 at 5.25 MT/day, translating to 1960 MT/year is a reasonable, marketable and market-viable capacity; and no pressure on sales is expected considering that the output counts of 40ne and 30Ne are fast moving. The complete working for the Installed capacity based on 12 x 11296 spindles, for chosen yarn counts assumed under the project scope, is duly highlighted in projected Viability plan.

PROJECTED VIABILITY SUMMARY OF BUSINESS PLAN, FOR 5-YEAR PERIOD

The operating Financials from the expansion mill project of 15552 spindles are projected to be as:
Table 9: Project viability summary

<table>
<thead>
<tr>
<th>PARTICULARS</th>
<th>PROJECTED (USD, Mln $)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sales/income</td>
<td></td>
</tr>
<tr>
<td>Gross or PBIDT</td>
<td>0.87</td>
</tr>
<tr>
<td>Interest Costs*</td>
<td>0.67</td>
</tr>
<tr>
<td>Cash profit</td>
<td>0.16</td>
</tr>
<tr>
<td>Retained Profit</td>
<td>0.123</td>
</tr>
<tr>
<td>Cash Generation</td>
<td>0.163</td>
</tr>
</tbody>
</table>

- Sale of mill waste and process loss of cotton, mutually adjusted for
- Interest cost as assumed at normal international levels

Table 10: Key Financial Viability ratios expected for the project

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Parameter</th>
<th>Percentage of Sale</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Raw material to sale ratio</td>
<td>61%</td>
</tr>
<tr>
<td>2</td>
<td>Power cost to sales</td>
<td>11%</td>
</tr>
<tr>
<td>3</td>
<td>Manpower cost to Sales</td>
<td>07%</td>
</tr>
<tr>
<td>4</td>
<td>Packing, maintenance and selling costs</td>
<td>08%</td>
</tr>
<tr>
<td>5</td>
<td>EBIDTA</td>
<td>(13)%</td>
</tr>
<tr>
<td>6</td>
<td>Cash Break Even Point</td>
<td>55%</td>
</tr>
</tbody>
</table>

Recommendations: The project is very sensitive to the financial cost of interest & amortisation. It is vital to have term loan interest, at not exceeding 15%p.a. rate.