



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

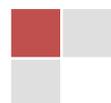
**Mission Report by**

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## Introduction

### Project objectives

The main focus of the project is to increase the export competitiveness of the T&C sector in Tajikistan, by providing sector specific support to SMEs and relevant TSIs, as well as by supporting the respective stakeholders in taking a strategic approach to the sector's development.

The three expected outcomes are as follows:

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

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

Outcome 3: Tourism and handicraft sector stakeholders have improved knowledge and understanding of sector needs and development priorities

Within the framework of the project, as part of Outcome 1, the export strategy for the T&C sector will be revised and a formal structure for its implementation monitoring established.

## Approach used for Mission

### Approach

The overall approach used was to gain pre mission information from the potential participant organizations through NCs, prepare National Consultants for support role, conduct Kaizen events in two enterprises to provide hands on experience of implementing Kaizen Events and implementing Lean principles. This is expected to provide evidence about the applicability of the Lean principles and inspire the observer companies to adopt these principles in their organisations.

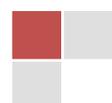
### Objectives and structure of Mission

The objectives of this mission were to:

- ⇒ To participate in the 2<sup>nd</sup> Stakeholders' Consultation on Textile and Clothing Strategy
- ⇒ Conduct Kaizen events for one factory in Khujand and one in Dushanbe to provide hand on experience of implementing Lean- Kaizen principles for productivity and quality Improvement
- ⇒ Encourage observer companies to apply the principles learned during the Kaizen event in their organisation for productivity improvement

Based these objectives the mission structure involved:

- ⇒ Interaction with ITC team and National consultants for discussing project approach for this mission
- ⇒ Pre-mission preparations for selection of host factories for the Kaizen events
- ⇒ Providing training material to National consultants for familiarisation
- ⇒ Participating in 2<sup>nd</sup> Stakeholder's consultation and presentation on selected potential activities to address identified constraints and opportunities for the Tajik T&C companies



- ⇒ 3 days Kaizen event at Ortex, Khujand with observers from other factories
- ⇒ 3 days Kaizen event at Yokut 2000, Dushanbe with observers from other factories
- ⇒ Visit to Maftuna for supporting application of ideas learned during the Kaizen workshop

## Opening Meeting

Day one: Opening meeting at the ITC Dushanbe office with Armen, Alexa, Munish, Saidmumin to discuss the preparations of the Stakeholder consultation and meeting with the Deputy Minister.

### 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.

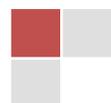
## Strategy Meeting

IC Participated in the T&C strategy consultation and contributed to parallel sessions.

The presentation “Selected potential activities to address identified constraints and opportunities” was delivered by Dr. Bheda 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.

## Kaizen Event in Khujand

This was hosted at Ortex factory from 23<sup>rd</sup> April to 25<sup>th</sup> April. The participants from 4 factories attended as observers. The list of participants is provided in annexure.



## Objective of the event

1. To expose the participants to Lean and Kaizen principles
2. Provide the an opportunity to apply the principles learned practically in production environment under the guidance of IC
3. Provide an opportunity to experience the results of application of lean principles on factory performance in terms of productivity, quality and lead time reduction

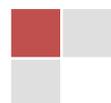
The agenda of the event is provided in annexure.

During the event the participants got an opportunity to apply the Lean principles on the manufacturing floor. They identified the Waste (MUDA) in the operations of the host company.

## 7 Waste Identified by the team

- Introduce racks in cutting area for storing cutting
- Split cutting table to improve flow and clear the path for movement
- Bundle trolleys with wheels will help with material movement in sewing
- Cutting stored in sample display area leads to reverse flow of material
- Light in sewing area is insufficient, please check
- Fabric stored on floor getting soiled, musts have fabric storage rack
- A lot of criss - cross movement for operators
- Defect rates not recorded assumed to be 15%
- Quality standards are low due to own brand
- Bundle size 35 pieces – High inventory
- Work spaces are uneven for operators
- Two press tables can be bought together for minimizing the travel for press operator
- A lot of dirt on floor, provide dust bins to all operators
- Parallel stitch not parallel- introduce double needle machine.
- Poor data recording, Daily production data is not displayed and not available easily.
- Provide sewing machine with nee lifter to Mehri

Based on the identification of Waste (Muda), the layout of the factory was analysed and improved layout was developed and presented. The production line was rebalanced with using TAKT Time concept and for improving productivity. The bundle size was reduced to reduce the production lead time and reduce work in process.

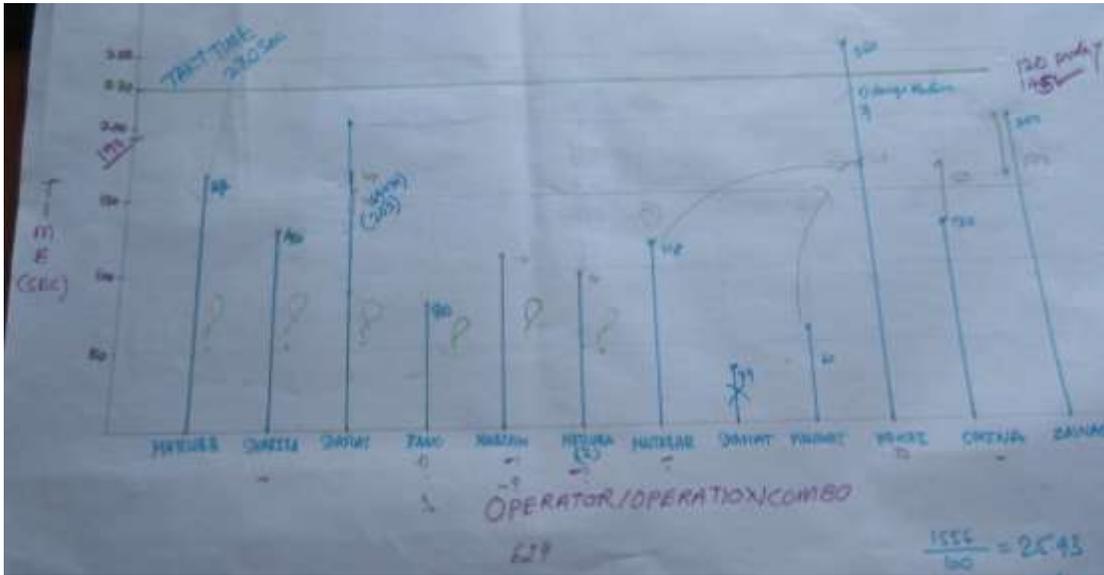




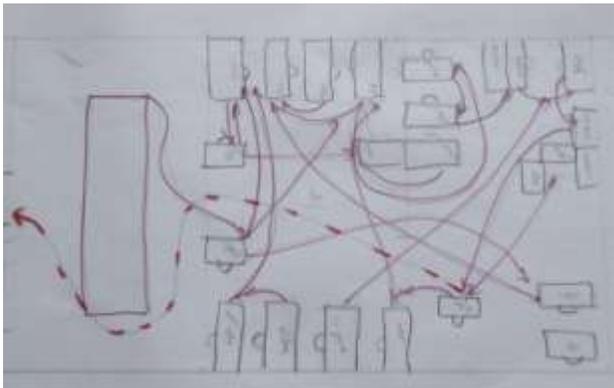
Waste hunting in floor



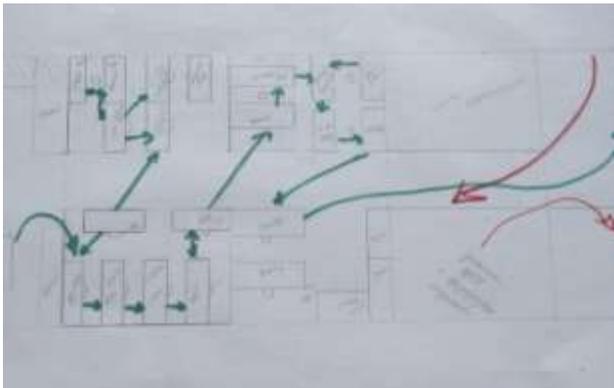
Waste hunting in floor



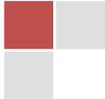
Cycle time vs. Takt time bar chart



Layout – Before



Layout – After





*Brainstorming session on layout*



*Interaction with operators*



*Felicitations and Group photo*

## Kaizen result

The Kaizen event provided excellent results as can be seen in the table provided below. The factory achieved 26% productivity on day three and 35% productivity improvement on day 4. This exceptional improvement and all the participants, management and workers of the host factory need to be congratulated for their wholehearted participation. A felicitation function was organised in the factory and IC presented the workers of the factory with a memento

Area	Kaizen base line	Kaizen goal	Results achieved	Improvement
Output/ Line/ 8 Hrs	85 (10.62 per hour)	120 (15 pieces per hour)	107 (Day 3) 115 (Day 4)	<b>26%</b> <b>35%</b>
Manpower	11	-	11	
Productivity	7.72	-	9.72 (Day 3) 10.45 (Day4)	<b>26%</b> <b>35%</b>

Defect Rate	15%	Reduce	To be assessed	-
WIP	250	Reduce by 50%	60	76%

### Go forward action plan

- Evaluate layout changes and implement as much as possible to reduce cross movement and transportation
- Display hourly production and defect data on production floor
- Develop Takt time + Cycle time chart for all new styles for balancing
- Improve machine maintenance to reduce thread breakage
- Provide dust bins to all operators to improve cleanliness on the floor
- Install racks for fabric and cut part storage
- Encourage operators to think about way of improving quality and production further and recognise them
- Immediately start the Ortex facebook page for social media promotion
- Explore possibility of increasing sales through distribution network/ wholesale

## Kaizen Event in Dushanbe

This was hosted at Yokut 2000 factory from 28<sup>th</sup> April to 30<sup>th</sup> April. The participants from 3 factories attended as observers. The list of participants is provided in annexure.

### Objective of the event

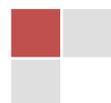
4. To expose the participants to Lean and Kaizen principles
5. Provide the an opportunity to apply the principles learned practically in production environment under the guidance of IC
6. Provide an opportunity to experience the results of application of lean principles on factory performance in terms of productivity, quality and lead time reduction

The agenda of the event is provided in annexure.

Similar to Khujand event, the participants got an opportunity to apply the Lean principles on the manufacturing floor. They identified the Waste (MUDA) in the operations of the host company.

### Waste Identified by the team

- Excessive marking, can be reduced (over-processing)
- Excessive movement of material (transport waste by Brigadier)
- Operators wait for brigadier to provide inputs/ material (Waiting)
- Cutting defects leading to extra time waste by operator & material waste ( (Defects+ Motions)
- Cut panels not matching leading to quality defects (Defects)



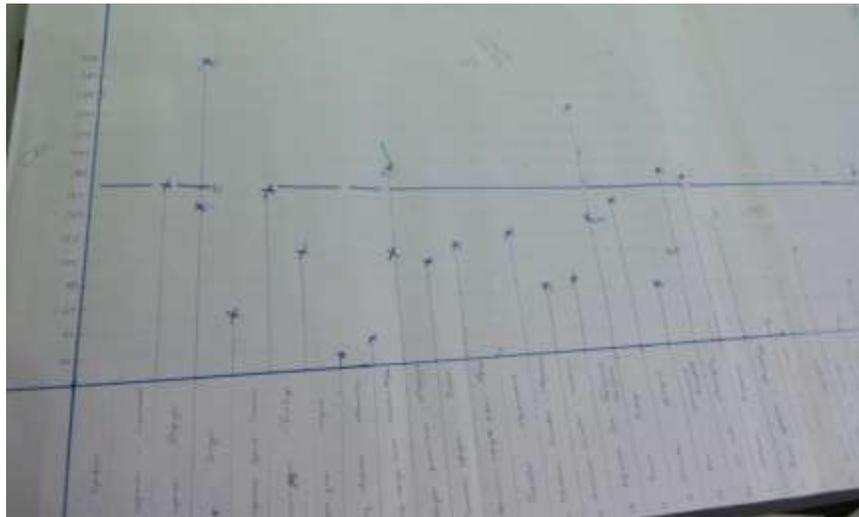
- High WIP (Inventory)



*Waste identification, Extra fabric needed to be cut by sewing operators*



*Waste Identification – Over processing*



*Cycle time vs. Takt time bar chart*

Часы	Производство
8:00	1
9:00	2
10:00	3
11:00	4
12:00	5
13:00	6
14:00	7
15:00	8
16:17	

Hourly Production Chart

Смена	План	Факт	Отклонение
Понедельник			
Вторник			
Среда			
Четверг			
Пятница			
Суббота			
Воскресенье			

Weekly production chart



Special session for observer companies by NC, Rustam

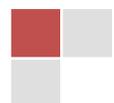


Takt time chart development



Felicitation of pilot line workers

Based on the identification of Waste (Muda), the layout of the factory was analysed and improved layout was developed and presented. The pilot production line was rebalanced with using TAKT Time concept and for improving productivity. The workers placement in the production line was also changes to improve the production flow. The bundle size was also reduced to reduce the production lead time and reduce work in process.



## Kaizen results

The Kaizen event provided excellent results as can be seen in the table provided below. The factory achieved 25% productivity on day 4 and 33.33% productivity improvement on day 5. This exceptional improvement and all the participants, management and workers of the host factory need to be congratulated for their wholehearted participation. A felicitation function was organised in the factory and IC presented the workers of the pilot line of the factory with a memento.

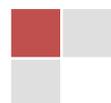
Area	Kaizen base line	Kaizen goal	Results achieved	Improvement
Output/ Line/ 8 Hrs	120 (15 per hour)	160 (20 pieces per hour)	150 day 4 160 Day 5	<b>25%</b> <b>33.33%</b>
Manpower	35			
Productivity	3.42	4.57	4.57 Day 5	<b>33.33%</b>
Defect Rate	15%	Reduce	Reduced	
WIP	250	Reduce by 50%	Less than 150	<b>40%</b>

## Go forward action plans

- Evaluate layout changes and implement as much as possible to reduce cross movement and transportation
- Carry out cycle time checks for all the operations for regular models to develop Takt Time- Cycle Time Charts
- Display hourly production and defect data on production floor
- Make line layout based on operation/ operator balancing based on Takt Time
- Improve machine maintenance (buttonhole machine)
- Evaluate all methods and improve operator skills and reduce operation time
- Improve accuracy of cutting. Procure CAD software

## Visit to Maftuna for supporting with implementing Kaizen event learnings

The visit started with review of the workshop. The company mainly produces the school uniforms. The workshop is situated in the basement of a new building and it's quite neat. Cutting room is spacious and has provision of racks for storing cut material. There is one sewing line, where three workers work in brigade for sewing trousers and 8 workers work in brigade to make costumes (Jackers of school



uniforms). Factory produces for the orders from schools. Currently they produce about 10 costumes and 12 trousers a day. The participants from the company were very keen to see how the learning from the Kaizen workshop at Yakut 2000 can be implemented in their small factory.

After the visits to the factory floor, discussions and observations, IC supervised the factory team in capturing the cycle time of work being performed by various workers. This is done for developing TAKT time chart to understand the capacity against demand, balancing of work load and knowing the improvement potential.

Based on the cycle time and TAKT time chart it became clear that the 8 member brigade has an estimated potential to produce about 36 pieces of jackets per day as against the current production of 10 pieces. By using the Lean principles taught and creating flow production the factory will be able to produce significantly higher number of pieces and thus improve its competitiveness. The factory director and team were very pleased with this discovery as result of applying the Lean principles learned during the workshop from Dr. Bheda and further advice on the factory floor. The factory owner feels that with such improvement, he can immediately add more workers and increase his production volume.

Detailed discussion also took place on improving the quality of the garments. Several suggestions were provided as regards:

- Improving the workmanship of waist band of the trousers
- How to ensure that the lining of the jackets fits well with the outer shell
- Correction of pattern of lining
- Improving the finish of the centre back vent (opening at the bottom of the jacket)
- Finishing of the jacket sleeves

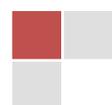
Dr. Bheda also delivered a small talk to all the factory workers about the scope for improvement and showed them video of factories from best practice companies.

The factory owner has plan to set up a new facility. The visit was also used for review of the new factory plan by Dr. Bheda. Advice was provided on technology selection and deferring the purchase of certain capital intensive equipment that may not be needed in the first phase of the project. This is to ensure that project does not get over capitalized and money is invested wisely for the products/ market the factory wishes to cater to.

This factory management and its team is highly motivated and has potential to build successful business. Need to be supported with further advice to make it happen as a case study.

## Recommendations

1. The Kaizen event approach has delivered excellent results in terms of productivity improvement. In future similar events may be organised for highly motivated companies that are committed to improvement.



2. Factories in Khujand regions have benefitted from 3G Tailor Training workshop, however factories from Dushanbe have not received RBC's 3G Tailor Training System Training. The same may be organised in future.
3. National consultants need to follow up with the host as well as observer companies to check the progress and provide any support that may be needed.
4. A study tour of Tajik Textile and Clothing companies should be organised to India to study the policies of Govt. to support the industry, functioning of industry associations, skill training initiatives for the T&C sector, industrial park scheme and visit to best practice factories/ mills.

## Annexures

### Kaizen Event at Khujand from 23<sup>rd</sup> April to 25<sup>th</sup> April

#### List of Participants

#	Name	Position	Institution
<b>T &amp; C Companies and Educational Institutions</b>			
1	Musoeva Nargiza	Line master, Pattern-maker (kimono)	Firuz LLC
2	Oripova Dilnoza	Designer	Ortex LLC
3	Kosimova M.	Line operator	Nassoji Khujand LLC
4	Rahimova H.	Teacher of "Technology and design of clothing".	KPITTU
5	Khalilova Nigora	Head of production	Lider LLC
6	Sultonov Abdulmumin	Technologist	Lider LLC
7	Akramov A.	Technologist	Istaravshan
8	Oripov A.	Deputy Director	Ortex LLC
9	Shokirova Shoirra	Operator	Ortex LLC
10	Solieva M.	Operator	Ortex LLC
11	Nabijon Rahimov (one-day)	General Director	Rahimov LLC
<b>ITC Staff</b>			
12	Rajesh Bheda	International Consultant	ITC, Rajesh Bheda Consulting
13	Ardasher Ibragimov	National Consultant	ITC, LLC Business Consulting
14	Amirjon Madaminov	Interpreter	ITC
15	<b>Zarif Karimov</b>	<b>Driver</b>	ITC



## Kaizen Event at Dushanbe from 28<sup>th</sup> April to 30<sup>th</sup> April

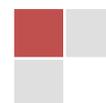
### List of Participants

#	Name	Position	Institution
<b>T &amp; C Companies and Educational Institutions</b>			
1	Ms.Adolat Sharipova	Head of workshop	OJSC "Dilorom"
2	Ms.Alifmoh Shamsiddinova	Operator	OJSC "Dilorom"
3	Ms.Chinigul Yatimova	Head of workshop	LLC "Maftuna"
4	Ms.Mohiniso Muhammadieva	Head of assembly line	LLC "Maftuna"
5	Ms.Maftuna Rajabzoda	Technologist assistant	LLC "Maftuna"
6	Mr.Komil Safarov	Head of workshop	LLC "Mehrovar"
7	Mr.Shahob Badalov	Head technologist	LLC "Mehrovar"
8	Mr.Habib Khodjaev	Mechanic	LLC "Mehrovar"
9	Ms. Munira Ismoilova	Head of workshop	LLC "Yokut-2000"
10	Ms.Idigul Saidmirova	Head of assembly line	LLC "Yokut-2000"
11	Ms.Zarina Kazakova	Technologist	LLC "Yokut-2000"
<b>Educational Institutions</b>			
12	Mr. Bakhtiyor Najmiddinov	Senior Teacher	Technological University of Tajikistan
<b>ITC Staff</b>			
13	Mr.Rajesh Bheda	ITC International Consultant	ITC
14	Mr. Rustam Shodibekov	NC on T&C (Dushanbe and Khatlon region)	ITC field office
15	Mr. Amir Madaminov	Freelance translator	

### Feedback from participants

In total 9 evaluation forms were analysed from the T&C companies' representatives

#	Questions	Agree	Full agree
1	The explanation of the subject and delivered materials were clear and comprehensive	2 (22%)	7 (78%)
2	I will apply/use acquired knowledge in my daily work	5 (55%)	4 (45%)
3	I will be happy to participate in such events/activities in the future	3 (33%)	6 (64%)



4	The organization of the seminar was good (materials, coffee breaks, training hall)	2 (22%)	7 (78%)
5	My expectations from seminar were met	3 (33%)	6 (64%)

#### Expectations or Recommendations for future

- It would be nice to continue providing such practical seminars more because there is a need for such trainings in clothing sector
- I would like to participate in such trainings (organized by ITC) in the future
- I would like to thank our trainer Dr. Rajesh Bheda and organizers, ITC. It would be nice to provide such trainings in the future, which is a good opportunity to build capacity and extend practical knowledge
- Very good seminar and useful knowledge. I am thankful to ITC Project. It would be nice to continue providing such practical seminars in the future. We would like such a practical event to be organized in our company as well.
- Very good practical training. I am thankful to organizers, ITC.

#### Agenda of the kaizen event

The following activities performed during Kaizen event:

- Training on Lean & Kaizen
- Waste Identification
- Calculation of TAKT time
- Cycle time check
- Plotted the total cycle time against TAKT time
- Understanding of present layout and the material flow
- Identified opportunities for improvements
- Discussed layout changes to improve flow and implemented
- Session with operators
- Introduced 5 piece bundle
- De-bottle necking through redistribution of work and balancing
- Implementation of Hourly production board
- Observer companies identified waste in their factories and developed action points for waste reduction

