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## KOSOVO PLASTICS INDUSTRY VALUE CHAIN

**2019**

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## List of Abbreviations

|        |                                                                                  |
|--------|----------------------------------------------------------------------------------|
| ABS    | Acrylonitrile Butadiene Styrene                                                  |
| AMCHAM | American Chamber of Commerce in Kosovo                                           |
| ATK    | Kosovo Tax Administration                                                        |
| BMO    | Business Membership Association                                                  |
| CEFTA  | Central European Free Trade Agreement                                            |
| EU     | European Union                                                                   |
| GIZ    | Deutsche Gesellschaft für Internationale Zusammenarbeit GmbH                     |
| HDPE   | High-Density Polyethylene                                                        |
| HS     | Harmonized Commodity Description and Coding Systems                              |
| KAS    | Kosovo Agency of Statistics                                                      |
| KIESA  | Kosovo Investment and Enterprise Support Agency                                  |
| KC     | Kosovo Customs                                                                   |
| KCC    | Kosovo Chamber of Commerce                                                       |
| LDPE   | Low-Density Polyethylene                                                         |
| MESP   | Ministry of Environment and Spatial Planning                                     |
| MTI    | Ministry of Trade and Industry                                                   |
| NACE   | Nomenclature statistique des Activités économiques dans la Communauté Européenne |
| PE     | Polyethylene                                                                     |
| PET    | Polyethylene Terephthalate                                                       |
| PHAs   | Polyhydroxyalkanoates                                                            |
| PLA    | Polylactic Acid                                                                  |
| PP     | Polypropylene                                                                    |
| PS     | Polystyrene                                                                      |
| PVC    | Polyvinyl Chloride                                                               |
| SME    | Small and Medium Enterprise                                                      |
| SPI    | The Society of the Plastics Industry                                             |

## DISCLAIMER

This study has been financed by GIZ. This disclaimer informs readers that the views, thoughts, and opinions expressed in this study belong solely to the authors, and do not necessarily represent the viewpoint of GIZ.

The report represents a value chain study, it has been drafted through a survey with sector SMEs along three value chain functions. The viewpoint of the authors has been based on the collected data. The sample may be representative for capturing the dynamics of the market trends and the value chain; however, it might not represent a correct quantitative overview of the sector industry. The authors of the study cannot be accountable for any consequence that can arise by using the information in this report by a third party. There is no claim that the information presented in the report is entirely correct.

**Prepared by: Fisnik Reçica and Gerd Meier zu Köcker**

## EXECUTIVE SUMMARY

Plastic and related products are abundant in business and everyday life. Despite the current debate about plastic ban, reduction of plastic consumption or circularity, one has to admit that plastic is still one of the cheapest and most promising material for many purposes. Key areas are packaging, construction, automotive, electronics or household.

There is no doubt that the plastic manufacturing industry is of major concern for the Republic of Kosovo. In order to assure that this industry remains competitive in time of increased globalization and industrial transformation, there is a growing interest to better understand this sector and related value chains. Consequently, the Ministry for Trade and Industry (MTI), supported by Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ), conducted a value chain mapping study to better understand how the plastic manufacturing industry is structured, where are the key bottlenecks and where the entire industry is moving at. The findings deducted from this study are based on interviews with more than 70 SMEs, a representative sample of the local industry.

Striking findings are that the Kosovan plastic manufacturing industry became more and more specialized over the recent past. Whereas in comparable economies more basic plastic products, like commodities or basic packaging, are manufactured, the study clearly revealed that Kosovan plastic manufacturing industry is shifting to focus on the building material sector (builder's ware). For instance, within the structure of building, plastics contribute to insulation, doors and windows, wiring, piping and roofing. Inside homes, plastics provide wallpapering, flooring, awnings, laminated kitchen surfaces, piping, valves and fittings.

Majority of the more than 530 firms are manufacturing plastic products. More than 350 out of them are involved in the builder's ware sector, contributing to the steady growth in terms of export and jobs. The exports marked a significant growth, from around 11 Mil EUR in 2015 to around 29 Mil EUR in 2018. Despite this, imports have remained high, over six times the exports. The study further revealed that EU and CEFTA region are the key export markets. However, these markets behave quite different. Plastic builder's ware accounts for the largest share of exports in the EU market, with Switzerland and Germany as main exporting destinations. Plastic products for packaging had constant growth of exports to CEFTA countries. Plastic films, sheets and plates are the most exported products in this category, mainly to North Macedonia. In the EU market, exports to Croatia and Romania have contributed to a significant export growth in 2018, but on a much lower level.

Despite all these encouraging findings, the study also indicated that the industry is at a significant risk. The entire manufacturing industry is changing, traditional pattern is about to disappear. Digitalisation and transforming industries will impact the Kosovan industry too. Public debates about the future use of plastic and upcoming plastic bans start already to provide impact. The main constrains companies face while trying to cope with increasing competition are challenges with the quality of products, investment on innovation and machinery, all related to production capacities and technology. Although Kosovo is geographically well located, main difficulties to export from Kosovo are transportation costs and delivery time.

Consequently, the study identified six key constraints that negatively impact the plastic manufacturing industry and might hamper further growth

- Weak export market access
- Weak cross sector market linkages
- High share of low added value products
- Low quality of available recycled raw material
- Weak sector organization and
- Increasing inability to meet international demands

Consequently, the study deducts recommendation and corrective actions to better cope with the upcoming challenges and key constraints identified. Timely and consequent implementation of targeted measures will contribute to keep this important industry competitive in the future.

## INTRODUCTION

Despite all public concerns about plastic pollution one has to admit that plastic materials are extremely resource efficient not only in their production phase but also during their use phase. Furthermore, the plastics industry is of key relevance for Europe. Around 60,000 companies operate in this industry providing over 1.5 million jobs. The turnover of these companies can be calculated with 350 billion EUR. The total European plastics industry has a trade balance of close 15 billion EUR in 2016<sup>1</sup>. Around 20% of the world plastics production emerged in Europe (60 million tons in 2016), mainly thermoplastics, polyurethanes and other plastics, like thermosets, adhesives, coatings or sealants. The six larger European countries (Germany, Italy, France, Spain, UK and Poland) and the Benelux cover almost 80% of the European demand in 2016. But also, for the Republic of Kosovo, plastic and plastic manufacturing is playing a significant role in industrial development.

Nevertheless, the European plastic manufacturing industry is exposed to various challenges. On one side, there is public pressure to use less plastic material, especially for single use. Bans on national level, like in Kenya, Ruanda and many other African countries provide first inside what might be ahead of Europe. Furthermore, the European Commission presented its roadmap towards let use of plastics. Nowadays, nobody can estimate the long-term impact of such regulations. On the other side, industrial transformation will impact the plastic manufacturing industry dramatically. The convergence of digitalization and manufacturing will lead to new machine concepts (e. g. predictive maintenance) and manufacturing concepts (e. g. embedded digital printing or 3D printing).

The present Value Chain Mapping Report is an important part of interventions from the Ministry for Trade and Industry of the Republic of Kosovo (MTI) and GiZ in order to support the competitiveness of selected industrial sectors. Plastic is of major concern. Not only because of the importance of the local plastic manufacturing industries rather than the plastic industries are more and more converging with other industries. E. g. digital printing and food packaging became an integrated, embedded approach in up-to-date packaging solutions manufacturing. In a nutshell, there are upcoming global trends, the Kosovan manufacturing industry must be aware of if it intends to stay competitive and remain an important partner in global value chains.

It is the first Value Chain Mapping Report for the plastic manufacturing industry for the Republic of Kosovo, and the third of a series of Value Chain Mapping Report initiated by MTI. It is intended to shed light on a sector, which might have been overlooked for a while. The findings and conclusions of this report identify missing links, main gaps, and constraints along the selected value chain. The report also provides observations and considerations to be taken into account of the upcoming policy interventions.

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<sup>1</sup> Association of Plastics Manufacturers, Plastics – the Facts 2017

# 1. METHODOLOGY

Given that the ultimate interest is to stimulate value added activities in the plastics industry in the Republic of Kosovo, it is useful to understand the current and potential market considerations for the plastics value chain. In the context of end markets, the value chain assessment explores the critical success factors of the plastics value chains to gain insight into the related gaps and to understand the primary drivers of value chain development. Value chain maps demonstrate how a product in an industry moves from raw material through production, processing, and other steps, until it eventually winds up with the final consumer. The map highlights the range of activities that occur within the value chain.

Figure 13 (s. chapter 3.1) illustrates the plastics value chain to be considered within this study. It starts with the supply of polymer raw material (input), which can be of virgin, fossil based or recycled polymers. Thereafter, raw material is compounded and / or enhanced by fibres or other additions. It is followed by various manufacturing procedures, like extrusion, depending on the final application. Assembly might be applied in case plastic components are integrated in certain parts or combined (e. g. lamination) with other material (e. g. packaging or construction sector). Among others, the value chain mapping illustrated whether and how the different nodes are covered by enterprises or whether some nodes might not be properly covered.

This research report has been developed based on primary and secondary sources. The value chain analysis was conducted based on primary data, which composed of interviews with 71 SMEs representing the plastics industry in Kosovo, stratified by value chain sub-sector and the region where firms are located. Furthermore, the research team has conducted in depth interviews with three sector enterprises. The research was complemented with secondary analysis based on various sources such as official Kosovo Customs trade data and Kosovo Tax Administration data, as well as data regarding global and European plastics market.

This research study also presents three case studies of real companies that operate in Kosovo. These case studies are presented in separate boxes in the value chain analysis part. For confidentiality issues, company names have not been presented. The elaborated case studies have been compiled after in-depth interviews with the owners of the enterprises. The aim of these case studies is to offer insights for highlights of characteristics, challenges, elements of success, opportunities, and threats, for Kosovo plastic processing companies.

As this value chain study is not solely based on quantitative data analysis, the methodology of analysis is robust for providing valid market trends and value chain analysis.

## 1.1 Sample Framework

The sample framework for the plastics industry SMEs in Kosovo was provided by the Kosovo Ministry of Trade and Industry (MTI). The sample framework consists of 258 companies that operate in the plastics manufacturing industry in Kosovo. To account for the representative sample of the plastics industry, the sample was stratified based on the distribution of plastics manufacturing companies per sub-sectors and region. In addition, the sample was designed to include companies from the supply value chain function and transport. Altogether, 71 SMEs were interviewed for the value chain analysis. The questionnaire was developed by the research team in cooperation with GIZ, MTI and UBO Consulting.

UBO Consulting was assigned for conducting the value chain analysis survey, which consisted of 71 face-to-face interviews with SMEs. A group of enumerators were selected by UBO Consulting, who were instructed to ask for contact information of suppliers and transporters of plastic products from the production companies. As such, the survey with suppliers and transporters was based on the answers of the producers of plastic products.

## 2. EXPORT AND MARKET TRENDS

### 2.1 Market Trends – Global Plastics Industry Snapshot

Plastic is one of the key materials for various applications in industry and consumer applications. In 1950, the world produced only 2 million tons of plastic per year. Since then, annual production has increased nearly 200-fold, reaching 336 million tons in 2016<sup>2</sup>. The global plastics market size can be valued at USD 522.66 billion in 2017<sup>3</sup>. It is poised to expand at a CAGR of 4.0% over the next years. Increasing plastic consumption in the construction, automotive and electrical & electronics industries is projected as a key driver. Regulations to decrease gross vehicle weight to improve fuel efficiency and eventually reduce carbon emissions are further promoting the industrial use of plastics as a substitute for metals. The growth of the construction industry in emerging markets such as Brazil, China, India, and Mexico has been instrumental in fuelling the demand for plastics during 2015 and 2016. The growth of the market can be attributed to increased foreign investment in domestic construction markets as a result of easing FDI norms and requirements for better public and industrial infrastructure.

The Asia Pacific region (excluding China) was the fastest growing regional market for plastics valued at USD 105.39 billion in 2017. Rapid industrialization and increased skilled workforce are benefitting the growth of the manufacturing sector in the region, which, in turn, is boosting the demand for plastics. High economic development and consequent rise in consumer spending in emerging economies such as India and Japan along with Southeast Asian countries are further fuelling the demand for consumer goods.

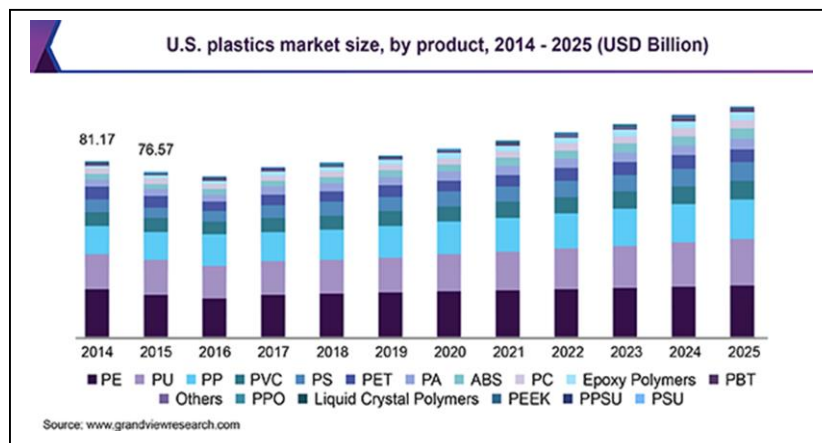
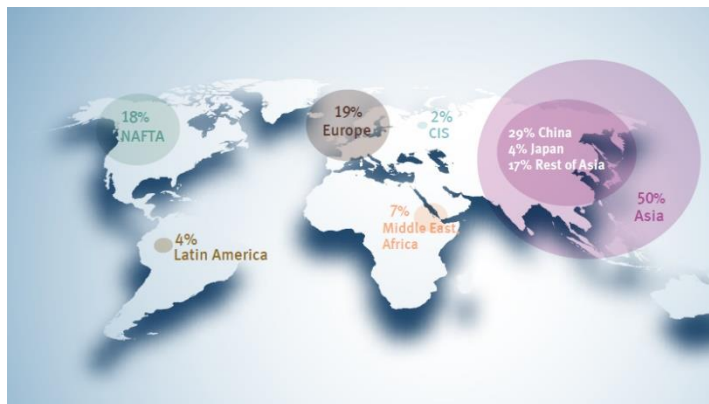


Figure 1. U.S. plastics market size



In addition, a well-established electrical & electronics manufacturing base in Taiwan and South Korea is anticipated to augur well for the market in the region. India, on the other hand, has a strong chemical industry, which strengthened its production in the last few years.

The West Africa market is considered to be the fastest growing one. According to the German Association for Manufacturers (VDMA)<sup>4</sup>, the imports of plastic technology (incl. plastics manufacturing technologies) remain high. Besides Nigeria, Côte d'Ivoire is among the most interesting markets.

<sup>2</sup> Association of Plastics Manufacturers, Plastics – the Facts 2017

<sup>3</sup> according to Grand View Research, 2018

<sup>4</sup> VDMA report „The Plastic Market in Africa“, 2017

The plastics industry is of key relevance for Europe. Around 60.000 companies operate in this industry providing over 1.5 million jobs. The turnover of these companies can be calculated with 350 billion EUR. The total European plastics industry has a trade balance of close 15 billion EUR in 2016<sup>5</sup>. Around 20% of the world plastics production emerged in Europe (60 million tons in 2016), mainly thermoplastics, polyurethanes and other plastics, like thermosets, adhesives, coatings or sealants. The six larger European countries (Germany, Italy, France, Spain, UK and Poland) and the Benelux cover almost 80% of the European demand in 2016.

The classification of different types of plastics was established by the Society of the Plastics Industry (SPI)<sup>6</sup> in 1988. This was done for allowing identification and recycling of different types of plastics. The following table presents the seven plastic materials based on the SPI codes and it describes briefly the main products of these different classifications.

Table 1. Different Types of Plastics and their Classification

| SPI Code                                                                                     | Main Products and characteristics                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|----------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <br>PET     | Polyethylene Terephthalate (PET) is commonly used for production of bottles (water and soft drinks) and other household items such as medicine jars, rope, clothing and carpet fibre. This type of plastic is commonly recycled.                                                                                                                                                                                                                                                                    |
| <br>HDPE    | High-Density Polyethylene (HDPE) is used to produce a wide range of products such as milk and non-carbonated drinks bottles, motor oil, shampoos, conditioners, soap bottles, detergents, and bleachers, snack food boxes, toys, buckets, rigid pipes, crates, plant pots, etc. This type of plastic is regarded as very safe and has a high usage in food and drinks products. It is commonly recycled, however when recycled it is not safe to be reused for products containing food and drinks. |
| <br>PVC    | Polyvinyl Chloride (PVC) is the base material of window and door frames, it is used for all kinds of pipes and tiles, etc. It is sometimes recycled.                                                                                                                                                                                                                                                                                                                                                |
| <br>LDPE  | Low-Density Polyethylene (LDPE) is used for many products such as, films, packaging films, squeezable bottles, plastic grocery bags, food bags, etc. It is sometimes recycled.                                                                                                                                                                                                                                                                                                                      |
| <br>PP    | Polypropylene (PP) it is a strong material and used to make bottle tops, bottles for food products such as yogurt, ketchup, syrup, prescription etc., potato crisp bags, biscuit wrappers, crates, plant pots, drinking straws, etc. This type of plastic is only occasionally recycled.                                                                                                                                                                                                            |
| <br>PS    | Polystyrene (PS) is commonly used in products such as disposable coffee cups, plastic food boxes, polystyrene foam, seed trays, etc. This type of plastic is commonly recycled, but it is more difficult to do so.                                                                                                                                                                                                                                                                                  |
| <br>OTHER | This classification includes other plastic materials that are not defined by the six other codes. It includes materials such as Polycarbonate and Polylactide. Generally, products that are made from plastics of this classification are more difficult to recycle.                                                                                                                                                                                                                                |

Polypropylene (PP) and Polyethylene (PE) is and will remain one of the key products in the plastics industry, each keeping a share of around 20%, in industrial and consumer application<sup>7</sup>. Both had a global production of over 80 million tons in 2017. This production is primarily used in the packaging sector, which includes containers and bottles, plastic bags and plastic films. It finds use in various applications. Based on its molecular weight, there are different types of polymers of PE such as HDPE, LDPE, and LLDPE. For instance, low molecular weight polymers of PE find use

<sup>5</sup> Association of Plastics Manufacturers, Plastics – the Facts 2017

<sup>6</sup> The Plastics Industry Association (PLASTICS)

<sup>7</sup> PlasticsEurope's Market Research Group (PEMRG), 2016



in lubricants, medium molecular weight polymers are used as wax miscible with paraffin, and high molecular weight polymers are commonly used in the plastics industry.

The flourishing packaging industry, driven by high demand from consumers in emerging economies is playing a vital role in stirring up the demand for plastics such as PE and PET. The packaging industry is estimated to be the most prominent application segment (see Figure 3) in the plastics market throughout the forecast period. This segment will account for more 35.0% (world-wide) of the overall revenue by 2025. However, the constructions as well as the consumer sectors are the next biggest areas of plastic use. The EU 28 plastics converter demand market sectors are similarly structured like the world-wide sector, whereas 40% of the plastics converter is intended for the packaging sectors, followed by 20% for Construction and 10% for Automotive applications<sup>8</sup>. Western Balkan countries, like Romania (15<sup>th</sup> place of EU27 producers) and Bulgaria (20<sup>th</sup> place) are playing a minor role.

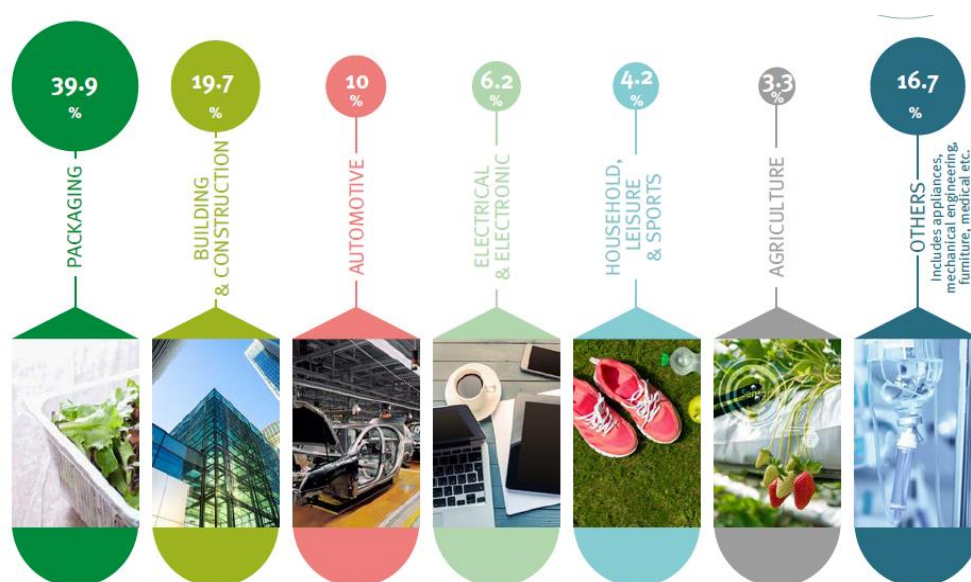


Figure 3. Plastic converter demand market sectors<sup>6</sup>

The global market is highly fragmented in nature with the largest share occupied by medium and small enterprises engaged in plastics manufacturing. Some of the key manufacturers are Evonik Industries AG (Germany); BASF SE (Germany); Saudi Basic Industries Corporation (Saudi Arabia); DowDuPont Inc (US), Arkema SA (France); Celanese Corporation (US); and Toray Industry, Inc. (Japan).

The global plastic waste for 2010 was 275 million tons. This amount exceeds the annual production (270 million tons) through wastage of plastic from previous years. As far as EU28 is concerned, 42% of the collected plastic waste is used of Energy recovery, 31% is recycled and the rest (27%) disposed by landfill<sup>7</sup>. It is interesting to note that the share of landfilling has been reduced by about 50 % over the last 10 years, whereas recycling increased by 80%.

Around 8 million tones (3% of global annual plastic waste) entered the ocean. Prior to 1980, recycling and incineration of plastic was negligible; 100% was therefore discarded. From 1980 for incineration, and 1990 for recycling, rates increased on average by about 0.7% per year. In 2015, an estimated 55% of global plastic waste was discarded, 25% was incinerated, and 20% recycled. Given the fact that the trends over past years continue, in 2032 there might be more plastic waste recycled than discarded<sup>9</sup>.

<sup>8</sup> Association of Plastics Manufacturers, ds – the Facts 2017

<sup>9</sup> According to Geyer. et al., (2017)

## 2.2 Bioplastic Trends and Markets

Currently, bioplastics represent about one 1% of plastic produced annually. However, as demand is rising and with more sophisticated green plastic applications, and products emerging, the market is continuously growing. According to the latest market data compiled by European Bioplastics, the global green plastics production capacity is set to increase from around 2.05 million tons in 2017 to approximately 2.44 million tons in 2022.

Bioplastics are currently used in an increasing number of markets, from packaging, catering products, consumer electronics, automotive, agriculture/horticulture and toys to textiles and a number of other segments. Packaging remains the largest field of application for green plastics with almost 60% (1.2 million tons) of the total green plastics market in 2017. The increase in the use of green plastics in all market segments is driven by the increasing demand for sustainable products by consumers and brands alike due to a growing awareness of the impact on the environment and the need to reduce the dependency on fossil resources. It is further enabled by the continuous advancements and innovations of the bioplastics industry in new materials with improved properties and new functionalities.

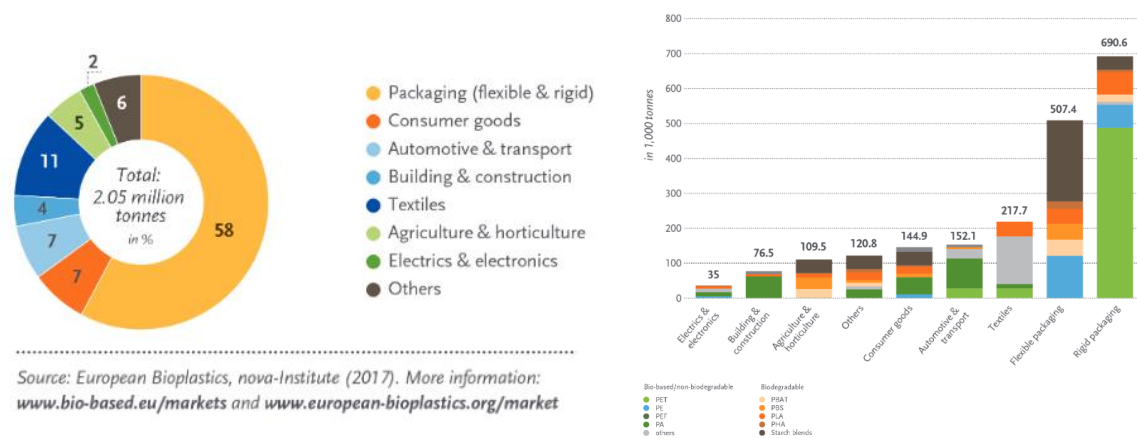


Figure 4. Global production capacities of green plastics (by market segment)<sup>9</sup>

Innovative biopolymers such as PLA (polylactic acid) and PHAs (polyhydroxyalkanoates) are the main drivers of this growth in the field of bio-based, biodegradable plastics. PHAs are an important polymer family. PHAs have been in development for a while and now finally enter the market at commercial scale with production capacities estimated to triple in the next five years. These polyesters are 100% bio-based, biodegradable, and feature a wide array of physical and mechanical properties depending on their chemical composition. Production capacities of PLA are also predicted to grow by 50% by 2022 compared to 2017. PLA is a very versatile material that features excellent barrier properties and is available in high-performance PLA grades that are an excellent replacement for PS (polystyrene), PP (polypropylene), and ABS (acrylonitrile butadiene styrene).

**Example Alternative Products value chains and performance:** The German based firm Fischer Innovative Solution GmbH is the first manufacturer in the world to offer a range of green plastic-based fastening systems based on green plastics. At least 50% of all products are produced with renewable raw materials. The following table illustrates a comparison between traditional products and green plastic based. It reveals that the price for the green plastic related material is 15% higher, but the products (dowels) can be manufactured on the same machines. This is of extreme importance to avoid heavy investments by plastics manufacturers in new machines.

Table 2. Traditional vs green plastic products: The Fischer dowel

|                      | Dowel made of traditional plastics | Dowel made of green plastic |
|----------------------|------------------------------------|-----------------------------|
| Plastic material     | Nylon                              | Nylon                       |
| Raw material         | <b>Fossil resources</b>            | <b>Caster / ricinus oil</b> |
| Manufacturing method | Injection mold                     | Injection mold              |
| Price                | 100%                               | 115%                        |

Source: DanuBioValNet, BioBased Packaging Workshop 2018, own investigations

## 2.3 Kosovo Industry Snapshot

There is very limited official data with regards to the size of the plastics sector in Kosovo. Most importantly, there is no public information on the plastics market turnover in Kosovo. This study utilizes available data from sources such as Ministry of Trade and Industry, Kosovo Agency of Statistics and Kosovo Tax Administration as well as few secondary studies that cover this sector.

Based on primary research and available secondary information on the number of companies in the sector, the authors of this study have tried to estimate the overall market size of the sector. This information is crucial for private sector, potential investors, policy makers, other stakeholders in Kosovo that support private sector development.

### Profile of Sector Companies

Available official data shows that the number of active enterprises in the plastics sector in Kosovo is steadily increasing. According to Kosovo Agency of Statistics, in 2018, there were around 534 SMEs in the plastics manufacturing sector in Kosovo. The number of SMEs in 2018 has increased with 4% compared to a year before, when the sector counted 512 companies.

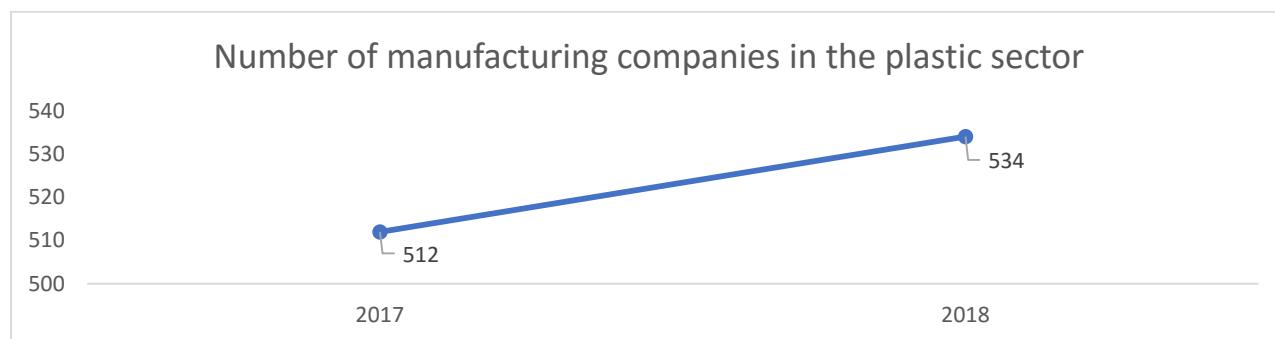


Figure 5. Number of manufacturing companies in the plastics sector in Kosovo, 2016-2018.

Source: MTI and KAS Data, Author's own calculation

SMEs in the plastics sector in Kosovo are grouped into five main sub-sectors. This is done according to NACE classification ('Nomenclature statistique des Activités économiques dans la Communauté Européenne'). Kosovo SMEs operate mainly in the following five sub-sectors:

1. Manufacture of plastics in primary forms (NACE 2016)
2. Manufacture of plastic plates, sheets, tubes and profiles (NACE 2221)
3. Manufacture of builders' ware of plastic (NACE 2223)
4. Manufacture of plastic packing goods (NACE 2222)
5. Manufacture of other plastic products (NACE 2229)

The first category, plastics manufacturing in primary forms, includes production of polymers, polyamides, phenolic and granulate, epoxide, alkyd, polyester and polyether, silicon, polymer and cellulose production. In 2018, as shown in Figure 6, there were 38 active SMEs in this category, around 9% more than in 2017 (35 SMEs).

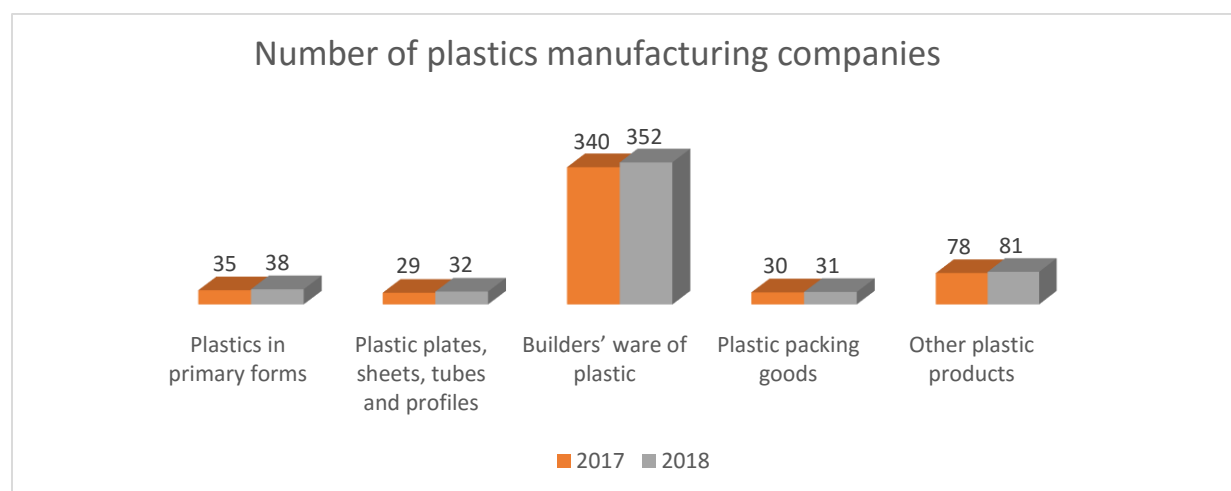


Figure 6. Distribution of plastics manufacturing companies per sub-sector  
Source: MTI and KAS Data, Author's own calculation<sup>10</sup>

In the second category, which includes manufacturing of plastic plates, sheets, tubes and profiles, there were 32 active companies in 2018, whereas in 2017 this category counted 29 companies. This sub-sector represents around 6% of total plastics sector companies.

The third classification includes manufacturing of plastic products for construction, such as doors, windows, profiles, and other products such as styrofoam, etc., which counts the highest participation in the plastics sector, contributing to over 66% of the overall sector, with a total number of 352 companies in 2018. The number of companies in the manufacturing of builders' ware of plastics sub-sectors has recorded the highest growth in the number of companies during the past two years, from 340 in 2017 to 352 in 2018.

The fourth plastics sub-sector includes manufacturing of goods for packaging, which includes foils, films, plastic bags, plastic for product labelling and packaging, and bottles. This sub-sector counted around 31 companies in 2018. However, despite a lowest share in the overall industry, it is important to underline that this sub-sector represents the most active in-country value chain, involving functions such as waste collection, recycling/production of granulates, and production of final products.

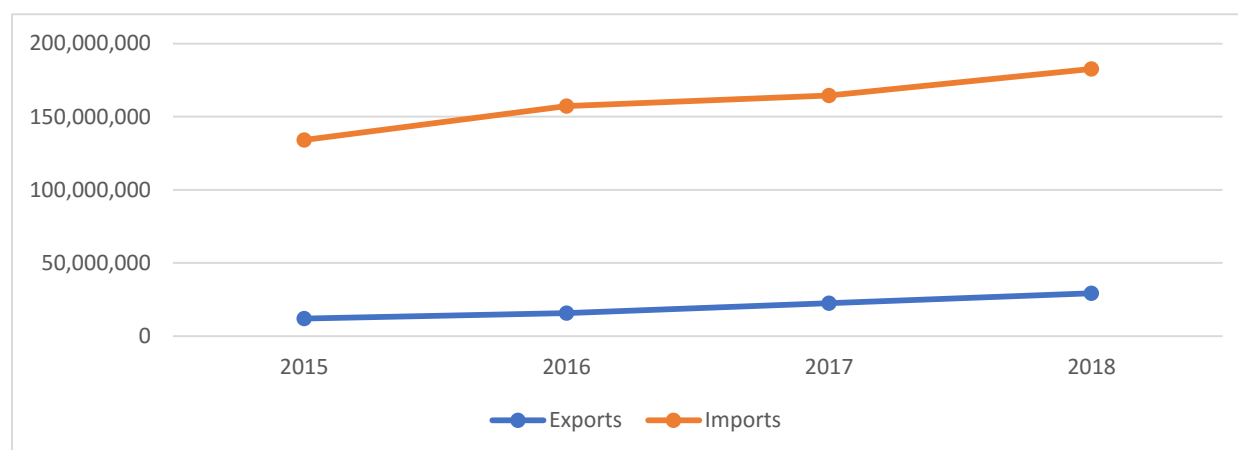
<sup>10</sup> The authors have extrapolated the data regarding the number of companies for the sub-sector Plastics in primary forms based on Kosovo Tax Administration data on the number of companies in this sub-sector from 2014-2016 – assuming a constant growth level of companies. For the rest of four sub-sectors, the authors have collected and utilized data from the MTI which are based on the KAS sources.

The final classification of the plastics sector includes manufacturing of plastic products for kitchen, lighting, office, school materials, toys, and other products that do not belong to previous categories, etc. With 81 companies in 2018, this sub-sector contributes with 15% of companies to overall plastics sector. The growth of this sub-sector over years has followed a high positive trend, similar to other sub-sectors, recording an average annual increase of 4% in the number of enterprises between 2017 and 2018. Since this sub-sector includes manufacturing of ‘other’ plastic goods, with a wide range of products, it is difficult to distinguish what products and SMEs dominate this sub-sector.

## 2.4 Kosovo Plastics Industry Trends and Markets

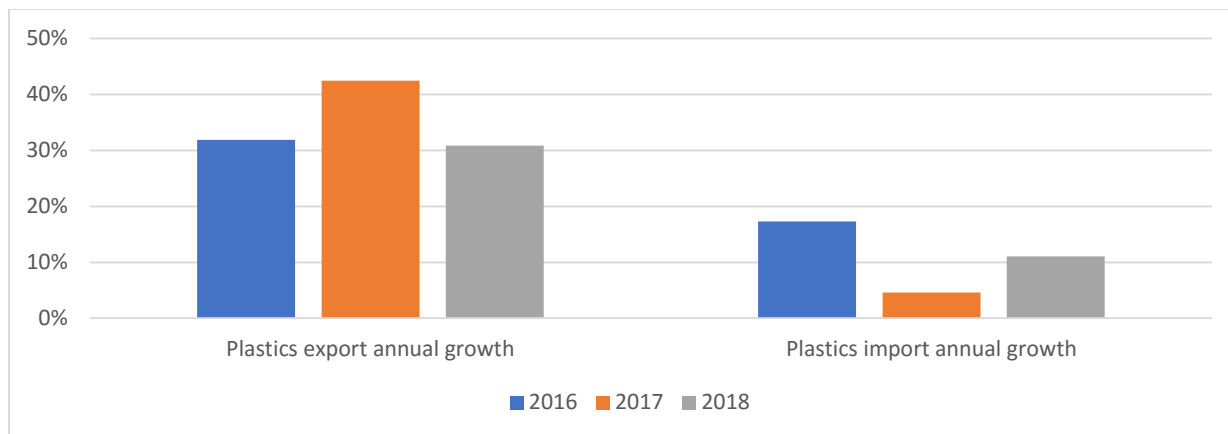
Kosovo’s trade of plastic products has recorded a sharp growth over the last decade. Increasing demand for plastics and the applicability of plastics in all industries has triggered private sector companies in Kosovo to invest in the plastics processing industry, as indicated by the increasing number of businesses in the plastics sector, contributing to import and export growth. However, Kosovo imports in total much more plastic than it exports.

As presented in Figure 7, from around 133 Mil EUR in 2015, overall plastics related imports have reached 182 Mil EUR in 2018. The exports are at a much lower level, but with a significant growth, from around 11 Mil EUR in 2015 recording around 29 Mil EUR of exports in 2018.<sup>11</sup>



*Figure 7. Kosovo plastics sector imports and exports trend, 2015-2018*  
*Source: Author’s own calculation, Kosovo Customs Data*

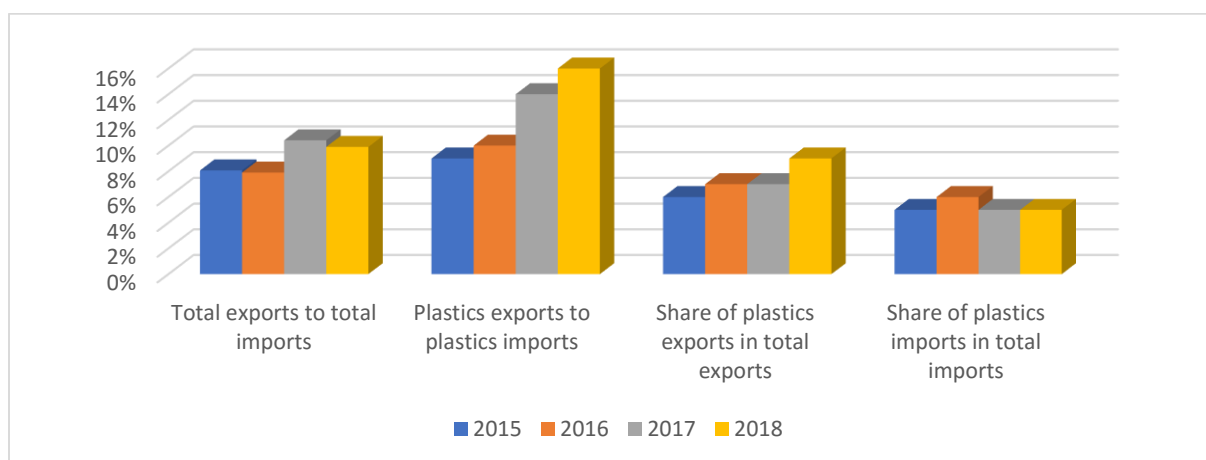
<sup>11</sup> Export and import data are compiled using Kosovo Customs data- product codes under the Plastics Manufacturing sector.



*Figure 8. Kosovo Plastics Industry Import and Export annual growth, 2016-2018*  
*Source: Author's own calculation, Kosovo Customs Data*

Looking at the growth trend (see Figure 8), plastics exports show a promising outlook, with an average annual growth of about 35% between 2016 and 2018. Import of plastics as well recorded a continuous growth but, at much lower and decreasing rates, with an annual average of around 10%.

The ratio of exports of plastics goods to plastics imports has increased significantly, from around 8% in 2015 to around 16% in 2018 (Figure 9). The plastics sector exports are catching up much faster as compared to overall country trade trend, as the ratio of total Kosovo exports to imports rose from around 8% in 2015 to only about 10% in 2018. Whereas the plastics imports are following the overall imports trend.



*Figure 9. Kosovo Plastics Industry, Market Trends, 2015-2018*  
*Source: Author's own calculation, Kosovo Customs Data*

Considering export markets, Figure 10, shows that the EU and CEFTA countries are the main target markets for Kosovo plastic products. Export in the EU countries has tripled over the last three years, from 5 Mil EUR in 2015 to around 15 Mil EUR in 2018. In the regional countries, including all countries under the Central European Free Trade Agreement (CEFTA), exports rose from 6 Mil EUR in 2015 to around 13 Mil EUR in 2018. Export in all other countries is much lower, reaching around 1.2 Mil EUR in 2018.

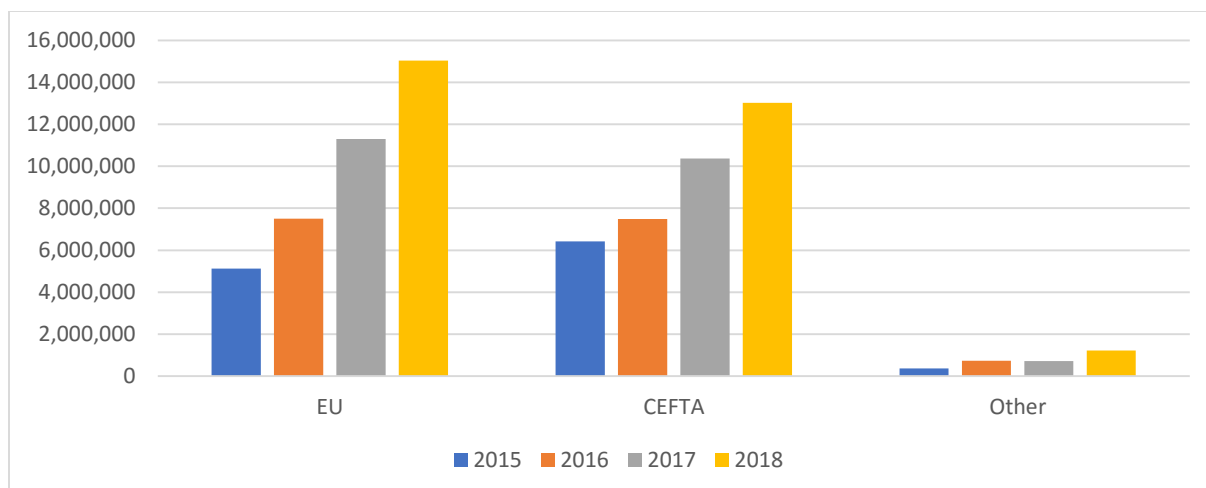


Figure 10. Kosovo plastics sector export, by region, 2015-2018  
Source: Author's own calculation, Kosovo Customs Data

Figure 11 below depicts main import markets. Highest value of plastics in 2018 is imported from third countries, or about 74 Mil EUR. The second most important region for imports are EU countries, which accounted for 72 Mil EUR in 2018. Imports from the region varied between 32 and 40 Mil EUR between 2015 and 2018.

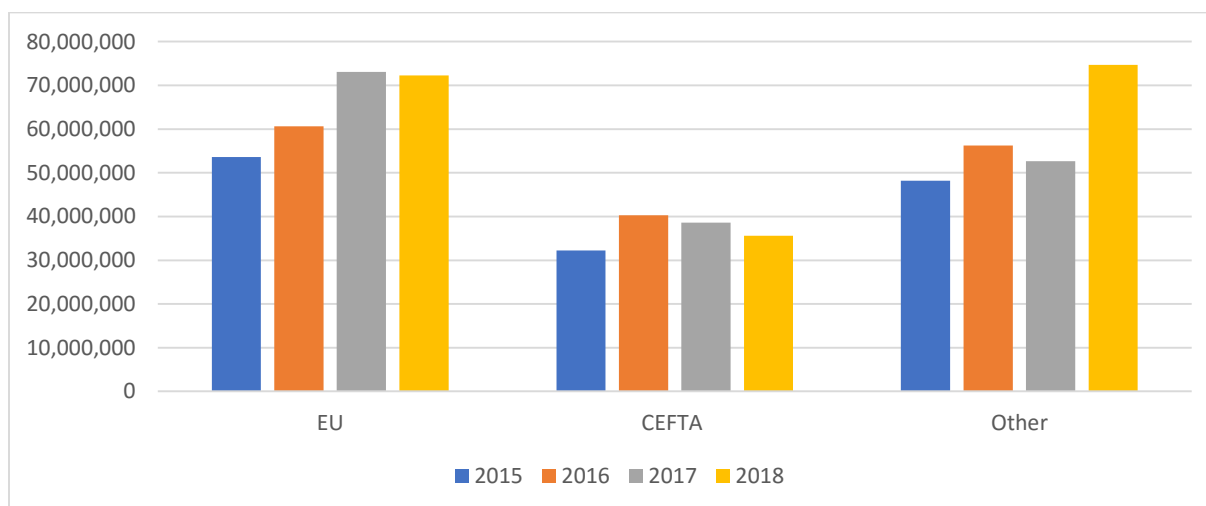


Figure 11. Kosovo plastics sector imports, by region, 2015-2018  
Source: Author's own calculation, Kosovo Customs Data

For a more detailed analysis of the plastics industry trade, main sub-sectors are examined. The product groups (sub-sectors) are defined and analysed following the product codes used by the Kosovo Customs, which are harmonised with the United Nations International Trade Statistics, the Harmonized Commodity Description and Coding Systems (HS). As per the HS coding system of Kosovo Customs, the following groups are analysed.

1. Manufacture of plastics in primary forms
2. Manufacture of plastic tubes, pipes, hoses and fittings thereof
3. Manufacture of builders' ware of plastic (doors and windows, fittings, profiles, etc)
4. Manufacture of plastic packing goods (Plastic products for packaging (films, plates, sheets, packaging foils, plastic bags, bottles, etc)
5. Manufacture of other plastic products (Plastic products for households, toilets, offices, toys, etc)

Figure 12 below shows export trends in the five plastics sub-sectors, between 2015-2018. A continuous growth is clearly indicated by two product categories, namely **plastic builder's ware** and **plastic products for packaging**.

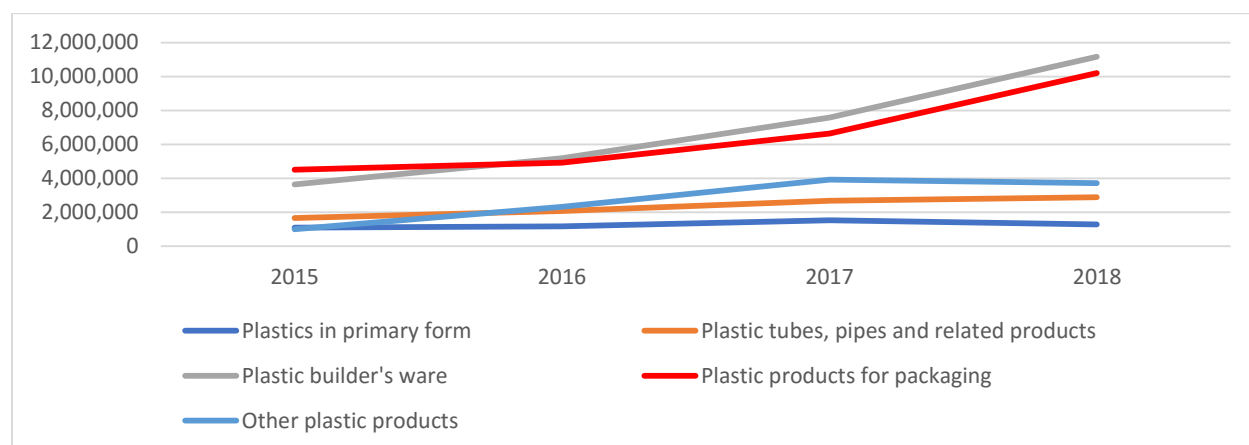


Figure 12 Plastics sector exports, by sub-sector, 2015-2018

Source: Author's own calculations, Kosovo Customs Dataset

Among all categories, **plastic builder's ware has marked positive net exports in 2018, with over 11 Mil EUR of exports (7.4 Mil EUR of imports)**. The export of plastic products for packaging has reached 10.2 Mil EUR in 2018, whereas imports around 40 Mil Eur. Plastic tubes, pipes and related products, reached to about 2.9 Mil EUR of exports and around 18 Mil EUR of imports in 2018. Exports of other plastic products are relatively small (3.7 Mil EUR) compared to imports in 2018 (29 Mil. EUR) The largest trade deficit is in the sub-sector of plastics in primary form.

Export growth trends, by sub-sector, presented in Figure 13, show a **very positive outlook for two out of five sub-sectors**, mainly for **plastic builder's ware** and **plastic products for packaging**. Exports of plastic builder's ware increased by an average growth rate of 45%, between 2016 and 2018, while exports of plastic products for packaging have recorded an average annual growth of 35%. Exports of plastic tubes and pipes have an average growth rate of 21% between 2016 to 2018, but a negative growth in 2018 (-5%). Exports of other plastic products reached its growth peak in 2016 (132%), followed by declining rates in 2017 (69%) and 2018 (-7%).

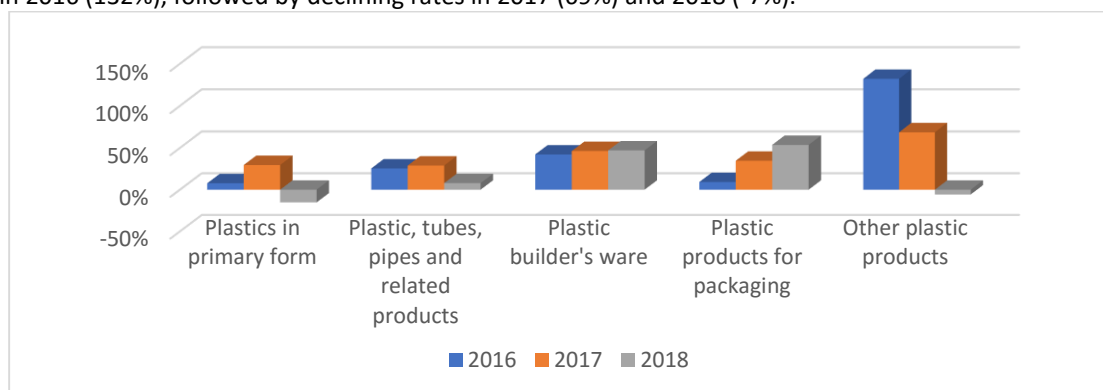


Figure 13. Plastics exports annual growth, by sub-sector, 2016-2018

Source: Author's own calculation, Kosovo Customs Data.

Export markets vary across the sub-sectors (Figure 14). **Plastic builder's ware accounts for the largest share of exports in the EU market, with Switzerland and Germany as main exporting destinations**. A small portion of exports is going into CEFTA countries, mainly to Albania, and the rest into other markets, where Kazakhstan is the main destination. **Plastic Doors and Windows are the most exported products in this category**.



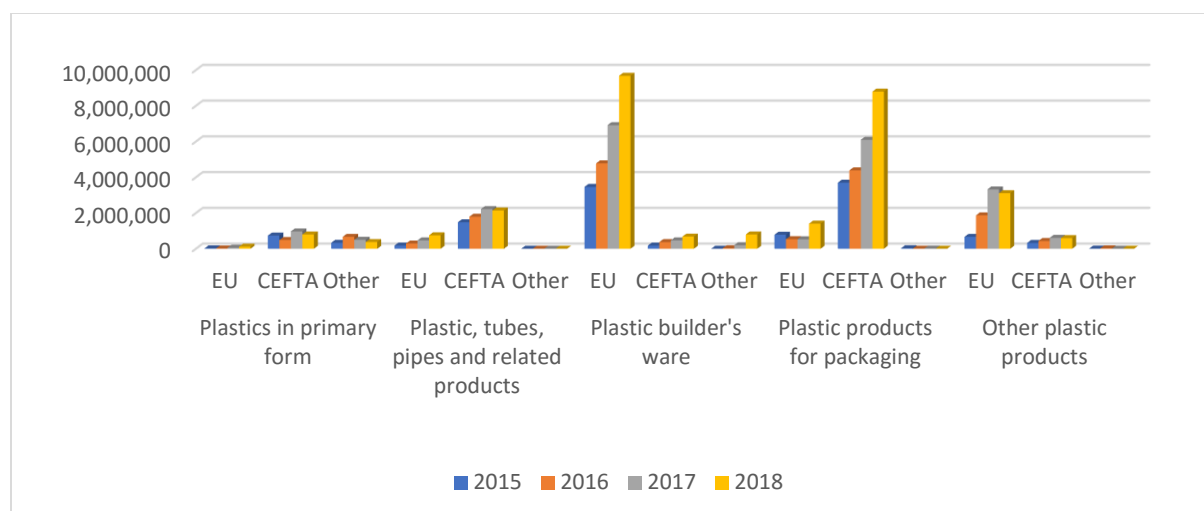


Figure 14. Kosovo plastics exports, by sub-sector and export region, 2015-2018

Source: Author's own calculation, Kosovo Customs Data

**In the sub-sector of plastic tubes, pipes and related products, main exports are in the CEFTA countries,** with a much smaller share of exports in the EU market. Most plastic tubes and pipes are being exported to Albania, while Bulgaria accounts for most exported pipes into the EU.

**Plastic products for packaging had constant growth of exports to CEFTA countries. Plastic films, sheets and plates are the most exported products in this category, mainly to North Macedonia.** In the EU market, exports to Croatia and Romania have contributed to a significant export growth in 2018.

**Other plastic products** are mainly exported to the **EU (mainly Germany)**. While **plastics in primary form are mostly exported to North Macedonia and Turkey**. For both categories, as a large share of products is coded 'other' plastic goods, it is difficult to distinguish products that dominate exports.

### 3. VALUE CHAIN ANALYSIS

#### 3.1 Sector Value Chain Map

The plastics sector value chain map is depicted below in Figure 15. The core value chain map is presented with three main functions, which have also been the focus of the study survey. The input function is composed of two different type of roles (which are not exclusive in Kosovo), of recycling companies (which are also manufacturers of plastics in primary form) as well as import companies. The manufacturing SMEs can be found in five sub-sectors. Finally, there are transport companies, the most important of which are those that transport goods for export. The plastics

sector in Kosovo is largely unorganized, however, there are services in the market related to finance, marketing, skills and technology and market information services. Services related to finance and marketing are utilized at a significantly higher extent. Finally, the enabling environment is characterized mainly by laws and regulations as well as taxes and tariffs system, while companies are only rarely organized in business membership associations (BMOs) and quality standards are not very frequently applied.

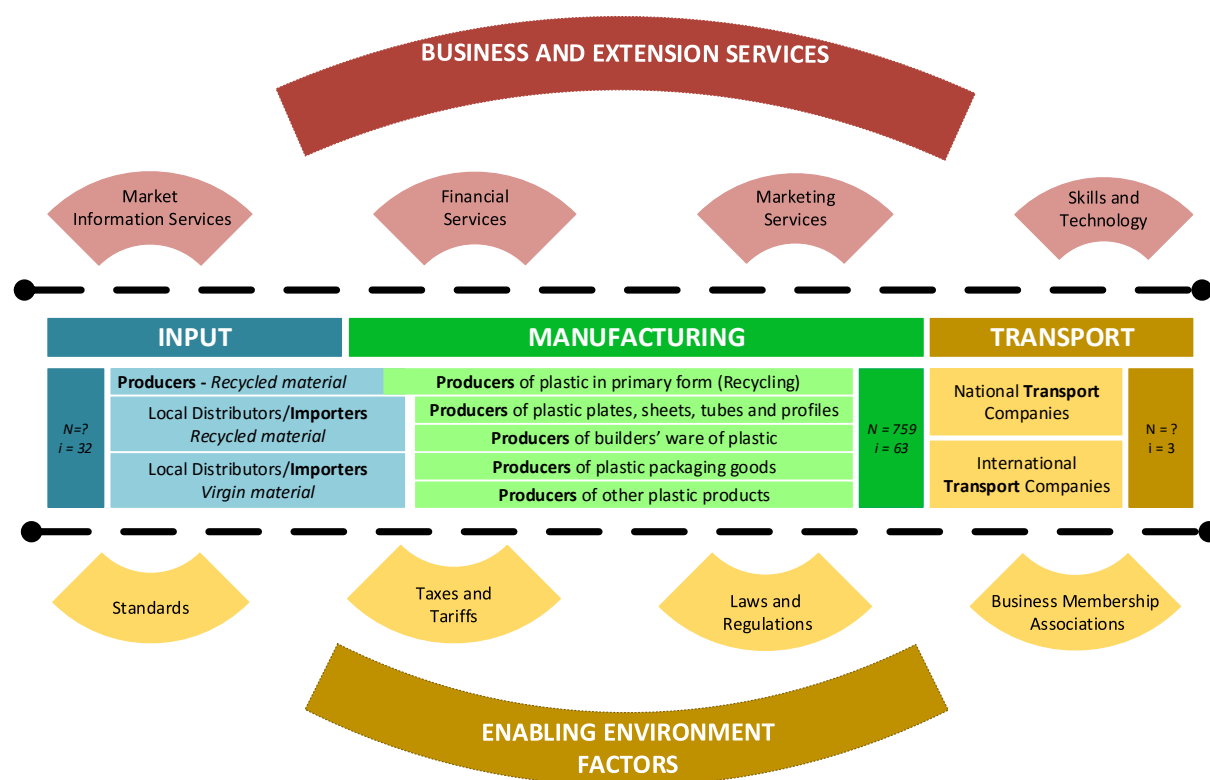


Figure 15. Plastics Sector Value Chain Map

The different nodes of a plastics manufacturing value chain are illustrated in Figure 16. Whereas the both first nodes (supply polymer – raw or recycled material as well as compounding / fibre-enhancement) are typically covered by suppliers, the next three nodes are typically covered by manufacturers. Actors covering the Application node are end-users (buyers). End of Life Management is often organised by collectors and / or recycling firms.



Figure 16. Nodes of a plastics manufacturing value chain

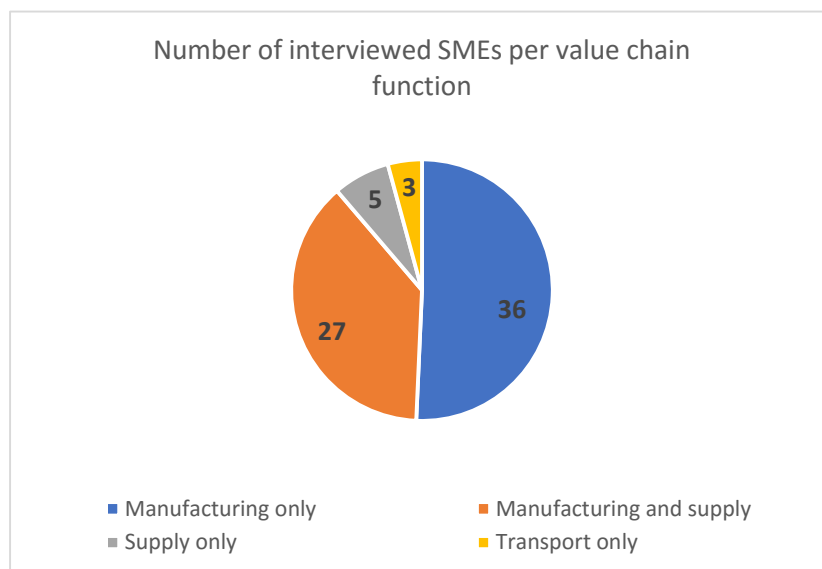


Figure 17. Number of SMEs per value chain function

The value chain analysis is based mainly on the findings from the survey. Some of the 71 interviewed SMEs have more than one value chain function. The following chart presents the number of SMEs per value chain function, where one SME can have more than one function. The survey team has interviewed 36 SMEs that are only involved in the manufacturing role, while the remaining 27 manufacturing SMEs also organize the import of raw material and/or are involved in plastic recycling. Five SMEs that only specialize in the supply function were interviewed and three that are only involved in the transport function (Figure 17).

## 3.2 Value Chain Analysis: Supply

To analyze the supply with primary plastic products this study looks at both the manufacturing companies and their issues with supply and the companies that supply primary plastic products. Plastics industry SMEs in Kosovo are generally involved in both supply and manufacturing functions. Out of 71 total interviewed SMEs, only 5 SMEs (7%) are specialized only in the supply function, mainly around import and distribution of primary plastic products. On the other hand, around 43% (27 out of 63) of interviewed manufacturing SMEs are also involved in supply with primary plastic products, meaning they have two value chain functions.

Generally, there are two types of supply functions. One involves import of primary plastic products, which can include a wide range of products, but is mainly concentrated around PVC, HDPE, LDPE, Polypropylene. In this category, primary products are generally imported in the form of granules, sheets, films, profiles or frames. The second type of supply function consists of companies that recycle plastic waste and produce recycled plastic in primary forms of granules or sheets/films. These supply functions do not indicate that companies have exclusively one or the other function, in fact there are many cases where companies are involved in both supply functions – being both plastics importers and producers/recyclers.

### 3.2.1 Demand for raw material - The manufacturers' perspective of supply

Most plastics manufacturers in Kosovo work through intermediaries for supplying with primary product. This accounts for around 90% of interviewed companies. Regarding imports of raw material, 27% have declared that they organize the supply fully (16%) or partly (11%) directly through imports. Despite this, most manufacturing companies (85%) think that it is better to organize the supply and import of raw material themselves, whereas only 15% prefer to work with intermediaries.

The highest reported raw material is PVC, in 37% of manufacturers, followed by granules, mainly in HDPE and LDPE materials, with 18% of manufacturing companies. Many companies (around 25%) were not able to define the type of material, therefore referring only as 'plastic'. When looking across sub-sectors, to produce tubes, pipes and

related products, HDPE and PVC are main materials required, the plastics builder's ware products are namely PVC based, while in case of plastic products for packaging, HDPE, LDPE and PVC are used as raw material for manufacturing. Other plastics producers use PVC mainly, but in cases also HDPE, LDPE and PP.

Table 3. Main materials used, sub-sector

| Sub-sectors                               | Type of material                              |
|-------------------------------------------|-----------------------------------------------|
| Plastic tubes, pipes and related products | HDPE and PVC                                  |
| Plastics builder's ware                   | PVC mainly                                    |
| Plastic products for packaging            | HDPE, LDPE and third material PVC             |
| Other plastic products                    | PVC main material, in cases HDPE, LDPE and PP |

Source: Author's own calculation, survey data

An important finding is regarding the raw material origin, where the dominant country of origin is Germany. Other raw material origin countries mentioned, however in very few frequencies are: Croatia, Greece, Bulgaria, Poland and Italy. This indicates that the Kosovo market appreciates the quality of raw material, with a strong preference on German products.

**It is important to note that the imported raw material from the EU countries is mostly in form of ready-made profiles and as virgin material (resins). While the recycled plastic in primary form is mostly produced domestically or imported from the region.**

Manufacturing companies rate lack of flexibility and customs administrative regulations as the biggest constraints with regards to supply with raw material. Lack of flexibility has to do with the quantity of deliveries and modality of payments, while delays in customs and specific documentation requirements are reported as very high constraints. Quality and delivery time of primary products are valued as the third and fourth barriers, while the cost of raw material is perceived as the least constraint for supplying with raw material.

### 3.2.2 Supply of raw material - The suppliers' perspective

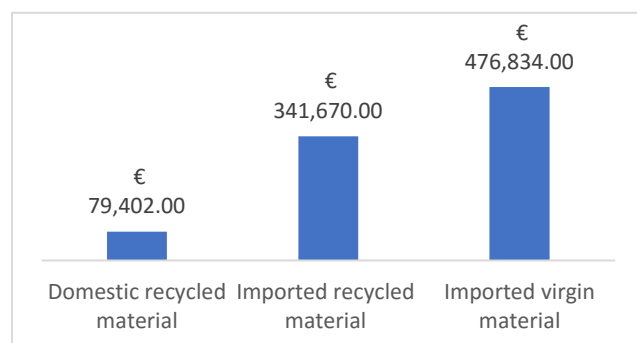


Figure 18. Average value of supplied raw material per SME

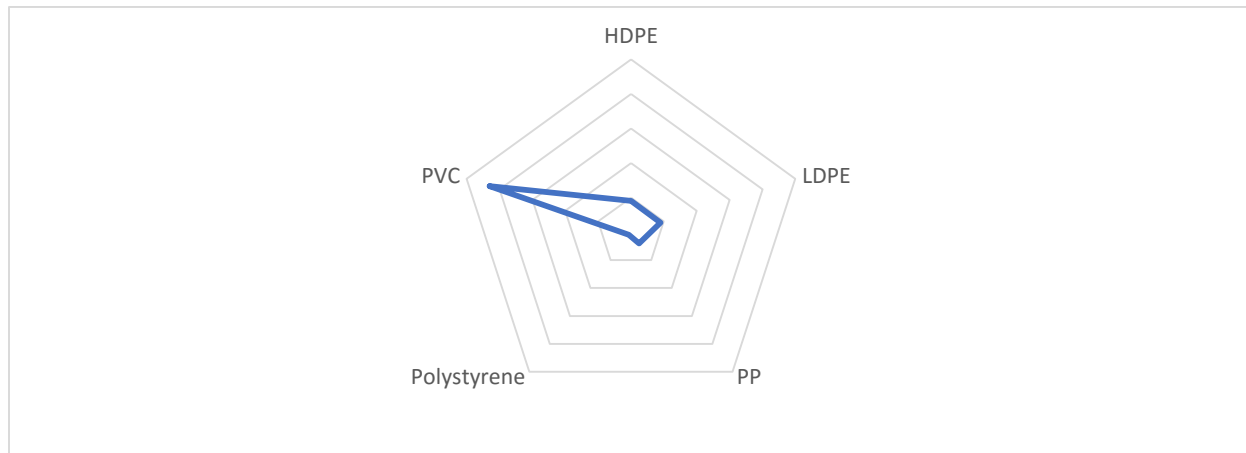
Source: Author's own calculation, survey data

For the purpose of this study, 32 SMEs that operate in the supply function of the value chain have been interviewed. Out of these 32 SMEs, most of them (84%) also operate as manufacturers for final plastic products, and only 16% (5 SMEs) are exclusively focused on supply with raw material. The reported value of primary production is 7.6 million, out of which 18% adds to recycled domestic material, 45% accounts for imported recycled material (dominated by one company) and 38% for imported virgin material. As indicated by Figure 18, the average value of annual domestic recycled material supplied is around 79,400 EUR. The average value of imported recycled material

is 341,670 EUR, while the average annual value of imported virgin material tops with 476,834 EUR. **It is important to note, that the average value of imported raw material exceeds the average value of turnover of firms. This may be a case if we assume that firms may have increased the value of imports to meet an increasing demand for the forthcoming period. However, the data should be considered with caution in terms of nominal values reported.**

As shown in Figure 19, polyvinyl chloride (PVC) is by far the highest utilized material by interviewed companies. Specifically, PVC is used by 75% of interviewed SMEs. Polyethylene is the second utilized material, where 19% of interviewed companies use HDPE and 16% LDPE. Finally, Polypropylene is the least used material, only in 9% of cases. It is important to mention that none of the interviewed SMEs use other plastic materials such as Polystyrene (used

for manufacturing of Styrofoam products) and Polyethylene terephthalate (used for manufacturing of plastic bottles).



*Figure 19. Intensity of usage of materials*  
*Source: Author's own calculation, survey data*

**The origin of imports is dominantly Germany.** PVC (recycled) is the most frequently imported material from Germany. This again confirms the finding that there is a strong preference on German material for PVC related products such as doors and windows. **The second preferred country of import for suppliers' is North Macedonia.** In the case of North Macedonia, there is a strong tendency to import HDPE related material. Finally, Italy and Turkey seem to be origin countries with third highest intensity, whereas other countries of import origin (e.g. Albania, Serbia, Bosnia and Hercegovina, etc.) are mentioned on individual cases. Related to organization of import, half of the interviewed companies report to import on regular basis and store products in house compared to the other half who import products "just-in-time" by need cases. **The cost of transportation is reported as the main import related cost, followed by customs, import duties and taxes.**

The following part and graphs present the constraints of companies who are engaged in recycling and production of raw material and companies who import raw material. Interviewed supplying companies were asked to rank the three most important constrains for their business activity. In order to estimate the magnitude of the constraint, the frequency of constraint was multiplied with respective ranking (where the raking is analysed between 1 and 3, 1 being the lowest and 3 the biggest constraint).

**The required quality of raw material is the highest constraint for recycling companies** (Figure 20). Interviewed enterprises have mentioned that they are not satisfied with the quality of recycled product, and this can be both due to the quality of primary product (in this case waste or granulate) as well as the due to the recycling process and machinery. The constraint with the second highest intensity is regarding prices, where recycling companies have emphasized that input prices are very high and prices in general (selling and buying) are unstable. The following constraint is regarding delivery time, where companies state that they face delays in fulfilling orders. Transport is reported as costly and it is of similar intensity constraint with order size. Finally, instability with electricity supply has been report as a challenge as well.



Figure 20. Constraints for recycling companies  
Source: Author's own calculation, survey data

**High input prices and instability of prices is by far the most frequently reported constraint for companies that import primary plastic products** (Figure 21). Importing companies have reported, with less intensity, that they require better raw material. **The third highest intensity constraint is regarding standards and certifications of raw material, where some companies have outlined that they do not have information of appropriate standards for raw material.** Other constraints, that have been marked with less intensity are: delays on orders and professionalism of suppliers.

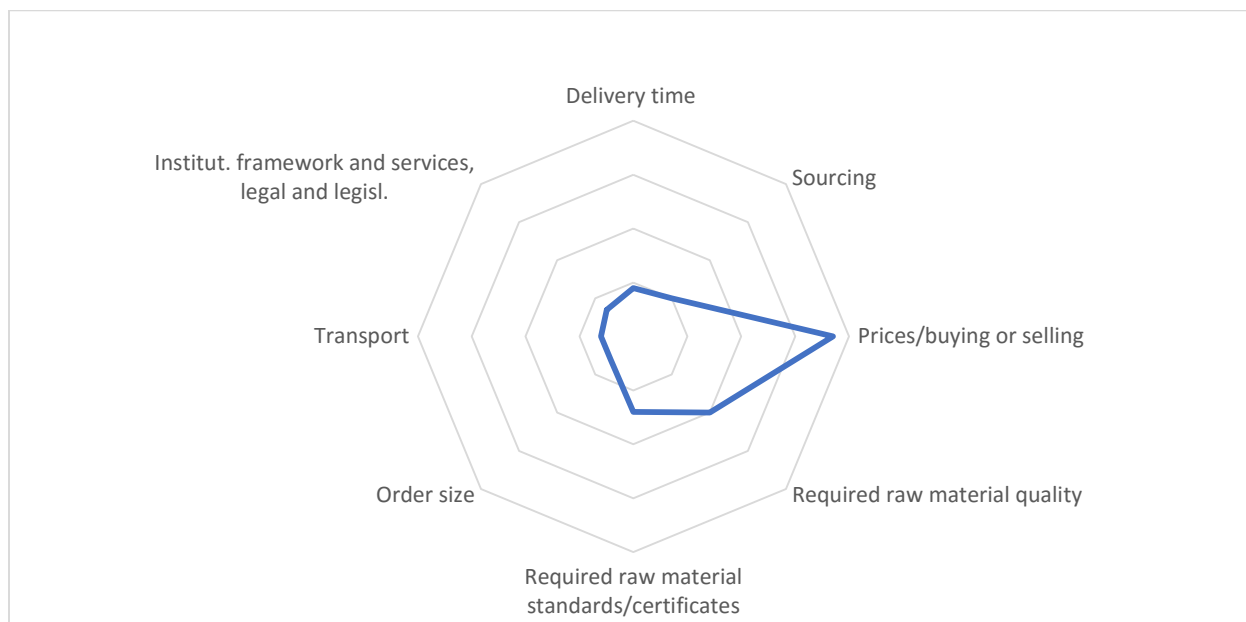


Figure 21. Constraints for supply of imports  
Source: Author's own calculation, survey data

Interviewed companies were asked to rank the most profitable plastic material. Interestingly, PVC appears as a first choice in 69% of cases, followed by HDPE in 16% of cases. As a second-choice profitable plastic material, 16% of companies report LDPE, while interestingly, 28% of interviewed companies report (either as a first or second choice) that aluminium is a profitable product.

Around 72% of interviewed plastics supply companies have indicated that they have regular business cooperation, 59% of cases with national companies and 13% with international companies. The remaining 28% of companies have declared that they do not have any regular business cooperation, which implies that they organize the supply for their manufacturing purposes.

An interesting finding is regarding the use of business support services, where none of the companies have cooperation with actors, such as Universities, Research Institutes/Labs, that provide professional expertise and related supporting services. Furthermore, only 6% of interviewed suppliers are members of business membership organizations, which indicate that this value chain function of the industry is largely unorganized.

In general, supplying and/or recycling companies, are faced with the challenge of quality, both in terms of raw material for recycling and the imported recycled material. Transport and logistics also are another issue affecting sector performance. Last but not the least, formal sector organization is very weak.

### 3.3 Value Chain Analysis: Producers

Plastics industry SMEs in Kosovo are generally involved in both supply and manufacturing functions at the value chain. Out of 71 total interviewed SMEs, 63 SMEs are involved in the manufacturing. Based on the types of products the companies have reported, they are categorized into four main manufacturing sub-sectors, as illustrated in Figure 22. Around 11% of companies interviewed produce plastic tubes, pipes and related products, majority of companies belongs to builder's ware sub-sector (70%), 8% of companies produce plastics packaging products (8%) and 11% of companies manufacture other plastic products. Companies belonging to the production of plastics in primary form are categorized in the supply chain analysis, including only 5 SMEs (7% of the sample) specialized only in the supply function, mainly around import and distribution of primary plastic products, and around 4% (27 out of 63) of interviewed manufacturing SMEs are involved in supply with primary plastic products.

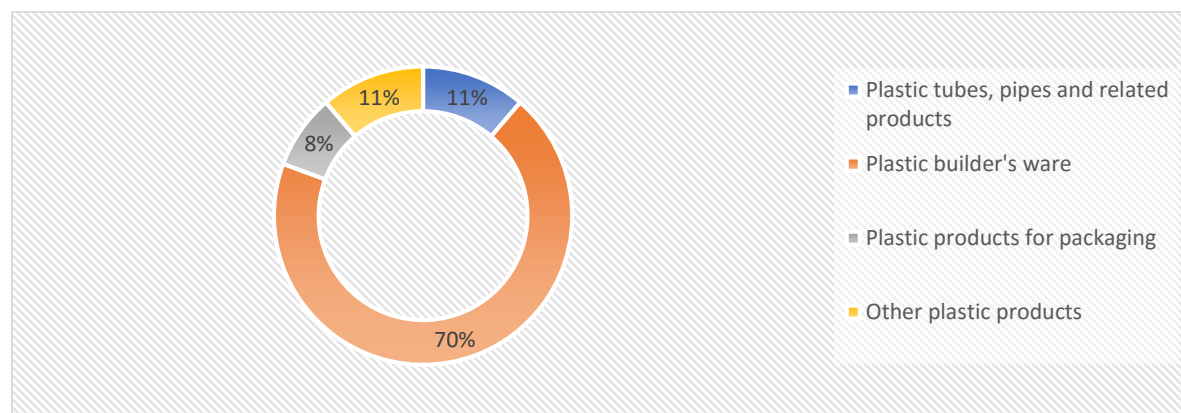


Figure 22. Share of interviewed production companies by sub-sector  
Source: Author's own calculation, survey data

Most of the companies interviewed are of a micro size, with 6-10 employees, as shown in Figure 23.

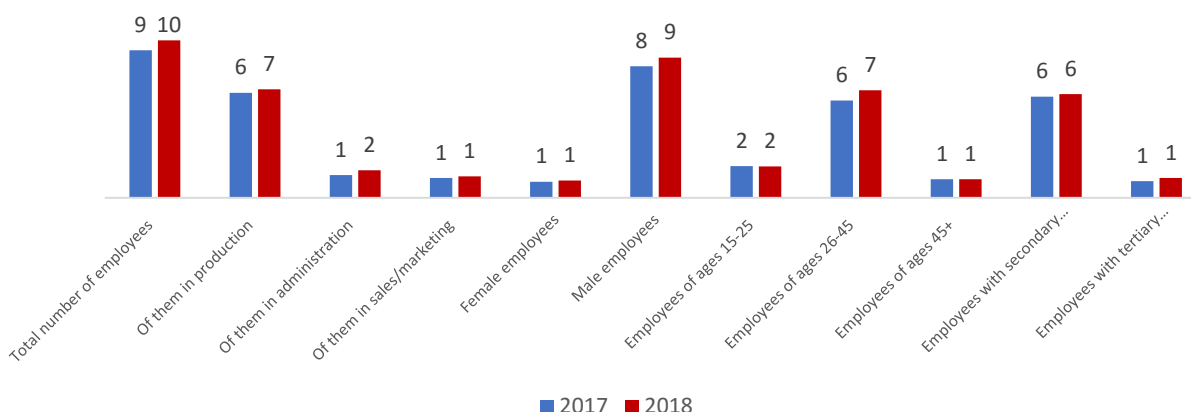


Figure 23. Average number of employees, by company, department, age, education.  
Source: Author's own calculation, survey data

### Box 1. CASE STUDY 1: Enterprise A

**This enterprise has more than a decade since establishment and it is specialized in polymer products, primarily in production of plastic bags, sacks, sheets and films.** Local market is the main focus, with over 90% of overall sales, and the rest of products is exported to regional and EU countries. Currently the enterprise employs over 40 full time workers and has a turnover of around 2 million EUR.

**Investment in machinery and facility, experience gained over years and solid distribution network provide a competitive edge for this company.** The process of plastic bags and garbage bags production is present at a several value chain levels within the country. Contrary to other plastic products where only one part of manufacturing is done in Kosovo, **production of plastic bags involves in country waste plastic collection, recycling and production of granulate, and processing of final products into bags and sacks.** Benefit can therefore go to up to three levels of the value chain. Local market offers limited growth opportunities around import substitution. **Opportunities around export are significantly higher, however requirements for exports are much higher in terms of quality.** Furthermore, extensive promotion and linkages is required to reach particularly European buyers. Nonetheless, with current wage and tax levels as well as duty free export, Kosovo companies are very competitive to export to European markets. With growing environment demands, **Kosovo companies that operate in this sector have a chance to focus in recyclable and environmentally friendly products (e.g. plant based plastic alternatives).** This can be particularly achieved in cooperation with foreign investors, which can also guarantee markets for producers.

Operating in the local market is almost always accompanied with problems with delayed payments. **Companies in this sector face major threats arising from potential regulatory changes that could ban or limit usage of plastic based products.** The Kosovo Government is currently seeking for options to either ban or tax plastic bags in their efforts to address environmental issues. Such actions could be devastating for the enterprises that work in this sector and would require immediate investments for altering production into more environment friendly products.

This and similar enterprises that operate in this sector could greatly benefit from services in improving product quality and consistency, and export promotion. Moreover, **due to regulatory change threats, adjusting gradually towards fully recyclable and especially plastic alternative products is a strategic growth perspective.** Being aware of eventual regulatory changes and triggered by the global market changes in the plastics industry, **in a joint investment with an international investor, the company aims to establish a new export-oriented manufacture of plastic alternative (bio) products.** Although the raw material will have to be imported, **this will create future opportunities in the country for production of bio based (plant-based plastic alternatives) plastic in primary form.**



On average, the total number of employees in 2017 was nine, whereas that average increased to around 10 in 2018. Most employees were focused in production, on average six in 2017 and seven in 2018. Regarding gender, the average number of male employees has increased from 2017 to 2018, while the average number of females employed did not. Furthermore, the average number of males employed is much higher than females in this industry. Most employees belong to the ages of 26-45, with six on average in 2017 and seven on average in 2018. On average, the number of employees with secondary education is higher in these companies, compared to the average number of employees who have primary or tertiary education. Only eight companies claimed to have employees that have only completed primary education.

### 3.3.1 Local and Export Markets - The manufacturers' perspective

Interviewed companies in the manufacturing sector have reported around 7% increase in employment from 2017 to 2018. Figure 24 shows employment figures per each sub-sector for 2017 and 2018. Plastic tubes, pipes and other related fittings account for the highest growth, reporting an increase of 25%, followed by the plastic packaging products (around 15%), whereas the other two sub-sectors have not experienced significant changes in terms of employment.

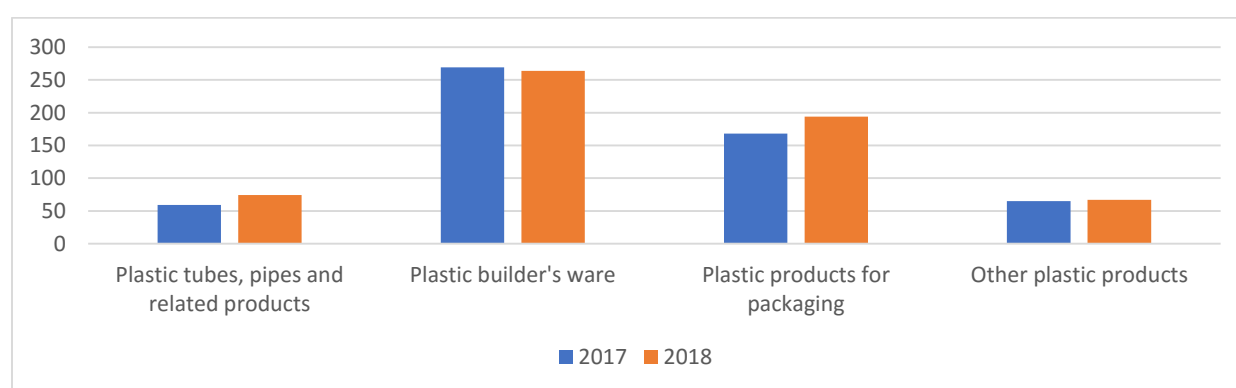


Figure 24. Number of employees by sub-sector, 2017 – 2018.

Source: Author's own calculation, survey data

Quantity (tons) of plastics produced has increased by 22% between 2017 and 2018. As shown in Figure 25, the largest average increase is reported in the sub-sector of tubes, pipes and other related products, followed by builder's ware companies. A lower increase is reported by the companies producing plastic products for packaging while almost no change is reported by other plastics producers.

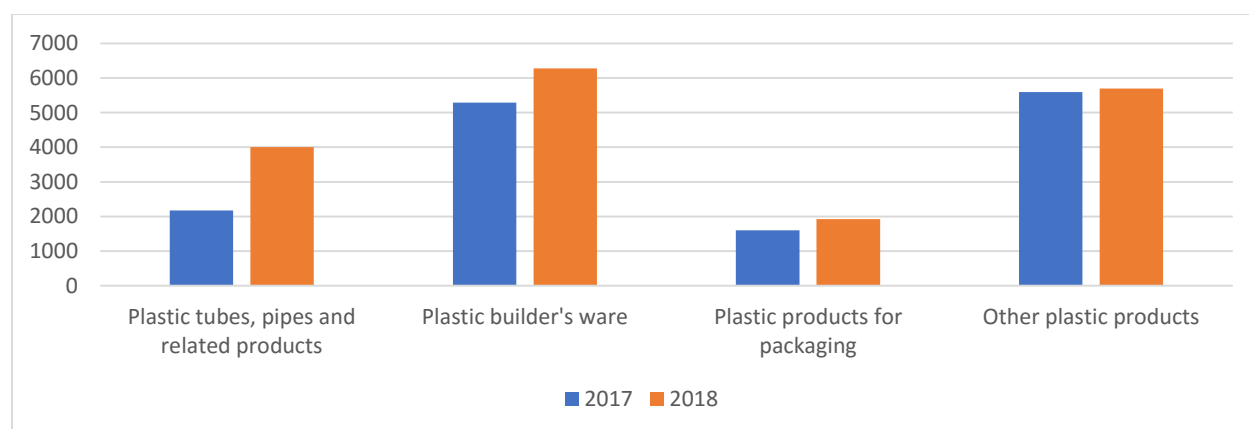


Figure 25. Average quantity of produced plastics in tons, 2017-2018

Source: Author's own calculation, survey data

It seems that in the sub-sectors of tubes and plastics for packaging a growth in quantity produced has triggered growth in employment. Whereas, this is not the case in the plastic builder's ware sector. One rational explanation is that the builder's ware companies are utilizing same labour force to produce additional tons of plastics, or they are more efficient and productive when handling additional workload.

None of the sub-sectors is fully utilising capacities, with an average of 72%. Highest capacity utilisation is reported by companies in the plastic packaging products (81%) and the lowest by the other plastic producer's sub-sector (60%). Producers of pipes and the builder's ware companies have reported current utilisation of capacities by 74% and 76% respectively. Among main factors affecting capacity utilisation, as shown in Figure 26, surveyed companies indicate that usage of the production capacities mainly depends on market opportunities and price competitiveness. This finding suggests that across all sub-sector's plastics manufacturers have potential for growth without further investments in capacities in a short term, if existing capacities are fully utilized. However, if they plan to further grow beyond existing capacities, and majority of firms forecast growth of over 30% in the forthcoming periods, investment, like in manufacturing technology, manufacturing space, staff and new production line will be necessary.



Figure 26. Factors affecting capacity utilisation  
Source: Author's own calculation, survey data

Among main products, in the sub-sector of pipes, hoses and related products, **pipes and hoses used for sewages, water, electric protection** are the main products, but there seems a tendency to introduce also other types of products, such as plastic bags (Figure 27). In the plastics builder's ware sub-sector, **doors and windows and plastic blinds and profiles**, are main products, but companies also report to work with glass and aluminum as

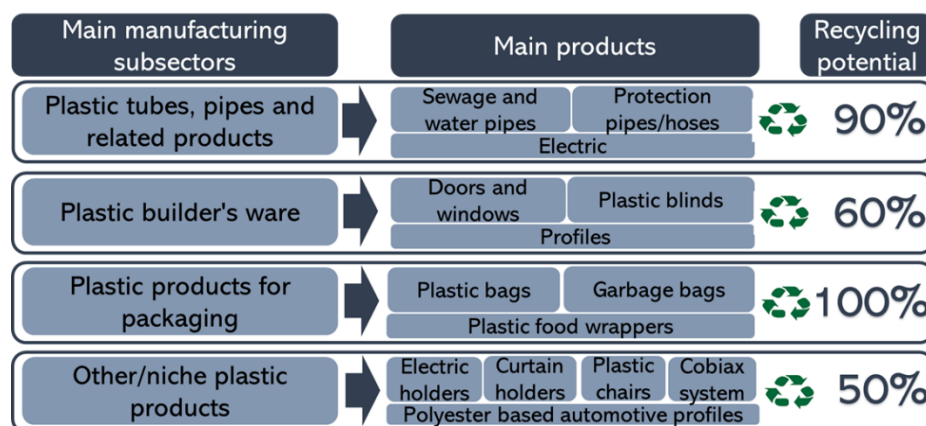


Figure 27. Main products, per sub-sector and their recycling potential  
Source: Author's own calculation, survey data

complementary products. In the plastic products for packaging, companies mostly produce **plastic bags, garbage bags and food packaging products (e.g. plastic wrappers)**, but also there is tendency to introduce other types of products, such as study chairs and packaging products made of multi-layers, paper or aluminium (of laminates like plastic film combined with aluminium film).

Whereas the plastic producers of all other products report production of **electric and curtain holders, plastic blinds, cobiax system for construction, plastic chairs.**

In terms of recycling of the products or materials, the highest potential is reported by producers of plastic products for packaging that consider their products to be 100% recyclable after their usage, followed by pipes and hoses (90%), whereas products belonging to builder's ware and other plastic products have a lower recyclability potential, 60% and 50% respectively. An exclusion is for plastic bags made of bio-degradable material (additives), which cannot be recycled, as per the Kosovo Ministry of Environment and Spatial Planning Directive, November 2013.<sup>12</sup> **Overall, companies seem to have a focus on the products of the sector they belong, tending to specialise, with few of them taking opportunities to introduce other types of products. The results also suggest for a high potential for recycling of plastic products in Kosovo.**

### 3.3.2 Barriers to production and export

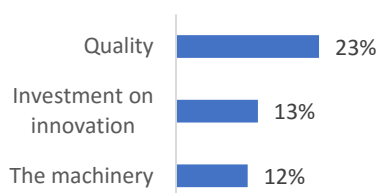


Figure 28. Constraints on achieving better and higher production

Source: Author's own calculation, survey data

As shown in Figure 28, the main constraints companies face while trying to achieve better and higher production are challenges with the quality of products (23%), investment on innovation (13%), and machinery (13%), all related to production capacities and technology. **All these constraints relate to the enterprise capabilities to finance introduction of new products or machinery.** With regards to the financial system, **the finance sector is well established, with a decreasing interest rates on commercial loans in the past few years.** In addition, as a support mechanism for high risk projects, **the Kosovo Government supported by International**

**Donor Agencies, have established the Kosovo Credit Guarantee Fund, as a risk buying mechanism covering 50% of potential risk on respective loans issued by commercial banks, enabling a more affordable access to finance for private sector companies.**

As for lower prices (Figure 29), the main identified constraints were quality criteria as a cost increase source (14%), support from the institutions, assuming potential support through grants or other supporting schemes that may cover a part of the enterprise risk (14%), and costs of raw material (12%).

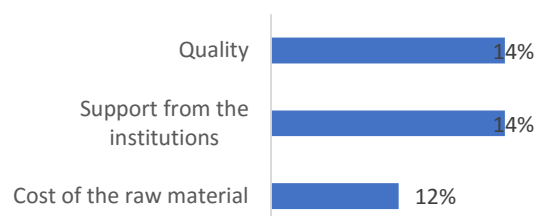


Figure 29. Constraints on lower prices

Source: Author's own calculation, survey data

Interviewed SMEs were asked about their competitive advantages with regards to local and export market. Findings are depicted in Figure 30, where **quality of the products,**

**price, punctuality, flexible larger orders, and innovative design are the main advantages that the interviewed companies highlighted for the export market.** On the other hand, **difficulty to export from Kosovo, transport costs,**

<sup>12</sup> As per the Kosovo Ministry of Environment and Spatial Planning Directive ([https://mmph.rks-gov.net/repository/docs/Ministri-UA-11-2013-1924-13\\_\(1\)\\_608800.pdf](https://mmph.rks-gov.net/repository/docs/Ministri-UA-11-2013-1924-13_(1)_608800.pdf)) companies need to use a specific additive, known as oxo-degradable material, that makes plastic material a self degradable product. The main objective of the Directive was to control level of plastics waste in the environment. However, there are arguments, that it only converts a visible polluting plastic product to an invisible polluter. In addition, it decreases the potential for recycling of plastic bags. European Bioplastics (EUBP), the association of the bioplastics industry in Europe, has long been warning about the harmful effects of oxo-degradable plastics on the environment as well as the potential damage to the reputation and understanding of truly biodegradable plastics. Acknowledging such conclusions, in 2018, the European Commission has announced a process to restrict the use of oxo-plastics in the EU.

small lot with quick delivery, and delivery time are the main disadvantages that the interviewed companies highlighted with regards to exporting.

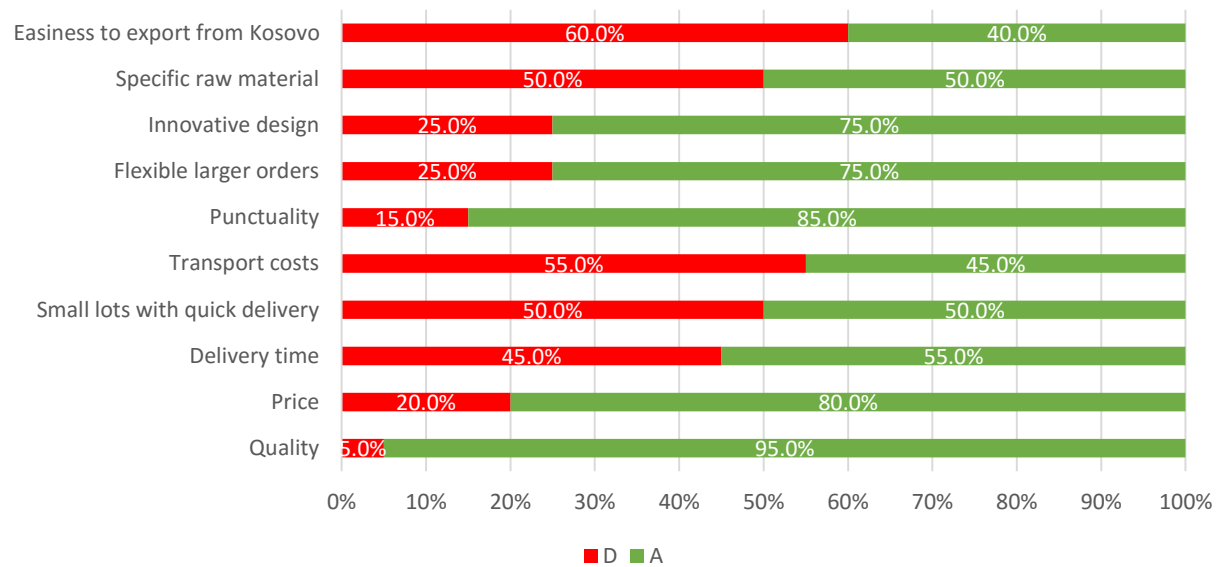


Figure 30. From the following list, which are your main competitive advantages for export and local market?

Source: Author's own calculation, survey data

### Box 2. CASE STUDY 2: Enterprise B

***This enterprise has been established in 2000 and it is solely focused on exports.*** It is specialized in polyester products such as automotive interior products, products for specific industries or any other specific polyester products based on demand. ***Fascinating products have been produced and exported in European markets by this enterprise, including vehicle front interior products, parts of floors for trains, parts for big waste containers,*** and so on. There are no practical limits in what type of polyester products this enterprise can produce, product or product parts forms are designed based on the buyers' demand.

One of the main elements of success for this processor is an affiliate company that operates in the same industry in the EU. ***The company is a successful story of a partnership between Kosovo and its diaspora, where the market is mainly secured by the affiliate enterprise in the EU and the processing is then completed both in the companies in Kosovo and EU.*** This provides a major competitive advantage for the Kosovo based company due to the fact that negotiations for products are conducted by the EU affiliated company, which represents a higher credibility and reliability for potential European buyers. ***Operating such a company in Kosovo is successful due to the affordability of labour force and low tax levels.*** The level of salaries and income taxes in Kosovo is significantly lower to the EU level. The cost of electricity can also be an advantage; however, it presents a threat at the same time due to instability of supply and relatively high industrial electricity price. ***This company imports the raw material from the EU, completes the manufacturing process in Kosovo and then exports the final product (which represents a semi-processed product for end buyers) to EU.*** Tax policies, particularly duty-free import for raw material, are also a major advantage, which is complemented by duty free export to the EU that arises from SAA agreement.

***Some of the major challenges that this enterprise faces are related to quality control and know how.*** Because the manufacturing of products is based on buyers' demand, it usually involves very specific requests and high-quality demands. This challenge is further emphasized when considering the qualification of labour force. ***There is a low level of skilful workers in Kosovo and lack of specialized professions. The enterprise has also decided to work with regional transportation company, which can deliver much stable and quality services compared to Kosovar counterparts.***

This enterprise presents a highly successful industry example. ***It records exports of over 2 million Eur and employs around 100 full time workers.*** It operates in a modern facility, which has been fully constructed in 2017. The export experience and specific manufacturing expertise offer this enterprise great opportunities for export, particularly to the EU market. ***Support with export promotion services can facilitate this enterprise to growth, especially considering that it does not fully utilize capacities and possesses a second facility for expanding manufacturing.***

### 3.3.3 Plastics Manufacturing Industry Turnover and Employment

43 out of 62 manufacturing firms have reported turnover, in the domestic and export markets for both reporting years. In terms of export sales 22 out of 62 companies (35%) of the plastics manufacturing sector have reported to have exported during 2017 and 2018. However, only 15 out of 22 companies have provided information on export turnover value for both reporting years.

For analysis of the average sector and company turnover, firms (n=10) that have reported turnover over ten times higher or lower than the overall average turnover are considered as outliers and are excluded from the analysis. Consequently, we take into consideration for analysis 33 surveyed firms, 19 reporting only domestic turnover and 14 reporting both export and domestic turnover.

Table 4 below shows turnover for exporting companies, companies selling only in the domestic market and the overall turnover weighted average. Results indicate that average turnover of plastics firms has increased by 16%, from 231,588 EUR in 2017 to 269,056 EUR in 2018. Exporting companies have an average turnover of 2.3 times higher than companies operating only in the domestic market. In addition, export-oriented companies are growing

much faster (21% annual growth rate), with a growth rate 3.5 times higher than firms focused in the domestic market (6% annual growth rate). Average export intensity of companies reporting both exports and domestic turnover is around 25%, meaning that for exporting firms, export turnover represents an average of 25% to their overall sales.

*Table 4. Plastics manufacturing sector turnover*

| <b>Plastics Manufacturing Sector Turnover</b>                                                                                                                                                      | <b>2017</b>     | <b>2018</b>     | <b>Growth rate</b> |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|-----------------|--------------------|
| <b>Average turnover of exporting firms (export + domestic market turnover)</b>                                                                                                                     | €337,492        | €407,786        | 21%                |
| <b>Average turnover of firms selling only in domestic market (domestic market turnover)</b>                                                                                                        | €162,750        | €171,945        | 6%                 |
| <b>Weighted average turnover = {(Average overall turnover * No of exporting firms) + (Average turnover domestic market* No of domestic market firms only)/Overall no of firms reporting sales}</b> | <b>€231,588</b> | <b>€269,056</b> | <b>16%</b>         |

*Source: Author's own calculation, survey data*

In terms of export sales, firms report an average annual growth rate of about 21% between 2017 and 2018. This result is comparable to the export growth trend (31%) calculated using the official Kosovo Customs trade data, indicating for a similar growth rate in the domestic market.

To estimate the size of the manufacturing sector, survey data findings are utilized with the population number of active plastics sector firms – which is based on official sources. As shown in Table 5 below, the number of active firms in the plastics sector in 2018 is estimated to be around 534. This represents the number of active formalized businesses as per the Ministry of Trade and Industry data which are based on the Kosovo Tax Administration and Kosovo Agency of Statistics.

*Table 5. Number of active businesses in the plastics sector*

| <b>Number of active firms in the plastics sector</b> |             |             |
|------------------------------------------------------|-------------|-------------|
| <b>Year</b>                                          | <b>2017</b> | <b>2018</b> |
| <b>Number of companies</b>                           | 512         | 534         |

*Source: MTI and ATK data*

To calculate the number of workers in the sector, outliers were excluded, and a weighted average was applied, like the calculation of turnover (explained above). The data indicate an average employment growth per company, from 7 workers in 2017 to 8.2 workers in 2018.

As shown in Table 6, plastics sector overall turnover in 2018 is estimated to be €143,676,000, with around 4,321 workers estimated to be employed in the sector. In 2017, the estimated sector size was €118,573,000. Data shows that the plastics sector in Kosovo has increased with over 21% from 2017 to 2018.

According to official data of the MTI (based on the Kosovo Agency of Statistics), the Plastics and Rubber industry was estimated at around €110,300,000 in 2017, where the participation of rubber industry is estimated below 10% while the sub-sector of plastics in primary forms is not included. Based on this information, it can be argued that the official data and the estimation regarding the turnover of the industry presented here (utilizing the findings from the survey) are similar, with the survey estimation results slightly larger. Nonetheless, there is slightly a bigger difference between the official statistics for 2017 and the findings of this study on the number of employees. As per the MTI data, the official number of employees in the sector in 2017 was 2,320 compared to 3,584 estimated based on the

survey data. Considering an overall high proportion of informal economy in Kosovo, estimated between 30% and 40% (Cocojaru, 2017; Hoti, 2016), the difference in both income and employment can be attributed to informal economic activities in the sector.

Table 6. Estimated Plastics Sector Size

| Estimated Manufacturing Plastics Sector Size                                                                    | 2017         | 2018         |
|-----------------------------------------------------------------------------------------------------------------|--------------|--------------|
| <b>Plastics Manufacturing Sector Estimation = Weighted average turnover * Number of active sector companies</b> | €118,573,056 | €143,675,904 |
| <b>Estimated Sector Employment = Weighted average number of Employees * Number of active sector companies</b>   | 3,584        | 4,379        |

According to Kosovo Customs trade data, the value of Kosovo plastics exports in 2018 accounts for €29,271,227 (Table 7).

Table 7. Kosovo plastics exports in 2018

| Export of Plastics <sub>2018</sub> |             |
|------------------------------------|-------------|
| Plastics Exports <sub>2018</sub> = | €29,271,227 |

Next, we compare the size of total imports to the estimated plastics industry turnover. Average reported costs of raw material by the surveyed firms is 62%, ranging between 56% (pipes, hoses and related products) and 73% (plastic products for packaging) across sub-sectors. Based on the reported share of costs of the raw material, the overall value of the raw material is estimated at €89,079,000. As surveyed firms reported that imports of raw material, on average, represents around 82% of their raw material, we can suggest that the value of imports as raw material for the plastics manufacturing industry is around €73,044,000, whereas the value of raw material supplied domestically is around €16,034,000.

The methodology for calculating the size of plastics sectors combined data from official sources with survey data. We expect a margin of error of around 10%, so the estimated results should be considered with caution.

### 3.3.4 Human Resources

The average salary of the production employees is 313 EUR, while the average salary of the administrative employees is 300 EUR. However, only 35 companies out of 62 claimed to have employed administrative employees. **The average salaries paid by Kosovo manufacturers compared to the region and Europe are lower on average, thus providing one of the key cost-competitiveness advantages to the Kosovo producers. Along with the cheaper plastic waste recycled domestically, and comparative advantages of the Kosovo tax system as compared to the EU and beyond, labour costs represent one of the key sources of advantage for Kosovo plastics manufacturers.**

**When asked about skills needed in the market, as presented in Figure 31, most of the respondents (97%) answered that the workforce does have the professional knowledge and experience which are in demand.** Around 77% of the companies said that the workforce has the skills that will be needed in the foreseeable future. Only 31% of the respondents claimed that the available workforce possesses skills that are not that common in the Kosovo market. **Views of the respondents provide a very positive perspective with regards to the skills required to improve competitiveness in the domestic as well as international market.**

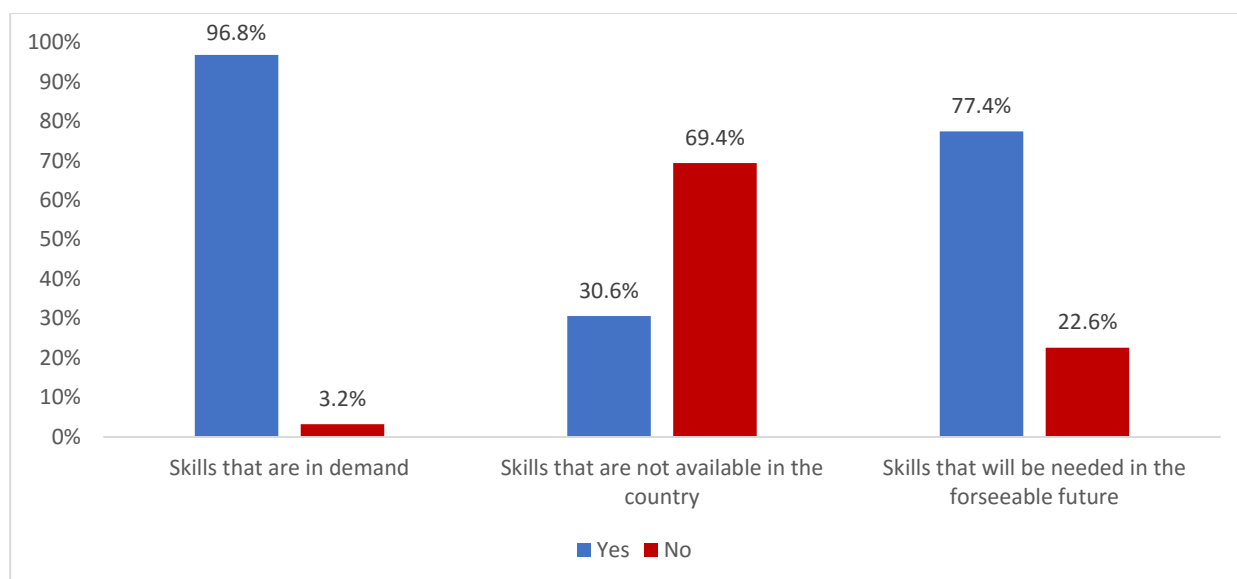


Figure 31. Does the available work force have the required professional knowledge and experience?

Source: Author's own calculation, survey data

Companies claimed that training on production, training on using new technology, training on business and product development, and training on new markets and networking are considered by companies as training modules or services that would improve the business activity in general and exports specifically. Only in fewer cases (about 15%) companies mentioned also academic exchanges as a factor influencing their business activity.

### 3.3.5 Innovation

Three out of four (74%) companies have not invested in research, development or innovation related activities for the introduction of new products or production processes (figure 32). For those that have (16 companies in total), 44% of companies (7) dedicate only around 10 % of annual turnover

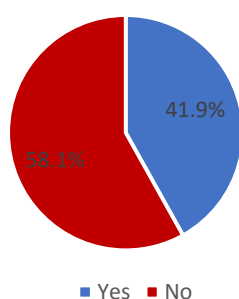


Figure 33. Have you introduced new products, in the last 36 months?

Source: Author's own calculation, survey data

For those who have done so, some of the products mentioned were BEAR plastic bags, door mechanisms by pursuing new technologies, isolation systems, new 85 mm wide profile, thickness that is made of three tires and three glasses, new generation automation manufacturers with PCC control for two tiered sloping pipes with high productivity, upgraded models of pipes, new models of railing, etc.

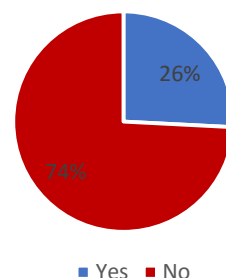


Figure 32: Investments on R&D or innovation

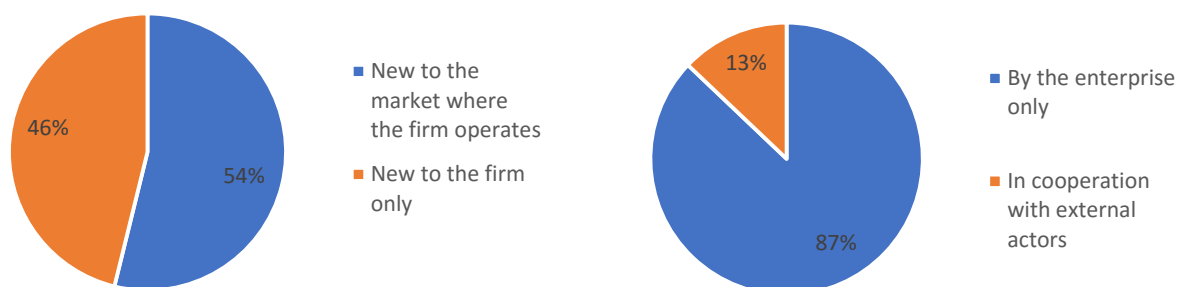
Source: Author's own calculation, survey data

on R&D or innovation, while 25% (4) of them dedicate around 25 % of annual turnover on R&D. Whereas, more than half of the companies did not introduce any new products in the last 36 months (see Figure 33).



Around 54% of the companies claimed that the newly introduced products were new to the market where the firm operates, while 46% claimed that they were new to the firm only (see Figure 34). The majority of the companies (87%) claimed that the innovation is developed by the enterprise only, while only 13% claimed that the innovation is developed in cooperation with external companies, only in one case having worked with a business service providers, while in few other cases companies in Kosovo cooperate with partner companies abroad.

**Results show that in general, plastics manufacturers tend to introduce incremental innovation, or products new to the firm only.** Even innovations reported as new to the market, seem to be only new to the Kosovo market, providing only a marginal upgrade in quality of products. **Cooperation on product development with research institutes, laboratories and other relevant actors, is almost inexistent, except in few cases. Companies are inclined**



*Figure 34. Newly produced products information*  
*Source: Author's own calculation, survey data*

**to keep their product development projects internal, or in specific cases cooperate closely with sister or partner companies abroad. A broader cooperation on innovation, including actors outside the value chain, is completely lacking, same as the implementation of an open innovation approach.**

### 3.4 Value Chain Analysis: Supporting services, Networking and Transport

Three out of four (77%) companies consider proximity to other value chain actors an important factor to their business growth. Most frequent actors these companies have proximity with are competitors, as well as some suppliers but also distributors of their products. When looking at the importance of cooperation, highest intensity is reported in the pipes and plastic packaging sector (Figure 35).

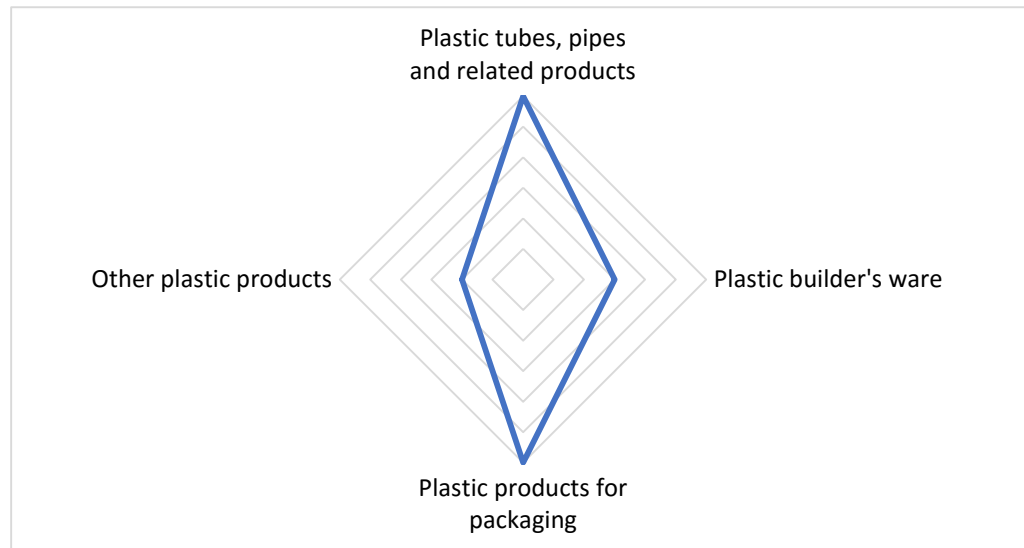


Figure 35. Intensity of cooperation, by the rate of importance. (3 being very important, 1 not important)  
Source: Author's own calculation, survey data

In terms cooperation on sub-contracting, only 29% of the companies do engage in such cooperation. One in three companies that engage in sub-contracting cooperates frequently with other companies for production of larger sales lots. As it is shown in Figure 36, this is mostly happening in the plastic's packaging sector, while it is much less intensive in other sub-sectors of the industry.

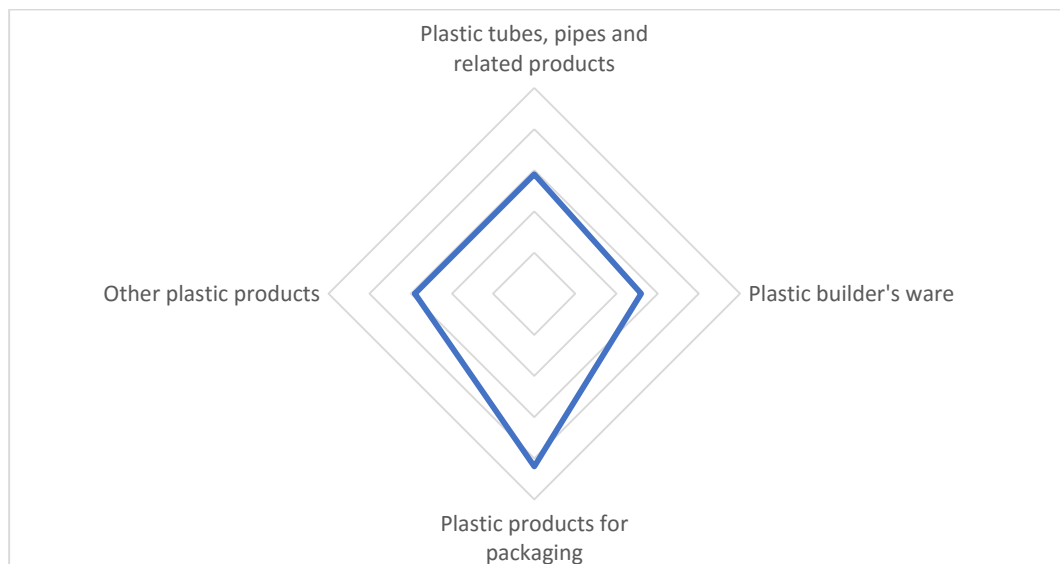


Figure 36. Intensity of subcontracting, for production of larger sales lots. (3 being very important, 1 not important)  
Source: Author's own calculation, survey data

### Box 3. CASE STUDY 3: Enterprise C

***This enterprise has more than a decade since establishment and it is specialized in polymer products, primarily in production of plastic bags, sacks, sheets and films.*** Local market is the main focus, with over 90% of overall sales, and the rest of products is exported to regional and EU countries. Currently the enterprise employs over 40 full time workers and has a turnover of around 2 million EUR.

***Investment in machinery and facility, experience gained over years and solid distribution network provide a competitive edge for this company.*** The process of plastic bags and sacks production is present at a several value chain levels within the country. Contrary to other plastic products where only one part of manufacturing is done in Kosovo, ***production of plastic bags involves in country waste plastic collection, recycling and production of granulate, and processing of final products into bags and sacks.*** Benefit can therefore go to up to three levels of the value chain. Local market offers limited growth opportunities around import substitution. ***Opportunities around export are significantly higher, however requirements for exports are much higher in terms of quality.*** Furthermore, extensive promotion and linkages is required to reach particularly European buyers. Nonetheless, with current wage and tax levels as well as duty free export, Kosovo companies are very competitive to export to European markets. With growing environment demands, ***Kosovo companies that operate in this sector have a chance to focus in recyclable and environmentally friendly products (e.g. plant based plastic alternatives).*** This can be particularly achieved in cooperation with foreign investors, which can also guarantee markets for producers.

Operating in the local market is almost always accompanied with problems with delayed payments. ***Companies in this sector face major threats arising from potential regulatory changes that could ban or limit usage of plastic based products.*** The Kosovo Government is currently seeking for options to either ban or tax plastic bags in their efforts to address environmental issues. Such actions could be devastating for the enterprises that work in this sector and would require immediate investments for altering production into more environment friendly products.

This and similar enterprises that operate in this sector could greatly benefit from services in improving product quality and consistency, and export promotion. Moreover, ***due to regulatory change threats, adjusting gradually towards fully recyclable and especially plastic alternative products is a strategic growth perspective.*** Being aware of eventual regulatory ***changes and triggered by the global market changes in the plastics industry, in a joint investment with an international investor, the company aims to establish a new export-oriented manufacture of plastic alternative (bio) products.*** Although the raw material will have to be imported, ***this will create future opportunities in the country for production of bio based (plant-based plastic alternatives) plastic in primary form.***

Companies that do not intensively cooperate with other companies for larger lots of supply, were asked on the key barriers that prevent them from having more intensive cooperation. Around 60 % of them said they have no interest on cooperation or that cover their own production well. Few barriers to cooperation mentioned in few cases include competition, lack of machinery, lack of contacts, lack of market access, unsuitable prices, etc.

On the other hand, when companies were asked whether they cooperate and transport to small or large companies, all companies declared that they cooperate with small companies, selling around 64% of their products to small companies. Around 46% cooperate with large companies, with an average of 62% of products sold to large companies.

Around 94% of the businesses do not cooperate with actors that provide professional expertise and related supporting services (including universities, research institutes/labs etc.), compared to only 6% that do so (Figure 37). From those companies that cooperate with such actors, two of them cooperate locally, and two internationally.

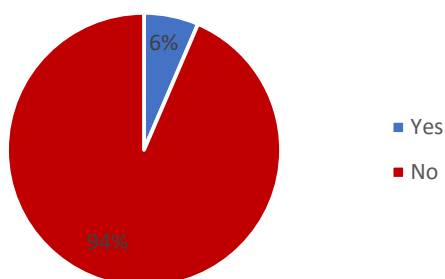


Figure 37. Do you cooperate with actors that provide professional expertise and related supporting services  
Source: Author's own calculation

According to these companies using support services, the most important factors that contributed to the company growth are market research providers for export markets and international business development service providers, while in few cases are mentioned also competition, universities, associations and laboratories as some of the most important factors that drive expansion of the company.

With regards to organization of the sector and support services provided by business membership organizations, the sector appears to be quite unorganized. Only around 7% of companies are members of chambers of commerce, and they appear to be in different chambers, thus completely missing opportunities for cooperation.

The main cooperation in the sector is trade related, such as business to business and business to client sales, while cooperation related to product and business development is specific to few cases and mainly driven by international joint investments or partnerships. It is important to mention that access to finance, or cost of finance on commercial loans has not been highlighted as one of the critical issues in the support services system.

### 3.4.1 Transport

This study analyses transportation of plastic goods through the perspective of the manufacturing companies and a small sample of transport companies. For the latter, three companies that offer services for transportation of goods have been interviewed. The study finds that there are various arrangements for organizing transportation of plastic products, which include companies that organize their own transport completely, those that cooperate with transportation companies and a mixture of the two methods.

More than half of plastics industry enterprises organize their own transportation for plastic products. This means that they do not work with transporting companies. On the other hand, around 35% of interviewed SMEs have declared that they cooperate with transporting companies, where they have an average of two transportation companies that they work with. Around 8% of SMEs use both their own transportation means and utilize transportation companies. Among the most important criteria on how these companies decide for selecting transportation companies are accuracy, price offered, cooperation and punctuality (Figure 38).

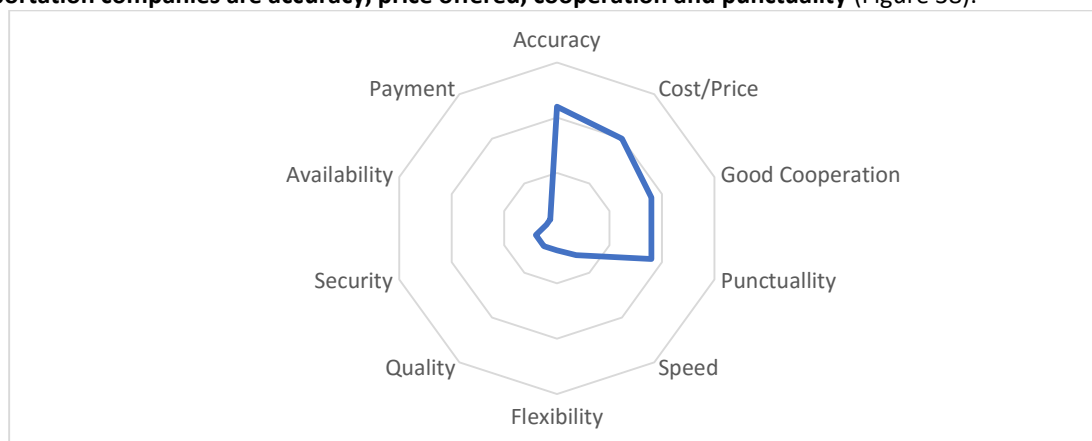


Figure 38. Criteria for selection of transportation companies by plastics manufacturing firms  
Source: Author's own calculation, survey data

To understand the costs related to transport, 21 companies have been interviewed – 3 out of which are specialized only in transportation of goods. Findings show that **average cost of transportation to European countries is 107 EUR per ton**, which ranges from 20 EUR per ton to 300 EUR per ton. This discrepancy can be attributed to the varying distance between European countries. On the other hand, the **average cost of transportation to regional countries is 18 EUR per ton**. According to plastics manufacturing companies, **the average cost of transportation in overall product cost accounts for an average of 15%**.

When asked about constraints related to transportation, **interviewed companies have identified high and unaffordable prices as the main barrier** as depicted in Figure 39. **The second most mentioned barrier is regarding lengthy procedures, followed by customs related procedures and documentation.** Companies have also identified lack of licenses and lack of green card as constraints (with a lower intensity), which presumably apply particularly in exporting and transporting to EU countries, where Kosovo plate holders need to purchase green card insurance and Kosovo drivers' licenses are largely unrecognized. **Companies that offer only transportation services declare that they face stiff competition and limited market in attracting new clients.**

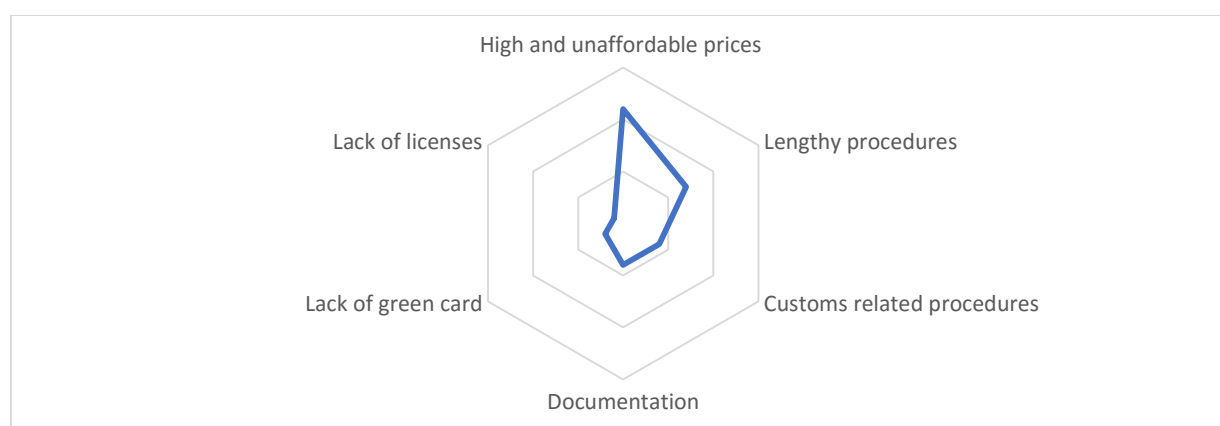


Figure 39. Transportation related constraints  
Source: Author's own calculation, survey data

The survey has also intended to capture elements regarding organization of transport. Almost all companies declare that they use road transportation, while transportation is only mentioned once. It is interesting that rail transportation is not utilized in any of the cases. This can be related to the current state and connections or railroad network. Ongoing improvements in the railroad network could open new opportunities for transportation of plastic products. **Companies generally prefer to utilize the same transportation options for both export and import (67% of interviewed companies), whereas around 33% only utilize transportation for exports – which contributes to higher transportation costs.**

### 3.5 Export markets and requirements to export

Having in mind potential export markets for Kosovo, there are little or no mandatory requirements currently for exporting of plastic products. This is valid to major markets such as the European Union. According to CBI, there are no legal requirements for exporting to EU. It is more the matter of supplier – buyer whether dedicated standards (e.g. ISO 9000ff, ISO 27000 etc.) have to be fulfilled. Moreover, many countries enjoy duty free agreements with the EU, and this is also valid to Kosovo with the SAA agreement under effect. Nevertheless, legal requirements for export might alter quickly. China has recently introduced a ban on import of most plastic waste related materials. The EU has moved towards the first-ever European Strategy for Plastics in a Circular Economy<sup>13</sup>. The latter has been done to

<sup>13</sup> European Commission, European Strategy for Plastics - 2018

move towards reusable and recyclable plastic and elimination of single use plastic. This determines the future of plastic production and should be a guide for the Kosovo plastics production and processing companies.

Germany, Italy and France are the largest demanders for plastic and plastic products in the EU, where around 70% of demand is related to plastic products for packaging, building and construction and automotive<sup>14</sup>. Despite the ease on legal and duty requirements, **European buyers hold strict soft requirements with regards to product quality and delivery**. In cases, buyers may require their suppliers to comply with ISO standards such as ISO TC61.

Interviewed companies that export (22 out of 63) were asked to rate options they choose to find new clients and new markets. Out of these options, as presented in Figure 40 below, own market research has highest intensity of importance reported by companies, followed by family and personal connections in the diaspora, which seem to be the main driving force behind exports. Internet research is rated as the third most used means to find new clients and markets, while surprisingly, only in one case it is reported to use marketing research services for finding new clients and markets.

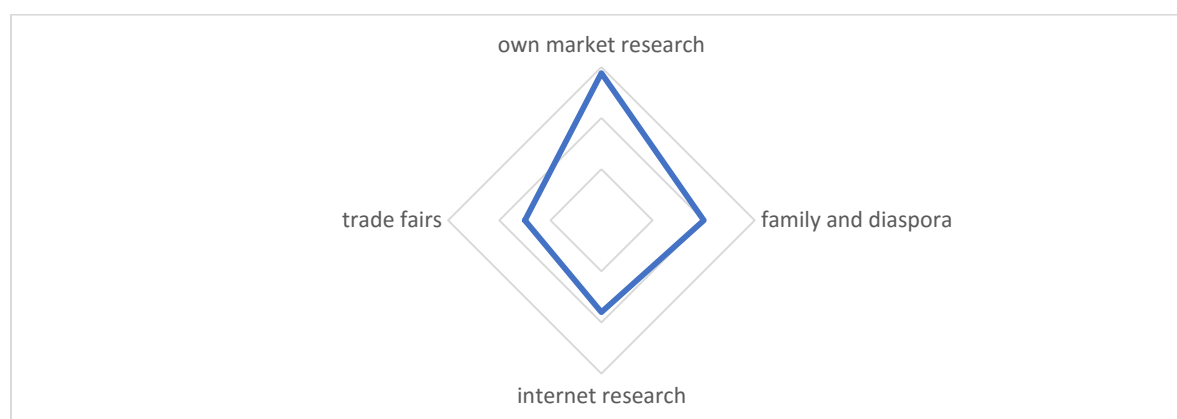


Figure 40. Channels for finding new clients, by intensity of importance  
Source: Author's own calculation, survey data

The interviewed companies export mostly to Germany, Albania, and Switzerland, and less to Italy, Belgium, and Netherlands. As shown in Table 8 below, **pipes and related fittings are mostly exported to Albania, followed by Bulgaria and North Macedonia**. Transport costs relative to the overall costs of pipes and hoses, are one of the key factors why exports are mostly oriented in the regional countries with a distance shorter than 500 km. Of the builder's ware sub-sector, **doors and windows, are mainly exported to Germany and Switzerland, with Albania also becoming an attractive export market**. Companies are mainly engaging in business to client relationship, using Kosovan diaspora as the main entry channel for penetration in the European market. Main competitive advantage seems to be driven by low cost labour and low-income tax. In the plastics packaging sector, **plastic bags and printed foil are mostly exported to the Netherlands, Germany, and Albania**. Recyclability potential of the plastic waste and its relative low cost, along with other advantages mentioned above, gives a competitive edge to Kosovan companies in the plastic product packaging sub-sector. While **for the other plastic products, Germany and Albania appear as most demanding countries**. These findings are in line with the country level statistics on export of plastic products. As provided in Table 8, the reasons these companies were successful in exporting these products are the quality and

<sup>14</sup> PlasticsEurope, Plastics – the Facts 2018

reliability of the products supplied, costs and prices they offer and high demand in export markets. This does not differ much across sub-sectors.

Of the 22 companies who export, 13 of them claimed to not know which standards and certifications are required for export. The rest, as required standards mentioned ISCO 2008, EN 1347, EN ISO 9969, EN 12201, ISO 4427, EN ISO 15088, ATEST, and EN ISO 2015. As per voluntary standards they mentioned BRC, ISO 9001:2015, BS OHSAS 18001, PAS 99:2012, ISO 9001:2015, ISO 14001:2015, and OHSAS 18001:2007.

Table 8. Export analysis per plastics sub-sector

| Sub-sector                        | Most exported product      | Main countries of export                                   | Reason for success            | Certifications                                                      | Export growth expectation |
|-----------------------------------|----------------------------|------------------------------------------------------------|-------------------------------|---------------------------------------------------------------------|---------------------------|
| <i>Pipes and related fittings</i> | Pipes: water, electric     | <b>Albania;</b><br>Secondary:<br>Bulgaria: North Macedonia | Quality; Price                | Generally yes (ISO, EN,) etc                                        | >20%                      |
| <i>Builder's ware</i>             | Doors and Windows          | <b>Germany, Switzerland,</b><br>France, Albania            | Quality; Price; Reliability   | Generally not; only 15% reported to have a certification of quality | >20%                      |
| <i>Plastic packaging</i>          | Plastic bags; printed foil | <b>Netherlands, Germany;</b><br>Belgium; Albania           | Quality; Price                | Generally not; only 25% reported to have a certification of quality | >20%                      |
| <i>Other plastics</i>             | Pipes and other plastics   | <b>Germany;</b><br>Albania                                 | High demand in export markets | None                                                                | >20%                      |

Source: Author's own calculation, survey data

Around 65 % of companies forecast that their export will increase over the next few years (Figure 41). Across all sub-sectors, they expect an increase over 20%. When accounting for only those that have foreseen growth, it is larger than 30% on average.

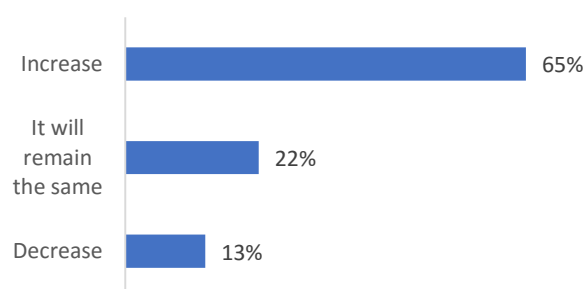


Figure 41. What is your forecast for exporting over next 3 years

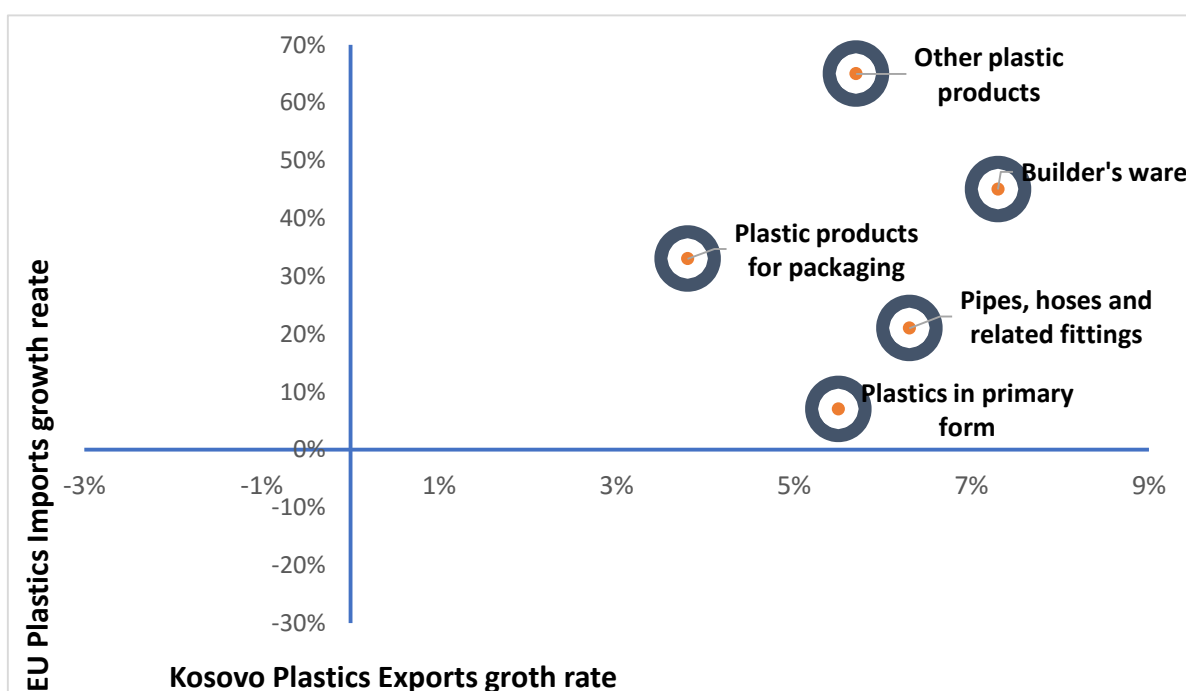
Source: Author's own calculation, survey data

**The three main reasons for companies to sell in the export market in comparison to national market are price (70%), secured payment (65%), and secured market (52%).** Market research appears to be the main constraint for more export sales, as identified by 55% of responding companies. Along the same line, 25% of manufacturing companies that deal also with the transport of exported goods, have reported that finding new clients is a critical hindering factor, and in

fewer cases reasons like high transportation costs and required certifications for products. This suggests that **to achieve an accelerated export growth, business to business linkages between Kosovo manufacturers and international buyers needs to be enhanced.**

When companies that export products are unable to meet export demand, 43% of them contact other companies in the same sector, while 57% do not. Delays, high costs, price, and transportation costs are the main problems that impede companies from fulfilling export orders. **Although formal legal and administrative requirements for the export markets seem not to be an impeding factor to export, soft requirements, such as consistent quality and on time delivery, appear to be critical challenges which companies need to address to accelerate their export growth.**

**Box 4. Perspectives of Kosovo Plastics Manufacturing Exporters to the European Union Market**



Source: Author's own calculation, International Trade Center (ITC) Trade Statistics and Kosovo Customs data

This diagram illustrates the average rate of growth of plastics imports in the European Union market from 2015 to 2018 (horizontal axes) versus the overall average rate of growth of Kosovo manufacturing plastics exports from 2015 to 2018 (vertical axes), in the five main manufacturing sub-sectors. Each subsector is depicted by a bubble. For each sub-sector, the corresponding value in the horizontal axes represents the average rate of growth of EU imports between 2015-2018, while the corresponding value in the vertical axes represents the average rate of growth of Kosovo exports between 2015-2018.

As the diagram depicts, there is a continuous growth of imports in the European Union market, a market estimated to have a trade balance of around 15 billion Eur. The average growth of imports is highest in the builder's ware sub-sector, around 7%, followed by other plastic products, pipes, hoses and related products, both growing by around 6% on average, and plastics in primary form growing by around 5.5% on average. A slightly lower rate of growth is in the imports of the plastic products for packaging, which on average have grown by 4% between 2015 and 2018.

Having in mind the size of the EU market, it represents a huge potential as the main export market for Kosovo plastics products. As the diagram illustrates, in all sub-sectors, except for the plastics in primary form, Kosovo plastics exports are catching up at high growth rates. In the builder's ware and other plastic products sub-sectors, both growing over 45% and 65% respectively, on average, plastic products for packaging over 30%, and pipes, hoses and related products growing over 20% on average, in the period between 2015 and 2018. The lowest growth is observed in the exports of plastics in primary form. Overall, exporting trends are very positive, whereas the EU market is increasingly demanding plastic products, representing one of the main target markets for a future growth of the Kosovo manufacturing plastics industry.



### 3.6 Value Chain Analysis: Enabling Environment

The legal framework that affects the industry of plastics in Kosovo is regulated by ministries such as the Ministry of Trade and Industry, the Ministry of Environment and Spatial Planning (MESP), the Ministry of Innovation and Entrepreneurship, and the Ministry of Finance - under which operate also the Kosovo Tax Administration and Kosovo Customs.

The Ministry of Trade and Industry is responsible for development of industrial sector related policies, promoting private sector growth, with a focus on SMEs, and promoting policies that improve the business environment. Under the MTI umbrella, the Kosovo Investment and Enterprise Support Agency (KIESA) is the responsible institution for promoting investments in Kosovo and exports. Among other things, KIESA is active in organization exhibition of Kosovo companies in international fairs, however there are very few activities in promoting the growth of the plastics sector. Some of the support measure for which plastics sector companies are also eligible to benefit, include growth-oriented financial grants, technical support on quality standards certification, business counselling, etc. The Industrial Property Agency (IPA), as the only institution in Kosovo responsible for registration and protection of industrial property rights, also functions under the MTI umbrella. Similarly, The Kosovo Standardization Agency (KSA), functions under the MTI, as an executive institution responsible for standardization and accreditation, aiming to contribute to the quality of local products, services and competitiveness. Other relevant agencies functioning under the MTI, include the Kosovo Metrology Agency (KMA), responsible for development, verifications, testing and calibration of national measuring means, and the Kosovo Business Registration Agency (KBRA), responsible for the registration of new businesses. Responsibilities for development of industrial policies and having most of the industry related agencies anchored to the MTI, makes it as one of most important institutions for the private sector, including the plastics industry.

The Ministry of Environment as Spatial Planning is the responsible institutions for environmental issues. Following initiatives of countries within EU and beyond are taking initiatives for promoting 'green' economies, the MESP has recently started promoting changes in legislation that could lead to ban or tax on usage of plastic bags. It is important to note that this presents a risk for the plastics sector in Kosovo, since there is a significant number of companies that produce plastic bags. Changes in policies with implications to usage of plastic bags will impact directly the companies in the sector, therefore before introducing any policy changes it is important to evaluate potential costs and introduce support measures that target potential affected private sector companies.

The Ministry of Innovation and Entrepreneurship aims to support innovation and entrepreneurship in different sectors of economies where there is higher potential. Supporting enterprises on knowledge and skills, market networks, financial support for innovation, and internal capacities for innovation are among main policy driven goals. The Ministry has launched few supporting instruments for new and established enterprises, on skills and innovation.

The Ministry of Finance and the Kosovo Tax Administration are the responsible legal institutions for fiscal policies and taxes. It is important to mention that the fiscal policy in Kosovo is based on good EU practices. The Kosovo Customs is responsible for implementation of regulations on customs, specifically on collection of customs duties as well as overview of trade and protection of trademarks and others. Since Kosovo operates under the CEFTA agreements and aspiring EU integration, the Kosovo Customs operates in accordance with EU standards.

### 3.7 Value Chain Analysis: Main Meso Actors

**Business Associations:** Plastics Processors Sector Association is established under the umbrella of the Kosovo Chamber of Commerce. 15 companies that produce/process plastic mass are members of the association. The association main objective and priority is to advocate for the sector needs towards the policy makers, aiming to influence inclusion of the plastics sector as one of the main priority sectors in Kosovo.

Another initiative to create an association of plastics producers of packaging products, including films, bags and similar products was revealed to researchers during the period of the study. As the study findings have revealed, there is a strong indication that sector companies are scattered, often becoming members of different chambers of commerce, thus representing one of the main weaknesses of the sector. Initiatives to associate in small groups, or individually become members of different Chambers of Commerce, without a strong anchoring institution that will represent the sector interests, will keep the voice of the sector unheard.

Having weak organizational network within the sector, companies are inclined to become members of Chambers of Commerce. Kosovo Chamber of Commerce (KCC) is the largest business membership organization in Kosovo. Among other larger chambers, plastics industry companies tend to be associated also with the American Chamber of Commerce in Kosovo and the German-Kosovar Chamber of Commerce. Main goal of all business organisations includes provision of services to their members, promotion of entrepreneurship and competitiveness, improvement of market access, and advocacy for policy changes and protection of private sector interests.

**Education Providers:** Kosovo education system offers variety of programs in six public universities, over 80 professional and vocational education schools, and dozens of private education providers, both at secondary and tertiary education. Nevertheless, there is no education program focused in the plastic's technical and engineering expertise. Enterprises of the plastics industry currently seek for employees that have graduated in the chemistry or machinery related programs. Plastics engineering programs would respond to the industry mid-term demands for highly skilled plastics engineers and would support a long-term sustainable growth of the sector. A closer coordination between the plastics industry representatives and education providers would be a first step towards influencing development of such industry-oriented education programs.

## 4. MAIN SECTOR CONSTRAINTS

The following part presents an analysis of the main sector problem areas and constraints. The following sector constraints are also utilized as an entry point for understanding underlying causes and proposing sector interventions through an interventions analysis framework in the following section.

1. **Weak Export Market Access** – The study highlights growing export sales and utilization of export demands by plastics sector companies, targeting the regional, EU and other countries, but at the same time identifies several constraints that need to be addressed to enable a higher growth.

First, it is obvious that most exports, particularly in the builder's ware sector, are driven by individual linkages of company owners with the Kosovan diaspora, mainly in Switzerland and Germany. This sub-sector is driven by high quality raw material, produced in Europe and recognized by the EU market. The quality of manufacturing by domestic producers is also accepted by the EU market. As such, it has high potential for export growth. However, for the companies of this sector to grow and export in high quantities, they need linkages with bigger distributing or construction companies in Europe.

Second, for other sub-sectors, namely plastics for packaging and other plastics products, demand in the international markets is not well explored by companies due to inability to access relevant EU buyers. Few companies that have managed to create business links with international buyers have met the export criteria, both in terms of quality and quantity, which in few cases is leading to additional investments and joint ventures.

Third, the sub-sector of pipes and hoses shows potential for growth in the regional countries, but with good perspective to expand also in the EU countries that are in a closer proximity to Kosovo, such as Bulgaria.

Currently, companies are exploring export markets individually without any institutional support. Although the exports of plastic products are growing at high rates, there is no institutional support for joint participation in the regional or international fairs specific to the plastics industry, neither study visits nor buyers' missions.

2. **Weak Cross Sector Market Linkages** – As discussed in the international market trends analysis section, industries such as food, construction, automotive, textile, wood, among others, are increasingly using plastic materials, be it for packaging, as combined materials or parts of final products. While linkages between the plastics producers and construction industry have developed well, linkages with other cross-sectors in the country are still at an infant stage. Further pressure in this regard comes from an increasing convergence from plastic manufacturing technologies with other, like digital printing, coating etc.

Among main constraints, most of the sector SMEs lack technical expertise and know-how to produce high-quality value-added products as per criteria of other industries, such as food and beverages as a growing industry in Kosovo. Even in cases when individual companies may produce products for cross-sectors, lack of cooperation, networking and exchange between companies, but also access to a critical mass of competent partners. Currently there is no domestic market platform of cooperation where businesses of different cross-sectors can exchange and expose their demands or supply potentials.

3. **Low Added Value Products** – Findings of this study portray an industry with high frequency of homogeneous products reported by companies. Few companies investing in the introduction of new products are mainly influenced by international expertise and cooperation. In general, it is a sector with traditional products and a low degree of innovation. Reported innovations are generally incremental, such as introductions of new upgraded products.

Among main constraint to innovation or introduction of high value-added products, limited internal knowledge is the main factor. Internal firm specific knowledge and domestic knowledge engineering or technical knowledge is limited. On the other hand, international expertise is expensive, so companies cannot afford to engage such experts. Adding to that an almost inexistent cooperation of SMEs with professional and technical institutions, such as laboratories, institutes or universities, the possibility to innovate decreases even further. Lack of systematic exposure to new developments in the plastics sector, including access to new product expositions internationally or participation in sector related conferences, presents another knowledge related constraint for sector companies.

4. **Recycled raw material quality** - is an important constraint as well. While recycled domestic material has a lower cost, its low quality has a negative impact on final products. This is due to the weak infrastructure for waste classification, low quality of collected waste and old recycling technology and machinery. Apart from commercial market mechanisms, there is no support scheme to incentivise SMEs to collect and recycle plastic of higher quality.

Adequate machinery for more sophisticated production is very important to enable companies to introduce new products. However, access to finance for innovations in the sector is a serious limitation. Companies can qualify for the credit guarantee scheme, applied by commercial banks, as main source of finance. Few innovation grant mechanisms are in place, by the Ministry of Innovation and Entrepreneurship, KIESA as the Ministry of Trade and Industry agency, as well as donor organizations, but none of them is specifically focusing on the plastics sector.

5. **Weak Sector Organization** – The sector lacks both formal and informal organisation. Despite the existence of a formal plastics sector association, under the umbrella of the Kosovo Chamber of Commerce, companies in the value chain do not actively engage in cooperation. Only few of them report to be members of different chambers of commerce. Companies also address issues of interest through their own efforts or through the chambers of commerce where they are members. There is lack of joint advocacy and cooperation on issues of common interest, be it driven by market, supply chain or regulatory framework change initiatives. When exposed to regulatory risks that aim to protect consumers and the environment, sector SMEs are not at a position to advocate for counter-regulatory measures that also provide incentives to engage in consumer-friendly plastic products, such as bio-degradable green plastic.

Having an ineffective coordination and association leaves the sector without a strong advocating voice. Therefore, there is no national strategy for sector development. The sector SMEs do not benefit from the governmental support schemes on international or domestic promotion, while there are limited opportunities to benefit from innovation grants.

6. **Inability to meet International Demands** - International world market demand for plastic products is high and growing. Kosovo plastics producers are utilising few channels to catch up with the growing demand, so their exports are growing. Nevertheless, there are huge obstacles that will prevent plastics producers to reach a long run sustainable growth.

In a short-term perspective, companies can still grow their production without a need for additional investments. However, they are faced with logistics problems. When faced with demand for small quantities, transport cost becomes expensive and has a large share in the product costs. Lack of qualitative raw material is another issue when orders have short time deadlines. Subcontracting with other actors of same value chain function on large export orders is an issue in most cases.

In a long-term perspective, to meet international demands, companies need to address current constraints related to old and limited capacity machineries, improvement of technical skills for the upgrade and development of high-added value products, as well as application of quality standards that are required by international buyers.

Finally, to match the demand of plastics industry in the growing EU market, plastics producers, particularly of the plastic products for packaging of the food industry goods, in the future will be faced with the EU requirements that by 2025 food packaging (plastic bottles for beverages) should contain at least 35% of recycled plastic and should be recyclable. While Kosovo companies are not yet ready for transition to green plastic production (plant based plastic alternatives), there are no support and incentive-based mechanisms to influence recycling of high-quality plastic.

## 5. MAIN RECOMMENDATIONS

Based on the identified problems and underlying causes discussed in the previous section, and to address those constraints, sector interventions are proposed in the following intervention analysis framework.

### 5.1 Intervention Analysis Framework

| Main problems                            | Main underlying causes                                                                                                                                                                          | Proposed Interventions                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Weak Export Market Access</b>         | <ul style="list-style-type: none"> <li>-Lack of B2B linkages.</li> <li>- Lack of international promotion.</li> <li>- Lack of initiatives and platforms for international promotions.</li> </ul> | <ol style="list-style-type: none"> <li>1. Support measures aiming to allow Kosovan manufacturers to join international supplier networks.</li> <li>2. Systematic export promotion programme that supports the organization of international buyers'/sellers' missions, aiming at facilitating companies with export source market services on export matching services.</li> <li>3. Organization of joint promotion in international fairs. Inclusion of at least one fair, specific to the plastics sector, in the yearly fairs supported by KIESA.</li> </ol> |
| <b>Weak Cross Sector Market Linkages</b> | <ul style="list-style-type: none"> <li>- Lack of market information and linkages.</li> <li>- Lack of exchange platforms.</li> <li>- Lack of quality (technical) know-how.</li> </ul>            | <ol style="list-style-type: none"> <li>4. Organization of B2B platforms (inverse trade fairs) or cross-sectoral networks between plastic manufacturers and technology providers to develop higher added value solutions for end-buyers</li> <li>5. Establish vouchers support scheme for manufacturers for utilizing (international) technical expertise.</li> </ol>                                                                                                                                                                                            |

|                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Low Added Value Products</b>                | <ul style="list-style-type: none"> <li>- Lack of quality (technical) know-how.</li> <li>- Lack of exposure to knowledge and innovation.</li> <li>- Lack of machinery.</li> <li>- Low quality raw material (recycled waste).</li> </ul>                                                                                                                                                                                                                                                                              | <p>5. Establish vouchers support scheme for manufacturers for utilizing (international) technical expertise.</p> <p>6. Promotion of exchange platforms or networks to Identify opportunities to diversify into new product ranges.</p> <p>7. Design and implementation of industrial investment programme for manufacturers to upgrade machine parks, incl. the plastics sector.</p> <p>8. Matching waste collectors, recyclers, manufacturers and selected end-users to bridge gaps and bottlenecks for a more systematic recycling approach.</p>                                                                                                                                                                                                                  |
| <b>Weak Sector Organization</b>                | <ul style="list-style-type: none"> <li>- Lack of national strategy for sector growth.</li> <li>- Weak sector associations.</li> <li>- Lack of sector support schemes.</li> </ul>                                                                                                                                                                                                                                                                                                                                    | <p>9. Prepare a plastics sector strategy through an inclusion process with dedicated action plans, based on the findings of this study.</p> <p>10. Empowering sector associations through coordination for support measures such as B2B platforms (4), international fairs (3) and exchange platforms (6).</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| <b>Inability to meet international Demands</b> | <ul style="list-style-type: none"> <li>- Lack of quality (technical) know-how.</li> <li>- Low product quality and consistency.</li> <li>- Lack of machinery.</li> <li>- Lack of standards.</li> <li>- Lack of cooperation with the value chain actors (on larger export orders).</li> <li>- Limited quantity of high-quality raw material (recycled waste).</li> <li>- High transportation costs (especially for small orders).</li> <li>- Limited potential for transition to green plastic production.</li> </ul> | <p>5. Establish vouchers support scheme for utilizing (international) technical expertise</p> <p>7. Design and implementation of industrial investment programme for manufacturers to upgrade machine parks, incl. the plastics sector.</p> <p>11. Initiate dialogue with public or private education and training providers (vocational education providers) to develop an educational plastics engineering program), involving in-school training combined with in-firm expertise.</p> <p>12. Support exporting SMEs for certification with quality standards (specific to the plastic sector).</p> <p>8. Matching waste collectors, recyclers, manufacturers and selected end-users to bridge gaps and bottlenecks for a more systematic recycling approach.</p> |

## REFERENCES:

- Association of Plastics Manufacturers, (2018). *Plastics – the Facts 2017*. [[https://www.plasticseurope.org/application/files/1715/2111/1527/Plastics\\_the\\_facts\\_2017\\_FINAL\\_for\\_website.pdf](https://www.plasticseurope.org/application/files/1715/2111/1527/Plastics_the_facts_2017_FINAL_for_website.pdf)]
- Association of Plastics Manufacturers, (2019). *Plastics – the Facts 2018*. [[https://www.plasticseurope.org/application/files/6315/4510/9658/Plastics\\_the\\_facts\\_2018\\_AF\\_web.pdf](https://www.plasticseurope.org/application/files/6315/4510/9658/Plastics_the_facts_2018_AF_web.pdf)]
- CBI, 2017. *Exporting plastic parts and components to Europe*. [<https://www.cbi.eu/node/2652/pdf>]
- Cocojaru, A., 2017. *Jobs Diagnostics Kosovo*. International Bank for Reconstruction and Development / The World Bank. Washington.
- European Commission, 2018. *A European Strategy for Plastics in a Circular Economy*. European Commission, Brussels.
- European Commission, 2008. Statistical Classification of economic activities in the European Community, Eurostat, NACE Revision 2.
- The Grand View Research, Inc., 2019. *Plastics Market Size, Share & Trends Analysis Report By Product*.
- The Plastics Industry Association. [<https://www.plasticsindustry.org/>].
- Geyer, R. and Jambeck, J., 2017. *Production, use, and fate of all plastics ever made*.
- Hoti, H., Rexha, R. and Ahmeti, R., 2016. The problems of the informal economy in Kosovo. *Balkan Journal of Interdisciplinary Research*, (Vol. 1, No, 3). IPCCL Publishing, Tirana, Albania.
- Plastics Europe's Market Research Group (PEMRG), 2017. *Plastics – the Facts 2016*.
- Rizvanolli, A., 2016. *Profile of the Plastics and Rubber Industries*. Ministry of Trade and Industry, Prishtina, Kosova.
- UN Comtrade Commodity Classification. Accessed: January 2019. [<https://unstats.un.org/unsd/tradekb/Knowledgebase/50039/UN-Comtrade-Reference-Tables>]
- VDMA, 2017. *The Plastics Market in Africa*.
- KC, 2019. Kosovo Customs Trade Data. Accessed: February 2019.
- KAS, 2019. Kosovo Agency of Statistics, Trade Data. Accessed: December 2019.
- ITC, 2019. Trade Statistics for International Business Development, International Trade Center. Accessed: May, 2019.
- In depth interviews with companies for the case studies

- Interviews with main stakeholders