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MINISTRY OF INDUSTRY
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UNDP

COVID-19 Crisis Response
and Resilience Project

TEXTILE SECTOR ANALYSIS REPORT AND GUIDELINES

TRC2 REGION
(Diyarbakır, Şanlıurfa)

TEXTILE SECTOR ANALYSIS REPORT AND GUIDE

TRC2 Region (Diyarbakır, Şanlıurfa)

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R.T. Ministry of Industry and Technology General Directorate of Development Agencies
Adress: Mustafa Kemal Mahallesi Dumlupınar Bulvarı, 2151. Cad. No: 154/A, 06510 Çankaya, Ankara
Tel: 0 (312) 201 50 00
www.sanayi.gov.tr

Project Team:
R.T. Ministry of Industry and Technology General Directorate of Development Agencies
Ahmet Şimşek, Head of Department
Dr. Mehmet Emin Özsan, Expert
Dr. Onur Karakurt, Expert
Eda Doğan, Expert
Ahmet Alıcı, Expert
Fatma Avşar, MARKA, Expert
Candan Umut Özden, MARKA, Head of Unit

UNDP Turkey
Mustafa Ali Yurdupak, Inclusive and Sustainable Growth Portfolio Manager
Arzu Karaarslan Azizoğlu, Local Economic Development Projects Manager
Aslı Aygün Gürsoy, Project Assistant
Zeynepsu Gülek, Project Intern
Deniz Şilliler Tapan, Project Communication Expert

Development Agencies Working Group Members for Textile Sector:
Emrullah Aydın
Esmanur Karabıyık
H. Gökhan Elüstün
İrfan Sezgin
Midhat Yüzeroğlu
Nalan Tepe Şençayır
Serhat Karasungur
Sinan Sarıkaya
Yunus Çolak

Prepared by: Dr. Ertan Uzay

Design: Carnavale Ad&Pr

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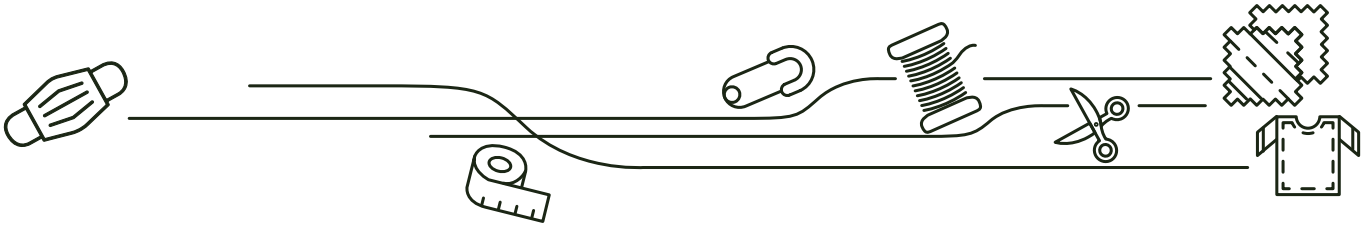

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ABBREVIATIONS

EU	European Union
R&D	Research and Development
UAE	United Arab Emirates
UN	United Nations
CAGR	Compound Annual Growth Rate
CRM	Customer Relationship Management
ÇKA	Çukurova Development Agency
DAKA	Eastern Anatolia Development Agency
WTO	World Trade Organization
GEKA	Southern Aegean Development Agency
GDP	Gross Domestic Product
ILO	International Labor Organization
IoT	Internet of Things
DA	Development Agency
SME	Small and Medium Enterprises
KOSGEB	Small and Medium Enterprises Development Organization
FSR	Fragile Sectors
MARKA	Eastern Marmara Development Agency (TR42)
NACE	Statistical Classification of Economic Activities in the European Community
OECD	Organization for Economic Co-operation and Development
OIZ	Organized Industrial Zone
RFID	Radio Frequency Identification
SSI	Social Security Institution
NGO	Non-Governmental Organization
TİM	Turkish Exporters Assembly
TOBB	Union of Chambers and Commodity Exchanges of Turkey
ToR	Terms of Reference
CCI	Chamber of Commerce and Industry
P&D	Product Development
$	US Dollars

FOREWORD

The COVID-19 pandemic has gone beyond a health crisis and turned into a global problem, due to its impacts felt in all areas of life and all over the world. It is obvious that the problems caused by the pandemic, which has turned into a serious threat to all humanity, can be solved with a sustainable and fair understanding that requires international solidarity, cooperation, and common solution ideas.

The restrictions applied as a necessity of the pandemic led to slowdown in production, decrease in labor supply, delay in the supply of intermediate goods and raw materials, and increased logistics costs in our country as well as all over the world. Therefore, it is essential for sustainable development that policies should focus on the fragile sectors most affected by the pandemic in order to ensure the continuity of economic activities and accelerate the recovery.

By closely following the changes observed in the global system, Turkey carries out a comprehensive transformation in every field from education to health, from manufacturing industry to tourism, from industrial zones to research infrastructures.

Our development agencies, which perform their activities under the coordination of the Ministry of Industry and Technology, carry out studies at the regional level in order to reduce the negative impacts of COVID-19 on the national and regional economies and to identify the sectors most affected by the pandemic. One of our works in this field is the Government of Japan funded COVID-19 Resilience and Response Project, which we have implemented together with the United Nations Development Program (UNDP), the General Directorate of Development Agencies, and our development agencies.

Within the scope of the project, 25 region-based “fragile sector analysis reports” were prepared in the textile, logistics, food, machinery, and automotive sectors, which are of key importance for the Turkish economy. These reports, taking into account global developments and trends, offer new policy recommendations that will increase the resilience of the relevant sectors against crises. In addition, the “New Market Analysis” and “Product Space Analysis” reports, which cover studies to increase the export potential of enterprises operating in fragile sectors, were also completed within the project. These reports aimed to create road maps to support the business continuity of fragile sectors and to prevent supply chain disruptions.

We believe that the policy recommendations in these reports, which are in line with the targets within the framework of our national technology move, will support inclusive and sustainable development; it will carry Turkey to a more strategic point in the international trade and investment decisions that will be reshaped in the post-COVID-19 period and will contribute to our country's 2023 goals.

I would like to thank the Government of Japan for their generous contribution to mitigating the economic impact of the COVID-19 crisis, ensuring economic recovery, strengthening sectors, and transforming SMEs in this process.

I congratulate all our stakeholders, particularly UNDP Turkey management and project team, and the employees of the Development Agencies General Directorate and development agencies, who have made these studies realised and turn them into concrete outputs, and I hope that the reports will contribute to the future of our country.

Mustafa Varank

Republic of Turkey Minister of Industry and Technology

FOREWORD

The global context for development has fundamentally changed with the COVID-19 pandemic. The pandemic created many new obstacles to overcome as well as new problems to be solved. Although COVID-19 started as a health crisis, it has turned into both a humanitarian crisis and a development crisis.

This unprecedented crisis is pushing millions of people into extreme poverty, changing and widening existing inequalities, and disrupting progress towards the Sustainable Development Goals (SDGs). Therefore, the SDGs are now more important than ever. The 2030 Agenda remains the only option for a more prosperous future for people and planet.

The COVID-19 pandemic has also shaken the global trade and development landscape. The global health emergency turned into a global economic shock with its impacts on growth, international trade, investments, global production, value chains, employment and eventually livelihoods of people.

UNDP is responding to a growing volume of requests from countries to help them prepare for, respond to, and recover from the COVID-19 pandemic with a particular focus on the most vulnerable. As of now our focus is to help decision-makers look beyond COVID-19 recovery, towards 2030, making choices and managing complexity and uncertainty in four key areas: governance, social protection, green economy, and digital disruption.

UNDP's COVID-19 Resilience and Response Project, which is funded by the Government of Japan is a part of our rapidly developed integrated response to the COVID-19 health, humanitarian, and development crisis. Being complementary with the efforts of the Government of Turkey and other development partners and fully aligned with the country-specific needs, UNDP aims to tackle the impacts of the pandemic under three priority areas: Health system support; Inclusive and integrated crisis management and response; Social and economic impact needs assessment and response.

I am pleased to present these 25 region-based sectoral analysis reports that provide policy recommendations and action plans for key economic sectors in Turkey that are most impacted by COVID-19 pandemic. These reports, which were developed within the COVID-19 Resilience and Response Project in cooperation with Ministry of Industry and Technology and Development Agencies, formulated in the light of recent global context and trends as well as UNDP's response to COVID-19 crisis. Through this work, our aim is to support national capacities for an integrated and inclusive crisis management, ensure business continuity and prevent supply chain disruptions and speed up the development of the key economic sectors -automotive, textile, food, machinery, and logistics in different regions of Turkey and to increase competitiveness on a regional basis.

Our recovery efforts focus on rebuilding more inclusive economies and societies, moving towards a low-carbon and climate-resilient world where no one is left behind.

We believe that these reports will provide a pathway for economic recovery of sectors and development of regional competitiveness. In the reports the review of the pandemic crisis impact is accompanied by a set of policy recommendations targeting both the interventions in response to the negative effects of the pandemic and the post-COVID-19 social and economic recovery support measures. Overcoming the challenges faced by the sectors and society and ensuring better recovery can only be possible with joint efforts of the entire private sector, authorities, and the society as a whole.

In this regard, we appreciate the cooperation of Ministry of Industry and Technology, Development Agencies, and all experts for the preparation of these reports. We believe that these reports will also enable better cooperation in key economic sectors and help to accelerate the implementation of the Sustainable Development Goals in Turkey.

Louisa Vinton

UNDP Turkey Resident Representative

EXECUTIVE SUMMARY

These 'Fragile Sectors Analysis and Guidelines' have been prepared in cooperation with the United Nations Development Program (UNDP), the Japanese Government and the Ministry of Industry and Technology of Turkey in order to support the textile, food, machinery, automotive and logistics sectors, which are known to be most affected by the Covid-19 pandemic. Within the scope of 6 regional assessment reports to be prepared for the textile sector, which is one of these fragile sectors (TR31, TR62, TR31, TR62, TRB1 & TRB2 and TRC2 Level-2 regions); a study was conducted in which current situation analyzes were made and short, medium and long term strategy recommendations were defined at sectoral, national and regional levels in order to reveal the current situation of the sector during and after the Covid-19 pandemic, to define future strategies in line with global trends and to contribute to the development of more inclusive and sustainable business models for SMEs.

The triple subgroups of Code No. 13 (Manufacture of Textile Goods), the Code No. 14 (Clothes Manufacturing), the Code No.46 (Wholesale Merchandise Trade- Excluding Motor Vehicles and Motorcycles) and Code No. 47 (Garment and Apparel) which are among the dual groups of NACE classification used in the European Union have been taken as basis in this textile sector analysis and guidelines. The statistical and categorical data obtained from primary and secondary data sources for the analysis conducted specifically for the textile sector in TRC2 Region were harmonized with the results of the online survey study and Focus and Working Group meetings, and strategy proposals were created for the sector.

The textile sector played an important role for developing countries during the industrialization process. The high share of the sector in exports and the added value created in the production process have increased the economic development and welfare levels of the countries. The fact that the textile sector is a basic consumer product in all countries and it is easy for new entrepreneurs to enter this market with small capitals has led to the Textile and Garment sectors having an important place in World Trade in every period of the industrialization process.

World commodity trade grew by 2.9% in quantity in 2018, but fell by 0.1% in 2019 due to trade wars and slowing economic growth. On the other hand, world trade volume, on value basis, has decreased by 2.9% in 2019 compared to the previous year to 38.1 trillion USD and in this period, global exports were calculated to be 18.9 trillion US Dollars while imports were calculated to be 19.2 trillion US Dollars. In the World Trade Organization report of October 2020, it was stated that the sharpest contraction in the commodity trade occurred in Europe with 21% and North America with 20%, while this rate fell to 7% in the Asian region.

The total export of Turkey, which was 180.8 billion USD in 2019, decreased by 6% in 2020 and became 169.5 billion USD. The countries to which Turkey exports the most are Germany, United Kingdom, USA, Italy, Iraq, France, Spain, Israel and the Netherlands respectively. Total imports, which were 210 billion USD between 2019, increased by 4.3% in 2020 and reached 219 billion USD. The countries from which Turkey imports the most are Germany, Russia, USA, Italy, Iraq, Switzerland, France, Spain, United Kingdom and the Netherlands, respectively.

In 2019, Turkey's carpet, Garment and Apparel, textile and raw materials export was 28 billion USD and formed 16% of the total country exports, while the exports in the same product group decreased by 1 billion USD to 27 billion USD in 2020 and formed 18% of the total country exports.

Between 2019 and 2020, the total exports from Diyarbakır, located in TRC1 Region, decreased by 7% from 167 million dollars to 155 million dollars and the total exports from Şanlıurfa, increased by 1% from 131 million dollars to 133 million dollars. The share of the textile sector in total exports from TRC2 region is low, but the sector is mostly structured on cotton and focused on the domestic market.

When the sector companies in TRC2 Region are analyzed, it is observed that 113 companies participating in the survey throughout the country and the companies in the region show similarities in many issues although the ability to represent the region in general is not sufficient due to the fact that only 12 companies from the region participated in the survey. The competence of the companies in terms of production quality, production flexibility and on-time delivery is

higher when compared to other subjects. Priority areas that need to be developed specifically for the companies in the region are: manufacturing products with higher added value with R&D / P&D and innovation-oriented business models and increasing competitiveness in international markets, recruiting qualified personnel in this regard, adapting to the 2025 Green Deal introduced by the EU, which includes issues such as resource efficiency, climate change, carbon footprint, gender equality, and social rights and gaining competence in digitalization including e-commerce, IoT, Industry 4.0, 3D Printer, Customer Relationship Management and RFID. Difficulties in accessing finance, sales and marketing, and raw material supply constitute the most challenging bottlenecks for companies.

The Covid-19 pandemic has affected all stages of the supply chain in the textile sector. The most important problems faced by companies in the sector due to the Covid-19 pandemic are as follows:

- Decreases in orders
- Suspension of production
- Supply problems (raw materials, textile chemicals, etc.)
- Infrastructure not suitable for e-commerce
- Trouble in Funding
- Key personnel loss - long quarantine periods
- Cost increases
- Interruptions in Logistics

It was recognized that the decreases in production, turnover and profitability were the most significant effects of Covid-19 according to the companies participating in the survey. Comparing the problems faced by the companies by scale, it has been observed that the decrease in orders and the increasing trouble in funding were more evident in small-scale companies. On the other hand, some companies reported that their turnover increased. Although the turnover trends vary according to subgroups of the textile sector and companies, a decrease was observed in most of them, excluding those that include home and health textile products into their portfolio such as masks, gowns and personal protective clothing.

Risks posed by Covid-19 in companies were respectively stated as "Temporary Shutdown of Factories", "Demand Fluctuations", "Key Labor Loss", and "Raw Material Interruptions in the Supply Chain". However, according to the survey, it is thought that the lack of financing and the fluctuations in the exchange rate are the factors that affect the companies more. It is also seen that the companies have to act more cautiously because they cannot see their future during the pandemic.

As a result of the negative expectation in March 2020, when the Covid-19 pandemic started, many companies in Diyarbakır stopped production. However, considering that the severity of the pandemic had decreased in June 2020, sector companies returned to production. It is considered that the factors such as the production flexibility of the companies in the country and in TRC2 Region which enabled them to turn into health textile sub-group have been effective in the recovery of the sector in such a short time.

The short, medium and long-term national and regional main and sub-strategy recommendations that can offer solutions to various problems in the textile sector (foreign dependency in raw material supply and textile machinery production, lack of trained personnel, inadequacy of R&D / P&D and innovation-oriented business models and inability to manufacture products with high added value, inefficient use of resources, low adaptation to EU 2025 Green Deal, delayed digitalization, inability to create market diversity, lack of clustering, weak cooperation between sector stakeholders, high tax rates) and the changes and problems caused by Covid-19 are as follows;

- **Capacity Building**
  - » Providing Training and Consultancy Services
  - » Developing of Network Structures

- **Supporting R&D/P&D and Innovation Oriented Business Models**
  - » Supporting R&D Infrastructure
  - » Increasing the Technological Capabilities of SMEs
  - » Green SMEs

- **Supporting Digitalization Infrastructure**
  - » Developing of Digital Infrastructure
  - » Integration of Technological Systems

- **Business Development**
  - » Internationalization
  - » Functional Management
  - » Production
  - » Symbiosis

- **Creating Financial Support Mechanisms**
  - » Supporting High Value Added Production
  - » Supporting Resource Productivity
  - » Supporting Foreign Trade Activities

- **Legal and Administrative Regulations**
  - » Regulations
  - » ISO Standard

1. INTRODUCTION

The textile sector has converted its traditional production, which started in the early periods of history, into mass production with the industrial revolution and has become an indispensable branch of industry during the industrialization stages of the countries. Today, it continues to be an important industrial branch for all countries thanks to the wide variety and functional products produced with the support of technological developments. Textile is the production of mostly flexible materials from fiber and yarn, shaping these materials and turning them into final products. According to this definition, the sector includes processes such as preparation, weaving, knitting, dyeing, printing, finishing, cutting and sewing. The final products of the sector are generally grouped as garments, made-up products and technical textiles.

The textile industry interacts with the agriculture and livestock sector for the supply of natural fibers such as cotton and wool, and with the petrochemical industry for the supply of synthetic fibers. Cooperating with the chemical industry in terms of dyeing and finishing chemicals, the sector is also intertwined with the clothing accessories industry. In addition, the textile sector has technical relations with many sectors from automotive to construction, from heavy industry to medicine. Retailing and stores, which are effective in bringing the high value-added products with the consumers, are the last links of the sector's supply chain. The control of these areas is provided by the strong logistics sector.

Textile and garments sector has made significant progress since the early 1970s, and today it has taken its place among the rapidly growing sectors due to different designs and personal tastes. The increase in the welfare of the countries, the rise in housing construction, the rapid acceleration of the tourism sector and the development of destination tourism have increased the need for the textile sector with all its sub-sectors and the sector has grown rapidly.

During the report preparation process, a survey was conducted at the regional level in order to ensure the intense participation of sector stakeholders and to integrate as many sectoral views as possible and regional focus group meetings were held with the participation of senior officials from the umbrella institutions and organizations of the sector in order to provide a broad perspective on many issues related to the sector.

Survey questions included the following topics: providing the flexibility and pro-active management for risks specific to the textile sector, future products and services, customers' expectations and changing consumption habit, the use of skills and strengths that already exist in the sector.

In this context, project outputs are presented below;

- Identifying the vulnerabilities on supply chains that arise more clearly as a result of risk factors such as the Covid-19 pandemic, evaluation of the possibility of shifting the supply centers in China, European Union, United States of America, India, Pakistan to Turkey and possible action plans
- Evaluating the advantages and disadvantages of shifting the main production centers at national / regional level to sub-regions and possible action plans
- Learning how the effects of additional employee and workplace security measures arising from Covid-19 pandemic are managed (dismissal / compulsory leaves, remote working, short-time working allowances, etc.) and obtaining possible expectations
- Searching for a more innovative way of manufacturing, including using environmentally and user-friendly products in the future, and collecting non-financing data for the development of R&D.
- Obtaining suggestions for adapting to technology-intensive production methods to increase productivity
- Identifying needs to provide on-site and customized services
- Revealing potential sectoral areas of interest related to technologies that intersect with the changing trend in the textile sector - enhanced functional textile-based products, active textiles with built-in sensing features for large area applications, etc.

- Evaluating the possible effects of liquidity problems and financial shortages and identifying possible expectations.

NACE codes for the textile subgroups subject to this study are shown in Table 1.

Table 1: Textile Sector NACE Codes Subject to Research

NACE CODE	EXPLANATION
13	**Manufacture of textiles**
13,1	Preparation and spinning of textile fibers
13,2	Weaving of textiles
13,3	Finishing of textiles
13,92	Manufacture of made-up textile articles, except apparel
13,93	Manufacture of carpets and rugs
13,95	Manufacture of non-wovens and articles made from non-wovens, except apparel
13,96	Manufacture of other technical and industrial textiles
13,99	Manufacture of other textiles n.e.c.
14	**Manufacture of wearing apparel**
14,12	Manufacture of work-wear
14,13	Manufacture of other outerwear
14,14	Manufacture of underwear
46	**Wholesale trade, except of motor vehicles and motorcycles**
46.41	Wholesale of textile
47	**Retail trade, except of motor vehicles and motorcycles**
47,71	Retail sale of bridal in specialized stores

2. METHODOLOGY

A preliminary information meeting was held on 09 November 2020 in order for the sector experts who will conduct sector analysis studies for the draft methodology to have prior knowledge of the planned methodology, to receive their suggestions and to bring the whole team together. The Fragile Sectors Analysis team reached a consensus on the presentation shared at the kick-off meeting with project stakeholders. In addition, 30-minute meetings were held every week on Mondays between 16: 00-18: 30 with the participation of the fragile sectors analysis team leader and the sector analyst to evaluate the general situation.

An Introductory / Kick-off Meeting was organized by UNDP on 10 November 2020 with the participation of Project Stakeholders. At the meeting, the Fragile Sectors Analysis team was introduced and the methodology considered to be implemented in the project was presented to the UNDP, Ministry of Industry and Technology project teams and the Development Agency Sectoral Working Groups and other agency experts led by the East Marmara Development Agency (MARKA) and the comments and opinions of the relevant stakeholders have been received.

The list of Sectoral Working Groups, consisting of experts from the relevant Ministry and Development Agency (DA), which were established before the project on a regional basis for the textile sector, was conveyed to the project team by UNDP. The following regions are included in the specified list: TR31 (İzmir), TR62 (Denizli, Aydın, Muğla), TR62 (Bursa, Eskişehir, Bilecik), TR62 (Adana, Mersin), TRB1 & TRB2 (Malatya, Elâzığ, Tunceli, Bingöl & Van, Bitlis, Hakkari, Muş) and TRC2 (Diyarbakır, Şanlıurfa). According to the Terms of Reference, the textile sector analysis of TRB1 and TRB2 regions was conducted together. These working groups, which are included in the Terms of Reference and project methodology, have made valuable contributions to the Fragile Sectors Analysis team in achieving the targeted outputs during the project. 5 Zoom meetings were held with the working group on the following dates for sharing the activities conducted with the Development Agency experts in the regions, sharing the activities planned to be done in the future, sharing the content of the inception report and the final report afterwards and preparing a survey question set to be answered online by SMEs in the sector. In these meetings, power point presentations were made to DA experts and the meeting agenda was shared before the relevant meeting.

A survey was designed to be filled in by SMEs in the sector, and the entire content of this survey was finalized with the valuable opinions and contributions of UNDP, the Ministry, MARKA and the relevant Sectoral Working Groups, and it was published on 8 December 2020 and is planned to be open to participation until 28 December 2020, but due to the low number of participation, this period has been extended until 17 January 2021.

It was decided to send an official letter signed by the Ministry to certain umbrella organizations in order to disseminate the surveys and support participation in focus group meetings. Accordingly, the umbrella organization list created by the FSR team was shared with the Ministry and UNDP. The list covering the textile sector is made up of the following institutions.

- Turkey Union of Chambers and Commodity Exchanges (TOBB)
- Turkey Exporters Assembly (TİM)

The letter of the Ministry was published on December 9, 2020 and was previously shared with DA experts in the Working Group.

Like the working group meetings, the focus group meetings are one of the important qualitative information sources used as primary research data during the data collection phase to be used for analysis reports, and although it varies by region, focus group participants consist of representatives of the following institutions / organizations: Ministry of Industry and Technology, Development Agencies, Chambers of Industry and Commerce, Organized Industrial Zones, Umbrella Organizations (Exporters' Unions etc.), Cluster Organizations, Universities, SMEs, Large-Scale Enterprises, UNDP, Sector Specialist, Sector Analyst and Team Leader. Within the scope of the project, a total of 6 zoom meetings were held, 1 in each region, on the following dates and these meetings have been an important tool for getting information about the sector and these

meetings made significant contributions to obtain necessary information on issues not covered by the survey, where a limited number of questions could be asked. An application has been prepared in Google Docs in order to invite the representatives of the textile umbrella organizations and SMEs in the regions of DA experts, to confirm their participation in the meetings and to update the contact information interactively, and the participation in the focus group meetings was followed through this application. At these meetings, PowerPoint presentations were made to participants to make assessments before and after Covid-19.

The reports were prepared in the following order;

1. Data Collection

Both primary and secondary data collection methods were used for the reports.

a. Primary Research Data
   i. Survey
   ii. Working Group Meetings
   iii. Focus Group Meetings
   iv. Expert Opinions

b. Secondary Research Data
   i. Institutional Data Sources
   ii. Reports of the Ministry of Industry and Technology and Development Agencies
   iii. Other Research, Publications, Reports

2. Data Analysis and Interpretation

3. Verification

4. Finalization of Reports

The Work Flow Chart prepared in this context is given in Figure 1. The same work flow has been used to ensure that the reports are homogeneous in the food, machinery, automotive and logistics sectors as well, and a total of 25 reports were produced within the scope of the project.

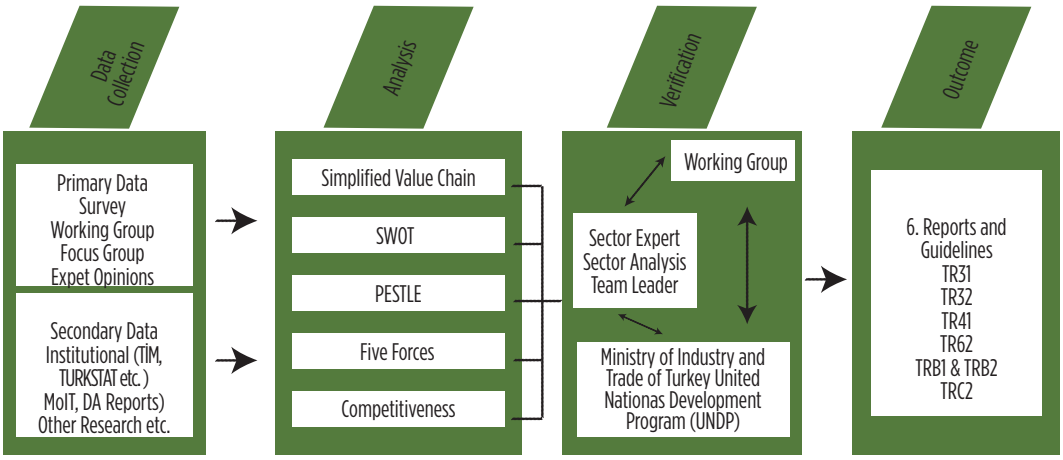

Figure 1: *Workflow Chart*

3. Profile of the Textile Sector

3.1. General Outlook of the Textile Sector in the World

World commodity trade grew by 2.9% in quantity in 2018, but fell by 0.1% in 2019 due to trade wars and slowing economic growth. On the other hand, world trade volume, on value basis, has decreased by 2.9% in 2019 compared to the previous year to 38.1 trillion USD and in this period, global exports were calculated to be 18.9 trillion US Dollars while imports were calculated to be 19.2 trillion US Dollars [World Bank, 2019]. The World Trade Organization (WTO) publishes its global trade forecast twice a year, usually in April and October. In the April 2020 report, where 2019 data was published, it made a change in its methodology due to the uncertainty regarding the economic damage of the Covid-19 pandemic, and made two predictions, 'optimistic' and 'pessimistic', for global trade in 2020 and 2021. In the optimistic scenario, it is predicted that there will be a recovery as of the second half of 2020, following a sharp decline in trade. On the other hand, in the pessimistic scenario, it is assumed that the first decline will be deeper and the recovery will take longer. In this way, it has been predicted that global trade will decrease in a very wide range, between 13% and 32%, with the effect of the uncertainties.

In the report of the WTO, it is stated that the impact of the Covid-19 pandemic on trade will be greater than the impact of the financial crisis of 2008-2009. The most important factors that distinguish this impact from the previous financial crisis are: the service sector severely affected by travel and transportation restrictions, and the deterioration in value chains caused by dependence on China and Asia in production and supply. The WTO did not change its predictions in the updated report published in June 2020 and shared the data for the first quarter of 2020. The realizations in the commodity trade in quarterly periods, the trade trend before the pandemic and the optimistic and pessimistic scenarios are given in Figure 2 [WTO, 2021].

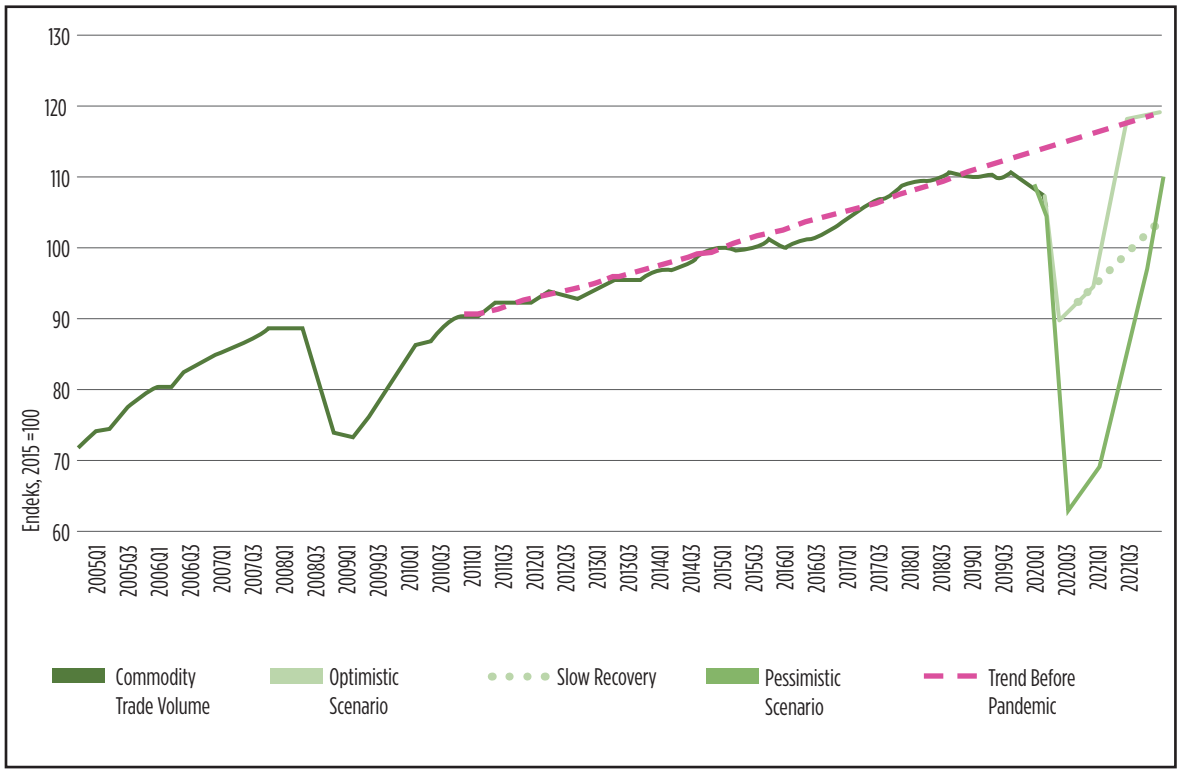

Figure 2: *World Trade Volume between 1st Quarter of 2005 and 4th Quarter of 2021 (2015 = 100)*

Trade forecasts are made using economic growth data, therefore, if the economic growth envisaged in the optimistic scenario is realized in smaller figures, the recovery of trade will take longer than predicted and this possibility is shown by the dotted green line in Figure 2, where the trade growth for 2021 is approaching 5% which is far below the situation before the pandemic. According to the report, world commodity trade volume decreased by 3% in the first quarter compared to the same period of the previous year and the realized values are shown with the blue line in the figure. Considering that Covid-19 and quarantine measures have intensified as of March 2020, an 18.5% decrease in trade is predicted in the second quarter of the year compared to the previous year. The 32% drop in the pessimistic scenario previously predicted in April is no longer expected. On the contrary, the 13% drop in the optimistic scenario seems more likely to occur. In the WTO report dated October 2020, it was stated that the sharpest contraction in commodity trade occurred in Europe with 21% and North America with 20%, while this rate fell to 7% in the Asian region.

China was the leader with 2.15 trillion USD in total exports of goods and services on 30 November 2020 and it was followed by the United States with 1.57 trillion USD and Germany with 1.401 trillion USD and Turkey ranked 32nd with 139 billion USD (Figure 3) [World Population Review, 2021].

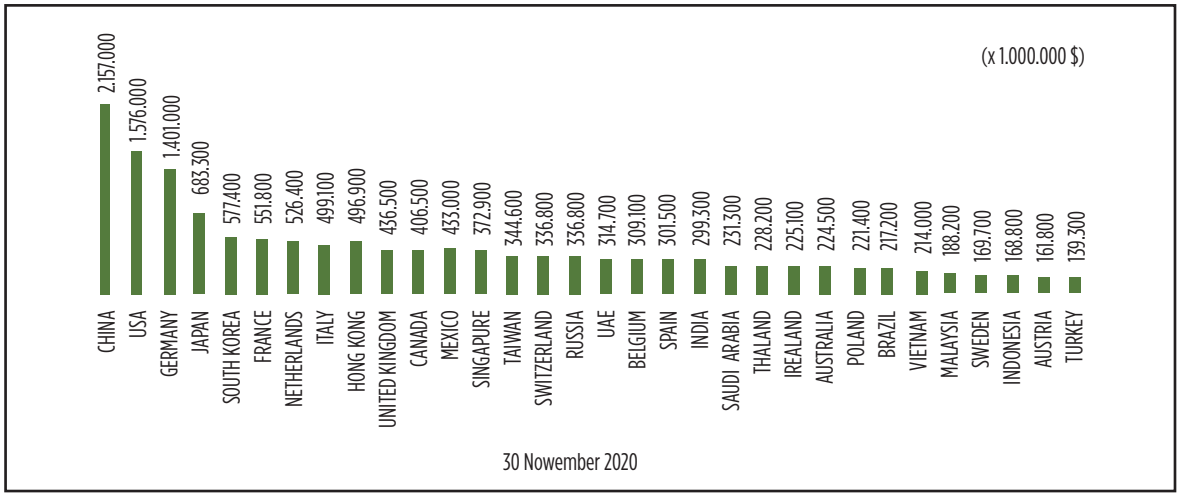

Figure 3: *Top Countries Exporting Goods and Services ($)*

China was the leader with 106 billion Euros in overall textile exports on 30 November 2020, followed by 28 EU member countries with 66 billion Euros and India with 16 billion Euros while Turkey ranked 5th with 11 billion Euros (Figure 4) [Euratex, 2021].

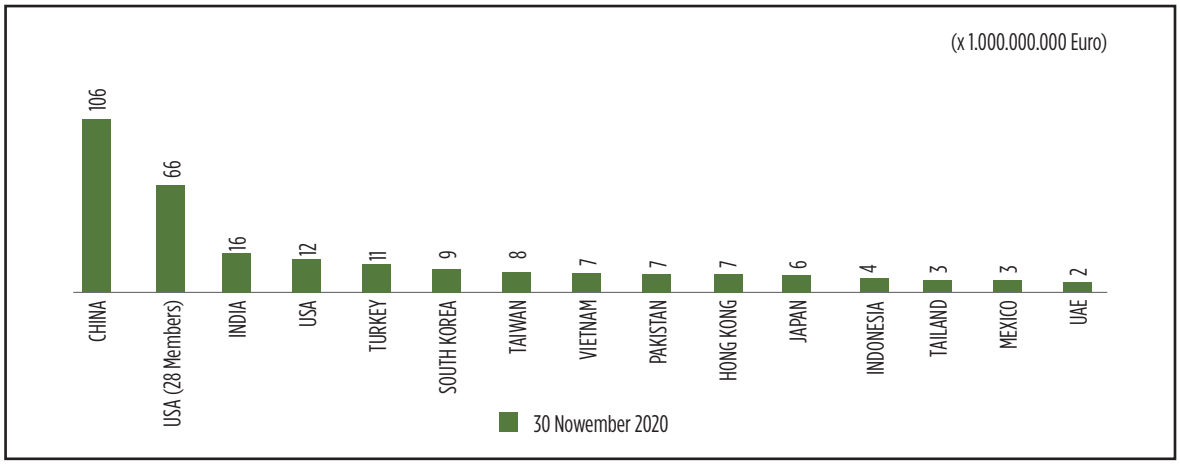

Figure 4: *Top 15 Textile Exporting Countries (Euro)*

China was again the leader with 141 billion Euros in garment and apparel exports on 30 November 2020, followed by 28 EU member countries with 128 billion Euros and Bangladesh with 16 billion Euros while Turkey ranked 4th with 14 billion Euros (Figure 5) [Euratex, 2021].

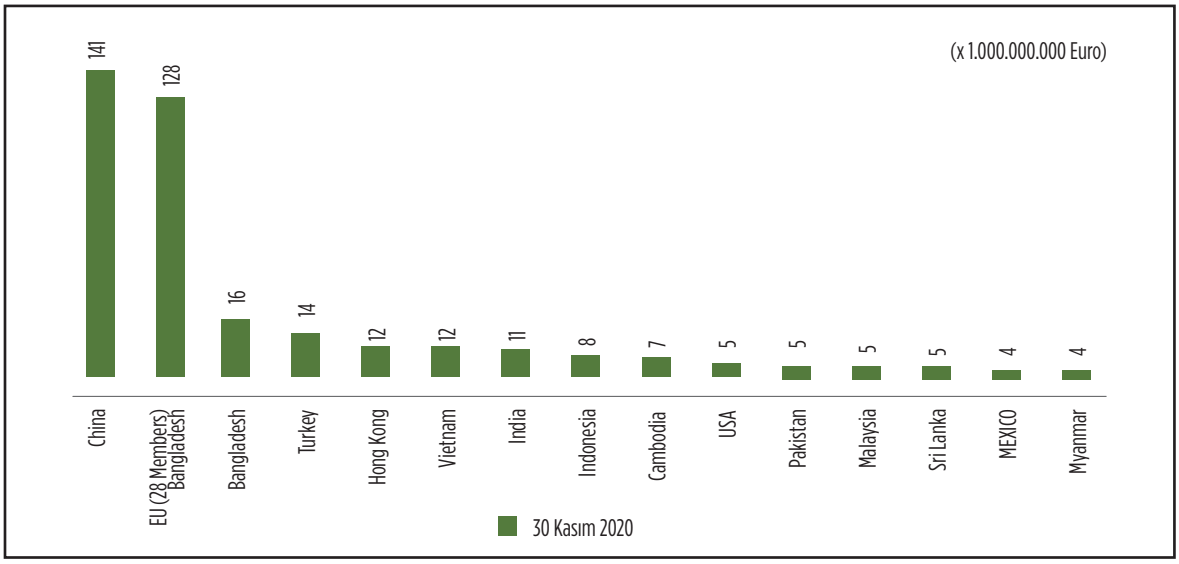

Figure 5: *Top 15 Garment and Apparel Exporting Countries (Euros)*

Research reports of various umbrella organizations on the textile sector reveal that one of the sectors most affected by the Covid-19 pandemic is the textile sector.

In these reports, the opinions of sector experts were consulted to try to shed light on the 12-18-month period after the pandemic. The sector forecast included in the "The State of Fashion" report, prepared jointly by "Business of Fashion" and "McKinsey & Company" and updated after Covid-19, are as follows [McKinsey, 2020]:

- 27-30% shrinkage in garment sector in 2020
- 2-4% growth in garment sector in 2021 compared to 2019
- 35-39% shrinkage in luxury garment sector in 2020
- 1-4% growth in luxury garment sector in 2021 compared to 2019

3.2. General Outlook of the Textile Sector in Turkey

According to the data of the Ministry of Trade of Turkey, when November 2020 is compared with November 2019 [Trade, 2021] it is observed that;

- Exports decreased by 0.95% to 16.1 billion USD.
- Import increased by 16.1% to 21.2 billion USD.
- Foreign trade volume increased by 8.1% and reached 37.3 billion USD.
- The coverage ratio was 76%.
- The coverage ratio excluding gold increased to 86.3%.

It has been stated that the negative effects of the contraction in the world economies due to the Covid-19 pandemic, which has been affecting the whole world both socially and economically since March 2020, started to disappear as of the end of June 2020, when both Turkey and the world economies entered the normalization process. It is understood that this positive trend that started in June has become more evident over time. As stated in the report of the Ministry of Trade of Turkey, the export, which was 8.97 billion USD in April, increased in various amounts in the following months and reached 17.33 billion USD in October and 16.88 billion USD in November.

Total exports, which were 180.8 billion USD in 2019, decreased by 6% in 2020 and became 169.5 billion USD [TİM, 2020]. Top 10 countries which Turkey exports the most in 2019 and 2020 are as follows. (Figure 6) [TİM, 2020]. While there was a small increase in exports to the USA, Israel and Russia, there was a decrease in different amounts in the other 7 countries.

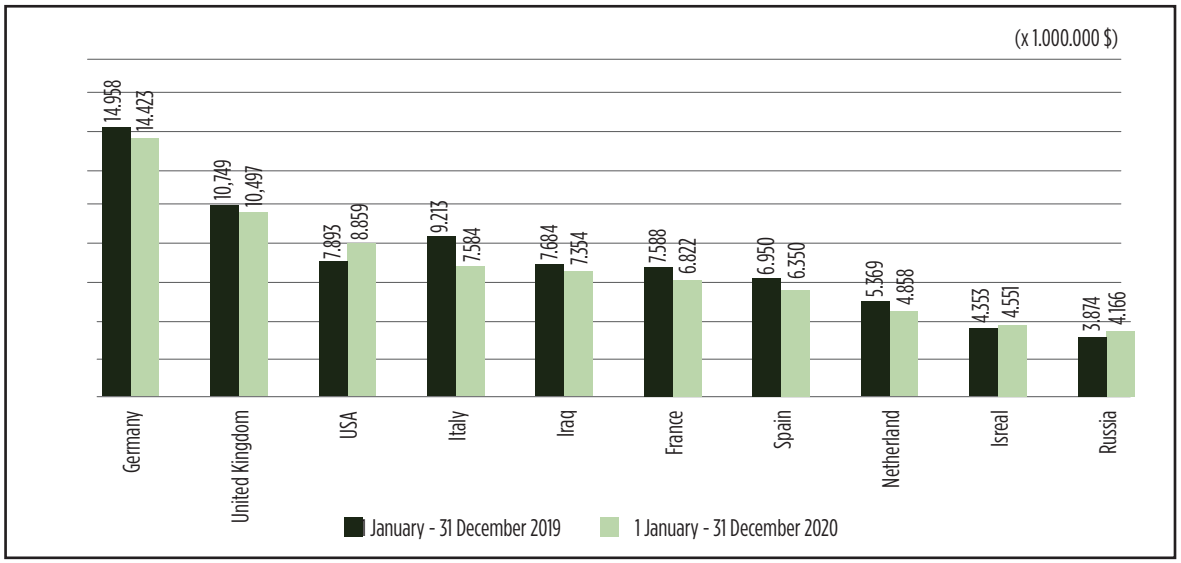

Figure 6: *Top 10 Countries which Turkey exports the most ($)*

In 2019, Turkey's exports of carpet, garment and apparel, textiles and raw materials constituted 16% of the total country exports with 28 billion USD, however, exports in the same group decreased by 1 billion USD in 2020 and constituted 18% of total country exports with 27 billion USD (Figure 7) [TURKSTAT, 2021].

Between the aforementioned dates, carpet exports increased by 2.8% from 2.53 billion USD to 2.60 billion USD, garment and apparel exports decreased by 3.1% from 17.69 billion USD to 17.14 billion USD and textile and raw materials exports decreased by 8% from 7.92 billion USD to 7.29 billion USD.

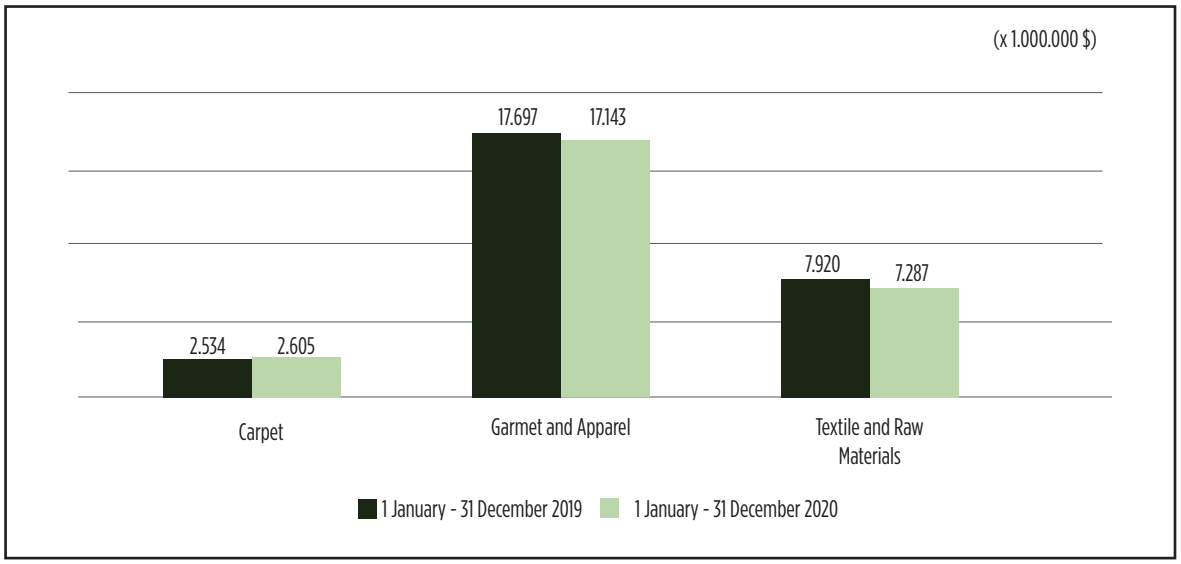

Figure 7: *Turkey's Carpet, Garment, Apparel, Textile and Raw Materials Export ($)*

Exports to the USA, where the most carpets are exported, increased by 40% from 665 million USD (2019) to 932 million USD (2020) and there were small increases and decreases in exports to other countries (Figure 8) [TİM, 2020.

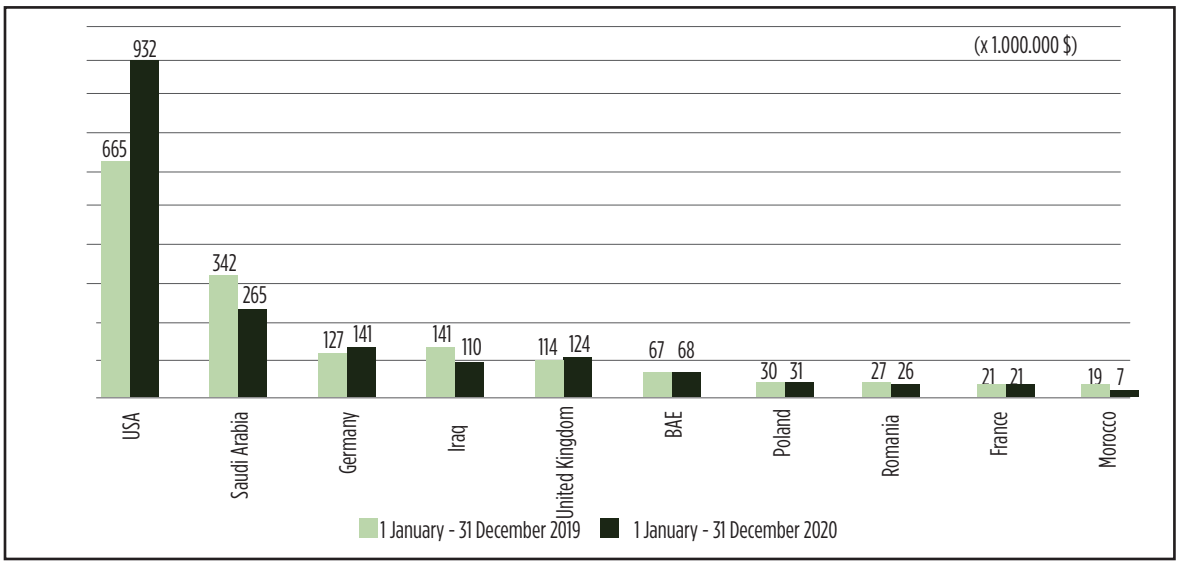

Figure 8: *Top 10 Countries which Turkey Exports Carpets ($)*

Exports to Germany, where most garment and apparel exports are made, increased by 2.3% from $ 3.07 billion (2019) to $ 3.14 billion (2020), and there were small increases and decreases in exports to other countries (Figure 9) (TIM, 2020].

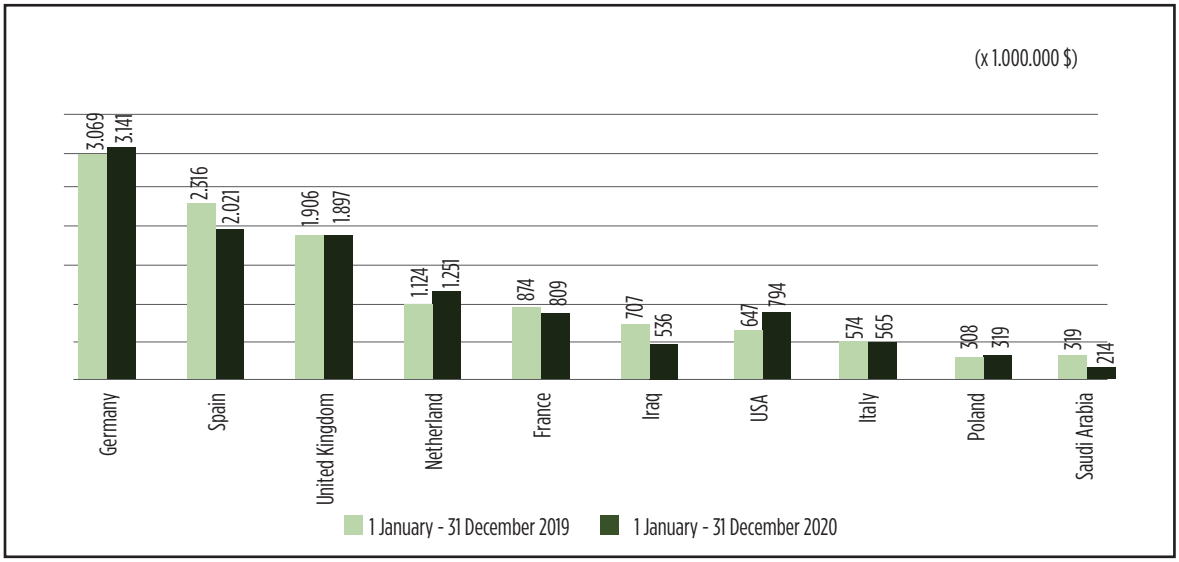

Figure 9: *Top 10 Countries which Turkey Exports Garment and Apparel ($)*

Exports to Italy, where textile and raw materials are exported the most, were 710 million US Dollars in 2019, and decreased by 9.7% in 2020 to 642 million US Dollars (Figure 10) [TİM, 2020].

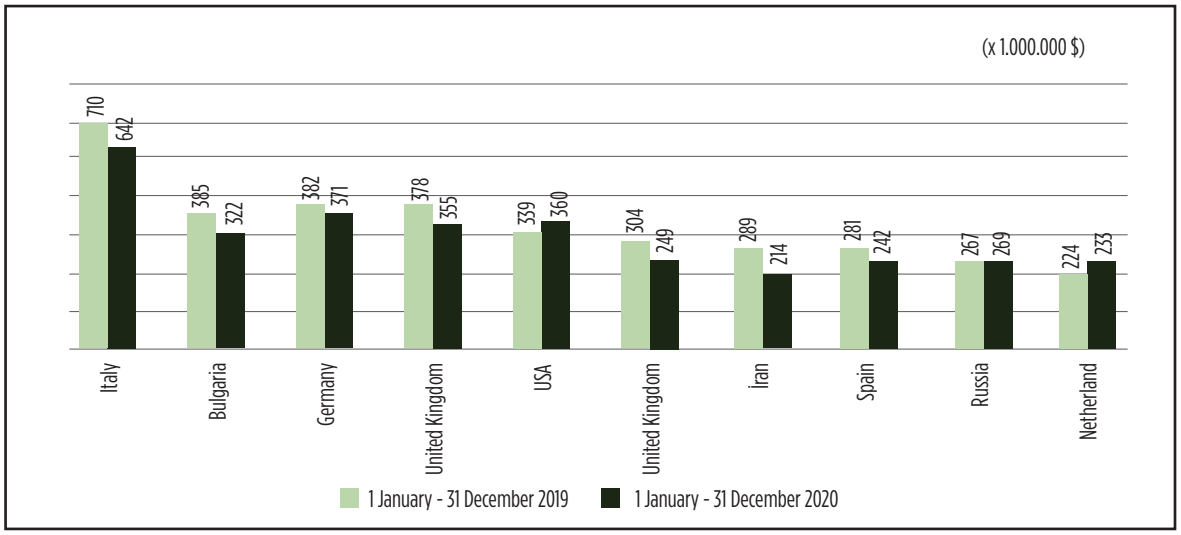

Figure 10: *Top 10 Countries which Turkey Exports Textile and Raw Materials ($)*

Table 2 shows the number of permanent and temporary workplaces in Turkey and their distribution as public or private, as of November 2020, within the scope of Social Security data, and accordingly a total of 53,318 companies are in the sector (Table 2). [SSI, 2021].

Table 2: *Number of Workplaces*

	Permanent	Temporary	Public	Private	Total
Textile Manufacturing	17.533	27	23	17.537	17.560
Clothes Manufacturing	35.667	91	177	35.581	35.758

Table 3 shows the number of permanent and temporary employees in the manufacturing of textile products and clothes in Turkey as of November 2020, and their distribution as public and private and the gender distribution of employees within the scope of Social Security Data, and accordingly, the total number of insured employees in the sector is 1,058,882 (Table 3) [SSI, 2021

Table 3: *Number of Insured Employees*

	Permanent	Temporary	Public	Private	Men	Women	Total
Textile Manufacturing	456,071	691	458	456,304	332,759	124,003	456,762
Clothes Manufacturing	600,308	1,812	5,070	597,050	290,995	311,125	602,120

Table 4 shows the average daily income of the permanent and temporary employees in the manufacturing of textile products and clothes in Turkey as of November 2020, and their distribution as public and private and the gender distribution of employees within the scope of Social Security Data (Table 4) [SSI, 2021].

Table 4: *Average Daily Income (TL)*

	Permanent	Temporary	Public	Private	Men	Women	Total
Textile Manufacturing	143,36	109,79	123,07	143,34	147,40	131,41	143,32
Clothes Manufacturing	119,04	121,87	221,07	118,24	122,42	115,73	119,04

3.3. General Outlook of the Textile Sector in TRC2 Region

When the total exports between 2019 and 2020 are compared by provinces, it is seen that İstanbul is by far the leader despite a decrease of 4.9% from $ 70.1 billion to $ 66.7 billion within the same timeline. Since most of the company headquarters are in Istanbul, the productions belonging to different provinces seem to belong to Istanbul in the records, therefore Istanbul has the leadership

in this regard. The difference between TIM and TURKSTAT export data stems from this fact. Between 2019 and 2020, the total exports from Diyarbakır, located in TRC1 Region, decreased by 7% from 167 million dollars to 155 million dollars and the total exports from Şanlıurfa, increased by 1% from 131 million dollars to 133 million dollars. The share of the textile sector in total exports from TRC2 region is low, but the sector is mostly structured on cotton and focused on the domestic market (Figure 11 – Figure 12) [TİM, 2020].

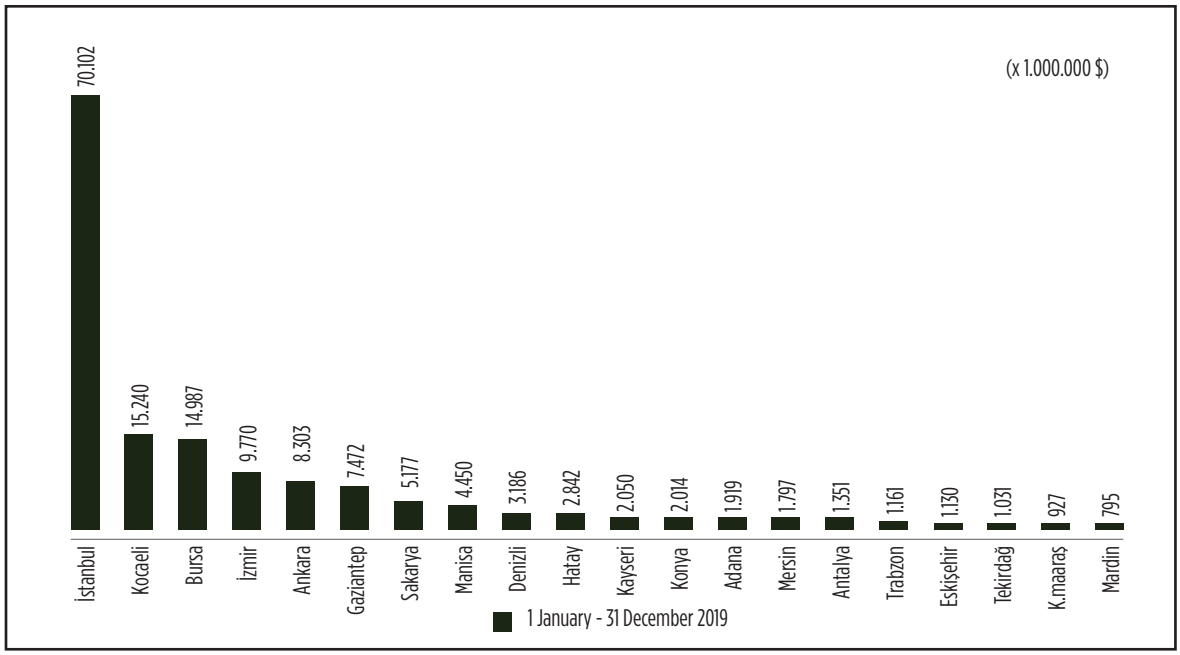

Figure 11: *20 Provinces with the Highest Exports ($) (1 January - 31 December 2019*

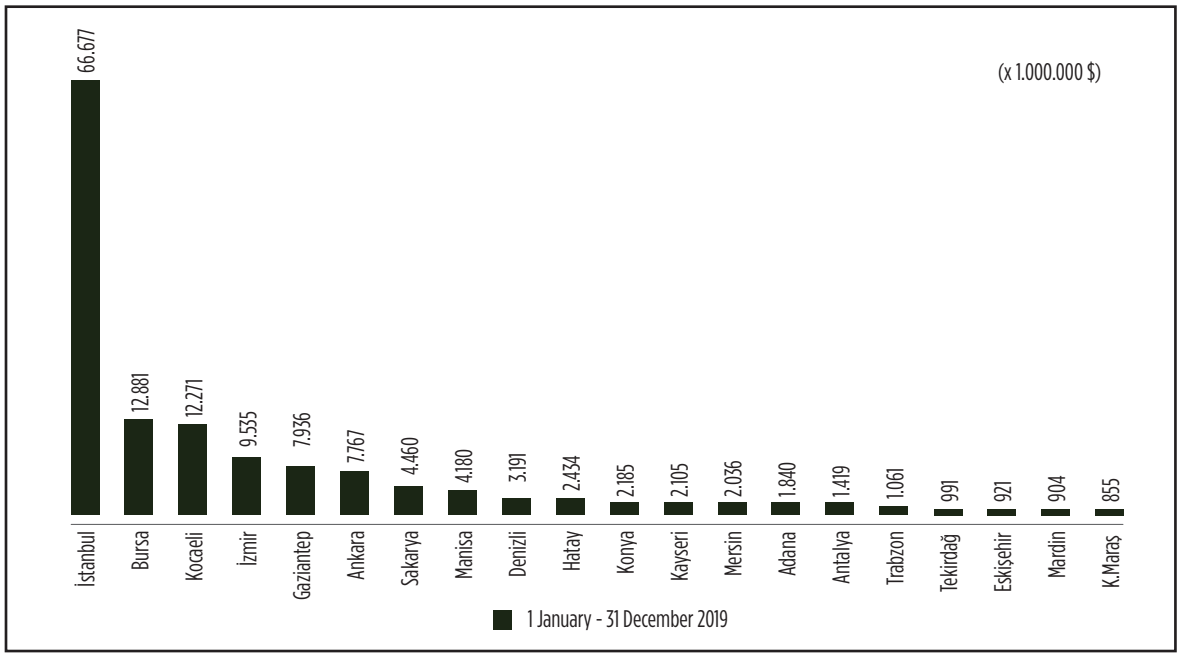

Figure 12: *20 Provinces with the Highest Exports ($) (1 January - 31 December 2020)*

Between the aforementioned dates, small increases and decreases occurred in the exports of carpets, garments and apparel, and textile and raw materials, which are included in the textile sub-groups (Table 5).

Table 5: *Exports of Diyarbakır and Şanlıurfa in Textile Sub-Sectors (1.000$)*

	1 Jan. - 31 Dec.				
	2019	**2020**	**TEXTILE SUB-SECTORS**	**2019**	**2020**
DİYARBAKIR	167,71	155,86	Carpet	20,29	12,55
			Garment and Apparel	1,71	1,73
			Textile and Raw Materials	3,50	4,73
				25,50	**19,01**
ŞANLIURFA	131,87	133,08	Carpet	47,60	110,49
			Garment and Apparel	4,02	12,20
			Textile and Raw Materials	13,37	5,47
				64,99	**128,16**

The number of companies operating in the textile sub-sectors in Diyarbakır and Şanlıurfa provinces as of February 2021 as well as the number of engineers, technicians, masters, workers and administrative personnel working in these sub-sectors, and the total number of employees in the relevant sub-sectors are given in Table 6. In addition, in the column at the end of the table, the total number of registered manufacturers across the country in the relevant textile sub-sector is given. When the textile sub-sectors across the country are compared on the basis of the number of manufacturers registered to TOBB, it is seen that Şanlıurfa has a share of 14% in "Preparation and spinning of textile fibers" (13.1) (Table 6) [TOBB, 2021].

R: Registered Manufacturer, **E:** Engineer, **T:** Technician, **M:** Master, **W:** Worker, **A:** Administrative

Table 6: *Number of Registered Manufacturers and Employees in Diyarbakır and Şanlıurfa Textile Sub-Sectors*

	KARACADAĞ - TRC2 Diyarbakır							Total R. Man.
	R. Man.	**M**	**T**	**U**	**İ**	**İD**	**Total**	
13.1	31	11	13	77	751	61	913	1.508
13.2	2	0	0	0	10	2	12	1.291
13.3	1	0	1	4	55	1	61	1.656
13.9.2	7	1	0	9	97	9	116	2.312
13.9.3								525
13.9.5	6	3	1	8	612	7	631	433
13.9.6								660
13.9.9	3	3	5	15	625	16	664	588
14.1.2	5	2	0	9	130	7	198	668
14.1.3	28	4	8	65	2.045	33	2.342	3.353
14.1.4	33	9	14	87	2.584	63	2.969	3.661

	KARACADAĞ - TRC2 Şanlıurfa							Total R. Man.
	R. Man.	M	T	U	İ	İD	Total	
13.1	213	3	4	313	2.739	56	3.115	1.508
13.2	1	0	0	8	188	2	198	1.291
13.3	8	9	26	65	1.522	29	1.651	1.656
13.9.2	5	0	0	38	467	0	505	2.312
13.9.3								525
13.9.5	1	2	0	2	29	1	34	433
13.9.6								660
13.9.9	1	0	0	6	112	0	118	588
14.1.2	12	2	0	74	1.554	12	1.642	668
14.1.3	18	2	16	237	3.015	32	3.302	3.353
14.1.4	27	2	0	171	3.622	131	3.926	3.661

4. The Impact of Covid-19 Pandemic on the Textile Sector

In order to determine the impact of Covid-19 on production, employment, costs and prices and to evaluate the problems encountered in this process; a survey named "Impact of Covid-19 on Real Sector" was conducted by the Turkish Central Bank between March 31 and April 7, 2020 to the companies included in the sample of the Economic Tendency Survey, and a total of 1,249 companies answered the survey, with a response rate of 56.3%. 6.6% of the companies surveyed were small-scale (less than 50 employees), 35.2% were medium-scale (more than 50 and less than 250 employees), 58.2% were large-scale (more than 250 employees) companies.

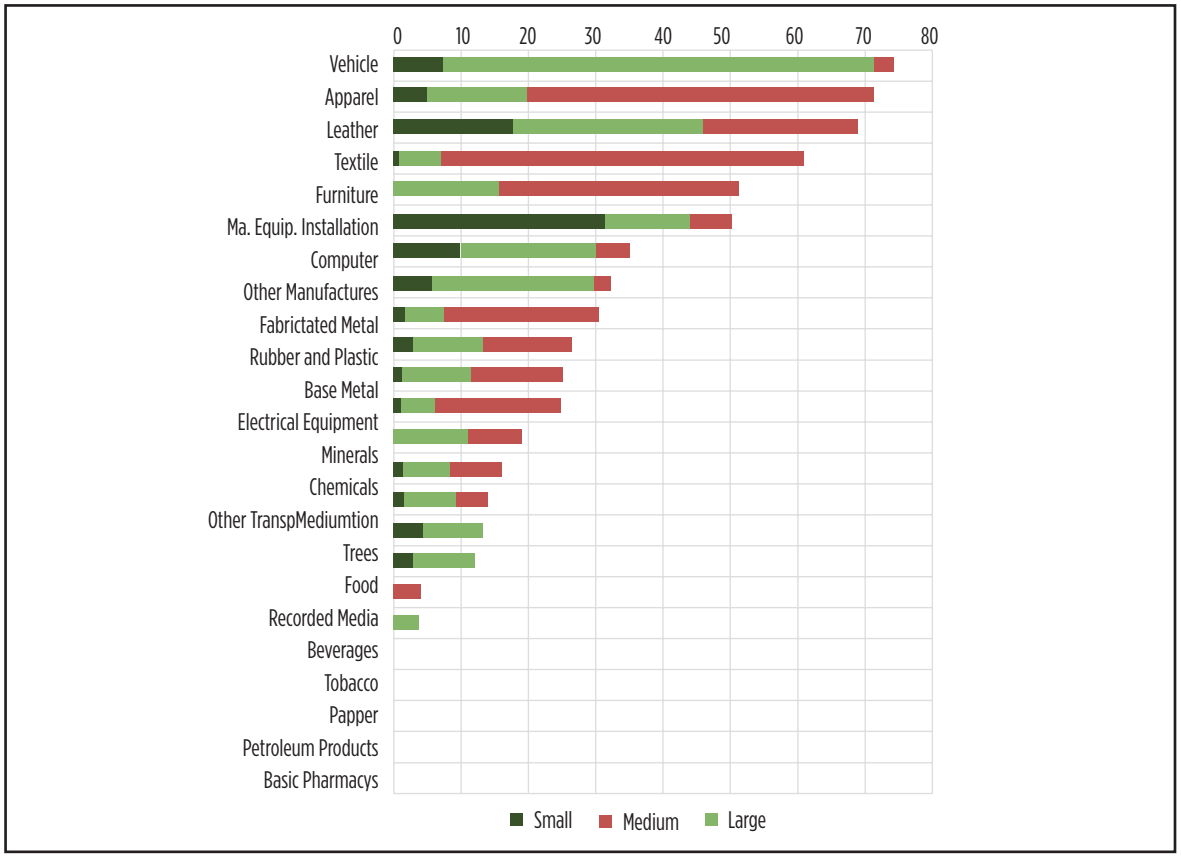

Figure 13: *Companies Suspending Production by Sector and Company Size (%)*

It is observed that 71.2% of the companies continued production while 28.8% suspended their operations. When this situation is examined on a sectoral basis it is seen that the rate of companies that suspend production in the textile, clothing, leather, vehicle and furniture sectors is higher than other sectors with 50%. Looking at the suspending of production in terms of scale, it is seen that 36.4% of small-scale companies, 25.1% of medium-scale companies and 30.5% of large-scale companies have suspended their production (Figure 13) [CBRT, 2020].

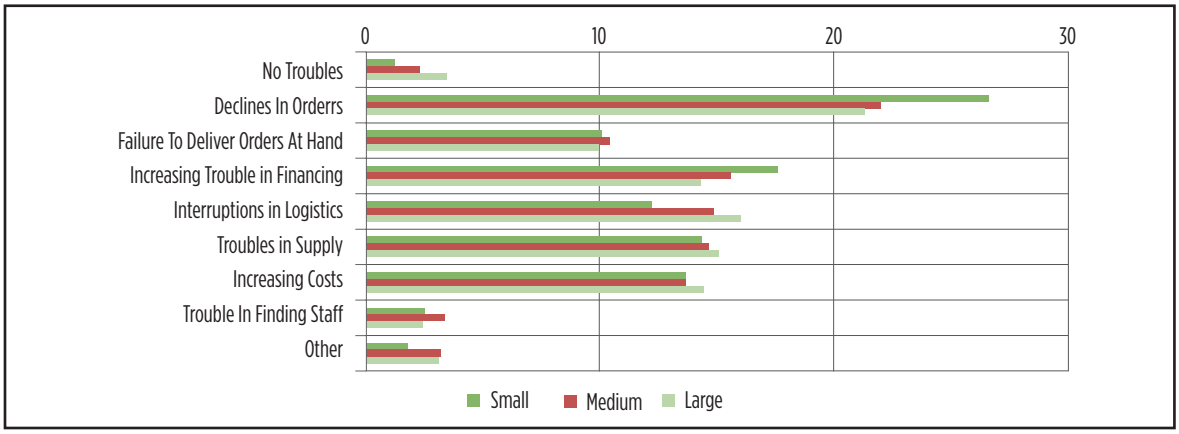

Figure 14: *Problems Encountered by Companies Due to Covid-19 Pandemic (%)*

The most important problem encountered due to the Covid-19 pandemic has been reported as the decline in orders. Increasing financing troubles, logistics interruptions, troubles in supply and cost increases were among the other problems related to the pandemic. When the problems faced by the companies are compared by scale, it is observed that the decline in orders and the increasing financing troubles are more pronounced in small-scale firms compared to the others. In large companies, on the other hand, logistics problems were expressed at a higher rate compared to small companies (Figure 14) [CBRT, 2021].

When asked about which policies would be more effective to maintain the employment level before the Covid-19 pandemic, the personnel expenses, taxes and access to finance were stated as the most important topics by the companies (Figure 15) [CBRT, 2021].

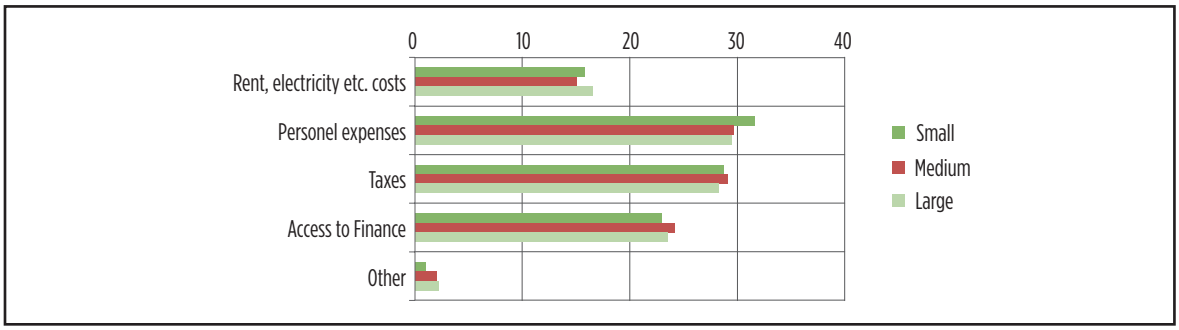

Figure 15: *Impact Levels of Policies to Maintain Employment Level Before Covid-19 Pandemic (%)*

The Covid-19 pandemic has caused and continues to have many negative consequences not only in the field of health, but also in social and economic areas. However, it is a fact that new opportunities will arise after the pandemic in the textile and sub-sectors. The role played by the textile industry in industrialization and welfare of countries and the importance of devoting time and resources to digital transformation, technological talent development, R&D and P&D activities, and applying processes that combine design and technology are becoming more and more evident these days.

Increasing consumer awareness about reducing the environmental and water footprint has made technological innovation and digital transformation important in the textile industry. In addition, it is understood that technological innovation will become increasingly important, especially in the production of reusable products and in processes that reduce the use of energy, chemicals and water. Water footprint is the most important element in terms of sustainable water management. The water footprint is an indicator of fresh water use. It is not only the water we use as the producer or consumer, but also the sum of the water we consume indirectly. The water footprint has 3

components: green, blue and gray. The colors green and blue indicate water consumption, and gray indicates pollution on water. "The amount of water consumed through goods and services" refers to the amount of water used in all processes until a product reaches the consumer. For example, the production of a T-shirt starts from the cotton plant in the field and includes the processes of watering the cotton, turning the cotton into yarn, turning the yarn into the fabric, dyeing the fabric and weaving the shirt on textile looms. 2720 liters of water (54% green, 33% blue, 13% gray) is spent for 1 cotton t-shirt (250 g). The Blue Water Footprint is used to refer to the total volume of surface and underground freshwater resources needed to produce a good, and these are the water resources that traditionally come to mind when we say fresh water. The Green Water Footprint is the total amount of rainwater used in the production of a commodity. The Gray Water Footprint is an indicator for pollution. It is a conceptual number showing the degree of fresh water pollution caused by production of a commodity [SUTEMA, 2021].

If we consider the production process of an agricultural crop; the green water footprint measures the amount of rainwater the product consumes during the growing period, the blue water footprint measures the amount of surface and groundwater consumed by the product during the same period. Gray water, on the other hand, refers to the amount of water used to treat fertilizers and pesticides, which are mixed with surface currents and / or leached into groundwater during this production process, depending on natural concentration and water quality standards.

With the Covid-19 pandemic, companies need to reposition themselves and pay attention to have multi-channel sales strategies and innovative tools, and also review their sales methods and achieve a balance between store sales and e-commerce in the short term. In the medium and long term, the orientation towards e-commerce sales should be the priority targets of the companies.

Looking at the global technical textile sector during the Covid-19 pandemic, it is observed that the technical textile market has grown and reached significant dimensions. The sector is now seen as the most promising and dynamic area of the textile industry, and also new products, new processes and new materials are produced and introduced to the market day by day. The laboratory and sample production facility services offered by the "Textile and Technical Textile Center of Excellence", which was launched in TRC2 Region in 2017, have been a factor in turning the Covid-19 pandemic into an opportunity, especially for companies operating under the technical textile sub-sector in the region. The Covid-19 pandemic process has been an opportunity for companies operating in health textiles (masks, personal protective clothing, etc.) and home textile subgroups of the technical textile sector. While the Covid-19 pandemic accelerated this process, technical textiles offered great potential due to the discovery of new products, meeting new requirements and replacing traditional products and materials. This market is expected to grow more than traditional textiles, both in total and in areas of use. When technical textiles are classified according to their end use areas, they are divided into 12 main groups. These groups are listed on the basis of areas of use and products as follows and graphically shown in Figure 16:

- Agricultural Textiles (Agrotech)
- Building and Construction Textiles (Buildtech)
- Clothing Textiles
- Geotextiles (Geotech)
- Home Textiles (Hometech)
- Industrial Textiles (Indutech)
- Hygiene and Medical Textiles (Medtech)
- Transportation Textiles (Mobiltech)
- Packaging Textiles (Pachtech)
- Protective Clothing (Protech)
- Sports and Leisure Textiles (Sportech)
- Ecological and Environmental Textiles (Ecotech).

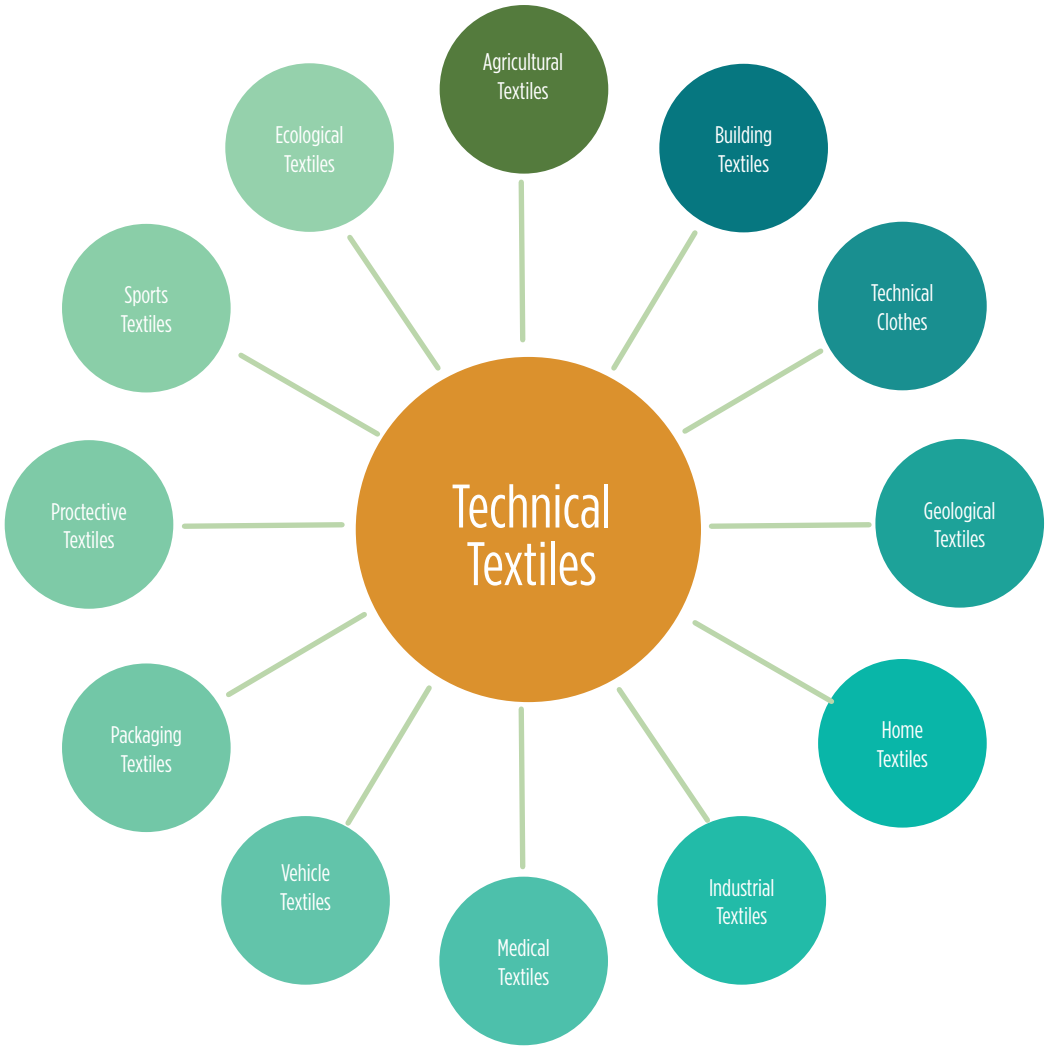

Figure 16: *Technical Textiles Classification*

Another issue accelerated by the Covid-19 pandemic is the European Green Deal and it is obvious that the challenges and opportunities this issue poses for the sector are extremely important. Because, considering the potential of the European Union to affect the legislation and policies in this field on a global scale, it is clear that the integration of the sector into the value chains is also important in terms of protecting and strengthening the place of countries in international markets. The areas where the Green Deal can affect the textile sector are as follows;

- Border Carbon Adjustment Mechanism,
- Circular economy and the EU's new textile strategy,
- Transport, packaging and waste management of the EU.

4.1. Comparison of Before and After the Pandemic

Striking results were obtained from research conducted by various institutions, working group meetings held by development agency experts, and focus group meetings attended by sector umbrella organization representatives and sector company representatives on issues such as changing consumption habits with Covid-19, environmental factors and their effects on sustainability.

The first of these results is that the Covid-19 pandemic reduced the pace of environmental sustainability studies. It is understood that the goals such as sustainable production, circularity and divergence from petrochemical products, which were determined as a priority by industry companies prior to Covid-19, have been left in the background these days. Before the Covid-19 pandemic, it was assumed that most of the large manufacturers, brands and retailers, especially abroad, had their own sustainability departments and strategies. It is even known that many institutions and organizations employ sustainability managers. However, it has been seen that even international markets were not ready for a crisis like the Covid-19 pandemic.

With the Covid-19 pandemic, companies have had other priorities as can be predicted. Sustainability is currently not newsworthy, as the public relations departments of the companies have new stories to share. It is understood that companies now prioritize sharing news about developments on antiviral materials that help fight the spread of the Covid-19 pandemic and increase personal protection.

The point reached to achieve environmental sustainability will be endangered by waste of personal protective equipment that cannot be reused. In May 2020, many analysts stated that only healthcare professionals around the world use nearly 44 million personal protective materials produced from bonded fabric per day [İHKİB, 2021]. These products are for single use only and must be discarded after each use. These products are produced from synthetic fiber obtained from non-renewable petrochemicals and the amount of waste generated from this use is expected to be 15,000 tons per day. However, the environmental effects of personal protective material waste will be of secondary importance during the fight against the Covid-19 pandemic.

With the increasing need for personal protective materials, the textile industry in which synthetic fiber is used has also started to rise. In this period, the production of personal protective equipment has shifted towards developed countries in order to respond to the increasing demand in Western Europe and the USA. Buyers of personal protective materials in western Europe and the United States, have turned to local manufacturers due to the products that are of poor quality, not very cheap and do not have the necessary technical characteristics which were bought from China, especially in the early periods of the pandemic. With the local procurement of personal protective materials, the fiber, textile and garment sectors in the countries have also increased at a high rate [İHKİB, 2021].

Local production is also environmentally friendly, as the logistics-sourced carbon footprint is reduced compared to imports. At this point, the biggest challenge will be experienced in encouraging the sustainable disposal of personal protective materials by consumers. In particular, due to the fact that the use of masks is mandatory in some countries and recommended in some countries, there has been a very high increase in the use of these products. In particular, many reports specifically state that disposable masks are thrown onto streets, parks and beaches.

In studies conducted by various institutions, consumers' feelings and thoughts during the Covid-19 process were tried to be understood. Research has shown that consumers expect manufacturers in the textile sector to behave responsibly and take into account the effects of their work on social life and the environment. Because the factors that will affect the producers in the sector the most will be issues such as environmental pollution, energy consumption and water consumption. The research also revealed a trend towards reducing the number of seasons in the fashion industry.

Researches show that especially after Covid-19, consumers will start to change their behaviors rapidly and make radical changes in their lifestyles to reduce their impact on the environment and therefore they will prefer environmentally friendly products [DERGİPARK, 2020].

Many companies will reorganize their operations within the scope of new normal. In doing so, they should take into account the expectations of consumers to pay attention to social and environmental issues. It seems necessary for companies to develop a relationship with consumers within the framework of trust and transparency. Otherwise, it will not be possible to be permanent in the sector.

Studies have also shown that the generation Z, born after 1990, and the new consumer group, the millennium generation born after 2000, turned towards lesser known or smaller brands during the crisis. It is thought that these consumers reduced their textile expenditures during the crisis and will continue this trend for a while after the crisis.

One of the important but expected outputs of the Covid-19 pandemic is the increase in the number of consumers turning to online shopping channels. One of the measures taken to prevent the spread of the Covid-19 pandemic in many countries, such as in Turkey, was the closure of retail stores. Although these measures were softened later, consumers are still avoiding physical stores with other consumers and store employees due to the virus. However, the necessity to wear a mask has also made shopping in the store less preferred.

Studies have revealed that while Z and millennium (Y) generations are shopping online to a great extent, it has been found that people between the ages of 56-75 are shopping online for the first time in this period. In addition, according to the studies, it is predicted that this trend will not change in the following period.

4.2. Possible Changes in the Sector After the Pandemic

According to the researches, the expectation of most of the industry experts after the Covid-19 pandemic is that protective properties will come to the fore in active wear products in the medium and long term. Due to the "climate change" and the uncertainty arising from the Covid-19 pandemic, the functionality of the active wear products will become more important than the design. Expectations revealed in the studies were that, in the next 18 months, consumers in crisis situations will increase their demand for active wear products with strong adaptation, protective features and functionality. Before the Covid-19 pandemic, consumers had a decade seeing the hottest temperatures ever recorded, historic hurricanes that were more devastating than in the past, and unsettling increases in sea levels.

According to William Hildebrand, Fashion Snoops active wear director, climate change is an undeniable reality. Hildebrand stated that if these climate uncertainties persist, they want to explore the possibility of adopting a more nomadic lifestyle at some point in the coming years and have to consider what products could save our lives, or what could help humanity in such a discovery [William Hildebrand, 2021].

The Generation Z, which is advancing this change, worries about its future. People now want to be cautious because they are worried about the future. Since innovation arises from need, this crisis will cause many changes and innovations as well as great damages. However, it is clear that global habits will need to be revised for a better future.

Active textiles need to be reconsidered for durability, from material innovation to construction design and fabrics should be expected to act as a bridge between science and industry in this sense. Reinforced nets can be used as pollution filters, while thermal fabrics and high-strength fabrics normally used by first responders can be used for commercial purposes. The focus will also be on how materials can be developed to be more protective, durable and functional with technical finishing.

Recently, the demand for antimicrobial finishing has been increasing, and materials with less porous surfaces or water-repellent products stand out as two options that organisms cannot live on. However, it is expected that new products will be developed in the near future. Expected product concepts include jackets made of materials that are stronger than steel but very lightweight, clothing products that generate energy for electronic devices as they move, and designs with face protective properties.

Multi-functional products that can be used in many different situations will be more demanded by consumers after the Covid-19 pandemic. After the economic difficulties experienced during the Covid-19 pandemic process, people should be expected to evaluate the products they buy and increase their demands for versatile clothing that can be used in more than one situation.

With the problems brought by the Covid-19 pandemic, many factors, from store closures to left product stocks, from order cancellations to factory closures, are pushing brands and manufacturers to rethink, while new, smarter production models are already coming to the fore. Shopping patterns and behaviors are changing in Turkey, as in the rest of the world, due to the shift of sales to online channels and the necessity of retailers to launch new products. Digitalization, big data and analytical tools will enable companies to look beyond the crisis, gain competitive advantage and make healthier predictions about consumer behaviors. In this context, many companies will turn to Block-chain and RFID solutions to ensure supply chain transparency.

Some of the work done by the manufacturing companies within the scope of new production models are listed below [İHKİB, 2021]:

- "Novetex Textiles", a yarn manufacturer, has developed a mechanical recycling process that combines existing and new technologies to produce recycled fiber from textile waste. With this system, no water is wasted, no waste water is generated and therefore no chemical waste is generated.
- Garment manufacturer "Monki" started to use hydrothermal system for the first time in the recycling process with a new textile recycling technology called "Green Machine"
- A new 3-year cotton project has been implemented in Europe. With this project, circular textile production is targeted. The budget of the project is 6.8 million Euros and 12 companies participate in the project.

Another expectation after Covid-19 is the transition process of textile companies from mass production to customer-specific flexible production, and it will be in the form of more adaptation to customer requests with less stocks as well as more flexible and more efficient production.

In addition, the shift of global supply from China to other countries after Covid-19 and European customers to prioritize close distance supply are other important expectations revealed by research.

5. Trends Specific to the Textile Sector

The common prediction of the international reports published for the sector is that there will be a transition to the circular fashion system, which will have a vital role and share for the manufacturers. In this context, retailers will need to provoke innovative potential capacity in manufacturers and help them in this regard. Again, international institutions developing these reports call on brands, retailers and other stakeholders to accelerate the necessary steps for the transition to the circular garment and fashion system worldwide and make recommendations in this direction.

Again, these reports indicate that the important positions of the garment and fashion industry manufacturers in the sector, their purchase and supply decisions and their product developments for retail sector are a very important power and potential in shaping the sector and the supply chain.

According to published reports, new trends in the fashion and garment sector are as follows [İHKİB, 2020];

- We have to learn to live with the virus. 45% of the surveyed professionals see the Covid-19 pandemic as an important problem also in 2021.
- Global demand is decreasing. World fashion and garment sales may be 15% less in 2021 than in 2019.
- During the Covid-19 pandemic, digitalization is increasing and 70% of the surveyed professionals believe that their online sales will grow by 20% in 2021.
- Consumers want brands that treat their employees well. 66% of Consumers state that they will not shop from brands that do not treat their employees well and fairly.
- Companies and brands have to reduce the complexity of their product ranges and go for a demand-oriented simplification.
- Certain companies performed very well, while others fell to the point of bankruptcy and trustees.
- Relationships and contracts between brands and suppliers have become more important.
- While the importance of physical shopping and physical stores has decreased, the share of online sales has increased even more and brands are positioning themselves accordingly.
- During the pandemic period, fashion and garment companies are transitioning to a new working model and method within the scope of the aforementioned trends. Worker-employer relations and workplace loyalty rates of employees will also be reshaped in the new period.

5.1. Sectoral Trends in the World

In the 2020 version of the statistics yearbook published by the WTO, it is stated that 5 important trends related to the world garment and textile trade stand out [WTO, 2021];

- The volume of the world garment and textile trade decreased in 2019. The reasons for this decline are reduced global demand and trade wars and conflicts between countries / blocs. World textile exports decreased by 2.4% in 2019 to 305 billion dollars, on the other hand, world garment exports declined by 0.4% to 492 billion dollars in the same period. Total world commodity trade decreased by 3% on value basis and 0.1% on amount basis in 2019. On the other hand, in 2020, with the effect of the pandemic, the world total commodity trade is expected to decline much more sharply.
- World garment and apparel exports were recorded as 492 billion dollars with a decrease of 0.4% in 2019, while China maintains its leadership in global trade with an export of $ 151.6 billion and a share of 31%. On the other hand, China's garment and apparel exports decreased by 4% in 2019. This is because US and European buyers have started shifting their orders from China to other Asian suppliers. In the world garment and apparel exports in 2019, China is followed by the European Union with 135.6 billion dollars and 27.6% market share. There has been no change in the European Union's garment and apparel exports in 2019. Bangladesh, Vietnam, India and Turkey follow European Union in world garment

and apparel exports. According to this ranking, Turkey ranks 6th in the world garment and apparel exports.

- While world textile exports fell 2.4% in 2019, China remains the largest exporter. Following China, which has an export of 119.6 billion dollars and a market share of 39.2%, the European Union comes with an export of 66.3 billion dollars and a market share of 21.7%. India follows the European Union with an export of 17.2 billion dollars and 5.6% market share. India is followed by the United States of America and Turkey ranks 5th among the world textile exporters. Turkey is followed by South Korea and Vietnam, whose production and export has increased in recent years.
- World garment imports are becoming increasingly complex and fragmented, and consumption patterns are also changing thanks to the rising middle classes of growing economies. In world garment imports, the European Union maintains its leadership with 179.5 billion dollars of imports and 34% market share, while the United States comes behind with an import of 96 billion dollars and 18% market share. Japan comes after the United States with 29.8 billion dollars of imports and 5.7% market share and Japan is followed by England, Hong Kong, Canada and South Korea. China's garment imports, which ranks eighth after South Korea, increased by 8.1% on value basis in 2019.
- Considering the movements in the world garment trade, it is seen that the world textile imports are mostly made by the garment exporting countries. The biggest market of the world textile import is the European Union with a value of 67 billion dollars and a market share of 21%. The United States follows the European Union with 31.4 billion dollars and a 10% market share. The United States of America is followed by Vietnam, China, Bangladesh and Japan. In this period, only Vietnam's imports, which ranked 3rd among the top 10 textile importers in the world, increased in value in 2019, while others decreased. In 2019, Vietnam rose from lower ranks to third rank.

In addition to all these predictions, it is seen that the trend has begun to evolve from conventional textiles to technical textiles in order to produce value added products.

Another trend that has emerged from other studies conducted in the garment sector is the transition from mass production to customer-oriented flexible production. This trend is in the form of more adaptation to customer requests, less stocks, flexible and more efficient production.

- 3D printer company Stratasys uses Polyjet Technology to develop tailored fashion design for the customer and is applying this technology commercially.
- The Levi's brand has developed a new concept store in England where the used denim product is repaired and brought to the sector as a new product.
- Garment brand Unspun enables consumers to select suitable denim products by scanning from anywhere they want, using a mobile phone scanning model with 3D scanning algorithm.

Another trend in the sector is production on demand, that is, on order, rather than mass production.

- The US firm OnPoint, based in Alabama, delivers the garment orders of the brands to their doors in two days with the new delivery system it has developed.
- Small firms have also seen how effective an on-demand production model can be. Canadian shoe company Native Shoes cooperates with MIT and produces custom-made products with 3D printers.
- Reebok company includes its customers in the production process with a new order and production system and develops designs according to their demands.

Another global development in the garment industry is in the field of smart manufacturing. Companies invest in automation, artificial intelligence, 3D printers and robotics for smarter production and supply chains.

- Chinese e-commerce giant Alibaba opened its Xunxi Digital factory in September, using new technologies such as artificial intelligence algorithms and other digital solutions.

5.2. Sectoral Trends in Turkey

Despite the negative effects of the Covid-19 pandemic on the sector, it is stated that the companies in the sector have recovered together with the normalization process thanks to the experience and high capacity they have and the sectoral clusters according to the information obtained from the sector umbrella organizations and sector company representatives. Turkey has now risen from the status of the country that follows the trends in the textile industry to the status of the country that creates trends and fashion.

The textile and raw materials industry, which has the capacity to rapidly adapt to the changing global trade norms and trends, is expected to shrink in exports and decrease to around 15% in exports by the end of 2020, but a very rapid recovery is predicted in 2021.

In the last 20 years, the trend of fast fashion has influenced world consumption and in this process, the demand for products that can reach the store quickly instead of standard products has increased and continues to increase. At this point, Turkey will become an important supply point especially for Europe. Today, Turkish textile industrialists have started to produce their own designs instead of products designed in Europe. Especially after the emergence of concepts such as technical textiles and sustainability, textile will gain an upward acceleration in Turkey in the coming years.

Before Covid-19, fast delivery was important for the buyer, but now the safe product is more on the agenda. With the fact that the widespread use of remote work will also affect fashion, it is estimated that these processes will create an opportunity rather than a challenge for companies with a high level of dynamism.

Also, besides the household items and everyday wear, it is clear that the health and hygiene textiles sector, which is one of the 12 sub-sectors of technical textiles, will come to the fore as an important category. With the acceleration of digitalization in production, marketing, logistics and office environments, all actors in this sector will need to invest in this technology in order not to fall behind in the competition. Because, as it is known, online sales have almost doubled in the Covid-19 period.

5.3. Sectoral Trends in TRC2 Region

Although there is very little textile export from Diyarbakır and Şanlıurfa provinces located in the TRC2 region, the sector is mostly focused on the domestic market due to the processing of cotton, which is the first part of the value chain, and the recent developments in garment sector.

In order to increase the product quality and competitiveness of cotton producers in Şanlıurfa and Diyarbakır, which rank first in cotton production with 2,015,509 tons, an internationally accredited Cotton Fiber Quality Analysis Laboratory was established within the Diyarbakır GAP administration (GAPUTEM) within the scope of the construction of regional industrial cooperation. With 5 "HVI 1000" devices in the laboratory, length / strength, color-trash, micronaire, nep and ultraviolet permeability tests are performed in cotton, and detailed nep, length and trash analyzes are performed with 1 AFIS PRO 2 device.

In the 11 subgroups of the textile sector subject to the study, which are given in Table 3 according to the NACE codes (46.4.1 and 47.7.1 excluded) the total number of manufacturer companies registered to TOBB from Diyarbakır is 116 and from Şanlıurfa it is 286. When the textile sub-sectors across the country are compared on the basis of the number of manufacturers registered to TOBB, it is seen that Şanlıurfa has a share of 14% in “Preparation and spinning of textile fibers” In these 11 subgroups, the total number of employees is 7.906 in Diyarbakır and 26.222 in Şanlıurfa. The number of employees (engineers, technicians, masters, workers and administrative) is shared in Table 6 on the basis of subgroups and regions.

It is envisaged that the "Textile OIZ", established in Diyarbakır, will be allocated to 63 companies in the textile sector and approximately 10,000 people will be employed here.

6. Current Status of the Textile Sector

Despite the negative effects of the Covid-19 pandemic on the sector, it is stated that the companies in the sector have recovered together with the normalization process thanks to the experience and high capacity they have and the sectoral clusters according to the information obtained from the sector umbrella organizations, sector company representatives as well as the sources such as World Trade Organization, Trademap, Ministry of Trade and Exporters' Unions. This recovery will also be seen when the capacity utilization rates for textile and apparel production are compared for 2019 and 2020 (Figure 17) [CBRT, 2021].

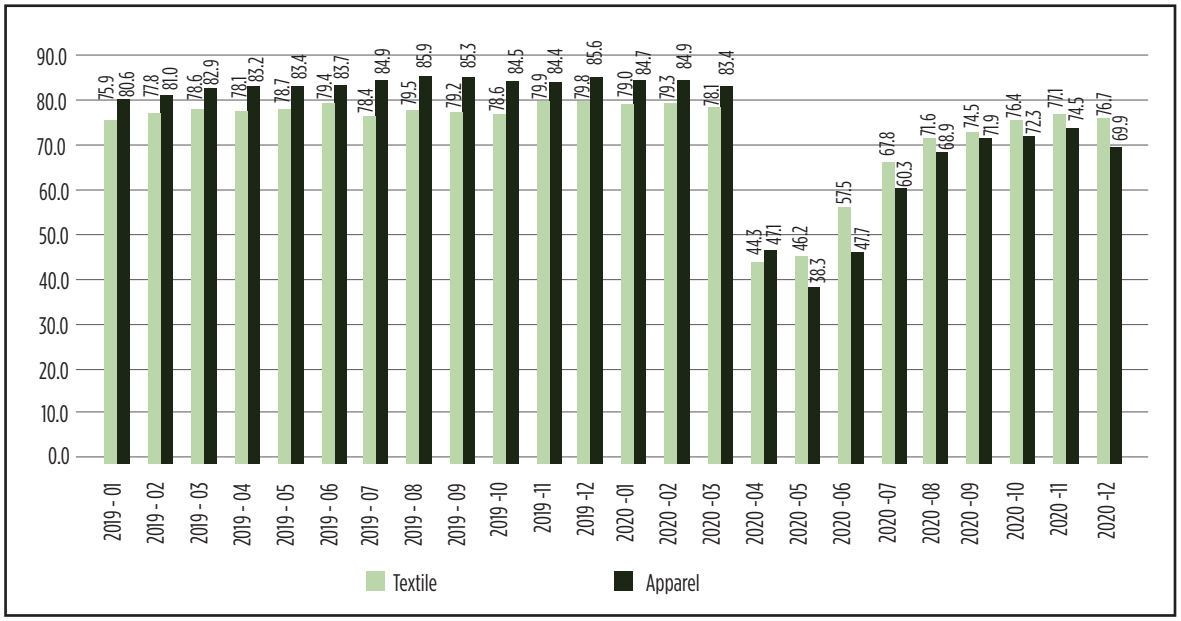

Figure 17: *Capacity Utilization Rates in Turkey between January 2019 - December 2020*

The textile sector, which experienced serious losses in the period of March-June 2020 due to the pandemic, is experiencing a relative recovery since August 2020. There has been a 6.6% increase in exports of textiles and raw materials, as well as an 8% increase in home textile exports and a 5% increase in knitted fabric exports.

The technical textile sector, which is estimated to have an export market of around 100 billion dollars in the world and classified as 12 sub-sectors, is a sector with high added value production potential with a serious growth in the coming period. Therefore, investments in technical textiles have grown exponentially in Turkey in recent years and Covid-19 has accelerated all sub-technical textiles, especially the health sector textiles and many companies are now proving their global success by playing an important role in the international market. In parallel with the developments in the world markets, technical textile production and product diversity in Turkey is gradually increasing. The technical textile sub-groups that make the largest production in this field are automotive, cleaning, cosmetics, hygiene, packaging and medical / health sectors. While Turkey's technical textile exports were 2.3 billion dollars as of 2019, total exports in 2020 are expected to exceed 2.5 billion dollars and the estimated amount for 2021 is 3 billion dollars (Figure 18).

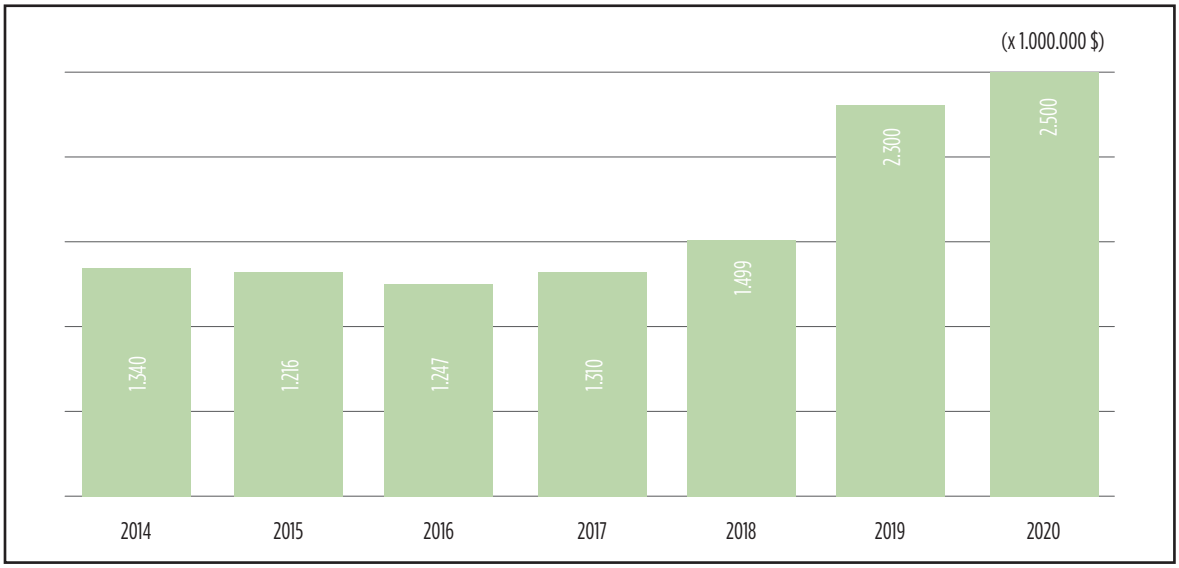

Figure 18: *Technical Textile Export between 2014 - 2020 ($))*

The global technical textile industry is a sector characterized by large R&D investments leading to innovations and new products. Technical textiles are consumed in the form of unspun fibers, threads and fabrics, and most of the technical textiles are consumed in the form of fabrics. Wearable textiles, packaging textiles and agricultural technical textiles have the largest share in the global technical textile market. Non-woven fabrics, composites, fiber and hygiene and medical technical textile segments constitute a large part of the investments in the sector. In addition, the rapid growth in the automotive sector and the increasing adoption of geotextiles are expected to increase the growth of the transportation and geotextiles segments.

Technical textiles are functional fabrics used in many sectors such as automotive and construction. These materials show improved performance compared to traditional textiles. Technical textile materials include several natural and synthetic fibers such as Saran, Vinalon, Vinyon, Spandex, Modal, Twaron, Kevlar, Nomex. Many of these fibers have many applications due to their properties such as high strength, enhanced mechanical resistance, superior insulation and high thermal resistance. Synthetic fibers used for these applications are produced from natural fibers. In this process, natural fibers are processed with special materials in order to obtain the physical properties of technical fibers. These fibers have an increased strength compared to man-made fibers. Therefore, it is widely used not only in the manufacture of garments, but also in automotive and medical technical textiles.

The increase in geotextile and non-woven fabric demands of the developing economies is an important factor that triggers the growth of the global technical textile market. In addition, the increase in the demand for construction textiles and the increase in public support to encourage the use of technical textiles has increased the demand for these products and thus contributed to the growth of the technical textile sector. However, it is predicted that high raw material and product costs and the increase in the amount of toxic waste during the production of these materials may partially hinder the growth of the global market. However, achieving / improving the recyclability of technical textiles is expected to play a key role in creating future market opportunities (Figure 19) [Andrew Shawn, 2021].

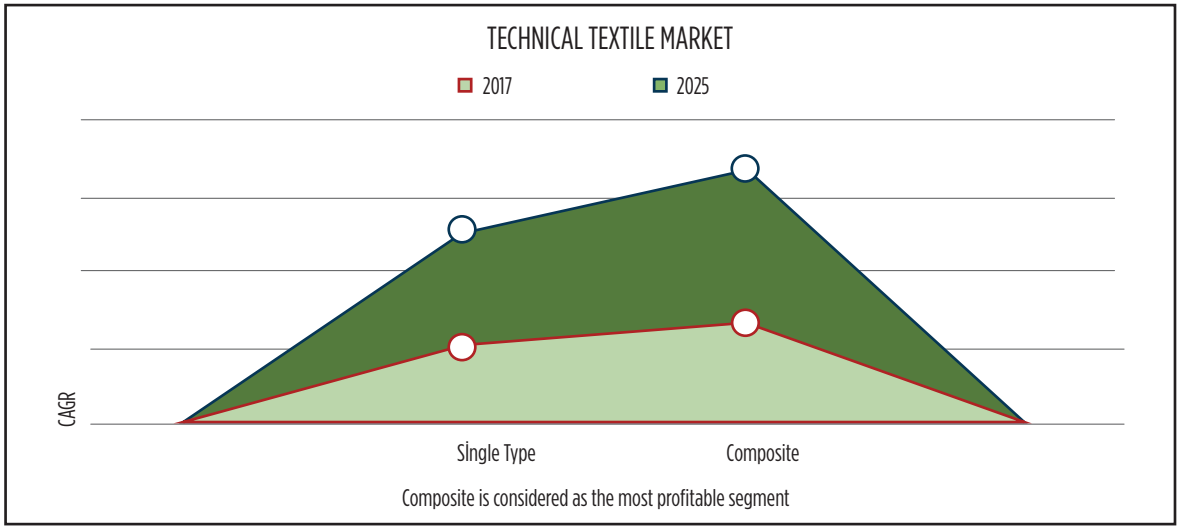

Figure 19: *Technical Textiles Market (By Material)*

The composite segment appears to be in a dominant position in 2017 and is expected to continue to lead within the forecast period. Demand for reinforced composites in the maritime and construction sectors is expected to increase in the near future. In addition, the increase in the use of composites in the aviation and space industry is expected to increase the market growth.

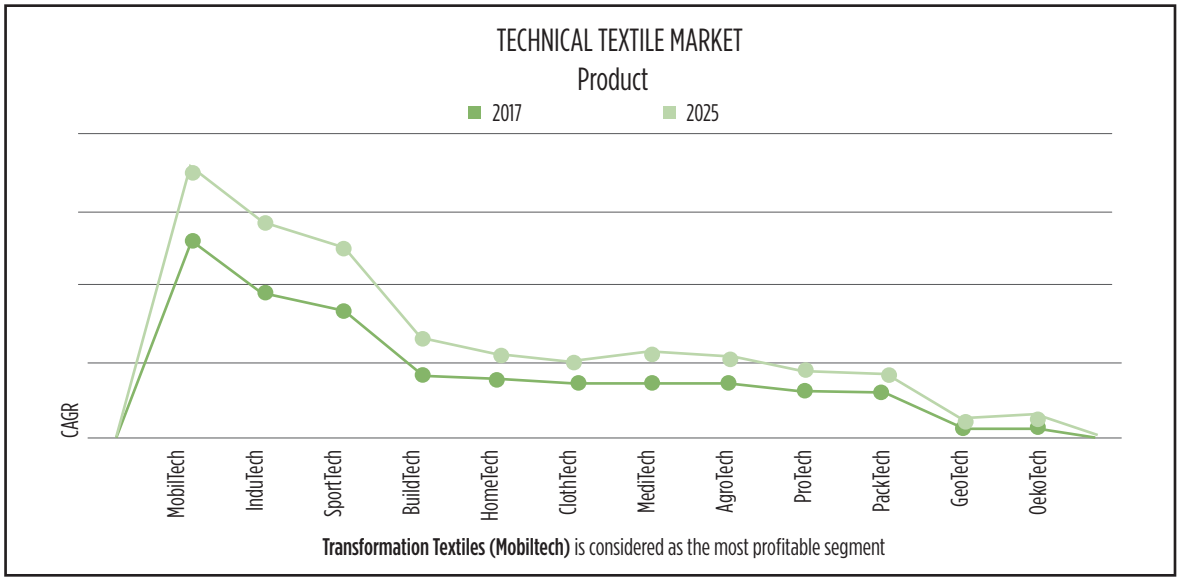

Figure 20: *Technical Textiles Market (By Sub-Sector)*

Transport textiles (MobilTech) has a dominant share in 2017 and are expected to continue to lead within the forecast period. On the other hand, due to Covid-19, it is expected that medical / health technical textiles will take the leadership by increasing the market share (Figure 20) [Allied Market Research, 2020]

6.1. Primary Research Results

6.1.1. Surveys

Within the scope of the project a "Textile Sector Situation Survey" consisting of 35 questions was applied for TRC2 (Diyarbakır and Şanlıurfa) region in order for revealing the status of the textile sector during and after Covid-19, defining future strategies in line with global trends and supporting SMEs to develop more inclusive and sustainable business models and some of the questions were grouped as follows and reflected on the graphics in a successive order. Again, within the scope of the primary research results, apart from the data obtained from the Focus and Working Groups, the level of reflection of the assessment made here should be considered together with the number of participants in the survey. Under each survey data, there is the name of the region and the data of the companies, and the general evaluation of the survey was made at the end of the section together with the data obtained from other data sources.

- General Questions
- Human Resources
- Finance
- Production
- Sales and Marketing
- Foreign Trade
- Competitiveness
- Covid-19 and other

113 companies from all over Turkey participated in the survey while this number was 12 for TRC2 Region. The distribution of participation by sub-sector is as follows: 3 companies “Preparation and spinning of textile fibers”, 3 companies “Weaving of textiles”, 1 companies “Finishing of textiles”, 4 companies “Manufacture of other outerwear”, 1 companies “Wholesale of textile” (Table 7)..

Table 7: *Participation in the Survey from the Region and Turkey in accordance with the NACE Codes*

	KARACADAĞ -TRC2			Turkey
	Total Participation in the Region	12		
NACE	Provinces in the Region	Diyarbakır	Şanlıurfa	
	Number of Participants by Province	1	11	113
13.1	Preparation and spinning of textile fibers		3	7
13.2	Weaving of textiles		3	21
13.3	Finishing of textiles		1	19
13.9.2	Manufacture of made-up textile articles, except apparel			7
13.9.3	Manufacture of carpets and rugs			0
13.9.5	Manufacture of non-wovens and articles made from non-wovens, except apparel			5
13.9.6	Manufacture of other technical and industrial textiles			0
13.9.9	Manufacture of other textiles n.e.c.			2
14.1.2	Manufacture of work-wear			6
14.1.3	Manufacture of other outerwear	1	3	25
14.1.4	Manufacture of underwear			5
46.4.1	Wholesale of textile		1	14
47.7.1	Retail sale of bridal in specialized stores			2

• **General Questions**

To the question '**What are the 3 Main Obstacles / Bottlenecks Affecting Your Company the Most?"** 15% of the participants replied as "production", 15% as "raw material supply", 3% as "quality suppliers", 15% as "sales and marketing", 3% as "export", 12% as "access to finance", 9% as "infrastructure and costs (transportation, natural gas, water, electricity, sewage, treatment, etc.) and 27% as "access to qualified labor". The answers given to this question from the companies in the region significantly coincide with the answers given by the companies participating in the survey from other regions of Turkey. From these data, it should be interpreted that companies in the sector experience similar problems regardless of the region. As a result of the comparison, it was stated that the most significant difference was 'Access to Qualified Labor' and this was due to the higher immigration in TRC2 Region (Figure 21). This situation indicates that this is not a sector preferred by employees. Companies and the public should work together to reverse this situation.

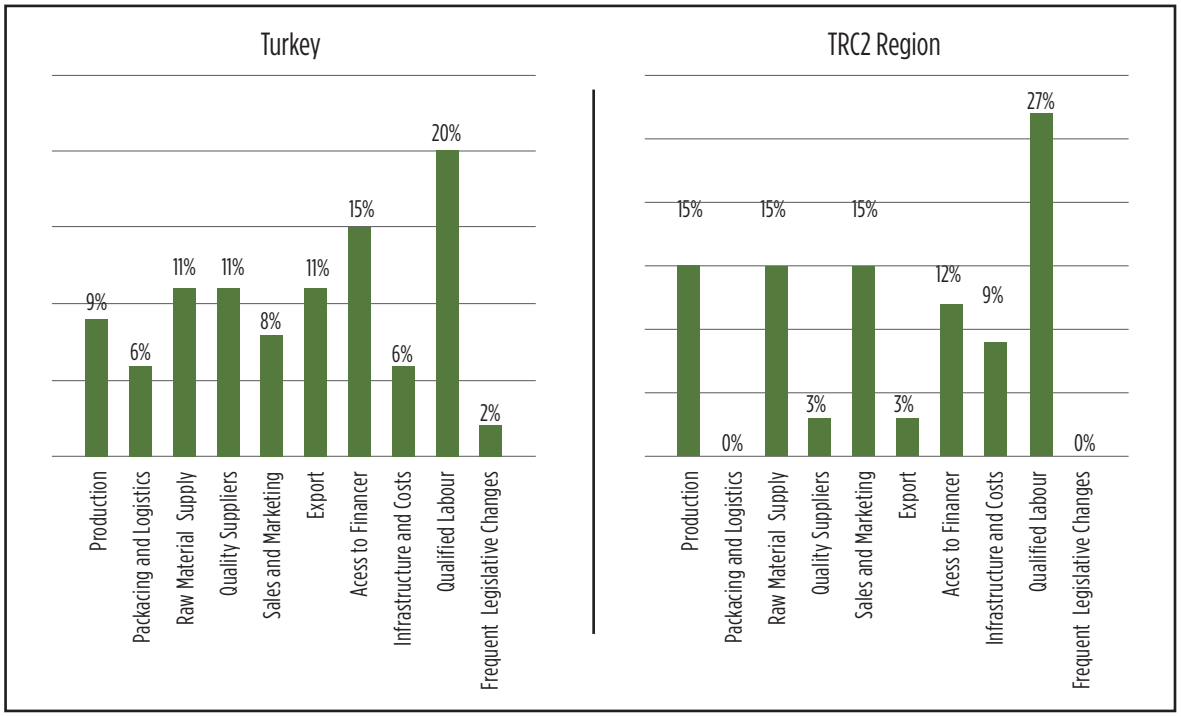

Figure 21: *3 Main Obstacles / Bottlenecks Affecting Companies*

• **Human Resources**

Of the 3.217 people working in 12 companies from the region, 1.548 are blue-collar women while 283 are white-collar women, 1.109 are blue-collar men and 187 are white-collar men (Figure 22). The sector is considered to be one of the most democratic sectors in terms of gender equality, based on the data obtained from companies participating in the survey from the region and outside the region. The higher number of female employees in sector companies in the TRC2 Region is interpreted as the women in the region are preferred because they are less insistent on social rights (union, nursery, etc.) However, the rate of unregistered employment and wage inequality between female and male employees (See Table 4) is one of the important problems of the sector within the region

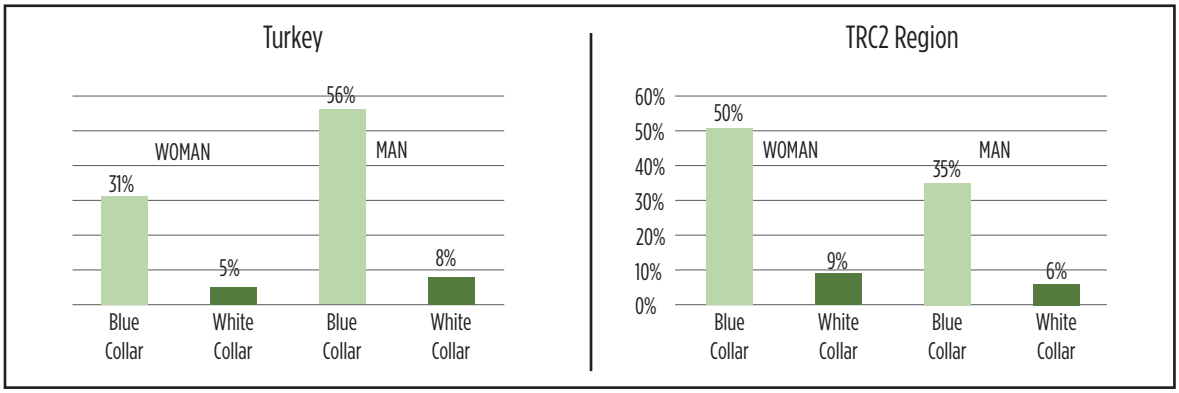

Figure 22: *Number of Employees*

- **Finance**

When the turnover of the companies is compared in Turkish Liras within the same periods of 2020 and 2019, it is observed that 30% increased their turnover by 1-25%, turnover of 20% remained the same, turnover of 30% decreased by 1-25%, and turnover of 20% decreased by 51% or more (Figure 23). Data obtained from companies participating in the survey from other regions of Turkey and TRC2 Region indicate that the sector has partially recovered from the Covid-19 pandemic. It can be considered that the density of demand in health textiles (masks, personal protective clothing, etc.), which are in the subgroups of technical textiles after the pandemic contribute to this.

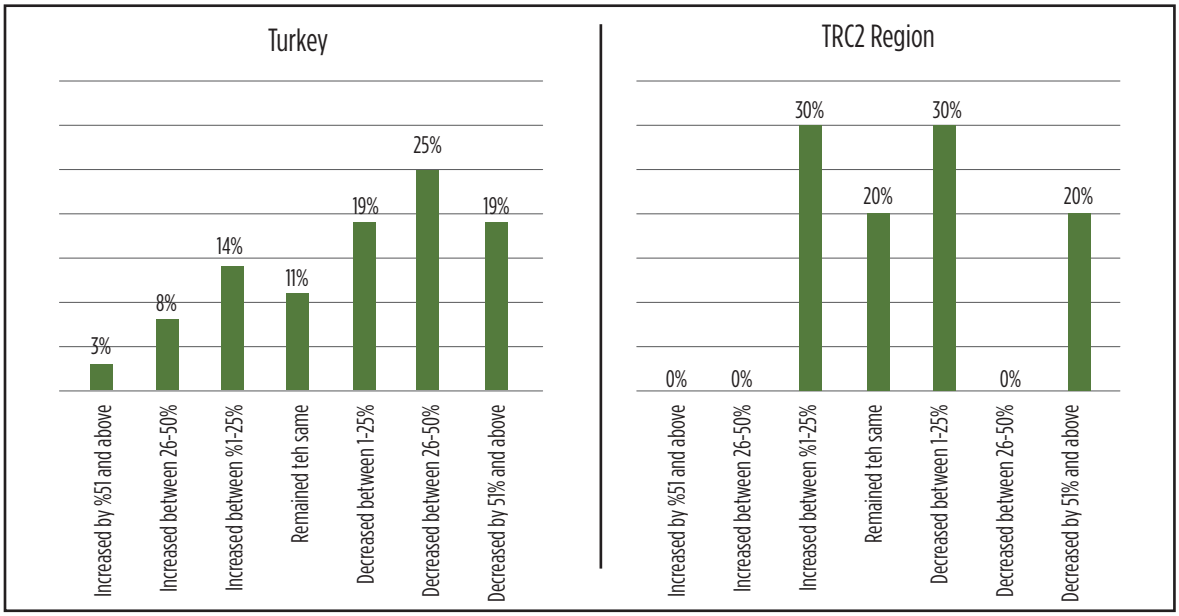

Figure 23: *How were the Turnovers Changed in 2020 in Turkish Liras Compared to the Same Period of 2019?*

When the ratio of the budget allocated to R&D / P&D, Innovation and Design to turnover is evaluated, 17% of the companies do not invest in these areas, while 25% invest between 0-2% of their turnover, 25% invest between 3-4% of their turnover, and 33% invest between 8-10% of their turnover (Figure 24). The ratio of the turnover of the companies participating in the survey from the region to R&D / P&D, innovation and design, does not match with the companies participating in the survey from outside the region. It has been interpreted that the data indicating that 33% of the companies participating in the survey from the region allocate 8-10% of their turnover to R&D / P&D, Innovation and Design does not reflect the general of the region.

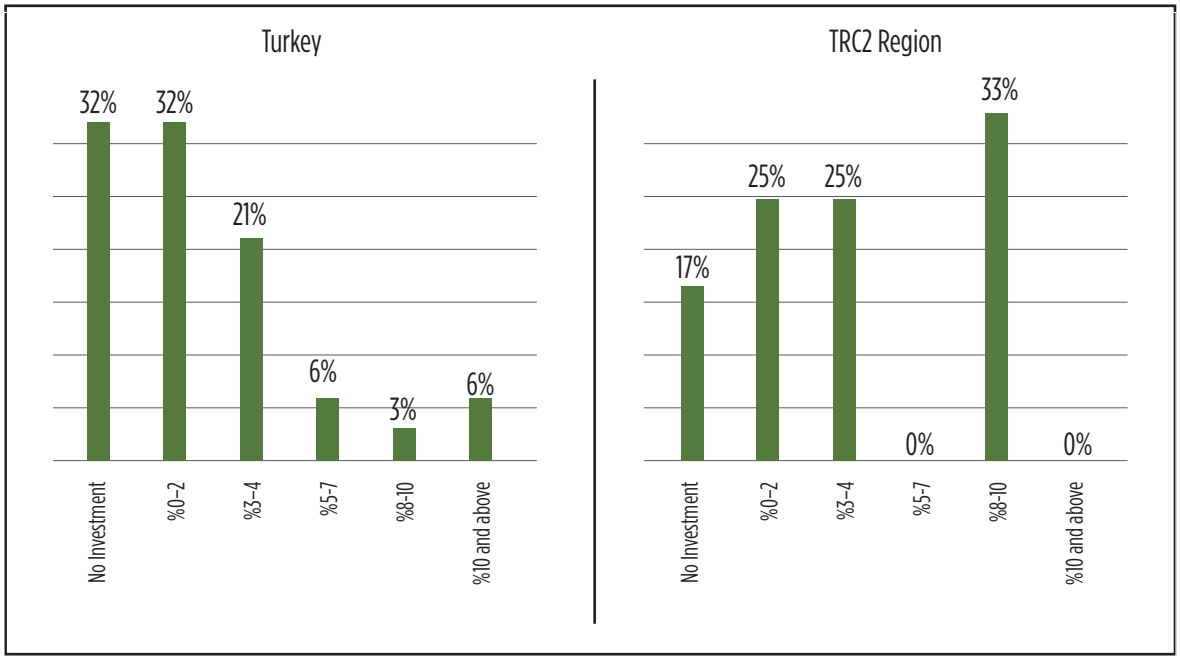

Figure 24: *What is the ratio of the budget allocated to R&D / P&D, Innovation and Design to the Turnover?*

• Production

Of the companies participating in the survey from TRC2 Region; 67% of them stated that the current capacity utilization rate is 76% and above, 8% stated that this rate is between 66 and 75%, 8% between 51 and 65% and 17% between 26% and 50% The data on capacity utilization rate of the companies participating in the survey from the region and outside the region match each other. This data has been interpreted as companies in the sector want to act cautiously and do not want to stock up due to the uncertainty created by the Covid-19 pandemic (Figure 25).

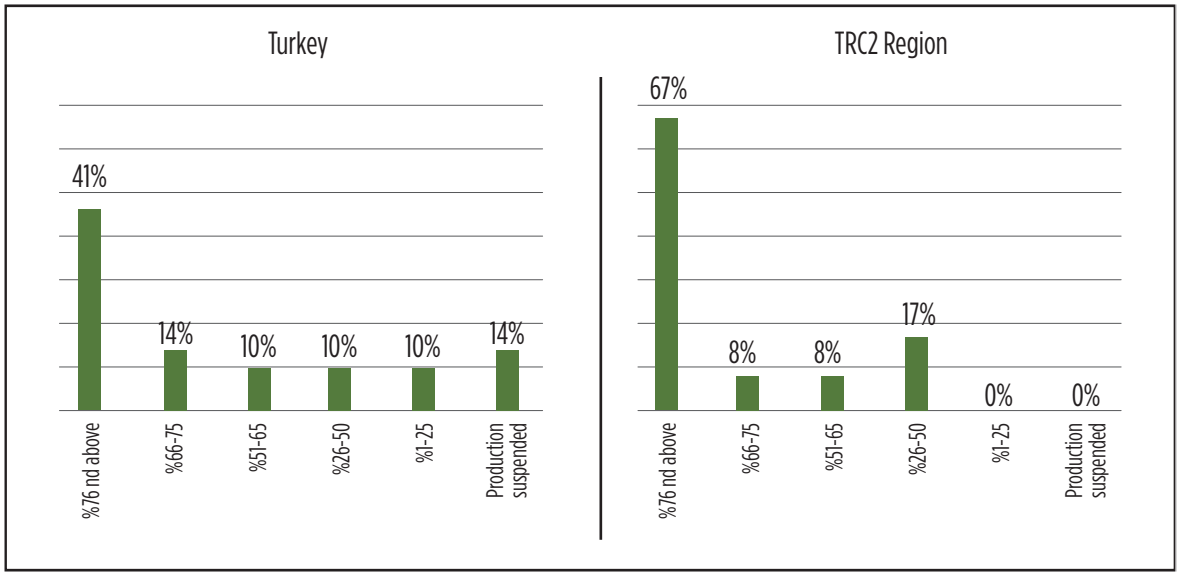

Figure 25: *Current Capacity Utilization Rates in Turkey and TRC2 Region*

• Sales and Marketing

To the question **'What are the 3 problems affecting your marketing activities the most?" 29% of the participants replied as "high input costs"**, 13% as "financing problems", 32% as "fluctuations in product prices", 23% as "demand variability in the market" and 3% as "insufficient / unqualified human resources" (Figure 26). This data matches in terms of the companies participating in the survey from the region and outside the region, and it has been interpreted that one of the biggest problems of the sector is the high input costs, namely the raw materials. This situation indicates the necessity of supporting the competitiveness of the sector in the international market by ending or at least reducing the foreign dependency on raw materials.

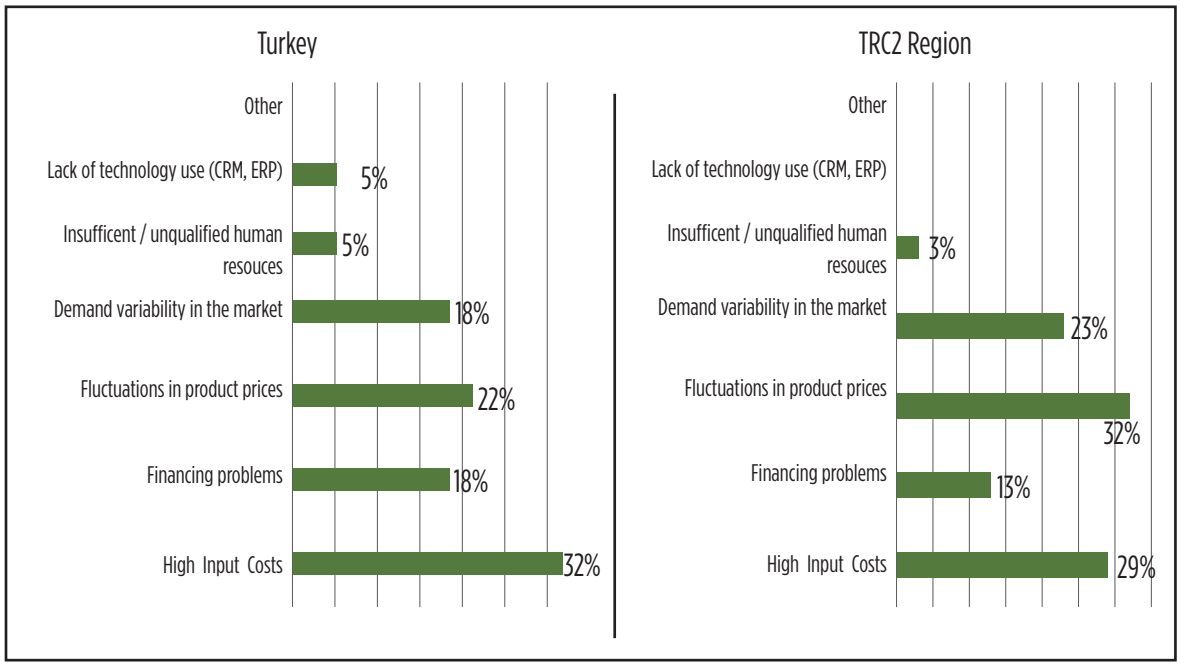

Figure 26: *What are the 3 Main Problems Affecting Marketing Activities?*

• Foreign Trade

For companies that state that they do not export from the TRC2 Region, the 3 most important reasons are "Compelling Competition and Pricing in Foreign Markets" for 23%, "Lack of Quality / Certification" for 8%, "More Profitable Local Market" for 15%, "Lack of Capacity and Technology" for 23%, "Financing Problems" for 23% and "Covid-19" for 8% (Figure 27). The data on the lack of exports of companies participating in the survey from the region and outside the region match each other. These data indicate that public institutions should provide companies with financial support for foreign trade.

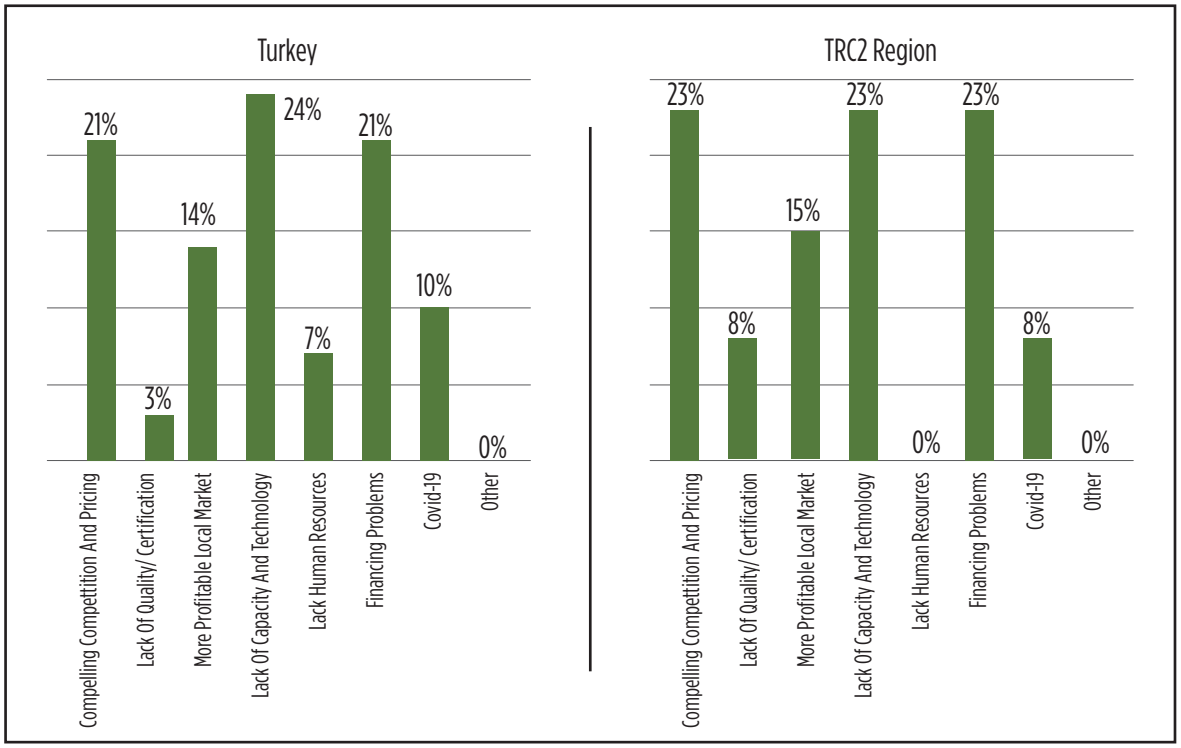

Figure 27: *What are the 3 Most Important Barriers to Export?*

To the question **"How were the exports of companies in the TRC2 Region in 2020 changed in 'dollars compared to the same period of 2019?"**; 33% of the companies stated that it decreased by 51% or more, 33% stated that it decreased between 1% and 25% and 33% stated that it remained the same. Covid-19 pandemic and the upward movement of the exchange rates within the mentioned dates can be shown as the reason that the majority of the companies participating in the survey from the region and outside the region stated that their exports decreased (Figure 28)..

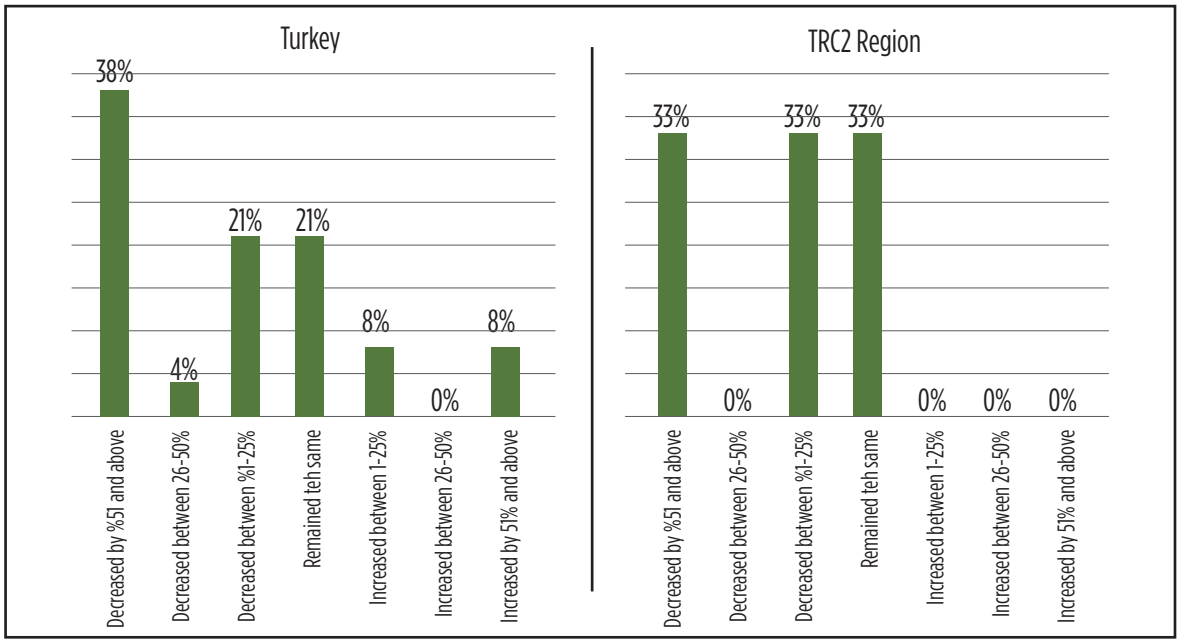

Figure 28: *How were the Exports in Turkey and TRC2 Region in 2020 Have Changed in US Dollars compared to the Same Period of 2019??*

• **Competitiveness**

To the question **"What are the strengths of your business?"**; 31% replied as "production quality", 15% as "production / design flexibility", 8% as "innovation", 21% as "marketing and sales", 5% as "finance" and 21% as "human resources" (Figure 29). Survey data from the region and outside the region match on production quality and production / design flexibility. However, this data indicates the need to focus on innovation and trained human resources, which are very low for the production of high value added products.

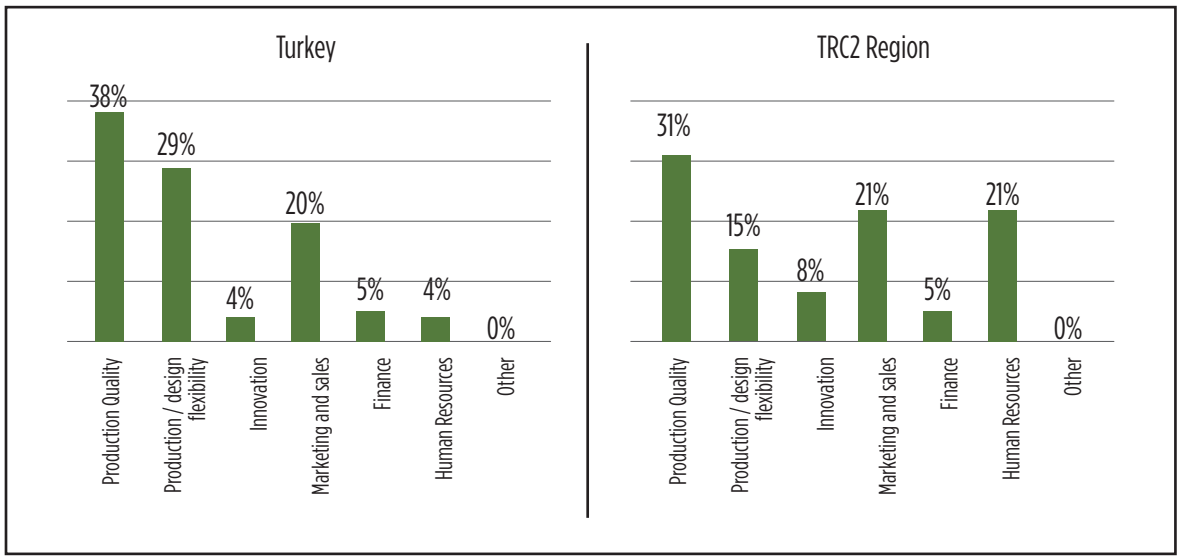

Figure 29: *Strengths of Businesses in Turkey and TRC2 Region*

When asked **"At what scale do you compete?"**, 32% of the companies participating in the survey stated that they were competitive at the international scale, 16% were competitive at the national scale, 37% were competitive at the regional scale and 16% were competitive at the local scale (Figure 30). The data of the companies participating in the survey from the region indicate that there are not enough competitive companies in the international arena, our companies have problems in foreign trade and they should be supported in terms of training, consultancy and financial matters.

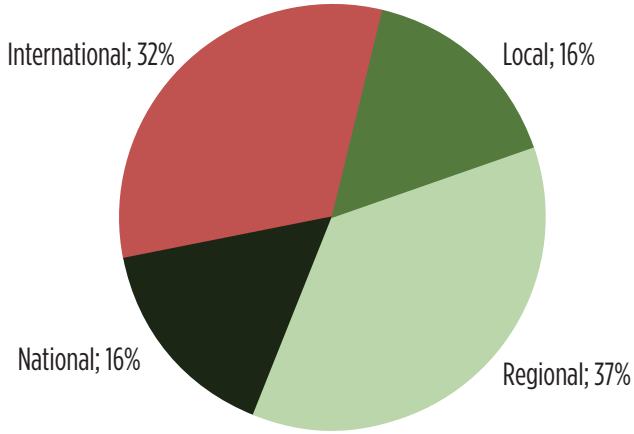

Figure 30: *At What Scale Do You Compete?*

To the question **"In which operational areas does your company have a competitive advantage?"**; 18% replied as "innovative solutions", 26% as "flexibility", 16% as low costs, 18% as "easy adaptation", and 21% as "on time delivery" (Figure 31). The data of the companies participating in the survey from the region and from outside the region are not matching. The problem of low-cost production points to the import-dependency in raw materials with high input costs, while the customer-oriented innovation problem points to the problem in the R&D-oriented production model.

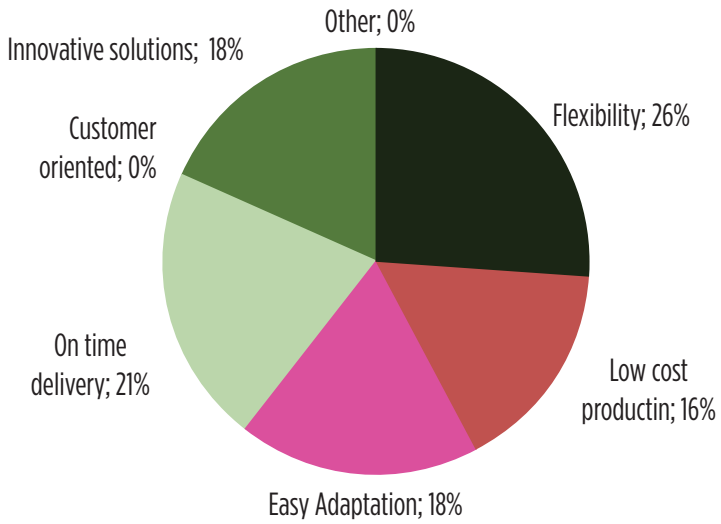

Figure 31: *What Operational Advantages Does Your Company Have?*

When the competitiveness of the companies participating in the survey was questioned, it was observed that 33% was competitive in international markets, 39% was competitive in national markets, 22% was competitive in regional markets and 6% was not competitive at all (Figure 33). The fact that the companies participating in the survey from the region and outside the region cannot be competitive enough in international markets indicate that there is a need for a production model focused on R&D and innovation.

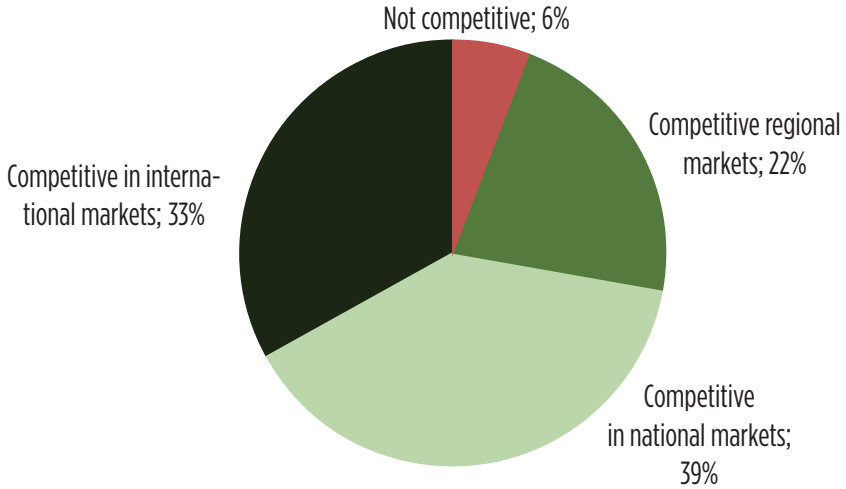

Figure 32: *How Do You Evaluate Your Company's Competitiveness?*

• Covid-19 and Other

To the question "Do you plan to change your company's stock policy in the medium term (3-5 years) as a result of Covid-19?"; 8% of the companies answered as "We will increase our stocks a little", 67% as "We do not plan to make a change in our stocks" and 25% as "We will now have much less stocks" (Figure 33). This data matches again for the companies participating in the survey from the region and outside the region, and this data has been interpreted as the return of the market to normal for around 67% of the companies.

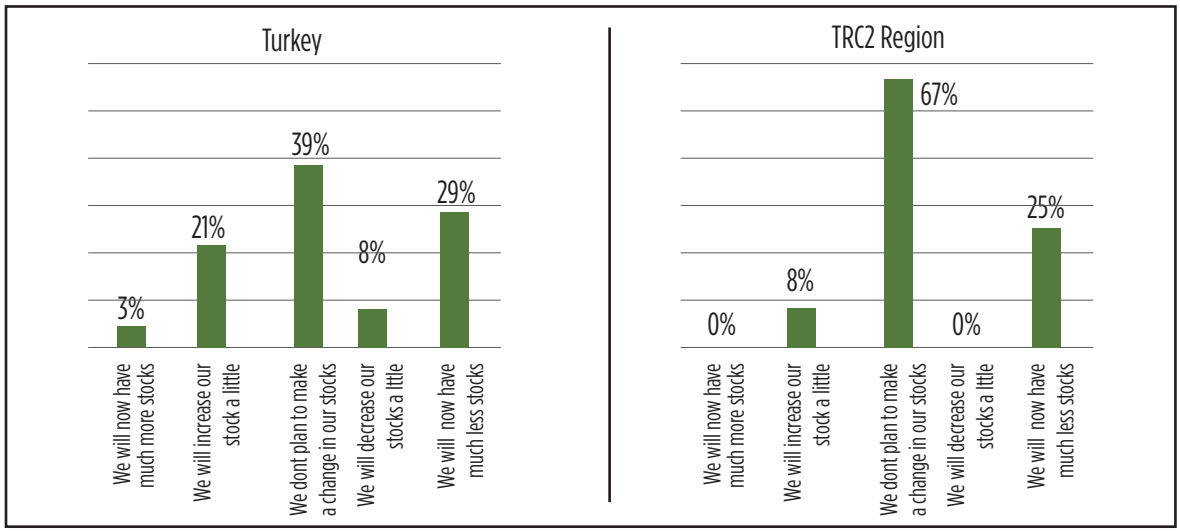

Figure 33: *Do you plan to change your company's stock policy in the medium term (3-5 years) as a result of the Covid-19 pandemic?*

To the question **"Which of the listed negative consequences did you experience in your raw material procurement processes during the Covid-19 pandemic?"**; 17% of the participants replied as "decreased predictability in raw material supply times", 9% as "obtaining raw materials from alternative sources", 31% as "increase in raw material prices", 6% as "reduction in stock levels", 26% as "prolongation of raw material supply times" and 11% as "inability to find raw material of desired quality" (Figure 34). The data here overlap for the respondents from the region and outside the region, and it has been interpreted that one of the main problems of the sector is foreign dependency on raw materials.

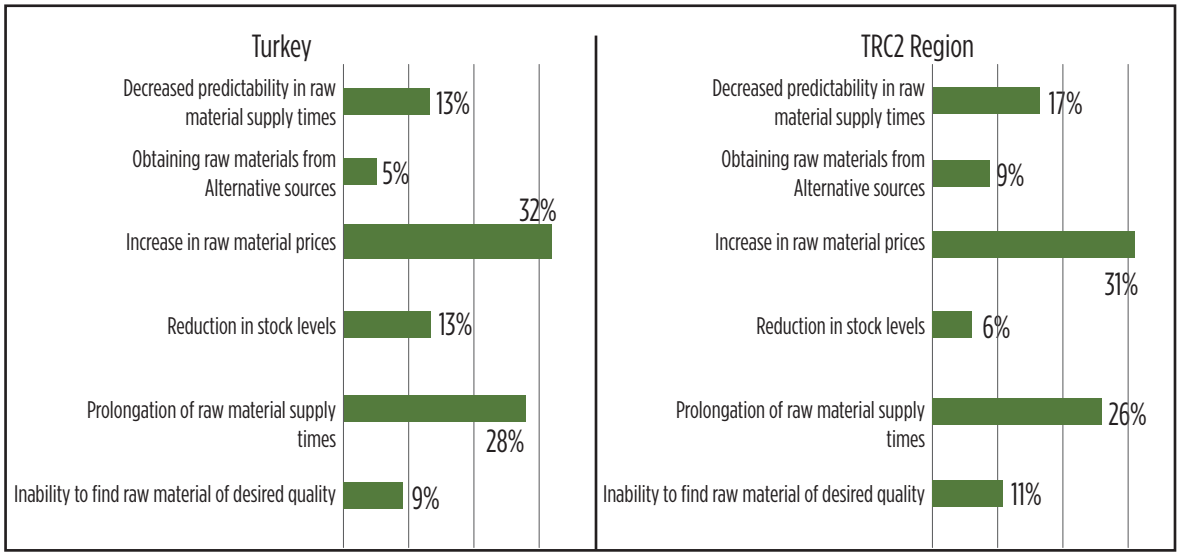

Figure 34: *TWhich of the following negative consequences have you experienced in your raw material supply during the Covid-19 Pandemic?*

To the question "**Which of the business services do you have problems with accessing?"** 60% of the participants answered as "Consultancy (management, foreign trade, law, etc.)", 10% as "maintenance and repair services", 10% as "customs", 10% as "cargo" and 10% as "other problems" (Figure 35). These data indicate that the companies participating in the survey from the region mostly need training and consultancy services on issues such as foreign trade and management.

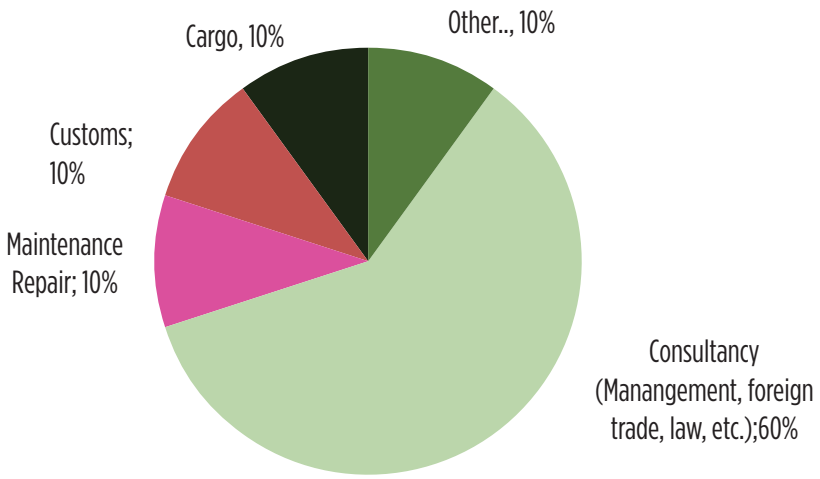

Figure 35: *Which Business Services Do You Have Problems in Accessing?*

To the question "In which areas do you think public sector stakeholders can support entrepreneurs more efficiently?" 27% of the participants replied as "business support services such as training and consultancy", 27% as "financing / grants", 12% as "access to new markets", 6% as "improvement of infrastructure", 21% as "access to qualified labor" and 6% as "university / industry cooperation" (Figure 37). The data of the companies participating in the survey from the region and outside the region are matching and it has been interpreted that they need financing / grant support for foreign trade, university / industry cooperation for the production of value added products, and training and consultancy for new markets.

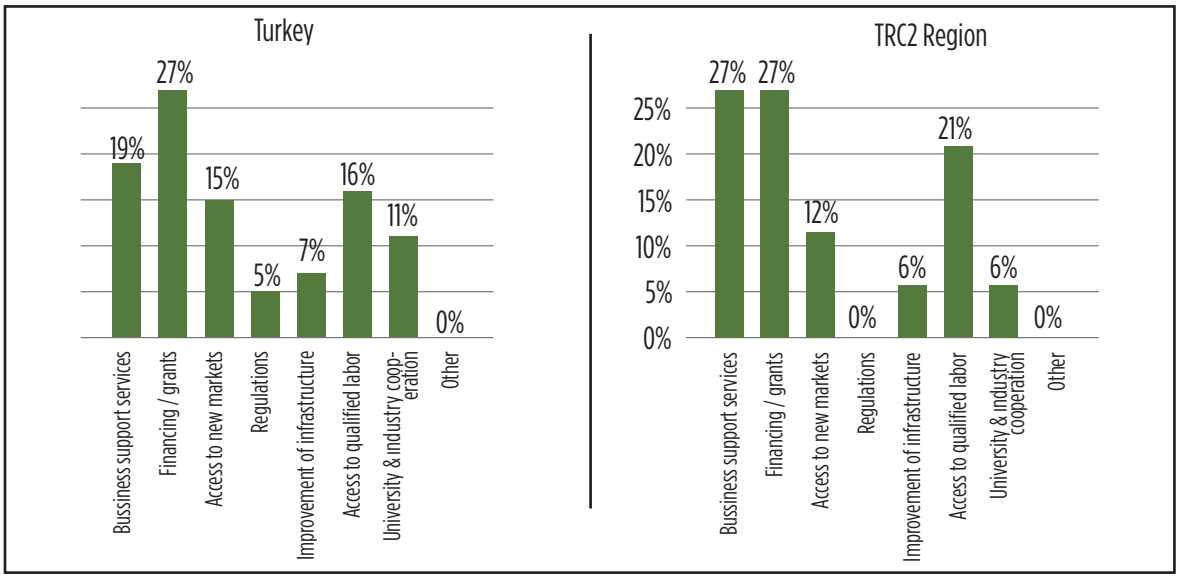

Figure 36: *In Which Areas Do You Think Public Stakeholders Can Support Entrepreneurs More Efficiently?*

• General Assessment

While the companies expressed that access to qualified workforce was the issue with the most bottlenecks, they stated that the career choice of the young population was in areas other than textile and that various attractive elements were needed to make this sector a priority again. As the survey data show, one of the most important problems of the sector is the dependency of companies on abroad in raw material supply. This is affecting the input costs and making the sales and marketing of the final product difficult. Another implication made from the surveys is that the companies participating in the survey have expectations from the public regarding access to financing and grants and access to new markets.

Again, the majority of the companies participating in the survey stated that they are competitive in "production quality" and "production / design flexibility" and almost half of the companies cannot compete on an international scale. This situation points to the lack of R&D / P&D and innovation-oriented business model in TRC2 region.

Companies that do not export mostly state the reason for this as "compelling competition and pricing" and "financing problems", while it is evident that the domestic market is considered sufficient for those companies. However, it is obvious that this idea will create big problems for the sustainability of those companies in the future.

6.1.2. Focus Groups

Within the scope of the study, Focus Group meetings were organized in six regions (TRB1 and TRB2 regions were held together according to the Terms of Reference) in order to ensure the participation of sector stakeholders in TRC2 Region and to integrate the sectoral views into the project outputs to the maximum extent. The information obtained at the meetings was taken into account in the analysis and relevant parts of the report. The dates of Focus Group meetings held in the regions is shown in Table 10.

Table 8: Focus Group Meetings

Focus Group Meetings	Date / Time of Meeting
TRB1&TRB2	18 December 2020, 14:00 – 16:30
TRC2	21 December 2020, 10:15 – 12:45
TR31	21 December 2020, 14:00 – 16:30
TR41	25 December 2020, 10:15 – 12:45
TR62	28 December 2020, 10:15 – 12:45
TR32	28 December 2020, 14:00 – 16:30

In order to start the meeting and encourage the participants to share information, the effects of the Covid-19 pandemic on the sector in the world and in Turkey were shared with the participants in general terms. For the data that will provide input to the final report, the following 4 group question sets were directed to the participants and their thoughts, opinions and expectations were recorded.

1st Group of Questions

- How was the situation in the sector before Covid-19?
- How is the current situation after Covid-19, are there new trends emerging?
- What are the 2021 forecasts for the sector?
- How will the sector be affected if the Covid-19 pandemic ends in the medium-long term (1-3+ years)? What are the scenarios they foresee?

2nd Group of Questions

- What are the national trends in the sector and what are the regional repercussions of these trends?
- What are the sectoral trends specific to the region?
- Which province stands out in the region in which sub-sector, why?
- What are the needs and demands of sector representatives in the region?
- What are the strengths and weaknesses of the sector in the region?
- What are the opportunities and threats faced by the sector in the region?
- What are the aspects open to development in terms of competitiveness in the region?

3rd Group of Questions

- What are their thoughts on the following horizontal issues specific to the sector?
- (Managing the pandemic crisis, Energy Efficiency, Climate Change, Gender Equality)

4th Group of Questions

- What are the national and regional short, medium and long-term strategy proposals?
- What are the sectoral actions that can be taken in the region, how much can the estimated budgets of these actions be?
- What are the governmental policy recommendations?

Below is a summary of the responses to the above questions during the Focus Group Meetings:

1) What are the Effects of Covid-19 Pandemic on the Textile Sector?

- When a Textile OIZ was established in Diyarbakır before Covid-19, companies had made certain

investments. During Covid-19, companies investing in the OIZ suffered serious difficulties due to differences between regions when they wanted to use Resource Utilization Support and Fund (KKDF) and short-time work allowance. KKDF was an application that provided income support to the insured for the period in which they could not work for a period not exceeding three months in the workplace in cases where the weekly working hours were temporarily reduced by at least one third or if the activity was stopped completely or partially for at least four weeks without seeking continuity. During Covid-19, KKDF application was also a way out for the sector, but it could not be used except for a few corporate companies in TRC2 region. The rate of use of short-time work allowance in the region could not exceed 25%. This has created an obstacle for the sector companies in the region to compete. In the face of this situation, many industry companies in Diyarbakır had to temporarily suspend production in March - April 2020 with the growing impact of the Covid-19 pandemic.

- There have been more than 50% losses in turnover in TRC2 region compared to the period before the Covid-19 pandemic. Therefore, positive discrimination is required in order for sector companies in the region to survive this process with less damage.
- Covid - 19 pandemic introduced sector companies to fast fashion / fast production. Fast production has been an opportunity for sector companies in the region, as there is no shortage of labor.
- Stocks kept by sector companies in TRC2 region before Covid-19 are expected to cause major problems and sector companies will have to melt down this stock during 2021
- Although there is very little textile export from Diyarbakır and Şanlıurfa provinces located in the TRC2 region, the sector is mostly focused on the domestic market due to the processing of cotton, which is the first part of the value chain, and the recent developments in garment sector.
- In order to increase the product quality and competitiveness of cotton producers in Şanlıurfa and Diyarbakır, which rank first in cotton production with 2,015,509 tons, an internationally accredited Cotton Fiber Quality Analysis Laboratory was established within the Diyarbakır GAP administration (GAPUTEM) within the scope of the construction of regional industrial cooperation.
- Cotton producers in the region send their products to this laboratory as bales and receive a quality certificate. 50% of Turkey's cotton production is met from Diyarbakir and Şanlıurfa, and the biggest problem here is that production is not standardized. In order to standardize cotton production, basic policies and organizations are needed, including producers, universities, provincial directorates of Agriculture and commodity exchanges.
- Opening a cotton specialty department in universities and vocational colleges in TRC2 region will set a standard in cotton production, as well as intermediate staff will be provided to ginning factories.
- With licensed warehousing, which has started to become widespread in TRC2 region, the sector will be offered better quality cotton by conducting trade on products with specified standards, encouraging quality production, and establishing a safe market.

2) What are the Trends in the Sector and What are the Needs?

- If the marketing and promotional activities, which are the most problematic areas of the sector in foreign trade, can be carried out in line with a strategy, the Covid-19 pandemic will be an opportunity for sector companies and the supply chain in Far Eastern countries will shift to our country. This process can be used for marketing and promotion for all export-oriented sectors. The reaction of consumers in the West to products produced in Far Eastern countries due to Covid-19 can be used as an advantage.
- When we evaluate the position of the textile industry in the region we see that textile companies located in the west of the country, including the TRC2 Region, mostly establish their infrastructures on added value, design, flexible and fast production and organization while the companies in the east of the country establish their infrastructures on mass production, which is more labor-intensive. In this context, when the sector is evaluated in general, the western part of the country will have a much more suitable infrastructure for

the production model that will occur after the Covid-19 pandemic, while the eastern part of the country will have a cheaper mass production infrastructure that can compete with Far Eastern countries. In this sense, when the sector is evaluated, it can be said that Turkey is strategically positioned correctly.

- In order to prevent informality of companies and employees in the sector, inspections should be increased and a comprehensive tax reform should be implemented.
- Clustering activity among sector stakeholders in the region is insufficient.

3) What are the Opinions on Horizontal Issues in the Sector?

- The sector is considered to be one of the most democratic sectors in terms of gender equality, based on the data obtained from companies participating in the survey from the region and outside the region. However, the rate of unregistered employment and wage inequality between female and male employees is one of the important problems of the sector within the region.
- One of the biggest problems in the sector with a high number of female employees is that companies do not have nurseries for women with children.
- Although some companies in the region have efforts on efficiency and green production, they need to focus more on this area.

4) What are the Sector's Problems and Solution Proposals?

- A large market, the EU now prefers price over quality, therefore, the government should provide incentives to the companies in the sector regarding energy, which is another important input cost in order not to lose this market. Because the cost of energy to companies is between 7-8%.
- The digital transformation that started with Industry 4.0 in the Textile and Garment sector, which is a labor-intensive sector, has gained momentum with the Covid-19 pandemic. Intensive cooperation of all stakeholders is required in this field.
- One of the problems in the sector is unregistered employment and the lack of a healthy sector inventory. As is practiced in some countries abroad, employees can receive their own gross wages and pay their health and pension insurance premiums. This practice is contrary to the understanding of being a social state, but when employees do not pay this premium, they will not be able to receive health care, so employees will have to pay their premiums and this will prevent unregistered employment.
- The sector in TRC2 Region is mainly composed of small and medium sized companies as in other regions. This causes companies to feel their equity shortage even more with the Covid-19 pandemic.
- One of the negative effects of the Covid-19 pandemic has been on training. Due to the fact that the textile sector is an application-intensive sector, the trainings provided on the internet have not fully met the needs and the gap here was tried to be closed by increasing the visual elements in the trainings.
- In order to produce value-added products, university-industry cooperation is needed for transferring the knowledge of universities in TRC2 region to the sector.

TRC2 Region Focus Group meeting participant list is given in Annex_1.

6.2. Sectoral Analysis

The Textile and Garment sector has an important place in the Turkish economy in terms of its production values, export potential and contribution to employment. Textile and Garment sector in Turkey manufactures wide range of products. All stages in the value chain, starting with the production of fiber obtained from natural and chemical products and ending with the production of yarn, woven-knitted fabric, carpet and garment products, are performed in our country (Figure 37) [Feasibility, 2021].

Textile is the production process from fiber to fabric. Products such as carpets, blankets and home textiles are also considered within the textile sector. The process of obtaining clothing from fabric is classified as garment. In the first stage of textile, the appropriate fiber is turned into yarn by spinning or twisting processes. Raw fabric is obtained by weaving or knitting the yarn. This raw fabric is transformed into finished fabric by means of dyeing and finishing. The garment production process is completed by turning this fabric, which is ready for cutting and sewing, into clothing. This production process from fiber to garment is summarized below (Figure 38) [Feasibility, 2021].

This report, which aims to examine the general situation of the sector, reveal the problems and needs and develop various suggestions for the development of the sector, reveals the need for the sector to adopt new trends emerging with the Covid-19 pandemic and to prioritize the issues that will be reflected in production costs such as the 2025 Green Deal of the European Union. In this section of the report, Simplified Value Chain, PESTLE, SWOT, Five Forces and Competitiveness / Diamond Analyzes were performed, respectively, in order to put the industry's picture as a whole within the scope of the data obtained from the primary sources such as the survey results and focus and working group meetings and secondary sources such as the World Trade Organization, the Ministry of Trade, TURKSTAT, TIM, Exporters' Unions.

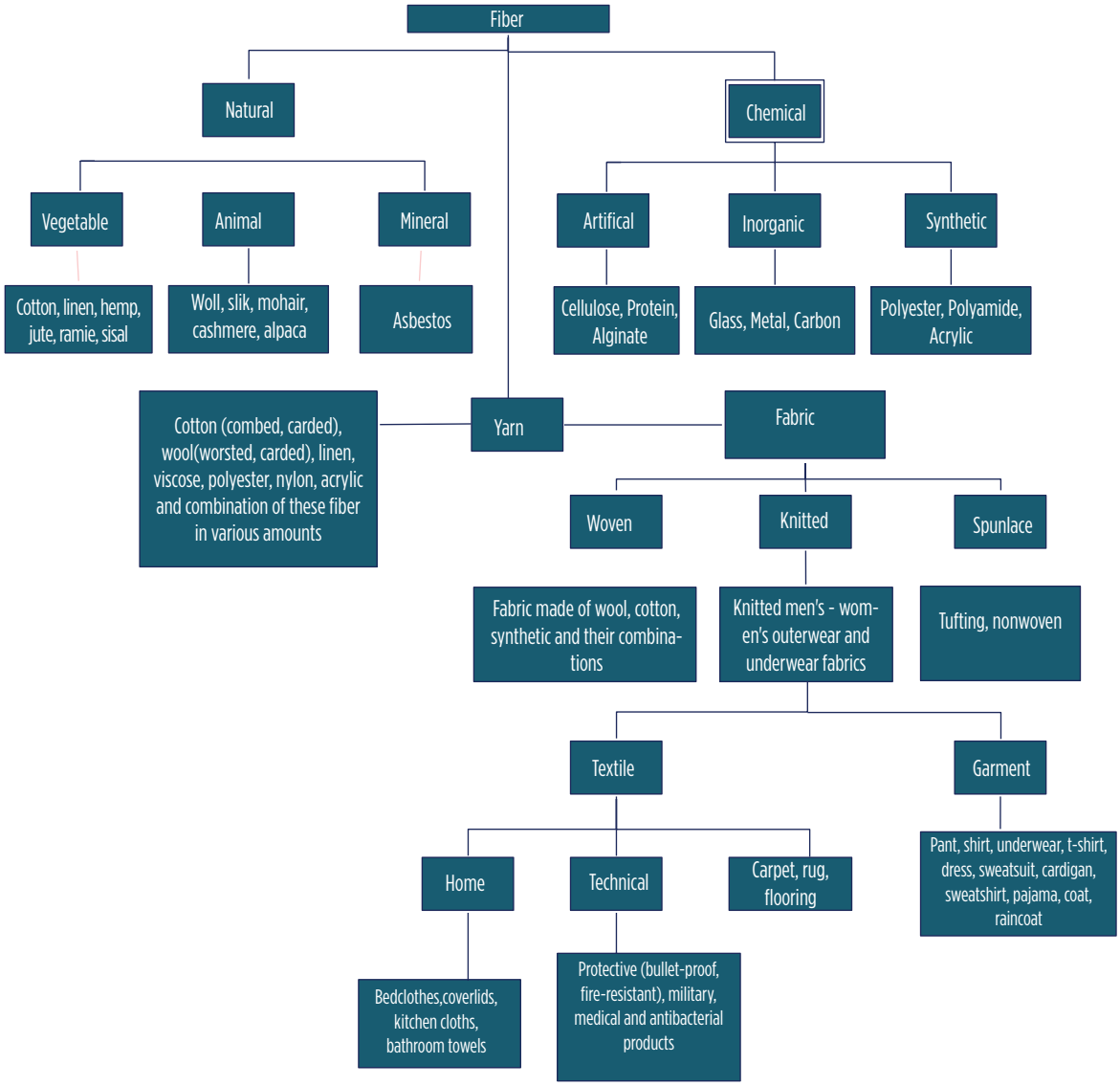

Figure 37: *Product Types and Production Processes in Textile and Garment Sector*

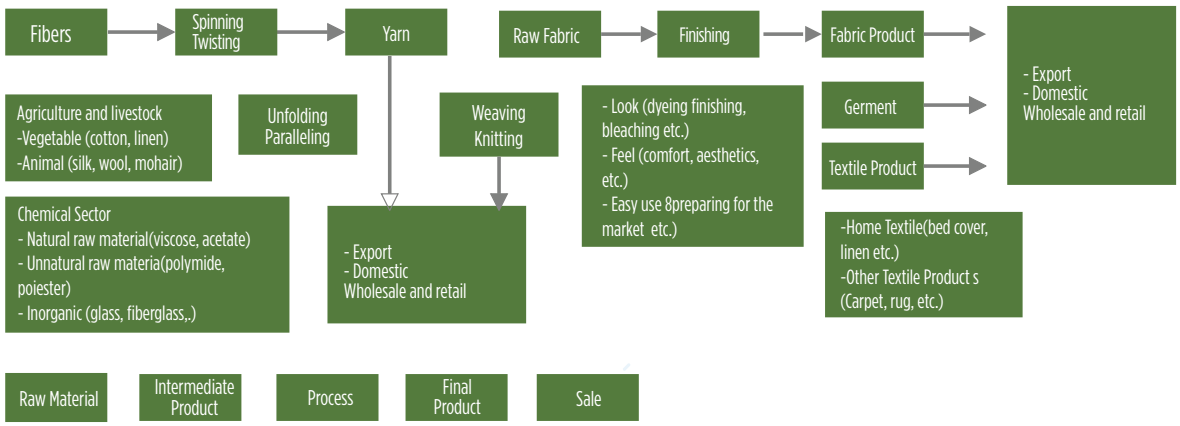

Figure 38: *: Production Processes in Garment and Home Textile Sector*

6.2.1. Textile Sector Value Chain Analysis

The textile sector is suitable for much bigger developments in R&D compared to many other sectors, and these R&D activities have a special status and value in the sub-sectors of yarn, weaving and finishing. In the textile sector, improvements and innovations made at each stage of production make significant contributions to the value chain of product and product groups, which allows businesses to gain more and permanent added value. Especially in recent years, developments and innovations in ecological textile products and technical textile products bring significant values to businesses.

In particular, the innovations applied in weaving and finishing processes differentiate the functionality of textile products on the one hand, and improve the product design on the other hand, which provides a serious competitive advantage to businesses. In the textile sector, the rings of the value chain are formed from yarn to weaving and from there to finishing, and the process at each stage increases the added value of the product and positively affects the functionality and design of these products.

The concept of 'value' used here is expressed as the price that the customers are willing to pay in return for the products or services produced by the company, and it is mostly measured by price. Therefore, since there is a value produced for the customer, this price should be more than the cost incurred for production. As a result of these, the profit figure will emerge. Activities such as design, production and marketing can be listed as value-creating activities. While these activities are considered as the main activities today, the sale of the product, delivery to the customer and after-sales activities are also evaluated within the same scope. These are;

- Entry Logistics
- Production
- Output Logistics
- Marketing and Sales
- After Sales (Service) activities.

Support activities are activities that support the production of products and services and provide inputs, human resources and required technology. Such activities may be general activities for the entire organization or may be related to certain main activities. Main and support activities are interrelated activities.

As shown below, a simplified value chain analysis was conducted in the outerwear manufacturing (NACE 14.1.3) sector with the data obtained from primary and secondary data sources. While design and branding increase the added value in both sectors, the added value also increases as it moves towards activities such as sales and marketing (Figure 39).

The value chain of outerwear textiles, which is one of the sub-sectors of the textile sector, is generally similar to the textile value chain, and design and branding increase the added value in this sub-sector. At the same time, added value increases as you move towards activities such as sales and marketing

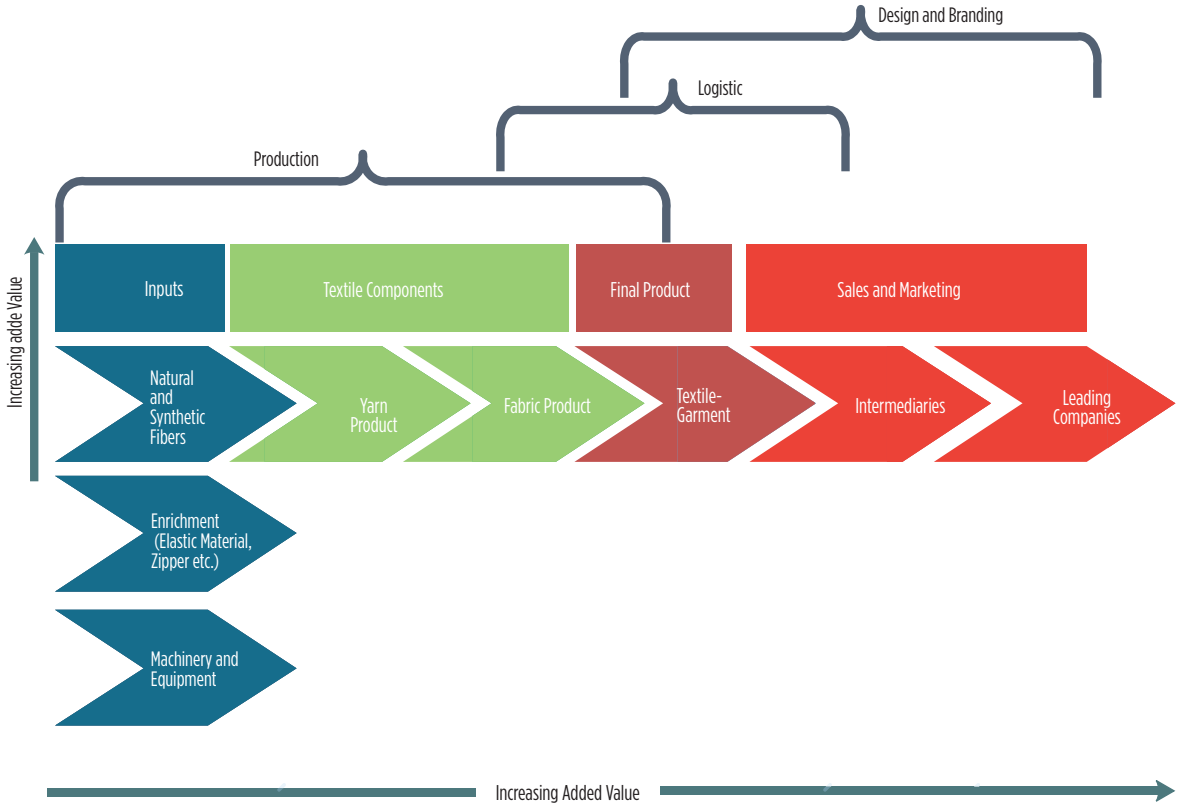

Figure 39: *Textile Sector Simplified Value Chain*

6.2.2. TRC2 Region Textile Sector PESTLE Analysis

Determining how external factors and thus macro developments affect the companies in the sector on a political, economic, social, technological, legal and environmental scale has been used as an important data source to identify opportunities and threats for short, medium and long term strategies.

As a result of focus group meeting, survey and secondary data analysis, the outputs shared in Figure 40 have been obtained. It has been observed that the main threats to the textile sector in TRC2 Region are particularly at the political, economic and technological levels. With the expectation that the supply chain in the Far East countries will shift to TRC2 region where the majority of players carry out export activities in the form of contracted manufacturing, the companies should make the necessary investments so that they do not experience adaptation problems with respect to the environment, climate and security regulations that have been introduced in the EU countries.

FACTORS	
POLITICAL	• Resource Utilization Support Fund • Short time working allowance • Raw material producing countries' developing protectionist policies and their unwillingness to sell products in times of crisis • Double Standards in the EU's Customs Union • Customs taxes and quotas • Political risks based on foreign relations with EU, USA, Russia and Middle East • Evaluation of TRC2 Region within the scope of 6th Investment Region and Attraction Centers
ECONOMICAL	• Fluctuations in foreign currency and interest making planning difficult and its reflection on costs • High water and energy costs • Limited workforce resource and labor circulation • Uncertainties in raw material supply and price increases • Availability of investment incentives for the sector • Demand explosion in healthcare textile products after Covid-19 • High production capacity / flexibility of the sector • Very Limited Digitalization Infrastructure • Bale / Cotton Accredited Laboratory in GAPUTEM • The reflection of the criteria within the scope of the 2025 Green Deal on costs
SOCIAL	• Decline of young population's interest in the sector • Changing consumer trends (Z and Millennium generations) • Covid-19 pandemic accelerating digitalization • Supporting non-GMO cotton production
TECHNOLOGICAL	• Acceleration of digitalization (E-Commerce, Industry 4.0, RFID, 3D Printer, Automation) • Need for R&D / P&D and Innovation Oriented Business Models • Difficulty for Small-Scale Companies to adapt to Technological Transformation • Spreading of University-Industry Cooperation • Increasing need for Training and Consultancy Services
LEGAL	• Informal employment and widespread on-the-counter production • Incomplete EU Harmonization Process • Occupational Health and Safety (ISO 18001) regulations in force • Legal Regulations in Labor Law • Lack of sector inventory • Trademark and Patent Protection Legislation
ENVIRONMENTAL	• Failure to Comply with the Green Deal • Insufficient Resource Efficiency (Water, Electricity etc.) • Lack of awareness in Carbon Footprint • Insufficient studies on Circular Economy / Green SMEs • Lack of investment and studies on Industrial Symbiosis

Figure 40: *TRC2 Region Textile Sector PESTLE Analysis*

6.2.3. Textile Sector SWOT Analysis

In order to improve the position of the Textile and Garment sector, one of the locomotive sectors of the TRC2 Region, to increase sustainable global competitiveness and to transform it into a structure with high added value, where the use of advanced technology is weighted, the pros and cons of the sector are discussed and summarized in Figure 41.

STRENGTHS	WEAKNESSES
• Fast and Flexible Production Capacity • Textile OIZ • Young / dynamic population • Contracted manufacturing for global brands • GAPUTEM- Bail/ Cotton Accredited Laboratory • Geographical location (proximity to Middle Eastern countries) • Cotton production • New Machine Park • Sector's recognition as a priority sector • 6th Investment Region and Attraction Center • Positive discrimination for women employees	• High production costs • High input costs (labor, raw material, energy, etc.) • University-Industry cooperation not at desired level • Lack of R&D, P&D Business Models • Need for qualified intermediate staff • Unregistered companies and employees • Inadequate fight with counterfeit good • Low capacity utilization due to Covid-19 • Foreign Dependency on Textile Machines and Chemicals • Dependency on the EU Market • Production methods inappropriate for Environment and Human Health • Lack of Branding • Lack of scale / institutionalization • Lack of sector inventory • Lack of equities
OPPORTUNITIES	**THREATS**
• Shifting of production from Far East to Turkey due to Covid-19 • Reaction of Western consumers against Far Eastern countries after Covid-19 • Awareness for technical textile starting with production of masks, gowns etc. • The EU's backing off from production due to aging population • Possible USA sanctions against China • Increasing of sectoral consolidation, strategic cooperation and clusters • Developing Supply Chain Models providing Competitive Advantage • Supply Chain Management • Adapting to the Global Retail Sector Changes and Trends	• Adaptation to Green Deal put into practice by the EU • Dependency on EU Market • Dependency in raw materials and textile machinery • Globally deepening instability due to Covid-19 Pandemic • Slow adaptation to Industry 4.0 and Digitalization • EU's Double-Standards despite the Customs Union • Downward trend / fluctuation of TL Against Foreign Currencies • Investments made for health textile becoming idle after Covid-19

Figure 41: *TRC2 Region Textile Sector SWOT Analysis*

6.2.4. Textile Sector Five Forces Analysis

Michael Porter's Five Forces Analysis was applied to reveal the competition level and potential profitability of the Textile and Garment sector in line with the data of the companies participating in the survey from various regions of Turkey and TRC2 Region. Any change in the forces in the model may directly affect the sector and the companies in that sector. In this context, the data obtained from various regions of Turkey and TRC2 Region match each other except for "threats from substitute products" and "the level of competition in the sector" (Figure 42). While the intensity of competition in TRC2 region is lower than those from other regions, the threat from substitute products is very low.

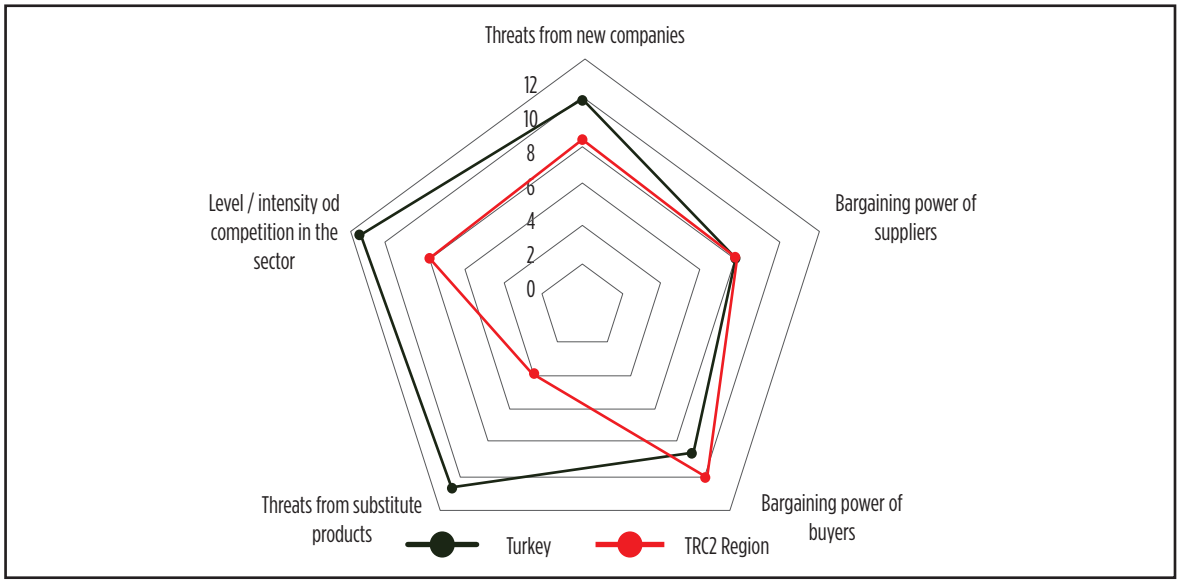

Figure 42: *TRC2 Region Textile Sector PORTER 5 Forces Analysis*

• Threats from New Companies

While it is easy to enter the sector in the labor-intensive garment sector, it is difficult to enter the sectors in some subgroups of the textile sector (technical textile, etc.) that require capital and knowledge. The intensity of the threat associated with entering the sector varies according to sub-sectors. In the region, the threat was interpreted as low in the garment sector.

• Bargaining Power of Suppliers

The supplier threat in the region is particularly high in raw materials as in all other regions of Turkey. Especially since Turkey's raw material production is not sufficient for the sector, it is dependent on foreign countries. Threats created by the number of suppliers, raw material quality and price and timely supply are high.

• Bargaining Power of Buyers

Although the bargaining power of the buyers differs by sector, the limited number of buyers in general and the price-oriented preferences of the buyers increase the power of the buyers. The bargaining power created by the number of buyers in the garment sector is high, and it has been interpreted that the buyers in this sector primarily consider the price factor.

• Threats from Substitute Products

When a comparison is made with the price and quality characteristics of substitute products, it has been stated that the threat is at a high level in the garment sector and health textiles (masks, gowns, etc.).

• Level/Intensity of Competition in the Sector

The level of competition in the sector is directly proportional to the increase in the number of producer firms (excess supply) and the small number of buyers (low demand). In this context, the intensity of competition should be evaluated separately on the basis of sub-sector groups. Garment, which is a labor-intensive sector, has a large number of local (LC Waikiki, DeFacto, Koton, Mavi) and global (ZARA, Mango, H&M, Marks & Spencer) brands. The fact that too many companies turned to the health textile sector after the Covid-19 pandemic created an imbalance of supply and demand. It was commented that sector stakeholders would need a strategic roadmap in order to ensure that investments in this sector would not remain idle after the Covid-19 pandemic.

6.3. TRC2 Region Textile Sector Competitiveness / Diamond Model Analysis

In the light of primary and secondary data, the TRC2 Region Textile and Garment sector has been analyzed within the framework of the Competitiveness / Diamond model. The model is based on the international comparative assessment of each sub variable and the competition evaluation scores are (+1) High, (0) Medium and (-1) Low (Figure 43).

INPUT CONDITIONS (-1/Low)

Input conditions depend on 7 sub-variables and competitive power is medium.

Raw Material: Despite the fact that approximately 50% of the total cotton in Turkey is produced in TRC2 region, the textile sector is dependent on abroad in terms of raw materials and textile chemicals. In addition, the energy cost constitutes about 7-8% of the total production cost, and this cost is very high compared to other countries.

Labor Cost: Labor costs in the TRC2 Region are lower than Germany, Italy, USA, Taiwan and Hong Kong, but still, compared to countries such as China, India, and Pakistan where production shifted before Covid-19, labor costs are much higher.

Relative Self-Sufficiency in Raw Material Production: Cotton, silk, wool, jute and polymer are the basic raw materials in the textile industry. In particular, cotton is the most important raw material and the cotton industry has a decisive role in the competitiveness of the Textile and Garment sector. Therefore, competition in the global market is directly related to raw material prices as well as other factors. As Turkey is a very important cotton producer, this provides an advantage to the actors in this sector. However, our country also became an importer of cotton as the quantity produced could not meet the domestic demand. Cotton produced in Şanlıurfa in TRC2 region is approximately 40% of the total production in the country and the cotton produced in Diyarbakır is approximately 10% of the total production in the country. Other provinces in cotton production are Aydın (Bergama), Hatay, Adana and İzmir.

Machinery Use: Textile and Garment sector is predominantly based on the use of machinery and the machinery park of the companies of the sector in TRC2 Region can be considered quite new. However, Turkey is a net importer due to insufficient machinery production. On the garment cutting side, it can be stated that domestic machine manufacturers reduce their dependence on abroad.

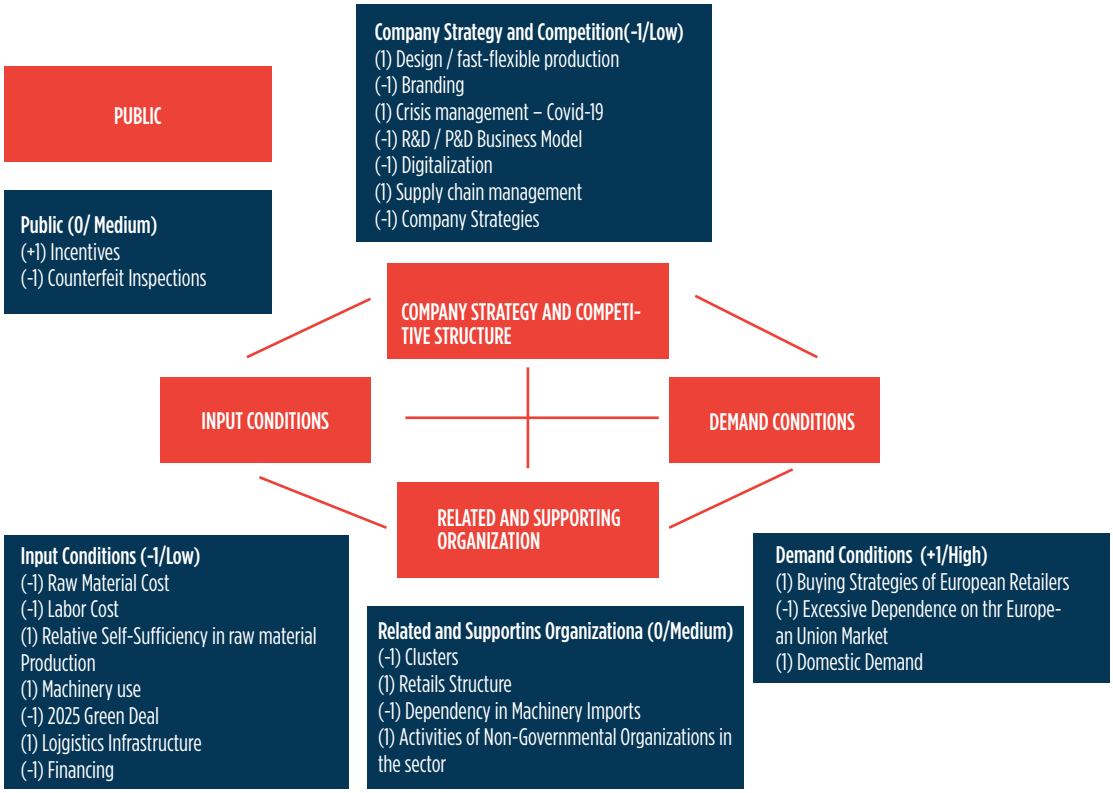

Figure 43: *TR41 Region Textile Sector Competitiveness / Diamond Model Analysis*

2025 Green Deal: Within the scope of harmonization with the EU 2025 Green Deal, supporting of the projects that respect resource efficiency, environment and employee rights, monitor carbon footprint and adapt to climate change is of great importance for the EU, which is the largest market for the sector.

Logistics Infrastructure: Road transport (trucks / vans) is preferred due to the high costs of air transport. Transport companies are highly developed and offer satisfactory logistics services.

Financing: The Textile and Garment sector has suffered major profit losses in the face of intense competition in recent years, and companies that have lost profit for a long time were closed and some are still facing with this trouble. With the effect of the Covid-19 pandemic, this situation has led to a rapid decrease in the equity of the companies, and the high interest rates reduced the opportunity to use loans and increase their costs.

COMPANY STRATEGY AND COMPETITIVE STRUCTURE (-3 / Low)

Although it is possible to increase the number of sub-variables in company strategy and competitive structure, 7 sub-variables are used here. Competitiveness is low in this category.

Fast / Flexible Production: The sector companies in TRC2 Region will have a cheaper mass production infrastructure that can compete with Far Eastern countries after Covid 19. In this sense, when the sector is evaluated, it can be said that Turkey is strategically positioned correctly.

Branding: Sector firms in the TRC2 region mainly operate in garments other than cotton production. Export is getting harder as strong brands cannot be created.

Crisis Management – Covid-19: The sector is dominated by small and medium sized companies. Approximately 50,000 medium-sized companies work in the sector. This scale structure has given companies a dynamic structure and companies have directed their production to health textiles in order to close the gap created by the Covid-19 pandemic.

R&D / P&D Oriented Business Model: In order to ensure the sustainability of this flexibility and talent, R&D investments should be implemented rapidly in Turkey. Considering the sanctions that will come to the fore with the 2025 Green Deal and the possible implications of this on the costs, manufacturers need to make these investments quickly in order to be prepared to stay in the sector. The reaction in the West against Far Eastern products due to the Covid-19 pandemic should be turned into an opportunity by producing products with R&D / P&D oriented business models.

Digitalization: The use of technology in the textile sector is of great importance in terms of efficiency and productivity. The use of technology reduces process costs. Although the domestic manufacturer uses the most advanced and innovative technologies in production, it is a net importer in terms of machinery. This makes domestic producers dependent. Domestic producer is at the starting point in Industry 4.0 (on lean manufacturing) and should be supported in this regard.

The General Digitalization Score of the Textile Sector, calculated as 1.9, shows that the current digital transformation level of the sector is at the 'Reactive Inefficiency' level [ISO, 2021]. Digitalization scores in other areas of the textile sector have been calculated as follows: Technology and Data Analytics: 1.5, Production Processes: 2, Quality Processes: 2,1 and Maintenance Processes: 2 (Figure 44)

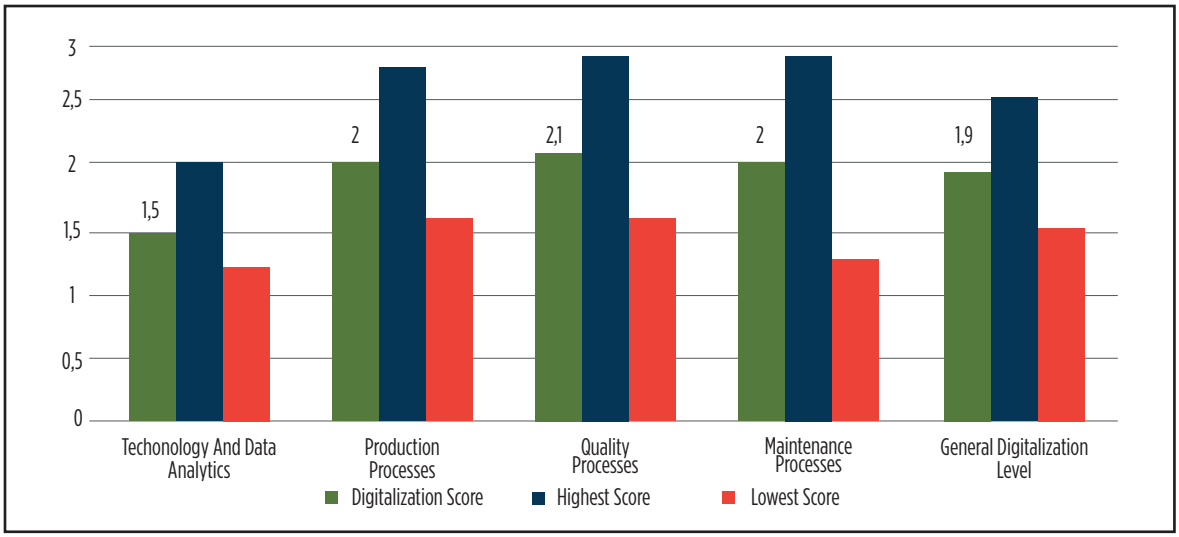

Figure 44: *Textile Sector Digitalization Scores*

Supply Chain Management: Turkey is considered as one of the few countries strong in the supply chain in the Textile and Garment sector. Different yarns and different woven and knitted products can be produced for customers, and all these features provide the flexibility to include new products and processes and to perform in different categories. This capability provides competitive advantage along with the cost advantage in the textile sector.

Company Strategies: According to the results of the research, it is seen that most of the companies operating in the Textile and Garment sector (especially SMEs) do not have a strategic planning. On the other hand, it is known that most of the companies do not have a medium and long term strategy especially in matters such as financial management and cash flow. However, very few companies have medium and long term strategies.

DEMAND CONDITIONS (+1/High)

Buying Strategies of European Retailers: The EU is an important export market for the Turkish Textile and Garment industry. Turkey's proximity to the EU market, including TRC2 Region, provides a significant advantage over its rivals in the Far East. Proximity to the EU is evaluated in different dimensions and the most important factors of proximity are skilled workforce, joint production capability and timely introduction of products into the market. In the light of these

proximity factors, Turkey is defined as a medium cost supplier by the EU and most of the textile and garment products procured from Turkey are classified as fast return products. As a result, the Turkish textile and garment industry increases its market share in the EU and sees the proximity factor as a positive factor on competitiveness.

Excessive Dependence on the European Union Market According to World Trade Organization data, EU member states and the USA represent more than half of the world garment consumers and total garment consumption regions. In other words, the EU is the most important market of the garment industry, including TRC2 Region. A problem that may occur in the EU will be reflected in the entire sector.

Domestic Demand: The domestic market in the textile and garment sector in Turkey, including TRC2 Region, is quite large due to the young population. The market is highly competitive and costs are high at every stage of the value chain. However, Turkish firms cannot fully use their advantages and tend to export to markets that are often competitive in terms of exchange rates and costs.

RELATED AND SUPPORTING ORGANIZATIONS (-1 / Low)

Clusters: Although geographic concentration is not a necessary condition, it is a factor that facilitates clustering. Although geographical clusters in Turkey are not yet fully developed, companies in TRC2 region need clustering to increase their competitiveness.

Retail Structure: Although retailing in TRC2 Region is not at the desired levels, it has made progress.

Dependency in Machinery Imports: In the textile and garment sector, our country is dependent on machinery and equipment imports. However, although the production of machinery and equipment for the textile and garment industry is increasing in Turkey, it is known that customers experience reliability problems and find after-sales services inadequate in machinery and equipment produced in Turkey. Turkey needs the technical support of foreign machinery manufacturers. For this reason, manufacturers want to transfer technical knowledge by employing their technical staff in the factories for a certain period of time. It is seen that customers in Turkey prefer foreign technicians in problems encountered in the production process and they invite them to Turkey and ask for help.

Activities of Non-Governmental Organizations in the Sector: Sector umbrella organizations in TRC2 regions need to be more active.

Public (0/Medium)

Incentives: Regional incentives are given in Turkey and this motivates new investments and investors in the sector. This system ensures the economic development of priority regions in development. Incentives motivate new investments

Counterfeit Inspections: Comprehensive laws and deterrent measures should be introduced on the control of counterfeit products, and control mechanisms should be established in customs on the import side.

7. Horizontal Issues

The textile sector, like other sectors, will experience a significant transformation in resources such as materials, energy, water and chemicals and will need a digital transformation in the process of producing value-added products. Many of the textile production stages (e.g. dyeing or finishing) use chemical inputs. Ecological and economic factors such as energy efficiency, regulation of CO2 emissions, water use, wastewater improvement, and prevention of air pollution will become important constraints of the sector. Factors such as legal regulations and sustainability for a better environment will also become important competitive criteria in the markets of textile products.

7.1. Crisis Management

All sectors were affected by Covid-19. Like other sectors, the textile sector was also affected by this crisis, and among the segments of the sector, the sectors closest to the end consumer were the most affected. In our country, since March 2020, when the pandemic measures started, large-scale companies generally stopped their production and only small-scale businesses tried to continue production. Here, the fact that the sector has to work 24 hours a day and at full capacity is an important factor. The fact that the sector, which works with a high number of personnel, remains empty even for 1 day causes serious damages. Although a part of the sector produces intermediate inputs (such as yarn and fabric), the final product is garment and home textiles. For this reason, the demand for retail has directly affected the sector and therefore the demand in the domestic and foreign markets has decreased. The enterprises that restarted production in a controlled manner made compulsory arrangements in their working order. Companies that overcome the capacity problem in the lunch halls by arranging meal times had to bear additional costs by increasing the number of personnel vehicles. Measures such as hygiene, use of masks, regular temperature measurement, switching to disposable products have now been accepted as a part of business life and these have caused additional costs.

7.2. Resource Efficiency

The textile sector is one of the selected sectors within the scope of the "Preparation of Sectoral Resource Efficiency Guidelines in Manufacturing Industry Sub-Sectors" project carried out by the "TÜBİTAK MAM Environment and Clean Production Institute" supported by the General Directorate of Industry and Productivity under the Ministry of Industry and Technology. In this guide, ensuring the dissemination of sustainable production methods in the manufacturing industry for the textile sector and resource efficiency applications for the sector are presented [Industry, 2021].

In order to prevent the amount of resources consumed and the emissions that occur as a result of industrial activities, cleaner production practices, which are an integrated approach in Europe, have gained momentum especially in the last 20 years and this approach has come to the fore especially in industries with intensive water, energy and resource consumption.

In this framework, with the 'Integrated Pollution Prevention and Control Directive' (IPPC-96/61 / EC) (with its new name 'Industrial Emissions Directive') (IED-2010/75 / EU), it is aimed to prevent pollution with an integrated approach at its source. The reference document on best available techniques in the textile sector, includes the industrial activities belonging to the "factories where pre-finishing (processes such as washing, bleaching and mercerization) or dyeing processes of fibers and textile materials are carried out and whose processing capacity is greater than 10 tons / day ' specified in the 96/61 / EU IPPC Directive.

In this context, the new agenda in the European Union is the "circular economy" principle. According to this principle, which basically aims to produce minimum waste, it is foreseen that the waste of one industry will be used as input by another industry and less resources will be spent in production and consumption. It is expected that circular economy principles will become a standard and bring serious responsibilities to producers, especially in waste management. Euratex, the European Union textile sector umbrella organization where Turkey is represented by 4 institutions (TGSD, TTSİS, İHKİB and İTHİB), has started working to bring important regulations for environmental sustainability by forming a working group with organizations representing textile and garment sectors [Euratex, 2021].

In this context, the manifesto shared with the aim of informing the sector actors and explaining the sensitivities of the sector to the European Commission refers to the following issues:

- Businesses in the industry must be protected against costly transformations.
- The sector will need support and investment for the costs that will arise at the fragile points of the value chain.
- Circularity, recycling, waste management, innovative material and design should be considered as a whole.
- Although 'brands' with high visibility and representation power seem to have adapted to these principles, there is a serious lack of policy and support at the level of manufacturers and service providers in the background.
- The fashion industry must use this potential well, as it has the power to provide consumers with sustainable consumption behaviors.

Considering the complicated nature of the textile value chain, it was decided that the manifesto should focus only on 'clothing and fabric' in the first place, in order to emphasize that a general approach to be applied to all areas of textile would be wrong and that different areas such as technical textiles would have different requirements.

In addition, 'Industrial Symbiosis', which is defined as two or more economic enterprises that are physically close and work independently from each other, to establish long-term partnerships and work in solidarity to increase both environmental performance and competitiveness points to a potential in Diyarbakır and Şanlıurfa provinces in terms of sectoral structure of the industry, OIZs, regional distributions and generated waste. In this context, TRC2 Region Industrial Symbiosis Feasibility Report was prepared by BEBKA and the textile sector was among the prominent sectors [Development Library, 2021].

7.3. Climate Change

The main step taken to protect the world from climate change is the United Nations Framework Convention on Climate Change, which has been in effect since March 21, 1994 [Saraf Ullah Patwary, 2021]. This Convention represents a legal structure that responds to humanity's common concerns about the possibility of global human-made climate change. Since climate change is one of the most worrying issues of the 21st century, great efforts are being made to deal with this problem all over the world.

The sector releases large amounts of carbon throughout the supply chain, from fiber production to consumer use. Various studies are conducted by international institutions in order to analyze the entire carbon footprint in the intermediate stages and to bring a healthy solution to the creation of a completely sustainable textile supply chain and consumption habit.

When the negative contribution of the textile sector to the climate change is examined, it is known that the textile supply chain is extremely complex and that unethical textile production leaves many traces that cause environmental pollution. In order to make the entire system sustainable, it is necessary to have a clear carbon footprint data of all processes, activities and materials, taking into account that all processes from fiber production to the last finished garment have their own carbon history [Rita Kant, 2021].

Another polluting sub-sector of the textile supply chain is dyeing, and all synthetic dyes and chemicals are harmful to the environment. Synthetic dyes give a very wide color range with high fastness. However, their toxic nature has become a major environmental problem. Waste water from dyeing causes the most pollution compared to waste water from other sectors. In dyeing and finishing processes, large amounts of water and chemicals are consumed and all wrong practices in the sector cause clean water crisis, environmental pollution and climate change, causing damage to the habitable environment, making it unpredictable for future generations.

For every kilogram of textile produced, 2 kg of CO2 is released into the air. In the textile industry, fossil fuels are used throughout the life cycle of a garment, such as producing fibers, producing textiles and materials, producing garments, transporting for distribution, consumer use and disposal, resulting in greenhouse gas emissions. Taking advantage of globalization, companies

in this sector compete to keep the price of textile products low and therefore move towards countries where production, labor, energy and other costs are more affordable. In the textile sector, which starts with fiber production, cotton, which is the primary choice of consumers, also has environmental damage. 73% of the world cotton harvest comes from irrigated areas and it is known that 2.4% of the world's crop area is cultivated with cotton.

Textile, one of the sectors with the highest pollution rate, produces 1.2 billion tons of CO2 per year. More than 60% of textiles are used in the apparel industry, and it is stated that about 5% of global emissions come from the fashion industry. Synthetic fibers have higher production rates in recent years. Polyester is the most widely used fiber and replaced cotton at the beginning of the 21st century. Emissions for polyester and other synthetic materials are very high as they are produced from fossil fuels. In 2015, polyester production resulted in 706 billion kg of CO2 [Rita Kant, 2021].

7.4. Digital Transformation

The digital transformation that started with Industry 4.0 in the textile and garment sector, which is a labor-intensive sector, gained momentum with the Covid-19 pandemic. In the 1960s, customers only bought the existing product, but in the 2000s, with the change of expectations, production companies reached a point where they meet the desires of their customers. The garment sector, which gave the product its final form with Industry 4.0, was one of the first sectors that started this transformation in order to meet rapidly changing and differing customer demands and to improve creativity and production efficiency. With this digital transformation, innovations such as 3D simulation systems, remote programmable sewing machines, 3D scanners have emerged in the garment sector, and now there has been a trend towards 3D garment simulation systems instead of classical production methods. In addition, companies that have taken steps in digital transformation can now create a catalog by moving their products to the digital environment and present all their products on the internet at the same time. Along with simulation systems, a digital structure can now be created with the help of 3D material scanners, hologram technologies and virtual reality technologies.

Due to problems such as the lack of infrastructure and trained personnel in digitalization, adaptation to the developments in this rapidly developing field cannot be achieved. With the Covid-19 pandemic, e-commerce has gained great momentum. Turkey needs companies that provide digitalization infrastructure services and qualified human resources in this field.

7.5. Gender Equality

Gender perception comes across in all aspects of life in a coded form in various ways, and the fact that people who make up society assume different responsibilities and roles over time reveals a number of stereotypical prejudices. The network of social relations shaped by these prejudices causes a number of differences during women's participation in life. These differences cause women to face various problems and become secondary due to the fact that they do not have equal conditions and situations. From a general perspective, equal participation of men and women as subjects of social life in the economic, political and social sphere arises as a legal and human requirement.

The research conducted reveal that while there are more gender-related roles and expectations in family life, these role attitudes in working life are a little more relaxed. Female labor force participation is mostly seen informally and unpaid, in agriculture and service areas, and generally in family businesses. The textile sector is one of the most democratic sectors in terms of gender equality. Considering the employment data in Turkey as of March 2020, the participation of women in the workforce in textile and garment sectors is at a very good level with 41% and 403 thousand of the nearly 1 million registered employees in the sector are women. The picture is not that optimistic in sector as a whole and women constitute only 4.4 million, or 30%, of the registered employment of 14.4 million. Looking at the table only in the manufacturing sector, the rate of women's participation in business life decreases even more. Of the 3.7 million people working in production, only 945 thousand, that is 25%, are women.

Wage inequality between male and female employees is one of the important problems of business life in Turkey as well as in the world. One of the most important steps taken in this regard is the "Equal Pay Agreement" No. 100 and the Recommendation No. 90, which entered into force in Turkey in 1967. Stating that there should be no discrimination against any group in wages, this agreement specifies the wage rates determined without any discrimination based on gender.

In this regard, Equal Pay International Coalition was established with the participation of governments, employees, employer organizations, private sector, non-governmental organizations and academia representatives under the leadership of ILO, UN Women and OECD. In this context, ILO prepared the 2018/19 issue of the "Global Wages Report", which it regularly publishes every two years, with the theme of "Global Wage Gap". According to the report, while gender-based wage inequality is 18.8% worldwide, this rate is 12% in Turkey [Equal Pay International, 2020].

8. Short, Medium and Long Term Strategies and Action Plans

Textile and garment sector, which is one of the traditional sectors, is one of the industries where Turkey has a leading position in terms of production, employment, export volume and technology used. The sector has made a huge investment move in the last 40 years and has become an industry that uses high technology in almost all links of the value chain.

The sector also uses superior production techniques and communication facilities in its production processes. However, when considered as a global player, Turkey's position and share in the textile and garment industry is not sufficient, and although the export volume of the sector has increased in recent years, significant decreases have been observed in the profit rates of the sector players and it is known that many businesses, including large-scale companies, have closed.

The Covid-19 pandemic has put the textile and garment sector in a difficult position with the global competitive pressures and consumer behavior changes in recent years and it is seen that the actors in the sector need short, medium and long term change and transformation strategies before drifting into a major crisis.

The sectoral strategies taken into consideration in the context of sustainability are defined under 6 main headings;

- Capacity Building
- Supporting R&D/P&D and Innovative Business Models
- Supporting Digitalization Infrastructure
- Business Development
- Establishing Financial Support Mechanisms
- Legal and Administrative Regulations.

Actions are planned as short, medium and long term. The budgets are classified as follows by taking into account the national scale;

- Nano Investment: 0 - 10 Million TL
- Micro Investment: 10 - 100 Million TL
- Meso Investment: 100 Million - 1 Billion TL
- Macro Investment: 1 - 10 Billion TL

Strategy and sub-strategies are colored as follows, according to their status as National, Regional and Global Vision Developers: **National/Regional/Global Vision Developer.**

Table 9: TRC2 Strategy and Action Table of TRC2 Region Textile Sector

MAIN STRATEGY		Term (Years)	
STRATEGY 1: KAPASİTE GELİŞTİRME			
SUB STRATEGY			
S 1.1: TRAINING AND CONSULTANCY SERVICES			
ACTION	**EXPLANATION**	**Estimated Budget**	**Term**
S.1.1.1: Improving Vocational Education Infrastructure	• Rearranging the curricula of educational institutions according to the needs of the sector • Establishment of vocational high schools in OIZs • Organizing vocational training courses • Disseminating polymer material engineering in universities • Cooperation with Turkish Employment Agency for on-the-job training programs • Increasing labor productivity, which is low in Turkey • Providing practical training to employees on yarn, fiber and fabric. • Opening of Cotton Specialization Department in Vocational High Schools	Mezo Investment (>100 Million & <1 Billion TL)	1-3 Years (Medium Term)
S.1.1.2: Development of a Professional Training System	• Dissemination of Continuous Education Centers • Supporting companies that provide professional training and consultancy services (Training and Consultancy Services on Subjects such as Digitalization, Industry 4.0, RFID, Automation and Preparation of Sector Infrastructure)	Nano Investment: 0 – 10 Million TL	1-3 Years (Medium Term)
S.1.1.3: Creating and Developing Sectoral Clusters	• Holding informative meetings about cluster advantages and supports for clusters • Organizing individual meetings with potential companies to be selected for the cluster • Making field visits to regional clusters in Turkey • Applying for P&D support • Ensuring cooperation with cluster excellence in the EU	Mezo Investment (>100 Million & <1 Billion TL)	1-3 Years (Medium Term)
S.1.1.4: SME Support Offices	• Allocating Office for the First Stop Point (One-Stop-Shop) / Providing Assistance on Issues That SMEs Need • Capacity Building Activities related to Advanced Services for SMEs and Stakeholders • Information Meetings for Sub-Sector Groups	Nano Investment: 0 – 10 Million TL	1-3 Years (Medium Term)
S 1.2: DEVELOPING OF NETWORK STRUCTURES			
S.1.2.1: Increasing textile industry cooperation by creating a textile council	• Establishing an Advisory Board to Understand the Needs of the Sector • Establishment of the Permanent Local Competitiveness Council • Establishing Sectoral Working Groups	Nano Investment: 0 – 10 Million TL	1-3 Years (Medium Term)

S.1.2.2: Development of University-Industry Cooperation	• Transferring the scientific potential of universities to the sector and transforming it into economic value • Spreading technology transfer offices in universities • Developing technology working days etc. programs with the participation of all sector stakeholders (academicians, representatives of the umbrella organizations and sector entrepreneurs) • Organizing free training programs, offering laboratories to the services of sector companies • Providing long-term internship opportunities to students in sector companies • Organizing monthly working group meetings with the participation of academicians from textile, chemistry engineering departments from universities and industry entrepreneurs.	Micro Investment: 10 – 100 Million TL	1-3 Years (Medium Term)
S.1.2.3: Supporting International Collaborations	• Research, adaptation and use of globally competitive applications and textile technologies; Strengthening the sectoral and inter-sectoral information exchange network and collaborations • Ensuring global integration and participation in global network structures	Nano Investment: 0 – 10 Million TL	1-3 Years (Medium Term)
STRATEGY 2: SUPPORTING R&D / P&D and INNOVATIVE BUSINESS MODELS			
SUB STRATEGY			
S.2.1.1: SUPPORTING R&D INFRASTRUCTURE			
S.2.1.1: Preparation of Capacity Assessment Programs for SMEs on R&D	• Creating analysis tools • Organizing visits to companies with developed R&D infrastructure and making analyzes • Providing training and consultancy services on current capacity analysis and R&D • Supporting national and international R&D collaborations • Utilization of the laboratory facilities of universities in TRC2 Region by sector companies	Micro Investment: 10 – 100 Million TL	1-3 Years (Medium Term)
S.2.1.2: Development of National and International R&D Support Mechanism	• Organizing R&D support information meetings for SMEs and stakeholders • Organizing study visits to good practices for developing companies • Preparing grant and fund applications for SMEs (TÜBİTAK - 1501 Industry R&D Projects Support Program, 1507 SME R&D Startup Support Program)	Nano Investment: 0 – 10 Million TL	1-3 Years (Medium Term)
S 2.2: INCREASING THE TECHNOLOGICAL CAPABILITY OF SMEs			
S.2.2.1: Establishment of an Innovation / Design Center for the Textile Industry	• Involving textile sector companies to foster innovation and seek support for design and innovation • Reducing foreign dependency in the production of textile machinery (a substantial part of the exports made from the textile sector is paid abroad in foreign currency for textile machinery imports) • Establishment of a textile and technical textile excellence center that provides laboratory and sample production services to sector companies within the body of NGOs	Macro Investment: 1 – 10 Billion TL	3-10 Years (Long Term)

S.2.2.2: Establishment of the Regional Textile Research Center	• Following the international trends in the garment sector in the region • Developing operations for the branding process in the value chain of strategies for the garment industry • Focusing on the production of design and innovative products with high added value due to increasing global pressures in the garment sector, which is a labor-intensive sector	Nano Investment: 0 – 10 Million TL	1-3 Years (Medium Term)
GREEN SMEs			
S.2.3.1: Compliance with the EU 2025 Green Deal	• Using energy-saving and environmentally friendly technologies in textile finishing • Developing and using alternative finishing methods that are not harmful to the environment • Supporting projects that will adapt to climate change • Following the developments and compliance with the standards • Spreading energy efficiency centers serving sector companies within the body of NGOs	Micro Investment: 10 – 100 Million TL	1-3 Years (Medium Term)
S.2.3.2: Circular Economy	• Raising awareness about the optimum use of natural resources, raw materials and products and reuse after recycling	Nano Investment: 0 – 10 Million TL	1-3 Years (Medium Term)
STRATEGY 3: SUPPORTING DIGITALIZATION INFRASTRUCTURE			
SUB STRATEGY			
S 3.1: DEVELOPING THE DIGITAL INFRASTRUCTURE			
S.3.1.1: Digital Transformation in Production	• Information meetings for awareness on digital transformation • Optimization in subjects such as productivity, production speed, production capacity with industry 4.0 integration from the beginning to the end of production • Using software and hardware to manage production from the beginning to the end	Macro Investment: 1 – 10 Billion TL	1-3 Years (Medium Term)
S 3.2: INTEGRATION OF TECHNOLOGICAL SYSTEMS			
S.3.2.1: Designing and Implementing Training and Consultancy Programs Related to Digital Transformation Systems	• Providing training and consultancy services to industry companies on Digital Transformation (Industry 4.0, RFID, IoT, 3D Printer, CRM) for the establishment of flexible supply chain management, which is one of the important areas that the Covid-19 pandemic has accelerated, and its development for possible future crises. • Having information technology departments in companies • Making all digital transformations together with information technology departments	Nano Investment: 0 – 10 Million TL	1-3 Years (Medium Term)
S.3.2.2: Increasing the Applications of Information Technologies in the Sector	• Minimizing errors by using artificial intelligence technology in companies • Realization of all kinds of data and information flow in the sector in electronic environment	Micro Investment: 10 – 100 Million TL	1-3 Years (Medium Term)

STRATEGY 4: BUSINESS DEVELOPMENT			
SUB STRATEGY			
S 4.1: INTERNATIONALIZATION			
S.4.1.1: Sales and Marketing	• Adopting new methods for market diversification and making specific programs for target markets • Companies having systems such as an up-to-date web portal, CRM, order / payment, stock management for e-commerce • Employment of social media / digital marketing specialist in the sales and marketing departments of the company • Analyzing the company's current marketing and business plan • Preparing sector marketing strategy together with companies	Nano Investment: 0 – 10 Million TL	0-1 Years (Short Term)
S.4.1.2: Branding	• Deciding on the brand values to be created • Positioning brands to perceive the needs of customers • Communicating brand value to customers • Promoting brand value over time • Monitoring the changes in the brand positions of the competitors and updating the brand accordingly	Micro Investment: 10 – 100 Million TL	1-3 Years (Medium Term)
S 4.2: FUNCTIONAL MANAGEMENT			
S.4.2.1: Development of Management Functions	• Establishing working groups for efficiency and performance based management systems • Developing innovation-oriented thinking practice in management • Developing a collaboration culture in companies • Providing training to stakeholders and suppliers • Improving business ethics in management • Preparing of the sector inventory	Nano Investment: 0 – 10 Million TL	0-1 Years (Short Term)
S 4.3: PRODUCTION			
S.4.3.1: Value Added Production	• Making R&D and training investments at the highest level for the production of high value added products • Increasing the use of multifunctional, smart and high value-added products • Supporting the production of value-added fibers • Increasing yarn diversity • Supporting the production of textile chemicals • Paying attention to companies that specialize in certain products at a high technological level	Macro Investment: 1 – 10 Billion TL	1-3 Years (Medium Term)
S 4.4 SİMBİYOZ			
S.4.4.1: Development of Industrial Symbiosis	• Raising awareness on industrial symbiosis • Ensuring cooperation between companies operating in different sectors, using less resources and ensuring less environmental pollution. • Symbiotic association of companies and reduction of raw material, water and energy consumption and waste production, and clustering of companies in a way that maximizes the symbiotic relationship	Nano Investment: 0 – 10 Million TL	0-1 Years (Short Term)

STRATEGY 5: DEVELOPING FINANCIAL SUPPORT MECHANISMS			
SUB STRATEGY			
S 5.1: SUPPORTING HIGH ADDED VALUE PRODUCTION			
S.5.1.1: Ar-Ge/Ür-Ge ve İnovasyon Odaklı Üretimlere	• Increasing the support mechanisms of companies focused on R&D / R & D and innovation (TÜBİTAK - 1501 Industry R&D Projects Support Program, 1507 SME R&D Startup Support Program) • Supporting companies in textile chemicals and fiber production and yarn diversification • Supporting the work of companies in the field of technical textiles • Supporting the production of new commodities required by the sector and increasing the quality and standards in order to make exports sustainable • Development of new cost-cutting techniques and supporting the use of new production technologies	Micro Investment: 10 – 100 Million TL	1-3 Years (Medium Term)
S.5.1.2: Bringing Basic Input Costs to Competitive Levels	• Increasing the support mechanisms of companies focused on R&D / R & D and innovation (TÜBİTAK - 1501 Industry R&D Projects Support Program, 1507 SME R&D Startup Support Program)	Micro Investment: 10 – 100 Million TL	1-3 Years (Medium Term)
S 5.2: SUPPORTING RESOURCE EFFICIENCY			
S.5.2.1: Green SMEs	• Supporting the resource efficiency investments (raw materials, energy, water, etc.) of the sector companies in order to create more value with less input. • Supporting the use of energy-saving / environmentally friendly technologies in textile finishing • Supporting green SMEs • Supporting the recycling of sector wastes	Micro Investment: 10 – 100 Million TL	1-3 Years (Medium Term)
S.5.2.2: Sectoral Crisis Fund	• Establishing a sectoral crisis fund in order to manage possible crises • Determining a crisis strategy for funding, especially in times of crisis • Using EU grants in the textile sector, producing projects in accordance with the legislation and purpose, and sharing the experience of the TR41 region with other regions.	Micro Investment: 10 – 100 Million TL	1-3 Years (Medium Term)
S 5.3: SUPPORTING FOREIGN TRADE ACTIVITIES			
S.5.3.1: New Market Supports	• Preserving and improving the EU market, the largest market for exports in the textile sector, and developing financial support mechanisms to enhance export activities to markets such as the USA, Russia, Africa, South America and Middle East countries.	Nano Investment: 0 – 10 Million TL	0-1 Years (Short Term)
STRATEGY 6: LEGAL AND ADMINISTRATIVE REGULATIONS			
SUB STRATEGY			
S.6.1. REGULATIONS			
S.6.1.1: Compliance with Domestic Regulations	• Intensifying inspections in the sector where informal employment is intense and making a comprehensive tax reform • Compliance with regulations regarding environmental factors and human resources	Micro Investment: 10 – 100 Million TL	1-3 Years (Medium Term)

S.6.1.2: : Compliance with Foreign Regulations	• Compliance with the EU 2025 Green Deal • Carbon Footprint Tracking • Compliance with Climate Change Regulations • Compliance with Recycling Regulations	Micro Investment: 10 – 100 Million TL	1-3 Years (Medium Term)
S 6.2: ISO STANDARDS			
S.6.2.1: Compliance with International Standards	• Compliance with International Standards on Occupational Health and Safety-ISO 18001 • Compliance with International Standards on Quality Management-ISO 9001-2015	Nano Investment: 0 – 10 Million TL	0-1 Years (Short Term)

9. Policy Recommendations

Considering the strategies and action plans defined for textile sector companies in the TRC2 Region, it is recommended that the following policy recommendations be evaluated and implemented.

CAPACITY BUILDING	
Policy Recommendation	**Term**
The curricula of educational institutions should be more practical and reorganized according to the needs of the sector.	0-1 Years (Short Term)
With the opening of Vocational High Schools within the OIZs, the need for intermediate staff of the sector will be met, on the other hand, the requirements of the profession, corporate identities and individual responsibilities should be given to the students who are about to enter the business life during their education where their professional identities begin to form.	0-1 Years (Short Term)
Within the scope of reflecting the university-industry cooperation to the field, the scientific potential of universities should be transferred to the sector and transformed into economic value and technology transfer offices in universities should be expanded.	0-1 Years (Short Term)
Comprehensive training organizations should be held in the fields of Digitalization, Industry 4.0, IoT, E-Commerce, CRM, Foreign Trade, Resource Management, Market Research, Sales and Marketing, Digital Marketing, Foreign Language.	0-1 Years (Short Term)
Applications and textile technologies that provide global competitiveness should be researched, adapted and used, and the sectoral and inter-sectoral information exchange network and cooperation should be strengthened.	1-3 Years (Long Term)
SME support offices should be established to help SMEs in the issues that they will need and to organize advanced services capacity building activities.	1-3 Years (Long Term)
Capacity building programs on R&D / P&D and Innovation should be prepared for SMEs to produce value added products.	0-1 Years (Short Term)
Legal arrangements should be made to determine the standards and criteria for the next generation management styles on issues such as working from home, part-time work, and using online management alternatives that come to the fore with the Covid-19 pandemic	0-1 Years (Short Term)
INFRASTRUCTURE	
Policy Recommendation	**Term**
The information technology applications in the sector should be increased and managed (E-commerce, CRM, etc.)	1-3 Years (Long Term)
The SMEs should be encouraged to produce commodities with high added value by disseminating the design center and model factory applications.	1-3 Years (Long Term)
Digitalization and Industry 4.0 should be integrated into the production systems of companies and their infrastructure should be created with respect to efficiency, production speed, production capacity, resource efficiency	1-3 Years (Long Term)
Companies should be encouraged in the production of natural and synthetic fibers, poly viscose fabric and yarn varieties for the production of high value-added products.	1-3 Years (Long Term)
Companies should comply with the EU 2025 Green Deal and focus on the circular economy.	1-3 Years (Long Term)

FİNANCE	
Policy Recommendation	**Term**
Green SMEs should be supported in order to ensure the sustainability of the sector companies.	1-3 Years (Long Term)
In order to prevent informality of companies and employees in the sector, inspections should be increased and a comprehensive tax reform should be implemented.	0-1 Years (Short Term)
Financial support packages that protect employees, such as unemployment insurance, short-time work allowance, should be continued or expanded.	0-1 Years (Short Term)
Additional measures taken to reduce the rate of spread of the Covid-19 pandemic should be partially continued in the post-pandemic period and the additional cost burden of these measures should be supported by incentives.	0-1 Years (Short Term)
The EU market, which is the largest market for exports of the textile industry, should be maintained and improved, and financial support mechanisms should be developed to support export activities to markets such as the USA, Russia, Africa, South America and Middle East countries.	1-3 Years (Long Term)

10. TRC2 Region Textile Sector Analysis Summary

TRC2 REGION TEXTILE SECTOR ANALYSIS SUMMARY
THE MOST IMPORTANT STRENGTHS OF TRC2 REGION
• Improved Cotton Production Capacity • GAPUTEM - Cotton Accreditation Laboratory • Improved Contract Manufacturing (ZARA, Mango, H&M, Marks & Spencer) Capacity for Global Brands • Existence of "Textile OIZ" • Evaluation within the Scope of the 6th Investment Zone and Attraction Center
MAIN STRATEGIES FOR INCREASING INTERNATIONAL COMPETITIVENESS IN TRC2 REGION
• Production infrastructure should be ready due to the expectation that the supply chain in the Far East will shift to the region. • The number of manufacturing companies should be increased for the processing of cotton into yarn. • Natural fiber production should be expanded and yarn diversity should be increased • Clustering organizations should be made in the region • The number of companies in the production of agricultural textiles should be increased
ACTIONS RECOMMENDED FOR TRC2 REGION
• Clusters should be organized for cotton producers • The processing of cotton into yarn should be carried out with university-industry cooperation. • Pilot applications should be made for digital transformation in production and products within "Textile OIZ". • A cotton specialty department should be opened in vocational high schools

11. Conclusion and Evaluation

The textile industry is one of the leading sectors that contribute significantly to the reduction of unemployment and the welfare of the society with the employment it creates. The sector has a very special place in the world with its designs and high technology that have the power to determine product quality and trends, and it is in the first place in our country in parameters such as its share in GDP and the use of domestic inputs, and it is the basis of our good position in global markets.

Total exports, which were 180.8 billion dollars in 2019, decreased by 6% in 2020 and became 169.5 billion dollars. In 2019, Turkey's carpet, garment and apparel, textile and raw materials export was 28 billion dollars and this constituted 16% of the total country's exports, while in 2020 the export in the same group decreased by 1 billion dollars to 27 billion dollars and this accounted for 18% of the total country exports.

Between the aforementioned dates, carpet export which was $ 2.53 billion, increased by 2.8% and became $ 2.60 billion while the garment and apparel export which was $ 17.69 billion, decreased by 3.1% and became $ 17.14 billion and textile and raw materials export which was $ 7.92 billion, decreased by 8% and became $ 7.28 billion.

Exports to the USA, where the most carpets are exported, increased by 40% from 665 million dollars in 2019 to 932 million dollars in 2020, exports to Germany, where most garment and apparel exports are made, increased by 2.3% from 3.07 billion dollars in 2019 to 3.14 billion dollars in 2020 and exports to Italy, where textile and raw materials are exported the most, decreased by 9.7% from 710 million dollars in 2019 to 642 million dollars in 2020.

Between 2019 and 2020, the total exports from Diyarbakır, located in TRC1 Region, decreased by 7% from 167 million dollars to 155 million dollars and the total exports from Şanlıurfa, increased by 1% from 131 million dollars to 133 million dollars.

In the 11 subgroups of the textile sector subject to the study, which are given in Table 3 according to the NACE codes (46.4.1 and 47.7.1 excluded) the total number of manufacturer companies registered to TOBB from Diyarbakır is 116 and from Şanlıurfa it is 286. When the textile sub-sectors across the country are compared on the basis of the number of manufacturers registered to TOBB, it is seen that Şanlıurfa has a share of 14% in “Preparation and spinning of textile fibers” In these 11 subgroups, the total number of employees is 7.906 in Diyarbakır and 26.222 in Şanlıurfa.

Although there is very little textile export from Diyarbakır and Şanlıurfa provinces located in the TRC2 region, the sector is mostly focused on the domestic market due to the processing of cotton, which is the first part of the value chain, and the recent developments in garment sector. The Covid-19 pandemic has caused radical changes in consumers' purchasing behavior in terms of what and how they buy. It is predicted that the change in global sector brands will be in the form of re-evaluating the supply chains and shifts from the lowest cost approach to a more secure and robust supply chain approach.

As a result of the re-evaluation caused by the Covid-19 pandemic, the expectation has arisen that the textile production dominated by the Far East countries will shift to Turkey and especially to TRC2 region if the infrastructure is ready. The reason for such a justified expectation is that TRC2 region has a cheaper mass production infrastructure that can compete with Far Eastern countries. In addition, the completion of the "One Road - One Belt" project will raise this expectation even higher. If this expectation comes true, the sector should be ready with all its stakeholders and infrastructure.

As a result of all these evaluations, the instructions on how to react to Covid-19 have been taken into consideration, and short, medium and long term strategies have been developed to provide solutions to problems within the framework of the concept of sustainability.

These sectoral strategies, which were evaluated in the context of sustainability, were classified as Capacity Building, Supporting R&D / P&D and Innovation Oriented Business Models, Supporting Digitalization Infrastructure, Business Development, Establishing Financial Support Mechanisms and Legal and Administrative Regulations.

While creating these strategies, the data of companies participating in the survey from TRC2 Region and other regions of Turkey, the focus group meeting attended by sector representatives and academicians, the working group meetings attended by development agency experts and the data of various research companies were used as sources. In the strategies, besides the existing problems of the sector, additional problems brought by the Covid-19 pandemic and their solutions and predictions for taking advantage of Covid-19 pandemic were shared. One of the most important problems of the sector is the shortage of trained personnel and low labor productivity. In this context, it has been suggested to organize the curriculum of educational institutions according to the needs of the sector, to establish Vocational High Schools in OIZs, to organize vocational applied training courses (yarn, fiber, fabric, poly-viscose etc.) in order to improve the vocational education infrastructure.

Within the scope of improving the capacities of companies, the following have been proposed: establishing clusters and applying for P&D support, ensuring cooperation with the "Cluster Center of Excellence" in the EU and supporting the textile know-how in TRC2 Region by means of clustering.

In order to realize university-industry cooperation in the field, programs such as Technology Working Days should be developed with the participation of all sector stakeholders (academicians, representatives of the sector umbrella organizations and sector entrepreneurs), free training programs should be organized, laboratories should be offered to the services of sector companies and Monthly Working Group meetings should be held with the participation of academicians from Textile, Chemistry and Polymer Materials Engineering Departments and sector entrepreneurs with regard to the structure and use of composite materials.

Within the scope of creating business models focused on R&D / P&D and innovation, capacity assessment programs should be prepared for companies and an accredited laboratory should be established in Diyarbakır "Textile OIZ" and made available to sector companies.

Use of energy-saving and environmentally friendly technologies in textile finishing in order to comply with the EU 2025 Green Deal and supporting projects that will adapt to climate change are of great importance for the EU, which is the largest market for the sector. In this context, it is recommended that the companies in the region use the Energy Efficiency Center within NGOs. It is recommended to provide the necessary support to expand these centers in other regions.

Training and consultancy services on Industry 4.0, RFID, IoT, 3D Printer, CRM should be provided to industry companies within the scope of digital transformation for the establishment of flexible supply chain management, which is one of the important areas that the Covid-19 pandemic has accelerated, and its development for the next possible crises. Giving this training to the personnel of the information technology department who should be employed in the companies and performing the digital transformation together with the personnel of this department will speed up the process and increase the competence of the personnel.

Sales and marketing methods have also changed with the changing consumer profile due to Covid-19. In this context, when determining new methods and programs for market diversification and branding, companies should set up their E-Commerce infrastructure and have a digital marketing specialist in their sales and marketing department.

The development of innovation-oriented thinking practice and a culture of cooperation in company managements will make it possible to establish R&D / P&D innovation-oriented business models in the companies, while contributing to their competitive structure. It is necessary to support the production of value-added fibers and textile chemicals, as well as increasing the variety of yarns, while ensuring that R&D and training investments are made at the highest level for multi-functional, smart and high value-added production. In this context, intensifying the work on technical textile and composite material production in TRC2 Region, where the infrastructure is considered to be ready, will provide companies with a competitive advantage.

Ensuring cooperation between companies operating in different sectors and making production with less resource use will cause less environmental pollution, while this symbiotic relationship will allow companies to reduce their production costs and become more competitive. R&D / P&D and innovation-oriented productions should be supported in order to develop new cost-reducing

techniques and to use new production technologies. The supports of TÜBİTAK should be used in the production of R&D-oriented raw materials such as textile chemicals, fiber production and yarn varieties.

In order to create more value with less inputs within the scope of Green SMEs, resource efficiency investments (raw materials, energy, water, etc.) and environmentally friendly technologies that save energy in textile finishing should be supported. A sectoral crisis fund should be established in order to manage crises such as the Covid-19 pandemic. In addition, projects in accordance with the legislation and the purpose should be produced so that the textile sector can benefit from EU grants.

Within the scope of compliance with international regulations, adaptation to the EU 2025 Green Deal should be ensured and carbon footprint should be followed. Compliance with climate change regulations will provide companies with a competitive advantage in international markets.

It is recommended that companies in the sector have ISO 18001 certificate and ISO 9001-2015 certificate for quality management by taking occupational health and safety measures against fire, noise, dust, chemical risks and hazards that may arise from equipment.

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ANNEX_1 TRC2 Region Focus Group Participant List

NAME SURNAME	INSTITUTION	TITLE
M. Adnan Aksoy	Karacadağ Development Agency	PPKB Head of Unit
Osman Oktay	Sanliurfa Organized Industrial Zone	Assistant director
Ali Âdemoğlu	Sanliurfa Organized Industrial Zone	OIZ Delegation Member
Dr. Cevher İlhan Cevheri	Harran University Şanlıurfa OIZ Vocational School	Manager
Prof. Dr. Esra Siverekli	Harran University	Instructor
Mustafa Zahit	Zahit Company	ŞUTSO Council Member
İbrahim Halil Külahlı	Conical Company	ŞUTSO Council Member
Zeynel Çelikbaş	Ocean Company	Factory manager
Salih Azak	Karrbel Company	Factory manager
Can Mustafa Coşkun	Yağız Company	Factory Owner
Yunus Çolak	Karacadağ Development Agency	Şanlıurfa YDO Coordinator
Aydın Kutlu	GAIB	Assistant Secretary General
Berivan Timur	GAIB	Assistant Expert
Şehmuz Atakul	GAPUTAEM	Agricultural engineer
Hanefi Eren	Commodity Exchange	Expert
Önder Atlı	Diyarbakir Organized Industrial Zone	Expert
Veysel Arafat Sabaz	Diyarbakir Textile Organized Industrial Zone	Engineer
Devrim Çakmakçı	Güntiad	Secretary General
Gülfer Coşkun	Bistex Company	Expert
Meryem Özdemir	DTSO	Assistant Secretary General
Prof. Sema Başbağ	Dicle University	Instructor
Doç. Remzi Ekinci	Dicle University	Instructor
Diyadin İnan	Karacadağ Development Agency	DYDO Coordinator
Hikmet Deniz	Karacadağ Development Agency	Expert
Onur Karakurt	T.R. Ministry of Industry and Technology	Expert
Aslı Aygün	UNDP Turkey	Project Assistant

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