

# ALUMINUM SECTOR IN QATAR

SME INDUSTRY  
SERIES REPORT  
2022



QDB

بنك قطر للتنمية  
QATAR DEVELOPMENT BANK



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## MESSAGE FROM CEO



As part of Qatar's efforts to develop its private sector and bring progress to the country's Entrepreneurship, SME, and Innovation Ecosystems towards the realization of its national vision for 2030, Qatar Development Bank (QDB) continues to advance its role as the Entrepreneur's and SME's growth partner from ideation to fruition.

In line with its objectives to establish reliable data and analysis as a prerequisite for new business ventures and to extend meaningful support to Qatari entrepreneurs, Qatar Development Bank has published a series of reports on potential SME opportunities currently available across various sectors in the local market. These reports aim at providing

entrepreneurs with potential opportunities to enter sectors with relevant information and perspective pertaining to these sectors, which includes overall market demand, competitive landscape and data pertaining to existing companies operating in such sectors.

This report covers Qatar's Aluminium sector with a focus on primary Aluminium along with downstream value-added aluminum products. Aluminium is expecting a high growth replacing other metals in Automobiles, Electricals, Packaging, Construction, and other industries. It has an energy-intensive production process and therefore, GCC Countries having easy access to energy sources have a competitive advantage.

The GCC region has a market share of 9% of the global demand for primary Aluminium (65.1 million tons). UAE, Bahrain, and Saudi Arabia are the leading countries producing 2.3 Mn tons, 1.5 Mn tons and 1.1 Mn tons, respectively, in 2020.

*“ The Total production of Qatar is 0.655 Mn tons in 2020 and the country has significant global potential to utilize the local strengths to supply primary and downstream products across the globe. ”*

This report provides detailed insights on the global Aluminium demand, GCC region demand as well as insights on Qatar Aluminium market demand. Using a prioritization framework, the report identifies key Aluminium product segments that have local/regional demand potential and also offer global export opportunities. The Aluminium industry has emerged as an attractive sector in Qatar with substantial investments in the recent past in the manufacturing of primary Aluminium, recycling, Aluminium profiles, Wire, and others.

The report also explains the effects of Covid-19 pandemic and various initiatives by the State of Qatar government to tackle the implications of these supply chain disruptions. Further, it provides an assessment of the regional production and export opportunities to the global markets. The report covers Aluminium's industry value chain, a deep-dive analysis of the top five attractive segments, SWOT, and Porter's analysis, and lastly, key success factors. It provides a holistic view of the entire Aluminium primary and secondary Industry, and I hope it will be beneficial to all stakeholders within the country.

I invite readers to go through the report to gain in-depth knowledge about the prospects of this sector.

**Abdulrahman Hesham Al Sowaidi**

Acting Chief Executive Officer

## TABLE OF CONTENTS

1 Overview of Aluminium Industry .....	10
2 Global Market .....	19
3 GCC Aluminium Market .....	33
4 Qatar Aluminium Market .....	41
5 Product Selection Framework .....	59
6 Overview of Aluminium Wire .....	70
7 Overview of Aluminium Stranded Wire .....	76
8 Overview of Aluminium Sheet .....	82
9 Overview of Aluminium Foil .....	88
10 Overview of Aluminium Cans .....	94
ANNEXURE A .....	101

## LIST OF CHARTS

Chart 1: Global Primary Aluminium Production (QAR bn) .....	19
Chart 2: Global Aluminium market (mn tons) .....	19
Chart 3: Global market split by processing type QAR 403.8 bn, 2020 .....	21
Chart 4: Global market split by processing type in 2020 (65.1 Mn tons) .....	21
Chart 5: Global primary market split (Value) by customer segments QAR 403.8 bn 2020 .....	22
Chart 6: Global market split (Volume) by customer segments (65.1 Mn tons) 2020 .....	22
Chart 7: Average Aluminium component per Vehicle (European Car Production) .....	25
Chart 8: Share of Semi-Aluminium products by weight in a car .....	26
Chart 9: Global Aluminium production by region (65.1 Mn tons) 2020 .....	28
Chart 10: Global Aluminium Price (QAR/MT) .....	31
Chart 11: GCC Aluminium production (Mn tons) .....	33
Chart 12: Primary Aluminium production in GCC by type (2020) .....	35
Chart 13: GCC Primary Aluminium sales by domestic vs exports (5.83 Mn tons) 2020 .....	36
Chart 14: GCC secondary Aluminium production split by type (1.7 Mn tons), 2020 .....	37
Chart 15: QAMCO Aluminium production ('000 tons) .....	41
Chart 16: Qatar Aluminium production by type (655 kMT), 2020 .....	42
Chart 17: Export split by country - QAR 4.7 bn (USD 1.2 bn), 2020 .....	45
Chart 18: Import split by country - QAR 566 Mn (USD 152.9 Mn), 2020 .....	48
Chart 19: Qatar market for unwrought Alu, demand split by source - QAR 138.2 Mn (USD 38.2 Mn), 2020 .....	49
Chart 20: Qatar market for Aluminium extrusion structure and profiles - QAR 460 Mn (USD 125 Mn), 2020 .....	51
Chart 21: Export price trends – Unwrought Aluminium vs Aluminium Wire (2018-2020) (QAR/Kg) .....	73
Chart 22: Export price trends – Unwrought Aluminium vs Aluminium Wire (2018-2020) (QAR/Kg) .....	79
Chart 23: Export price trends – Unwrought Aluminium vs Aluminium Sheet (2018-2020) (QAR/Kg) .....	85
Chart 24: Export price trends – Unwrought Aluminium vs Aluminium Sheet (2018-2020) (QAR/Kg) .....	91
Chart 25: Export price trends – Unwrought Aluminium vs Aluminium Cans/Packaging (2018-2020) (QAR/Kg) .....	97



## LIST OF TABLE

Table 1: Primary smelters in GCC (2020)	34
Table 2: Primary Aluminium sales in GCC by type (2020)	35
Table 3: Primary Aluminium sales in GCC by Export, 2020	37
Table 4: Secondary Aluminium production in GCC by type, 2020	38
Table 5: Primary Aluminium sales in Qatar by Export and Local type, 2020	42
Table 6: HS Code wise export of Aluminium products by Qatar, 2020	44 - 45
Table 7: HS Code wise import of Aluminium products by Qatar, 2020	46 - 47
Table 8: HS Code wise Qatar market of different Aluminium product categories, 2020	53
Table 9: HS Code wise product categories, Qatar Trade in 2020	62 - 63
Table 10: Trade from GCC Countries, 2020	64 - 65
Table 11: Product selection framework, Aluminium	66
Table 12: Product selection analysis and outcome (selected products are marked in green)	69
Table 13: Import of Aluminium Wire, GCC Countries vs World (QAR mn)	72
Table 14: Export of Aluminium Wire, GCC Countries vs World (QAR mn)	73
Table 15: Project Cost of a new automatic Aluminium wire plant of 100,000 tons per annum	75
Table 16: Import of Aluminium Stranded Wire, GCC Countries vs World (QAR mn)	78
Table 17: Export of Aluminium Stranded Wire, GCC Countries vs World (QAR mn)	79
Table 18: Project Cost of a new automatic Aluminium Stranded wire plant of 100,000 tons per annum	81
Table 19: Import of Aluminium Plates/Sheet, GCC Countries vs World (QAR mn)	84
Table 20: Export of Aluminium Plates/Sheet, GCC Countries vs World (QAR mn)	85
Table 21: Project Cost of a new automatic Aluminium sheet plant of 100,000 tons per annum	87
Table 22: Import of Aluminium Foil, GCC Countries vs World (QAR mn)	90
Table 23: Export of Aluminium Foil, GCC Countries vs World (QAR mn)	91
Table 24: Project Cost of a new automated Aluminum Foil plant of 10,000 tons per annum	93
Table 25: Import of Aluminium Cans/packaging, GCC Countries vs World (QAR mn)	96
Table 26: Export of Aluminium Can/packaging, GCC Countries vs World (QAR mn)	97
Table 27: Project Cost of a new automatic Aluminium can plant of 10,000 tons per annum	99

## LIST OF FIGURE

Figure 1: Process flow for Aluminium	10
Figure 2: Process flow for Aluminium	13
Figure 3: Aluminium Value Chain	18
Figure 4: Overview of product groups and components in a car	24
Figure 5: Key packaging product segment for Aluminium	27
Figure 6: QAMCO revenue breakup, QAR 4,395 mn (USD 1.2 bn) in 2020 by Region	41
Figure 7: Industry attractiveness - Porter's 5 force analysis	56
Figure 8: Schematic production process of Aluminium Wire	70
Figure 9: Aluminium Wire Value Chain	71
Figure 10: Schematic production process of Aluminium Stranded Wire	76
Figure 11: Aluminium Stranded Wire Value Chain	77
Figure 12: Schematic production process of Aluminium Sheets	82
Figure 13: Aluminium Sheet Value Chain	83
Figure 14: Schematic production process of Aluminium Foil	88
Figure 15: Aluminium Foil Value Chain	89
Figure 16: Schematic production process of Aluminium Cans/Packaging	94
Figure 17: Aluminium Cans Value Chain	95

## 1- OVERVIEW OF THE ALUMINIUM INDUSTRY

Aluminium has a widespread application across transportation, construction, electrical engineering, consumer goods and packaging. Light, durable, and functional are the main qualities of Aluminium.

Aluminium easily binds itself with other elements, and therefore pure Aluminium does not occur in nature. From feldspar which is an essential mineral on Earth, to far rare stones and minerals such as ruby, sapphire and emerald, today almost 300 Aluminium compounds and minerals containing Aluminium is known to the world.

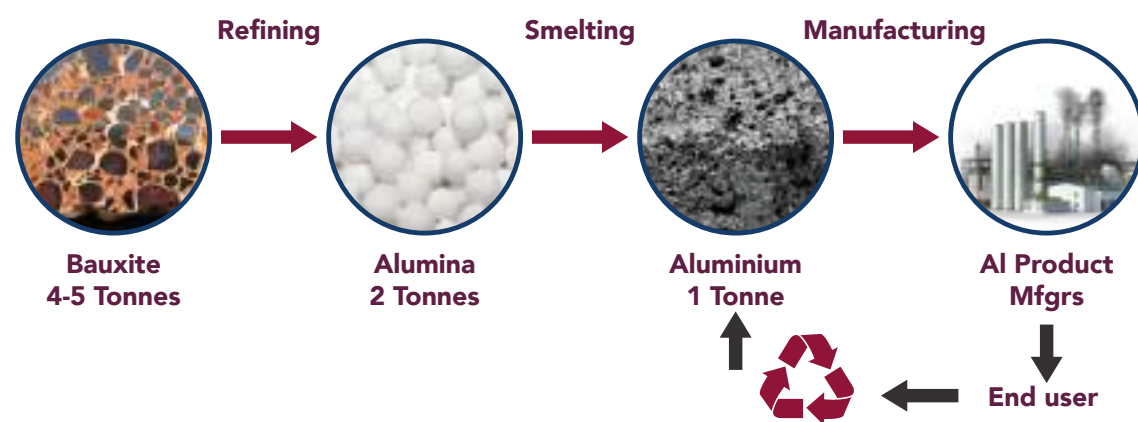
However, the most common mineral used today as the primary raw material in Aluminium production is Bauxite which is comprised of various modifications of Aluminium hydroxide mixed with silicon, iron, sulphur, titanium, chromium, gallium, vanadium oxides, as well as sulphuric calcium, iron, and magnesium carbonates.

### 1.1 PRODUCTION

The Aluminium production process has three stages; first, bauxites are extracted from the ground which contains ores rich in Aluminium. Second, bauxites are processed into Aluminium oxide known as Alumina. Finally in stage three, Alumina is broken down into components using electric current, known as electrolytic reduction to produce pure Aluminium. About 4-5 tons of bauxites can be processed into 2 tons of alumina, from which about 1 ton of Aluminium can be made.

Bauxite is a mineral where high quality material has more than 50% Aluminium oxide mixed with other minerals which are reduced during stage 2 and 3.

**Figure 1: Process flow for Aluminium**



### 1.1.1 BAUXITE DEPOSITS<sup>1</sup>

About 90% of global bauxite reserves are available in tropical and subtropical areas. 70%+ bauxite is found in five countries: Brazil, Guinea, Jamaica, Australia, and India. Guinea is the biggest supplier of bauxites, 5.3 bn tons (28% of the global supply) and Guinean bauxites are of very high quality, containing high percentage of Aluminium Oxide. Moreover, bauxite reserves are very near to the surface, which makes mining them very easy.

### 1.1.2 EXTRACTION METHOD

Bauxites are commonly extracted from open pit mines. Mining equipment is used to cut the surface by layers, with the rock then transported to the processing units. However, there are places where Aluminium ore can be mined from deep underground.

### 1.1.3 ALUMINA EXTRACTION (ALUMINIUM OXIDE)

In the first stage of the Aluminium production, raw material is processed into alumina, or Aluminium oxide  $Al_2O_3$ . Alumina looks like white powder, which is processed into Aluminium at smelters using electrolytic reduction.

Aluminium production requires large quantities of electricity, about 15+ MWh per ton of output, which is around as much as a 100-apartment residential block consumes in a month. Therefore, the best site for an Aluminium smelter is next to a reliable and powerful energy source. Hydroelectric or Solar power plant are the best options as they are the most potent 'green' energy sources available today.

Alumina has an unlimited shelf life, but it must be stored under the right conditions. It absorbs moisture quickly; therefore, alumina manufacturers prefer to ship it off to smelters within a week. Alumina is stacked into layered piles of 10-12 meters high and weighing up to 30+ thousand tons which is then cut and loaded into rail/road cars, 60+ tons per car (depending on the capacity of the car) for dispatch to smelters.

The electrolytic reduction process is used in the third stage to make pure Aluminium. The reduction area known as smelting lines and reduction pots is the main part of an Aluminium unit, and is very different from the production shops of any steel units. For every ton of Aluminium produced, 280,000 cubic meters of gases are emitted. The Aluminium thus produced is called primary Aluminium.

<sup>1</sup> Source: aluminiumleader.com website

## 1.2 ALUMINIUM MARKET SEGMENTATION

By type	By processing type	By application
• Primary	• Castings	• Automotive
• Secondary	• Extrusions	• Aerospace and Defence
	• Forgings	• Building and Construction
	• Pigments and Powders	• Electrical and Electronics
	• Rod and Bar	• Packaging
	• Sheet and Plate	• Industrial
		• Other End-user Industries

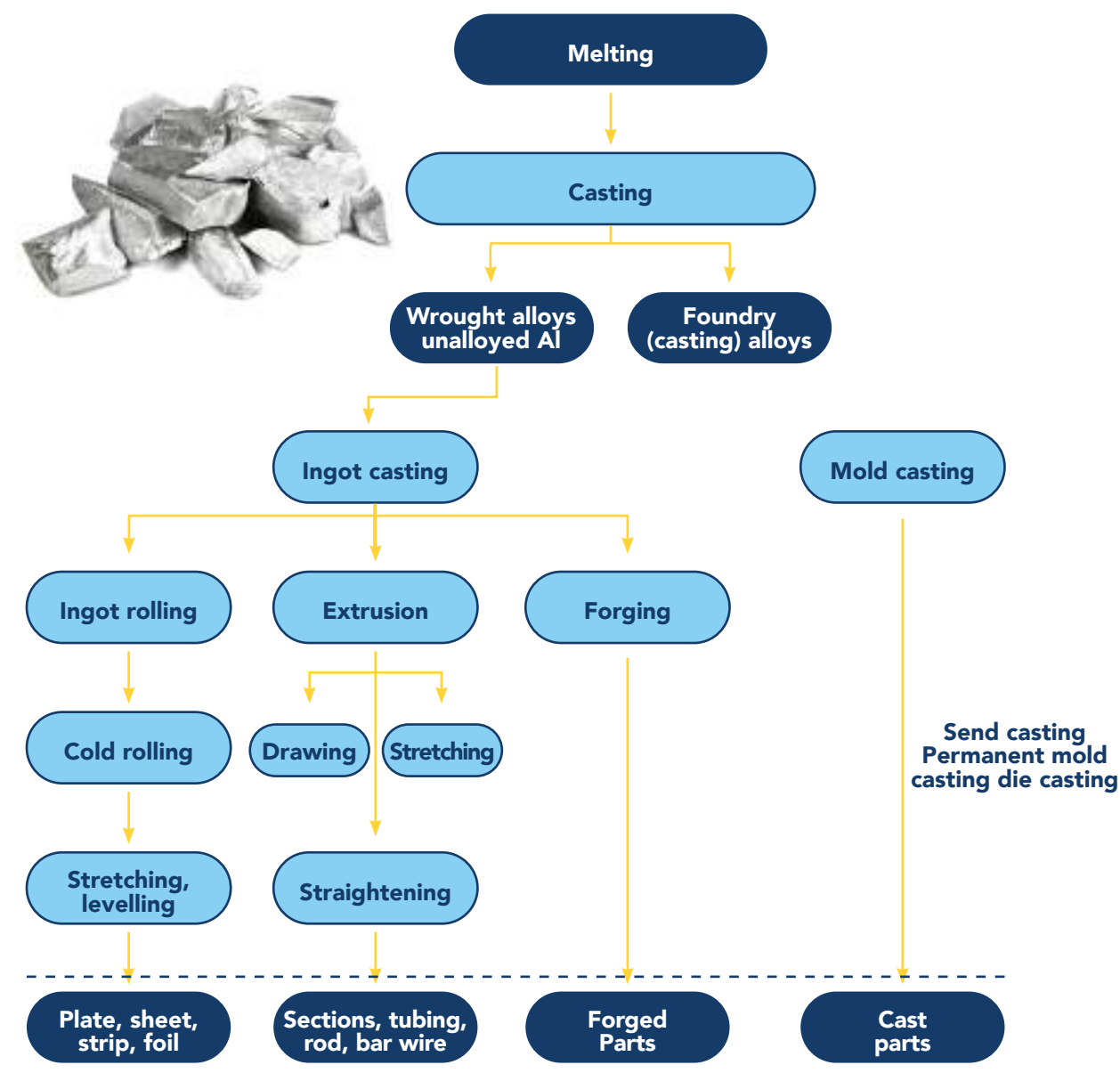
### 1.2.1 PRIMARY VS SECONDARY

Type	Description
<b>Primary Aluminium</b>	Primary Aluminium is labelled as 'primary' because it is made from basic raw material, alumina. Alumina is smelted into new, pure Aluminium ingots in a method called the Hall-Héroult process.
<b>Secondary Aluminium</b>	Secondary Aluminium is made from recycled Aluminium scrap which can come from all sorts of Aluminium products and profiles, such as Aluminium turnings, Aluminium sheets, Aluminium shreds, Aluminium radiators, cast Aluminium, extrusions, painted sidings, Aluminium dross, and more.

### 1.2.2 BY PROCESSING TYPE (MID-STREAM & DOWNSTREAM)

Aluminium is processed into different products through four main processes, i.e. Casting, Extrusion, Forgings and Rolling. Aluminium is first cast into different Aluminium alloys, which are then processed through mold casting, ingot rolling, extrusion and forging to form different products.

**Figure 2: Process flow for Aluminium**





Type	Description
<b>Castings</b>	<ul style="list-style-type: none"> <li>• Casting is the most extensively used process of shaping Aluminium into products. Aluminium castings are made by pouring molten metal into molds that have been molded to resemble the final product.</li> <li>• Die casting, sand casting, and permanent mold casting are the three most popular molding processes used to create castings</li> </ul>
<b>Extrusions</b>	<ul style="list-style-type: none"> <li>• Aluminium extrusion process is a technique of forcing Aluminium alloy through a die having a predetermined cross-sectional profile. The Aluminium is pushed through the die by a powerful ram and emerges from the die opening. Extruded material appears as an elongated piece with a profile similar to that of the die opening and is hauled out along a runout table when this happens. Temperature is an essential consideration in the extrusion process since it determines the desirable properties of Aluminium, such as hardness and finish.</li> </ul>
<b>Forgings</b>	<ul style="list-style-type: none"> <li>• Metal is pressed, pounded, or squeezed under extreme pressure to create high-strength parts in the forging process. Forged Aluminium is mainly used for applications where both performance and safety are critical, but speed or energy efficiency requires a lighter-weight metal.</li> </ul>
<b>Pigments and Powders</b>	<ul style="list-style-type: none"> <li>• Aluminium powder is made by melting Aluminium ingots in a furnace and spraying the molten metal under high-pressure to form a fine granular powder, used in products ranging from suntan lotion to lightweight concrete to solar panels.</li> </ul>
<b>Rod and Bar</b>	<ul style="list-style-type: none"> <li>• Extrusion, rolling, and coiling, as well as drawing straight from molten Aluminium, are all methods for producing Aluminium rods and bars. The Aluminium is elongated in these procedures, resulting in circular or bar-shaped parts that can be machined into a variety of shapes. An Aluminium rod has a circular shape, whereas an Aluminium bar can have any number of flat sides.</li> </ul>
<b>Sheet and Plate</b>	<ul style="list-style-type: none"> <li>• Sheet Aluminium is defined as material from 0.008 inch to less than 0.25 inch of thickness, while thinner gauges are considered as foil and Aluminium 0.250 inches, or thicker is considered as a plate.</li> <li>• Sheet and plate are among the widely used forms of Aluminium. When Aluminium is forced between rolls under pressure, it thins out and lengthens to form plate, sheet, and foil. Sheet or foil manufacture begins similarly to plate production, but the slab is rolled through a continuous mill to reduce thickness before being twisted into a coil at the end of the line. These coils are cold rolled in cold rolling mills in one to multiple passes. Coils can be softened in a furnace before being cold rolled or to get the desired mechanical qualities.</li> </ul>

## 1.3 KEY APPLICATIONS

Type	Description
<b>Castings</b>	<ul style="list-style-type: none"> <li>• Automotive industry is the largest customer segment for Aluminium casting. More than 50% of the Aluminium used in automobiles comes from cast products. Dry casting is majorly used by the automotive industry for the casting parts such as engine blocks, brackets, electronic covers, transmission, wheels, drivelines, exteriors, heat exchangers, interiors, steering, and others.</li> <li>• Defence &amp; Military: Fuselages, panelling, electrical systems, armour structures, fuel pipe systems, fighter aircraft, maritime patrol aircraft, helicopters, missile casings, assault rifles, transport aircraft (tactic and heavy), battle tanks, infantry fighting vehicles, frigates, submarines, torpedoes, airframe wings, landing gears, and offshore patrol vessels are some of the examples where castings can be found.</li> <li>• Furthermore, Aluminium castings are used in various industries such as building and construction, electronics, and others.</li> <li>• Also, thousands of distinct unique Aluminium casting forms are used to make parts for tiny appliances, cookware, hand tools, lawnmowers, and other machines</li> </ul>
<b>Extrusions</b>	<ul style="list-style-type: none"> <li>• Extrusion has a range of applications in various industries, including architecture, automotive, electronics, aerospace, energy, and others. Building and construction is the largest industry for extruded Aluminium. It can be found in Aluminium railings, staircases, and panels to Aluminium framing components.</li> <li>• They have been increasingly replacing traditional iron, concrete, and timber components in the construction and building sector.</li> <li>• They are used in prefabricated windows and doors, curtain walling systems, decking and canopies, suspended sealings and walls, geodesic domes, and even bridge decks.</li> <li>• Furthermore, extruded Aluminium is used in display equipment, electronic systems, industrial and other applications. Transportation industry prefer Aluminium components, as they are lightweight and are ideal for engine blocks, roof rails and chassis of cars, transmission housings, panels, boats, trucks, and railway and subway cars, as well as for the bodies and parts of vehicles</li> </ul>



Type	Description
Forgings	<ul style="list-style-type: none"> <li>Forged Aluminium is commonly used in high-performance automobiles and aircraft gears, drivelines, and wheel spindles.</li> <li>Forged Aluminium is ideal for aerospace applications due to its low density, as aerospace requires both robust and resilient as well as lightweight, and sustain extreme conditions.</li> <li>Furthermore, forged Aluminium is used in various applications such as railway, oilfield, mining, forestry &amp; agriculture, and others.</li> </ul>
Pigments and Powders	<ul style="list-style-type: none"> <li>Aluminium powder is also used to manufacture "fly ash bricks" (bricks made from fly ash, water, quicklime, cement, and gypsum). It is also used to make pigments, which are almost exclusively made through a wet-milling process.</li> <li>Aluminium pigments are used in a variety of applications, from graphic arts and inks to automotive paints and bridges and building protective coatings.</li> </ul>
Rod and Bar	<ul style="list-style-type: none"> <li>In commercial buildings, machinery and equipment, transportation, and consumer durables, Aluminium wire and cable are employed</li> <li>Aluminium rods and bars have a wide variety of applications such as structural components, parts, engineering works, construction, defense, auto part, aerospace, electrical goods, and others. Aluminium round bar applications include a wide variety of products, from medical assemblies, and aircraft construction to structural components.</li> <li>Rod and bar are used to make several machine and equipment parts, such as rivets, nails, screws, and bolts. One of the leading applications of Aluminium rod and bar products is electrical transmission lines.</li> </ul>
Sheet and Plate	<ul style="list-style-type: none"> <li>Aluminium plates and sheets are the most common types of Aluminium, with applications ranging from aerospace to transportation to aesthetic. The most common type of industrial Aluminium is a sheet, which is utilized in various industries such as aerospace for plane bodies, transportation, packaging, construction such as roofing, wall panels, facades, and others.</li> <li>Aluminium sheets are also used in the food and beverage industries for packaging such as can bodies and pans and as elements of cookware and appliances.</li> <li>Roofing, gutters, sidings, facades, and other materials made of Aluminium sheets can be used in the construction and housing industries.</li> </ul>

## 1.4 ALUMINIUM VALUE CHAIN



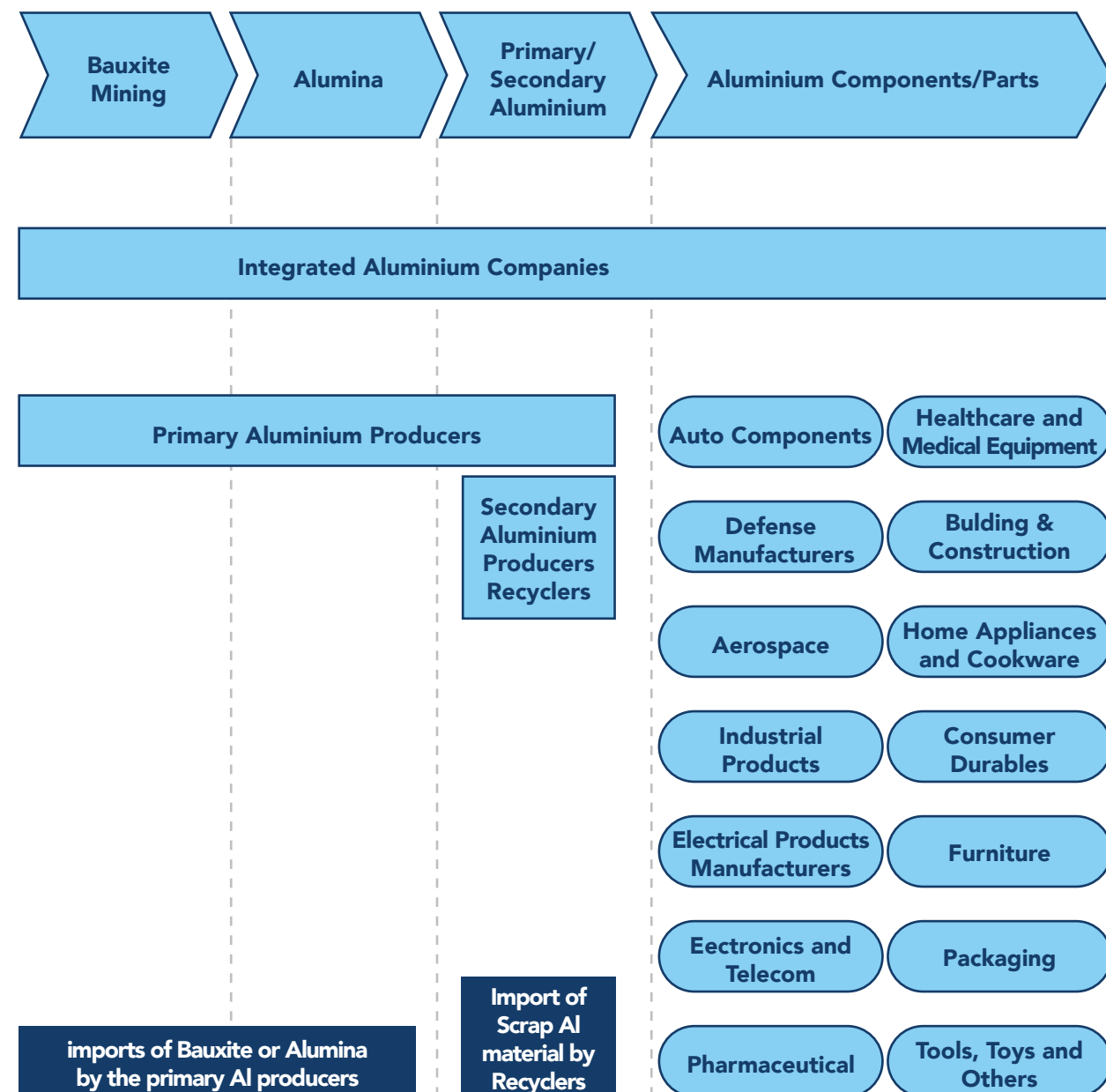
**Upstream** – Primary or Secondary manufacturing of pure Aluminium or alloys as Ingots, billets, bars and rods, plates and sheets and others. The primary material refers to the Aluminium produced out of alumina, whereas secondary Aluminium is made from the recycling procedure. Primary material manufacturers also recycle secondary Aluminium mixing it at the alumina stage



**Downstream** – The ingots, billets, rods or sheets of Aluminium are used across almost all the industries to manufacture a wide range of Aluminium products. Today Aluminium is part of nearly every product category and manufacturing industry



Figure 3: Aluminium Value Chain



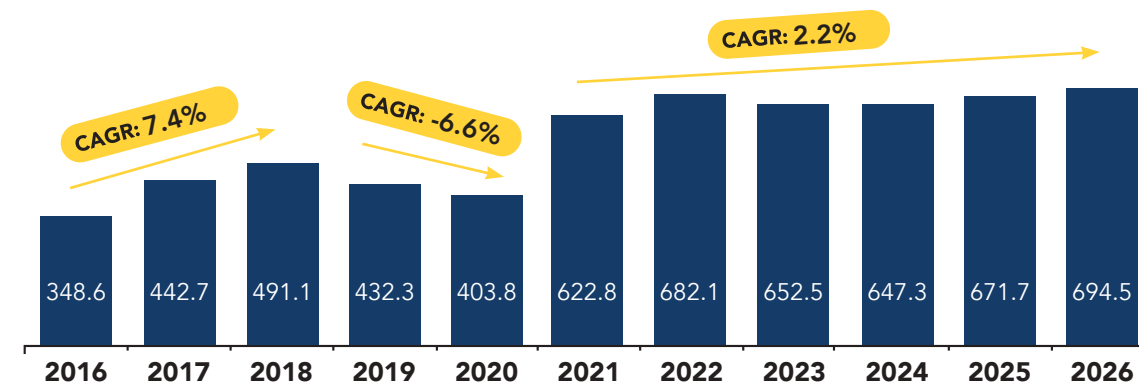
Building and Construction, Automotive and Industrial are the leading customer segment for primary Aluminium products – Ingots, billets, bars and rods, plates and sheets and others.

## 2 - GLOBAL MARKET

The global primary Aluminium production is estimated as ~65.1 million metric tons in 2020<sup>2</sup> and is expected to reach ~79.2 million metric tons by 2026, registering a CAGR of ~3.4%, in terms of volume, during the forecasted period of 2021-2026.

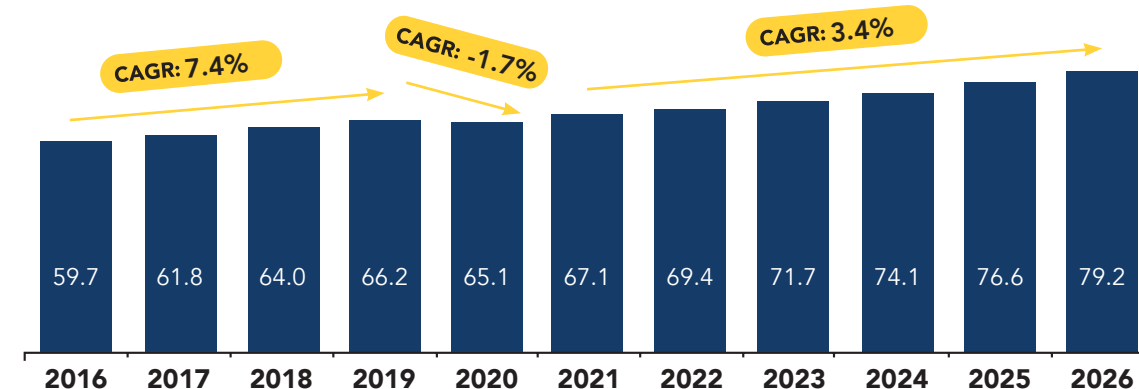
In terms of revenue, the market is estimated to be QAR 403.8 billion in 2020 and is expected to reach QAR 694.5 billion by 2026, registering a CAGR of ~2.2%, during the period 2021-2026. Fast growing construction market in the Asia-Pacific region and rising demand from the food packaging industry are expected to drive the growth of Aluminium demand in the years to come.

Chart 1: Global Primary Aluminium Production (QAR bn)



Source: International Aluminium Institute (volume), Primary Aluminium Production (2022), Statista

Chart 2: Global Aluminium Market (mn tons)



Source: International Aluminium Institute, Primary Aluminium Production (2022)

<sup>2</sup> Source: International Aluminium Institute



As a constraint, the decline in the automotive industry along with the unfavorable conditions arising due to the COVID-19 outbreak, rising fuel costs and others are expected to hinder the market growth in the short-to-medium term.

Some of the major manufacturers of Aluminium include Aluminium Corporation of China Limited (Chinalco), China Hongqiao Group Limited, Rusal, Xinfu, Rio Tinto, Emirates Global Aluminium, and SPIC, amongst others.

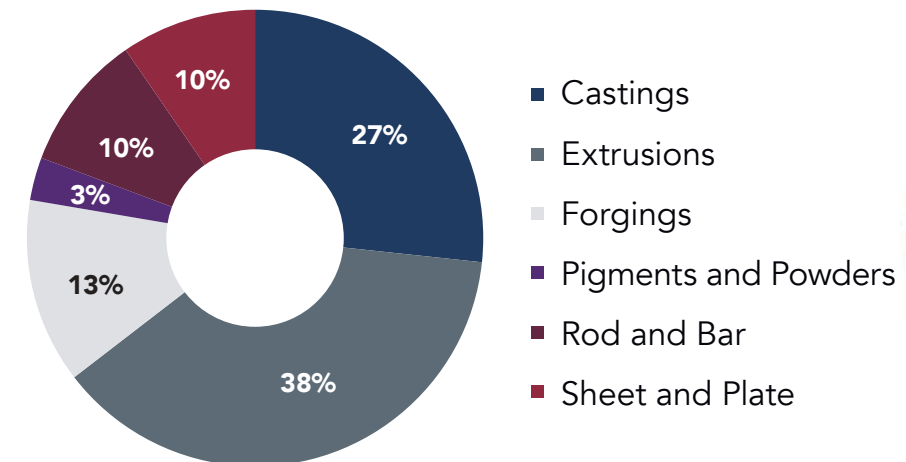


## 2.1 MARKET SPLIT BY PROCESSING TYPE

In terms of revenue by processing type, the extrusion segment dominated the global Aluminium market, with an estimated share of around 38% in 2020<sup>3</sup>. However, the casting segment is expected to register the fastest CAGR of 6.76% through 2026.

<sup>3</sup> Source: International Aluminium Institute

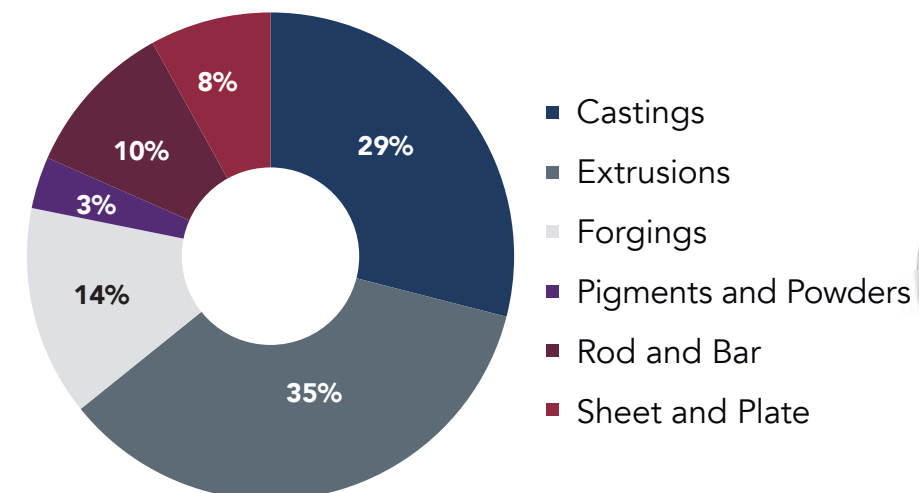
Chart 3: Global market split by processing type QAR 403.8 bn, 2020



Source: International Aluminium Institute



Chart 4: Global market split by processing type in 2020 (65.1 Mn tons)



Source: International Aluminium Institute



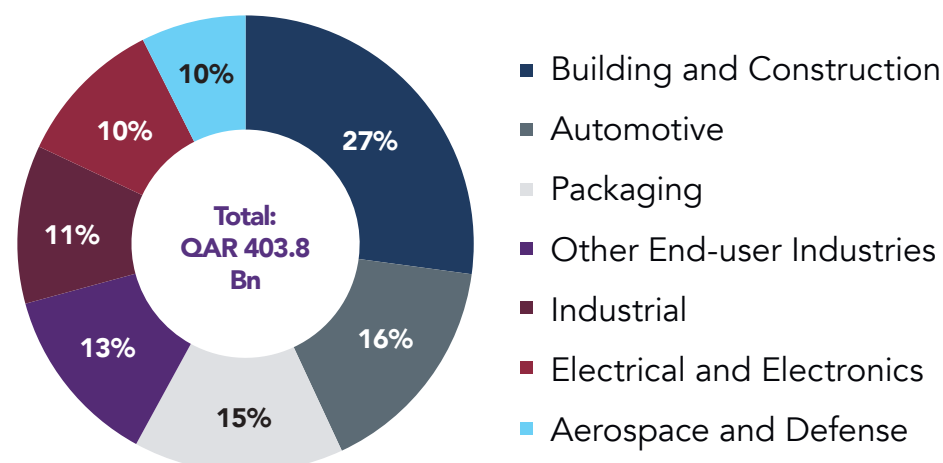
Aluminium extrusions are linear products with a high strength-to-weight ratio and a low extrusion process cost. It has a range of applications in various industries, including architecture, automotive, electronics, aerospace, energy, and others. Building and construction is the largest industry for extruded Aluminium. At the same time, casting is predominantly used in the automotive industry.



## 2.2 MARKET SPLIT BY APPLICATION

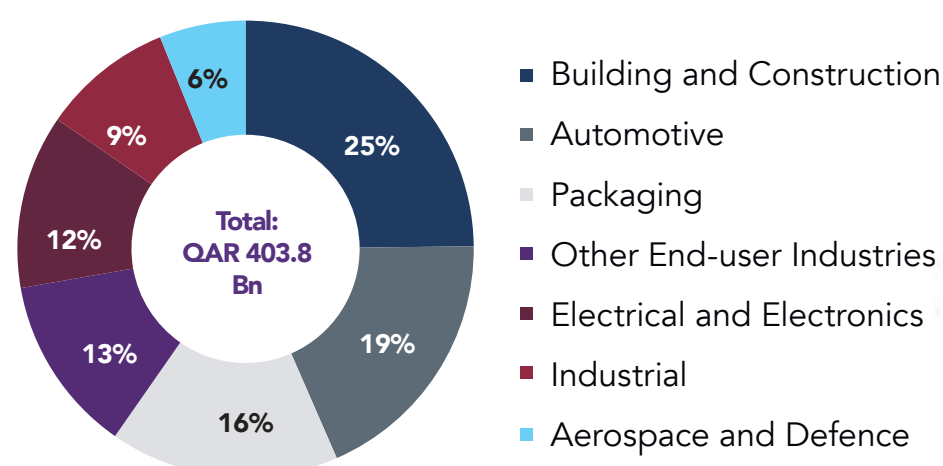
In terms of revenue, by end-use industry type, the building and construction segment dominated the global Aluminium market, with an estimated share of around 27% in 2020<sup>4</sup>. Building and construction segment is also expected to register the fastest CAGR of 6.83%, through 2026.

**Chart 5: Global primary market split (Value) by customer segments**  
QAR 403.8 bn 2020



Source: International Aluminium Institute

**Chart 6: Global market split (Volume) by customer segments**  
(65.1 Mn tons) 2020



Source: International Aluminium Institute

<sup>4</sup> Source: International Aluminium Institute

Globally top three customer segments for Aluminium are Building and Construction, Automotive and Packaging, cover around 50% of the total demand by volume. The remaining 50% volume is spread across Aerospace and Defence, Electrical and Electronics, Industrial, and other customer segments.

## 2.3 ALUMINIUM IN BUILDING AND CONSTRUCTION

Aluminium alloys are extensively used to manufacture different components and products used in building construction; since wood has become expensive, Aluminium has become a good alternative.



Doors and Window Frames



Curtain Walls



Composite Panels



Roofing Sheets

The main application areas for Aluminium by share of the total weight in a building are Doors and Window Frames, Curtain Wall, Composite Panels and Roofing Sheets. The other application areas are Garage Doors, Balcony Frames, Fencing, Gutters, Solar panels, Chimney, and others.

Aluminium is fast replacing wood in modern building construction as door and window frames. These doors and windows are made of Aluminium frames and toughened glass material.

The plain walls which do not support a roof are called curtain walls. In modern buildings, brick, mortar, and cement walls have been replaced by Aluminium composite panels and curtain walls. Built-up curtain walls are made using Aluminium frames with glass fittings.

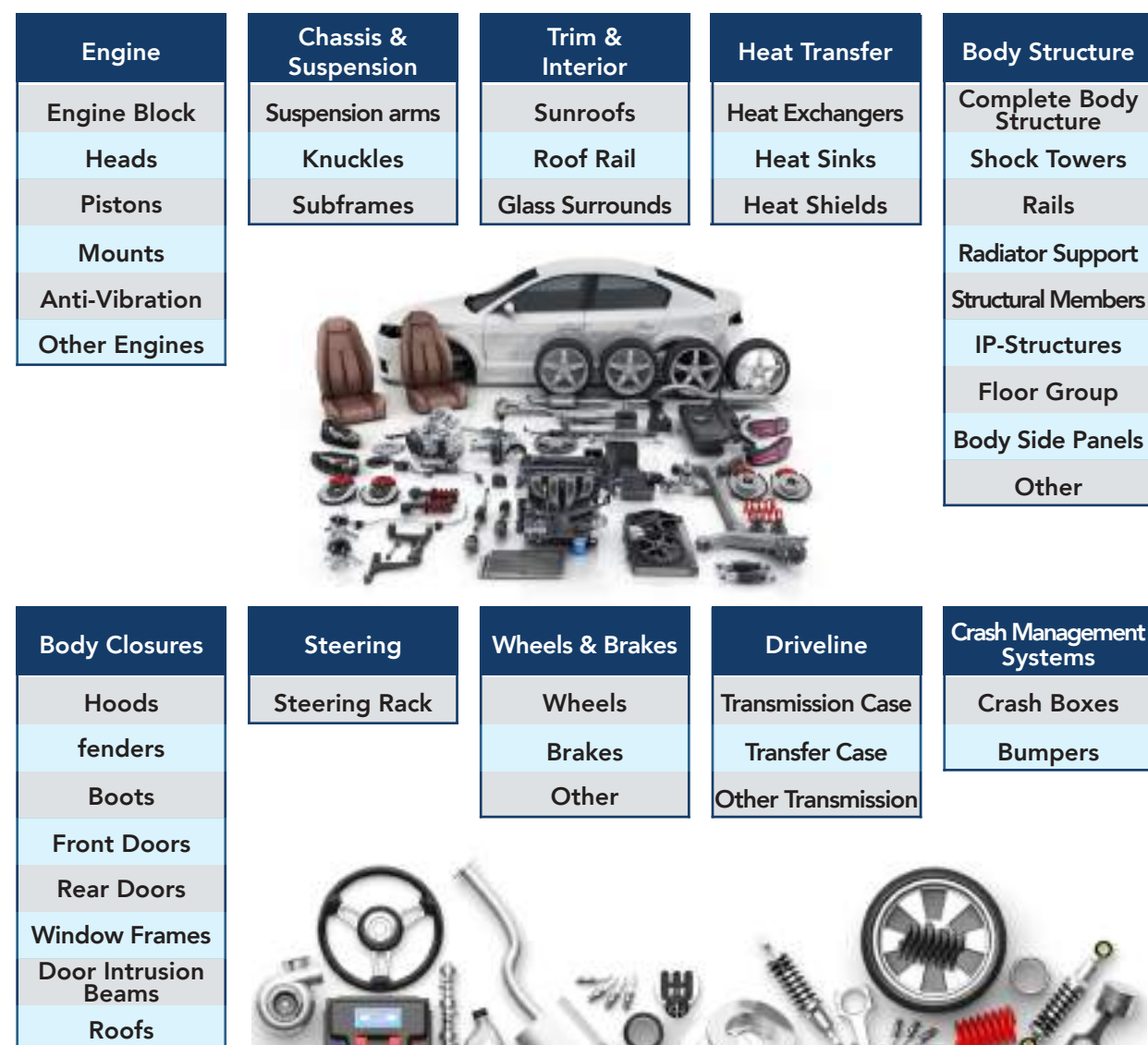
The Aluminium composite panels are lightweight and have high peeling strength, high durability and weather resistance and therefore are used in exterior walls. They are fire-resistant with anti-impact and anti-scratch properties and excellent sound and thermal insulation properties.



## 2.4 ALUMINIUM IN AUTOMOBILE<sup>5</sup>

The Aluminium usage ranges from an average of 100 kg in small cars such as Opel Astra, Nissan Juke, Renault Megane and others to more than 400 kg in high-end cars such as Range Rover Sports, Jaguar F-Pace, Mercedes S Class and others. A study by European Aluminium Association on automobiles estimated an average of 200 kg of Aluminium products in a car across different product categories.

**Figure 4: Overview of product groups and components in a car**

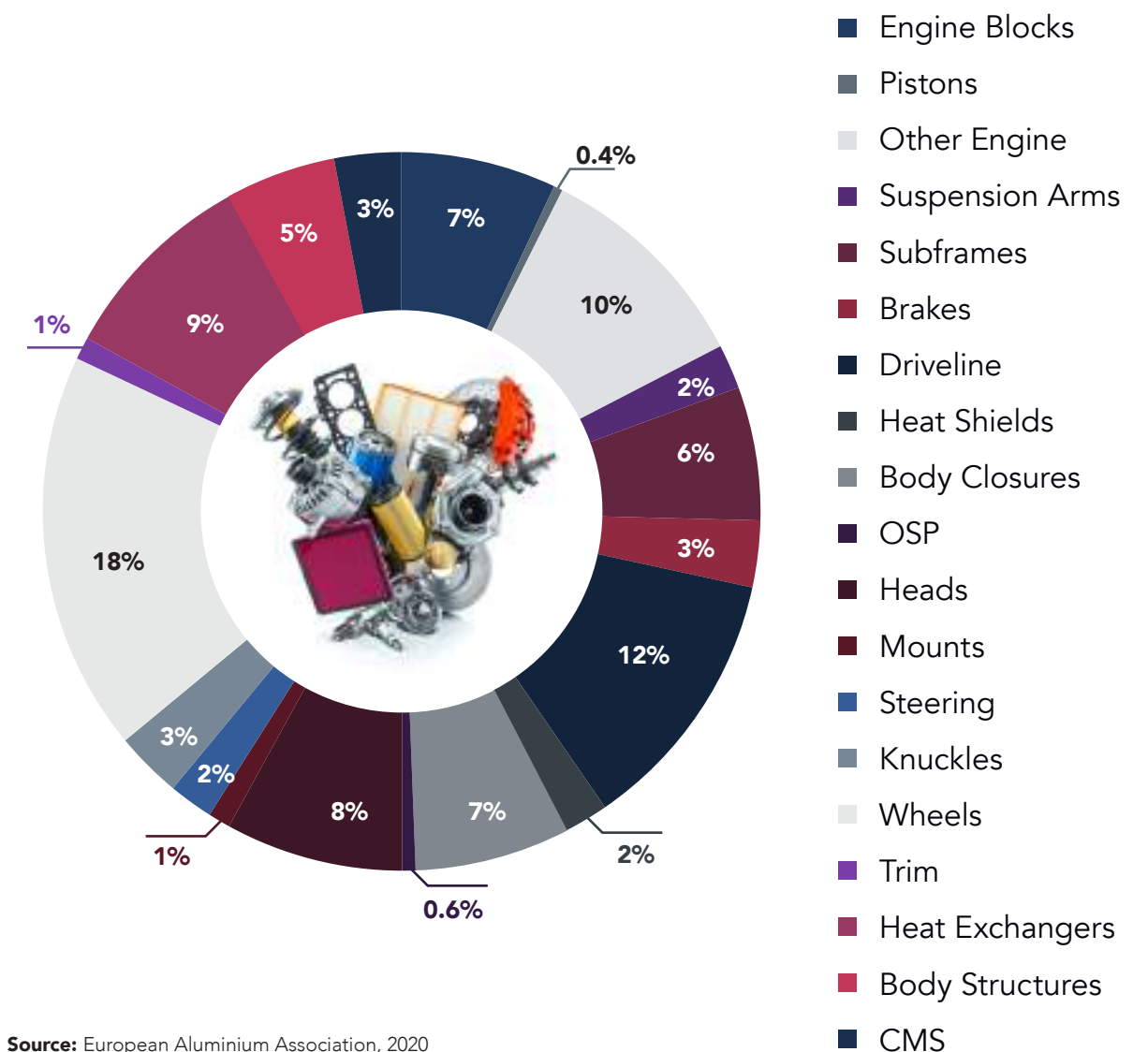


Source: European Aluminium Association

<sup>5</sup> Source: European Aluminium Association

There are over 20 product categories and a wide range of Aluminium products used in a car. Although much focus is on aluminium sheet products for body and closure, the share of casting, between powertrain and wheels is nearly 50% of the total average aluminum content.

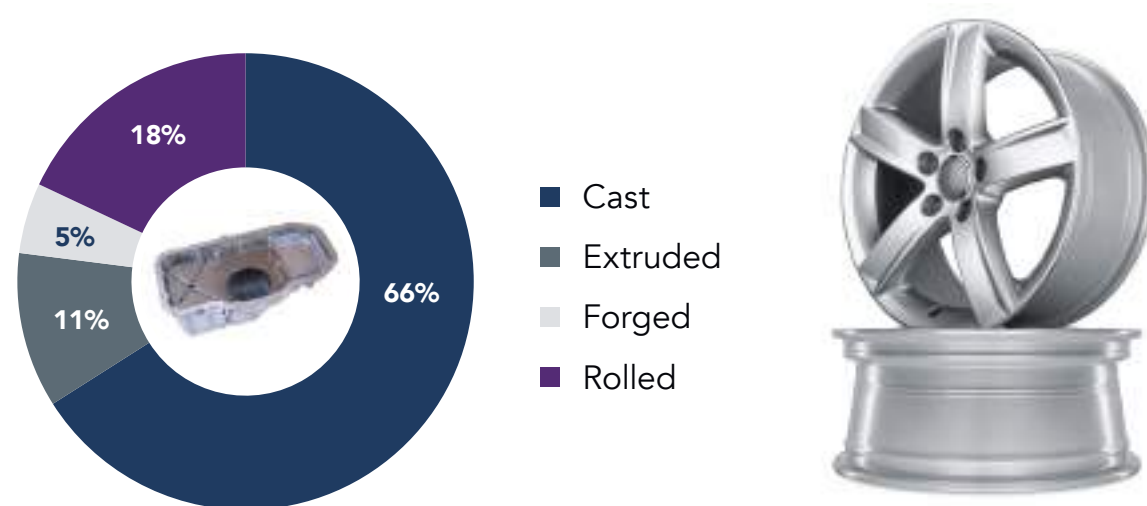
**Chart 7: Average Aluminium component per Vehicle (European Car Production)**



Source: European Aluminium Association, 2020

The respective auto component manufactures these components by casting, extrusion, forging or rolling process.

**Chart 8: Share of Semi-Aluminium products by weight in a car**



Source: European Aluminium Association, 2020

## 2.5 ALUMINIUM IN PACKAGING

Aluminium's ability to form any shape and protective qualities have made it the most versatile packaging material. In addition, a key benefit is that Aluminium foil, Aluminium cans, and other Aluminium packaging materials can be fully recycled and reused an infinite number of times.

Thin but strong, eye-catching because of its silvery glitter, Aluminium foil is an everyday presence in our lives. Its unique insulating properties make Aluminium foil ideal packaging for just about anything.

The Aluminium foil is nothing more than Aluminium alloy sheets between 0.004 and 0.24 mm thick. An Aluminium foil is 8 times thinner than a banknote, and yet it provides perfect protection against light, liquid, and bacteria.

Foil is made in the rolling mills in a process that involves pulling a sheet of Aluminium between two rotating rollers under pressure. The resulting extra thin sheet or

foil is then cut up into rolls using special cutters. The material used most often in the production of foil is pure primary Aluminium or 1XXX (99.000% minimum Aluminum), 3XXX (Silicon Plus Copper and Magnesium) and 8XXX (Tin) series alloys that include iron, silicon, manganese and occasionally copper if greater strength is needed. Heated Aluminium is rolled into sheets between 2 and 100 mm thick (hot-rolling). These are then cold-rolled into the foil of the required thickness.

Aluminium foil is also used in food containers, bins, bottle caps, soft packages for liquids or bulk foodstuffs and many other containers.

Fruit juices can be kept for extended periods at room temperature in containers made from composite layers of paper, Aluminium foil, and polyethylene film. Paper creates a frame for the container, the Aluminium foil provides protection, and the polyethylene film seals the container.

**Figure 5: Key packaging product segment for Aluminium**



Aluminium cans allow the beverages inside them to retain their taste, while protecting them from the negative impact of the elements. In addition, the can itself does not get rusty or lose its properties in any other way. More than half of the Aluminium in existence today will be recycled. In some countries, the share of Aluminium cans in circulation is much greater than in others; for example, in Germany 95% of all beverages are contained in Aluminium cans.

Global Aluminium cans production capacity exceeds 250 Bn cans per year. 40% of this capacity is in the US, Japan is in second place followed by Brazil and China. There are around 180 Bn Aluminium beverage cans produced globally every year.

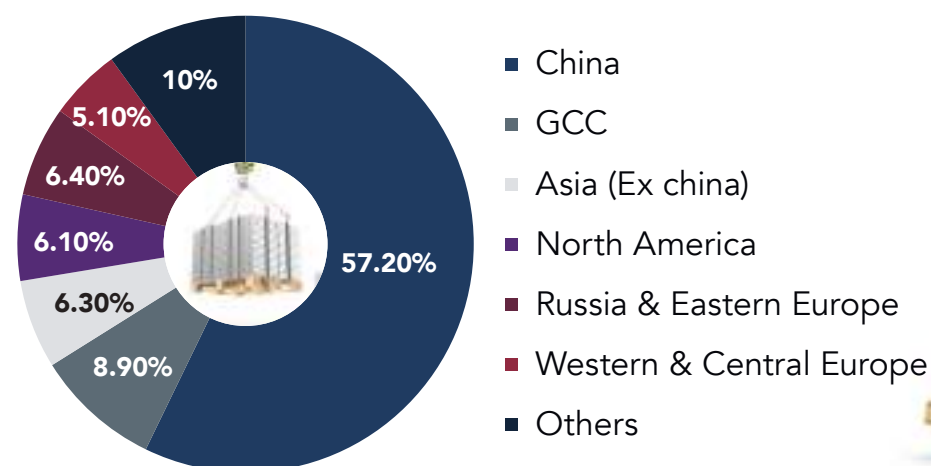


## 2.6 PRODUCTION SPLIT BY REGION<sup>6</sup>

China dominates Aluminium production with a total production of 37.2 MMT or 57.2% of the total production, followed by GCC (Gulf Corporation of Council) with 5.8 MMT production of 8.9% market.



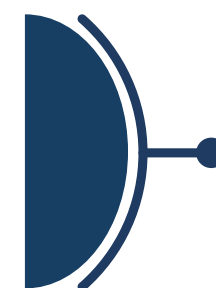
Chart 9: Global Aluminium production by region (65.1 Mn tons) 2020



Source: International Aluminium Institute

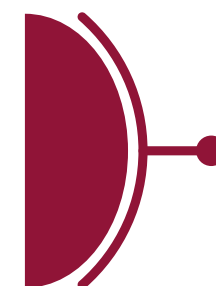
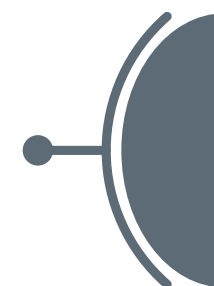
<sup>6</sup> Source: International Aluminium Institute

## 2.7 KEY ALUMINIUM PLAYERS GLOBALLY



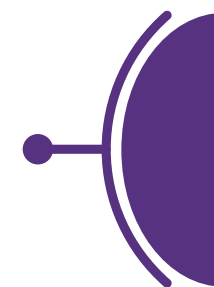
**China Hongqiao Group Ltd (China Hongqiao)** is an investment holding company engaged in the manufacture, sale, and distribution of Aluminium products. The group, through its subsidiaries is also involved in the trading of bauxite, production, and sale of electricity and, research and development of bauxite. Its portfolio of products includes molten Aluminium alloys, Aluminium alloy ingots, Aluminium alloy casting-rolling products, Aluminium busbars, and Aluminium alloy processing products. The firm accounted for 9.2% of the global Aluminium production in 2020.

**Rusal** is an integrated Aluminium manufacturer. It manufactures and markets Aluminium sheets, ingots, wire rods, foundry Aluminium alloys, Aluminium billets, and others. Its alumina refineries are in Ireland, Jamaica, Ukraine, Italy, Russia, and Guinea. The company also owns and operates Aluminium smelters. The firm accounted for 6.5% of the global Aluminium production in 2020.



**Rio Tinto** is an international metals and mining company that carries out the mining, exploration, and processing of various mineral resources. It supplies a range of minerals and metals, including Aluminium, diamonds, uranium, copper, coal, gold, and iron ore. The company also provides industrial minerals such as borax, titanium dioxide and salt. The firm accounted for 5.3% of the global Aluminium production in 2020.

**Shandong Xinfu Aluminium Electricity Group** is a large Chinese conglomerate with operations in power generation, heat supply, electrolytic Aluminium, alumina, carbons, fluoride salt, high and middle density fiberboards, monosodium glutamate, and Aluminium processing. It is based in Shandong, China. The firm accounted for 5.5% of the global Aluminium production in 2020.



## 2.8 RECYCLING CAPABILITY OF ALUMINIUM

Aluminium barely loses any quality during recycling and can be recycled perpetually. Recycling Aluminium saves more than 90% of the energy needed to produce new Aluminium. Around 75% of the almost 1.5 billion MT<sup>7</sup> of Aluminium ever produced is still in productive use today. It is in the interest of sustainability that Aluminium is more and more recycled since recycling provides multiple benefits as given in the below table:

Benefits	Description
<b>Effective waste management</b>	<ul style="list-style-type: none"> <li>Enables the disposal of municipal solid waste and construction and demolition waste</li> <li>Reduces landfill pile-up</li> </ul>
<b>Preservation of natural wealth</b>	<ul style="list-style-type: none"> <li>Prolongs the life of bauxite mines and preserves mineral ores from depletion</li> <li>Saves resources, such as energy, oil and natural gas, and water</li> </ul>
<b>Economic value creation</b>	<ul style="list-style-type: none"> <li>Creates employment opportunities in the secondary metal</li> <li>Recycling sector</li> <li>Contributes to GDP growth and sustainable sectoral development</li> </ul>
<b>Environmental sustainability</b>	<ul style="list-style-type: none"> <li>Reduces carbon emissions, adhering to Kyoto Protocol norms</li> <li>Reduces pollution and protects the environment</li> </ul>

## 2.9 IMPACT OF COVID

The COVID-19 pandemic disrupted the global supply chain of major consumer electronic brands. China is the largest consumer and producer of various consumer electronics products but also caters to a wide range of countries by exporting several input supplies that are essentially used to produce finished goods. When several feeder industries within China were a shut down, it forced other consumer electronics makers based in the United States and Europe to hold the production of finished goods. This led to an increase in the demand and supply gap, which restrained the market to a huge extent. The sudden closures of manufacturing activities across segments, mainly the automotive and aerospace industry, but the demand for Aluminium was on a free

fall. This led to a substantial decrease in prices of Aluminium since no one was buying it. Later, as the pandemic progressed and when the manufacturing activities started picking up, the disruption in the supply chain and logistics created a sharp shortage in the availability of Aluminium. Because of the mismatch of demand and supply, the overall consumption of Aluminium declined in 2020.

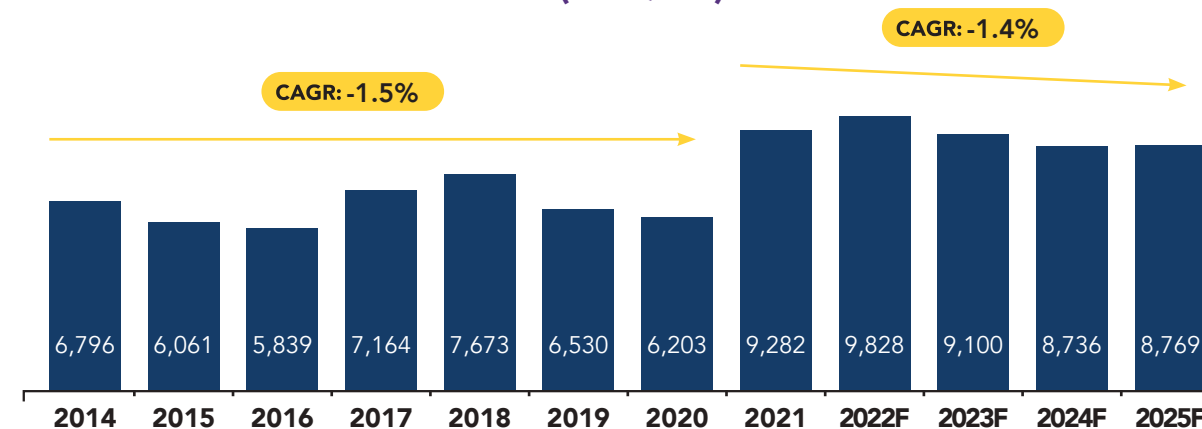
Global aluminium consumption decreased from 432.3 Bn QAR in 2019 to 403.8 Bn QAR in 2020 due to the impact of pandemic. This was a decrease in Aluminium consumption almost by 6.6% in 2020. In volume terms, this decrease was from 66.2 Mn MT in 2019 to 65.1 Mn MT in 2020, a decline of 1.7%.

## 2.10 GLOBAL KEY TRENDS

### 2.10.1 PRICING

Average Aluminium price grew from QAR 7,295 (\$2004) per ton in January 2021 to QAR 11,930 (\$3277.5) per ton in March 2022<sup>8</sup>, a 81% increase from October 2021 price of QAR 6,574 (\$1,806) per ton.

**Chart 10: Global Aluminium Price (QAR/MT)**



Source: Statista, 2021

For 2022, Aluminium prices are forecast to rise by 6% y-o-y because of a high demand from the automotive industry, increased prices of energy resources, and a supply shortage arising from China's diminishing production to decrease CO2 emissions. China's output has decreased due to restrictions on energy usage and halted production at a 300K-ton capacity factory in Yunnan province.

The above price estimates are based on working in 2021. The global supply chain disruption from any global emergency, war, new covid strain and other uncertainty are not considered.

<sup>8</sup> Source: tradingeconomics.com

<sup>7</sup> Source: International Aluminium Institute



### 2.10.2 RISE IN DEMAND FOR ALUMINIUM PACKAGING

Measures to reduce plastic packaging by replacing it with Aluminium to protect the environment would lead to increased demand for Aluminium packaging.

Aluminium packaging (in the form of a can, cup, or bottle) is praised not only for its durability but also for its recyclability. It may be the best material replacement for plastics when it comes to beverage packaging, according to experts from various producers. Moreover, some of the world's biggest beverage brands have recently announced they will address the plastic waste challenge by introducing new Aluminium packaging for water.

The process of substituting plastics with Aluminium in cans, bottles, and other packaging will be a slow and long-term process. But Aluminium demand in this segment will grow, most probably at higher rates in the future than in the past. It is expected to benefit Aluminium demand as in the huge beverage packaging market QAR 539 bn (USD 148.1 Bn), even small changes (switches) will result in significantly higher demand.

Aluminium cans are also replacing tin cans in beverages. The world's largest can producer, Ball Corp, US suggests that about 100 billion cans are consumed each year in North America. The company is buying an increasing amount of Aluminium cans stock from outside the U.S. Ball Corp told investors that it planned to add 4-5 billion additional cans to its existing 105 billion annual capacity by mid-2021<sup>9</sup>

A shift of only 1% of global soft drinks and bottled water from plastic and glass to Aluminium cans would mean a surge of 24 billion more cans. That 1% change would increase Aluminium demand by around 310,000 tons.

### 2.10.3 GROWTH IN EV MARKET

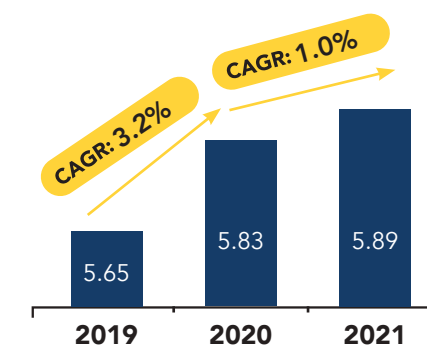
The technological shift in the automobile sector regarding electric vehicles (EV) is growing progressively, which will stage enormous opportunities for the growth of the Aluminium market. The automobile industry is focusing on developing lightweight materials to manufacture cars to meet fuel efficiency needs which are achieved by using Aluminium. Policies, like new energy vehicle mandate and fuel economy regulations in countries across the globe are anticipated to drive the demand for automotive parts in the electric vehicles segment over the coming years. This will propel the demand for Aluminium for automotive production.

<sup>9</sup> Source: lightmetalage.com

## 3 - GCC ALUMINIUM MARKET

GCC countries have drawn significant attention of the global Aluminium industry with a record production of Aluminium in 2020. The output reached 5.83 million tons in a year that witnessed historical odds and challenges due to the unprecedented COVID-19 outbreak. There are five primary Aluminium producers in the GCC region. They collectively produced 5.83 mn tons of high-quality Aluminium in 2020 for both the domestic and overseas markets, registering an increase of 179 thousand tons or 3.2% from 5.65 mn tons in 2019.

**Chart 11: GCC Aluminium production (Mn tons)**



Source: International Aluminium



### 3.1 GCC ALUMINIUM PRODUCTION BY SUPPLIERS

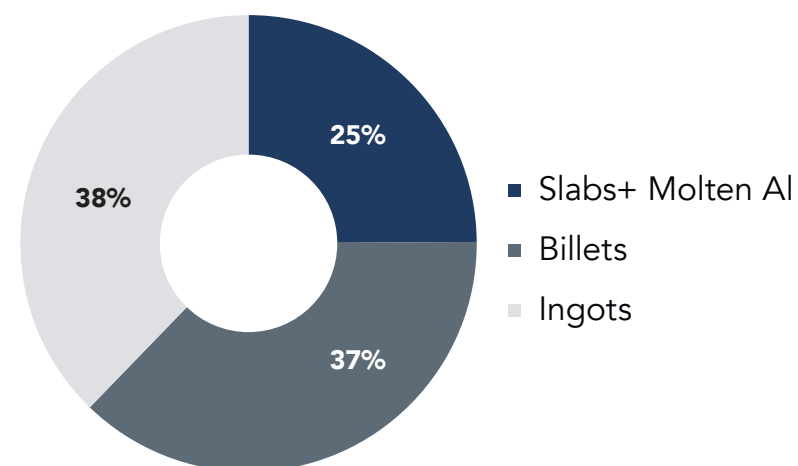
Entire production of Aluminum in GCC is from 5 key suppliers. UAE's Emirates Global Aluminium produced 2.33 Mn tons or 39% of the total GCC market in 2020. Followed by Bahrain's ALBA, which produced 1.5 Mn tons and accounts for ~26% of total GCC production.

**Table 1: Primary smelters in GCC (2020)**

Country	Player	Production (MMT)	Percentage (%)
UAE	EGA Jebel Ali EGA Al Taweelah	2.3	39%
Bahrain	ALBA - Aluminium Bahrain B.S.C.(c)	1.5	26%
Saudi Arabia	MA'ADEN	1.1	19%
Qatar	QATALUM	0.65	11%
Oman	Sohar Aluminium	0.28	5%
Total GCC market		5.83	100%

Source: Gulf Aluminium Council

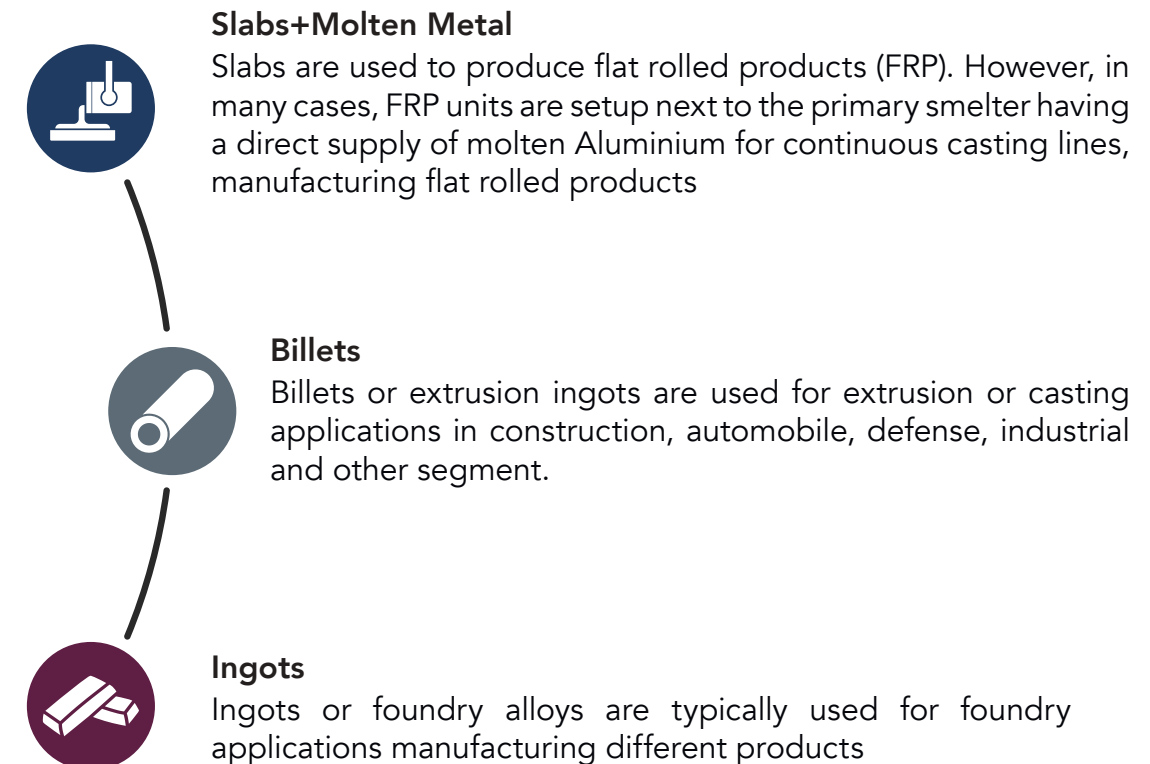
**Chart 12: Primary Aluminium production in GCC by type (2020)**



Source: Primary Interview with Suppliers



Primary Aluminium is produced in three broad product types –



**Table 2: Primary Aluminium sales in GCC by type (2020)**

Country	Total Sales Primary Al. (KMT)	Slabs+ Molten Al	Billets	Ingots
UAE	2,300	11%	43%	46%
Bahrain	1,500	20%	31%	49%
Saudi Arabia	1,100	72%	18%	10%
Qatar	655	0%	54%	46%
Oman	280	38%	63%	0%
Total GCC market	5,835	25%	37%	38%

Source: UN Comtrade Data



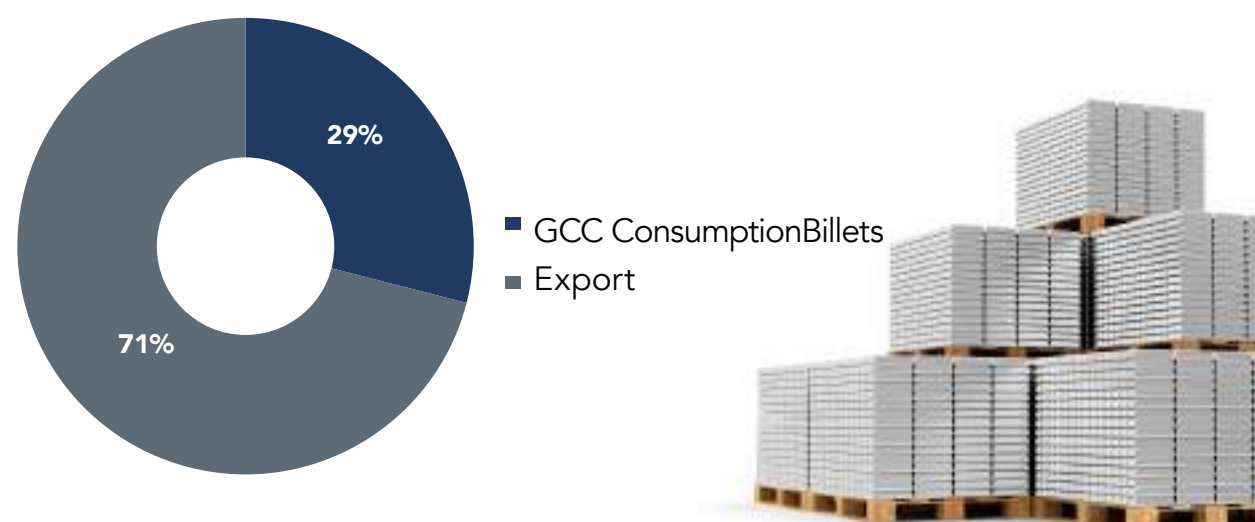
GCC has emerged as one of the major primary Aluminium producing regions of the world, with production increasing from 1.8 Mn tons in 2009 to 5.83 Mn tons in 2020. However, around 80% (78% in 2020) of the total primary Aluminium produced in the GCC region is exported, and the rest gets used by the domestic downstream sector. Billets and ingots have been the main type of primary Aluminium produced in GCC region. However, with the recent capacity development in the region for flat rolled products, the share of slabs and molten metal has increased.

Primary Aluminium is used to manufacture various downstream products, including flat rolled products (FRP), foil, extrusion profiles, wire rods, castings and others.

## 3.2 GCC AND EXPORTS

Primary and downstream Aluminium producers in the GCC continued to maintain their leadership position in the international market by contributing around 10% of the world Aluminium demand and exporting 71% of its production (primary Aluminium) in 2020 to more than 65 countries around the world.

**Chart 13: GCC Primary Aluminium sales by domestic vs exports (5.83 Mn tons) 2020**



Source: UN Comtrade Data

**Table 3: Primary Aluminium sales in GCC by Export, 2020**

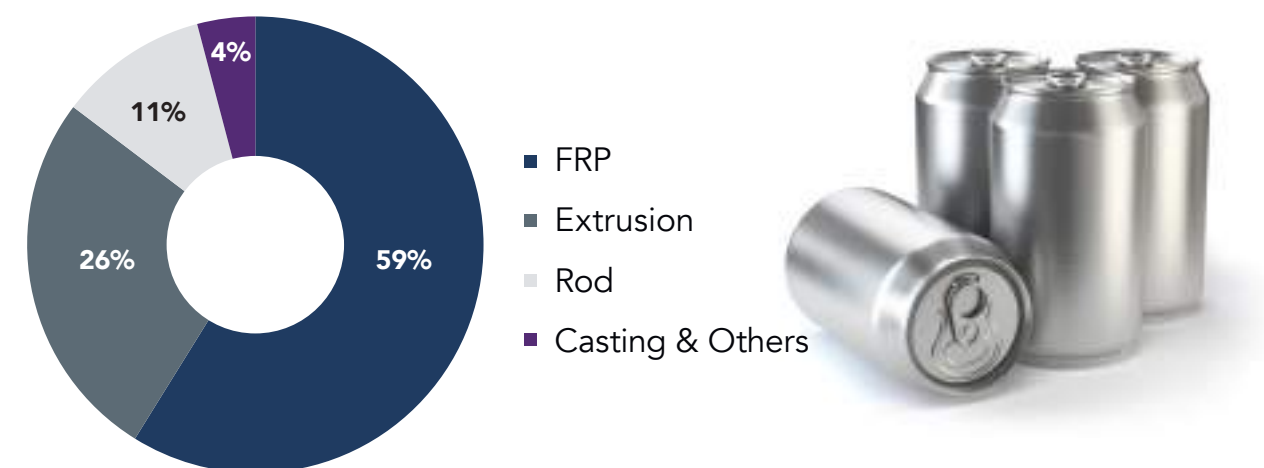
Country	Total Sales Primary Al. (KMT)	Export Outside of GCC (%)	Consumption Within the GCC (%)
UAE	2,300	75%	25%
Bahrain	1,500	78%	22%
Saudi Arabia	1,100	40%	60%
Qatar	655	97%	3%
Oman	280	61%	39%
<b>Total GCC market</b>	<b>5,835</b>	<b>71%</b>	<b>29%</b>

Source: UN Comtrade Data

## 3.3 GCC DOWNSTREAM MARKET

The total GCC downstream Aluminum market is estimated to be ~1.7 Mn Tons in 2020. FRP (Flat Rolled Products – Plates and Sheets) is the major form of Aluminium production in the GCC region with a share of 59% or 1.0 Mn tons, followed by Extrusion, which accounts for 26%.





**Chart 14: GCC secondary Aluminium production split by type (1.7 Mn tons), 2020**



Source: Gulf Aluminium Council



**Table 4: Secondary Aluminium production in GCC by type, 2020**

Country	Total Sales primary Al. (KMT)	FRP (KMT)	Extrusion (KMT)	Rod (KMT)	Casting & Others (KMT)
 <b>UAE</b>	575	250	170	120	35
 <b>Bahrain</b>	335	275	40	10	10
 <b>Saudi Arabia</b>	660	400	213	27	20
 <b>Qatar</b>	20	0	17	0	3
 <b>Oman</b>	110	75	10	23	2
<b>Total GCC market</b>	1,700	1,000	450	180	70

Source: UN Comtrade Data

MA'ADEN (KSA), Garmco (Bahrain), EGA (UAE) and OARC (Oman) are the main producers of FRP in the GCC region. The growth in processed food packaging, Aluminium Cans, Aluminium foil, and other packaging products has helped the GCC region to set up FRP lines. This has also helped in forward integration to manufacture Aluminium foil and other packaging products.

Some of the leading producers of Aluminium extrusions in the GCC region include Al Jaber Aluminium Extrusions, Al Taiseer Aluminium Factory, Aluminium Products Company, Arabian Extrusion Factory, Bahrain Aluminium Extrusions, DAC Extrusions, Elite Extrusion Company, Gulf Extrusions and White Aluminium Extrusions.

### 3.4 KEY TECHNOLOGY TRENDS IN THE GCC

Emirates Global Aluminium (EGA) has developed an Aluminium reduction technology for increased energy efficiency. The company first developed in-house DX technology in 2008, expanding to DX+ and then DX+ Ultra in 2014. In this process, power amperage is increased in the potlines, making the overall production more efficient.

Bahrain-based Gulf Aluminium Rolling Mill (GARMCO) has built the remelting and casting facility, commissioned in 2017. Casting Center 1 has the capacity to produce 78,000 Tons/ annum of slabs in the twin chamber furnace and two tilting, melting/holding furnaces being installed at the recycling plant. GARMCO recycles its in-house scrap, which makes up approximately 10%–20% of its metal output.

Aluminium Bahrain B.S.C (ALBA) has installed a first-of-its-kind Spent Pot Lining (SPL) treatment plant that has a capacity of 35,000 tons. ALBA develops a value-creating

and safe approach to creating zero waste through SPL treatment. ALBA signed an agreement with Australian-based Regain, which will serve as a technology partner for the treatment facility.

Oman Aluminium Rolling Company LLC (OARC) plans to install a 50 kMtpa melting furnace with a Hazelett belt caster, primarily to melt scrap metal. This will allow the company to procure and remelt scrap, which can be mixed into the liquid prime metal. As a result, OARC will be able to produce Aluminium with 25% post-consumer recycled material.

By installing a furnace for melting scrap Aluminium, OARC will reduce the overall cost of production of Aluminium. This is because the cost of energy required to make Aluminium from scrap / recycled Aluminium is 90% less than that required for making primary aluminum from alumina.





### 3.5 CARBON FOOTPRINT IN ALUMINIUM MANUFACTURING

Primary Aluminium production is highly energy-intensive, and electricity makes up a large share of the energy consumed. As per International Energy Agency (IEA), the direct CO<sub>2</sub> intensity of Aluminium production globally, remained relatively flat during the past couple of years.

IEA is working towards a Net Zero Emissions by 2050 Scenario, which requires emissions intensity to decline by 3% annually to 2030. Getting on track with this scenario will require improved end-of-life scrap collection and sorting to enable greater production from scrap, and further development of new technologies to reduce emissions from primary production.

The global energy intensity of overall Aluminium production fell by 1.2% in 2019<sup>10</sup>, similar to average annual reductions over the past several years. This includes both primary production from bauxite ore and secondary production from scrap. Primary production is approximately ten times more energy-intensive than secondary production. Average annual drop in alumina refining energy intensity for 2019 and 2020 were similar to those during 2010-2018 (an average of 3.0% per year). Meanwhile, the global average energy intensity of Aluminium smelting has trended slightly upwards in the past three years (an average of 0.3% per year), in contrast with declines during 2010-2017 (an average of -0.6% per year).

The proportion of Aluminium produced from recycled metal (secondary production) also affects the overall average energy intensity of Aluminium production. In 2019, 34% of Aluminium produced came from new and old scrap, of which 58% was old (new scrap refers to scrap created during product manufacturing, while old scrap refers to end-of-life scrap; internal scrap produced in Aluminium fabrication facilities is not included here). The share of secondary production has remained relatively constant at 31-33% since 2000, with 34% in 2019 the highest share during this period.

An increasing share of secondary production along with the use of renewal energy will be the primary catalysts of energy intensity improvements. Emirates Global Aluminium is the first company in the world to produce Aluminium commercially using solar power. EGA is selling this product under the product name CelestIAL. Solar power is supplied by the Dubai Electricity and Water Authority (DEWA), which operates the Mohammed bin Rashid Al Maktoum Solar Park in the desert outside Dubai. The solar park has a current installed capacity of 1,013 Megawatts using photovoltaic solar panels. DEWA had further announced that they will add 600 megawatts capacity using photovoltaic solar panels and Concentrated Solar Power (CSP). This will increase DEWA's total power capacity from clean energy to 1,613 MW compared to 1,013 MW currently<sup>11</sup>. The use of renewable energy, improvement in smelting technology, and usage of scrap Aluminium is the likely trends to have their influence on the Aluminium manufacturing going forward.

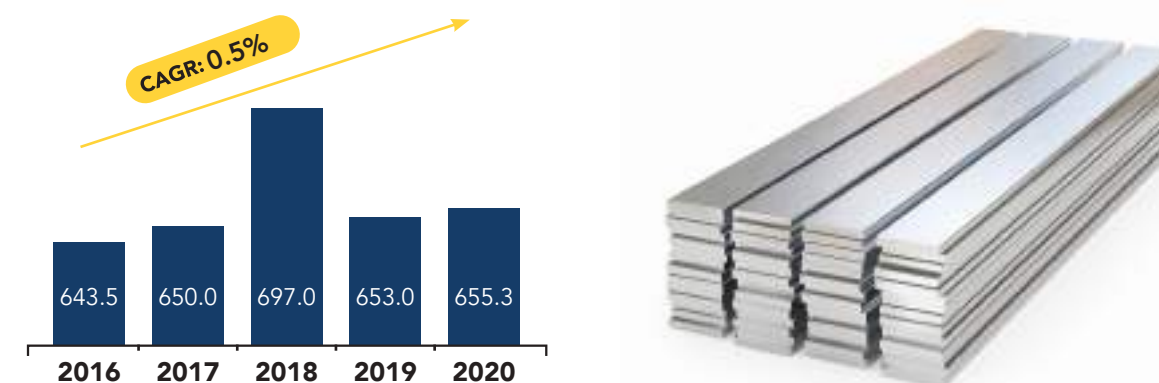
<sup>10</sup> Source: International Energy Agency

<sup>11</sup> Source: Dubai Electricity and Water Authority

### 4 - QATAR ALUMINIUM MARKET

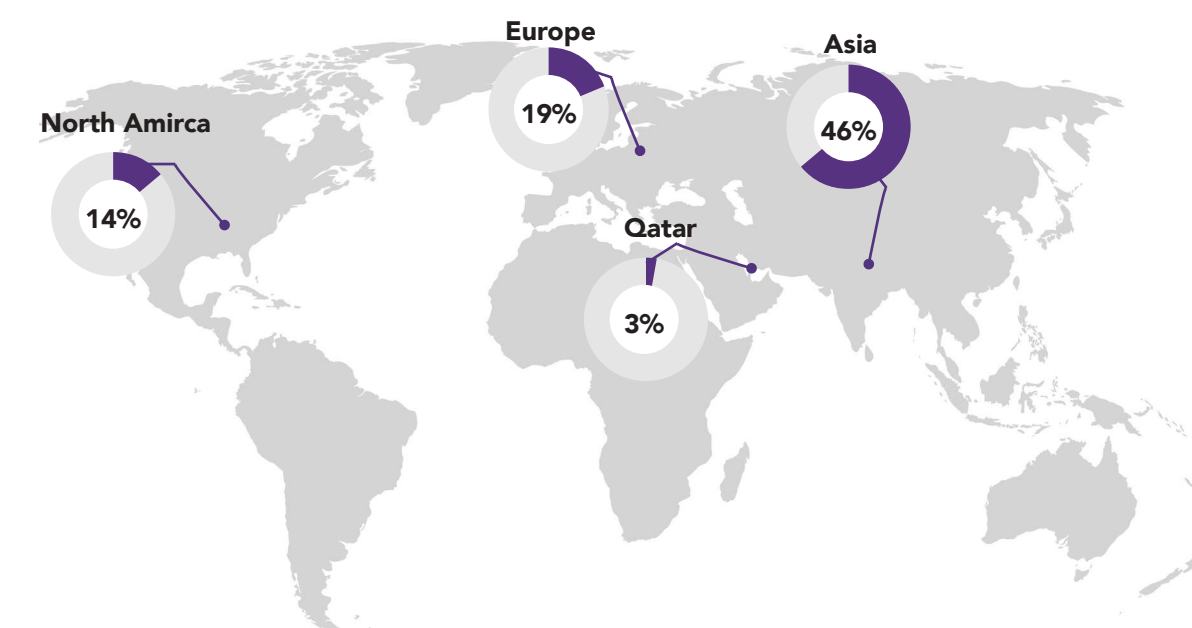
Qatar's primary Aluminium production was at 0.65 Mn Tons, produced by Qatar Aluminium Limited, which is owned equally by Hydro Aluminium of Norway and Qatar Aluminium Manufacturing Company (QAMCO) of Qatar. QAMCO is the sole primary producer of Aluminium in Qatar, producing 655.3 kMT of Aluminium products generating QAR 4,395 Mn in revenue (USD 1.2 bn) in 2020<sup>12</sup>.

**Chart 15: QAMCO Aluminium production ('000 tons)**



Source: QATALAM/QAMCO

**Figure 6: QAMCO revenue breakup, QAR 4,395 mn (USD 1.2 bn) in 2020 by Region**



Source: QATALAM/QAMCO Annual Report, 2020

<sup>12</sup> Source: QAMCO Annual Report, 2020

## 4.1 QAMCO PRODUCTION SPLIT BY TYPE

With a total production capacity of 655,000 tons per year, of which, billets (extrusion ingots) amount to 53% and primary foundry alloys (ingots) approximately equal to 47% by volume.

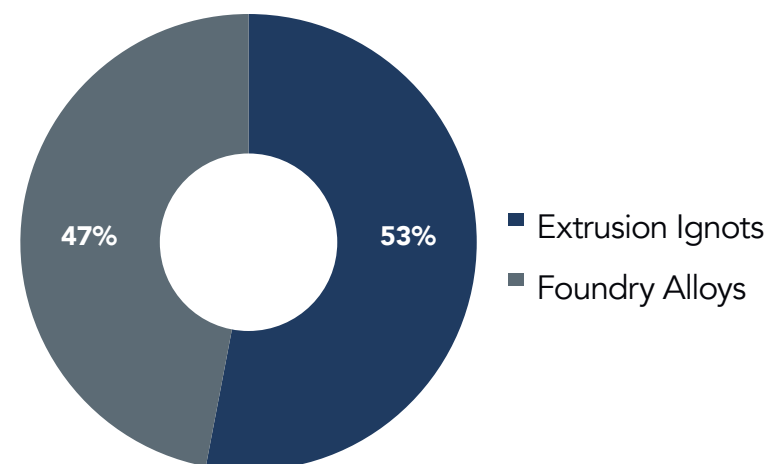
Extrusion ingots are cylindrical 'log' of cast Aluminium produced by vertical direct casting. Primary foundry alloys have several uses in the automotive industry for the manufacture of items such as wheels, truck hubs, gas pump nozzles and others.

**Table 5: Primary Aluminium sales in Qatar by Export and Local type, 2020**

Country	Total Sales Primary Al. (kMT)	Export%	GCC %	Slabs+ Molten Al	Billets	Ingots
<b>Qatar</b>	655	250	3%	120	54%	46%

Source: UN Comtrade Data

**Chart 16: Qatar Aluminium production by type (655 kMT), 2020**



Source: QATALAM/QAMCO, Annual Report 2020

Qatar has no bauxite deposits, and hence there is no mining industry for Aluminium and therefore QATALUM imports the raw material and produces extrusion ingots and foundry alloys.

Qatar currently doesn't have any flat rolled product capacity and import majority of the Aluminium sheet and other products

## 4.1.1 MANUFACTURING FACILITIES - QATALUM<sup>13</sup>

Qatar Aluminium Limited is owned equally by Hydro Aluminium of Norway and Qatar Aluminium Manufacturing Company (QAMCO) of Qatar. QATALUM produced more than 655,000 tons of high-quality primary Aluminium products in 2020 operating an Aluminium smelter in country. The plant features following facilities:

Facility / Technology	Description
<b>Primary Aluminium Plant</b>	Primary Aluminium reduction plant, where the actual liquid metal production takes place constitutes the main part of QATALUM project. The Reduction Plant, where Aluminium is produced, features advanced Aluminium reduction technology from Hydro Aluminium
<b>Carbon Plant</b>	Carbon plant manufactures carbon anodes, which are a vital part of the primary Aluminium production process. It consists of a paste plant and an anode baking plant. Since start-up, the carbon plant has ramped up to produce approximately 300,000 tons of anodes per year for use in the potlines.
<b>Casthouse</b>	QATALUM casthouse has been designed to produce 625,000 tons of casthouse products per year. Its main products are extrusion ingots and foundry alloys. The casthouse also houses equipment for producing standard primary ingots.
<b>Power Plant</b>	QATALUM power plant is a combined-cycle power plant with the capacity to supply 1,350 MW to the Aluminium plant.
<b>HSE &amp; Quality</b>	Occupational Health, Safety and Environmental management system and Quality management system certification milestones.

## 4.2 QATAR EXPORT VS IMPORT STATICS

Qatar is of one of the top exporters of Aluminium in the world and for the year 2020. It exported a total of QAR 4.7 Bn (USD 1.2 Bn) worth of aluminum in 2020.

Global trade of raw aluminium was QAR 185.9 Bn (USD 49.6 Bn) in 2020<sup>14</sup>. Top global exporters of raw aluminium in 2020 were Canada (11.1%), Russia (9.02%), UAE (8.88%), India (7.86%), Norway (5.21%), Malaysia (4.92%), and Australia (4.92%) contributing to more than 50% of the global exports. Qatar had an export share of 2.3% with a ranking at 13th Place.

Top global importing countries of raw aluminium were USA (13.1%), Netherlands (7.91%), Germany (7.23%), Japan (6.8%), China (6.33%), South Korea (5.97%), and Malaysia (5.73%) contributing to more than 50% of global imports.

<sup>13</sup> Source: Qatar Aluminium Limited, Website

<sup>14</sup> Source: The Observatory of Economic Complexity Website



## 4.2.1 EXPORTS<sup>15</sup>

Total exports stood at QAR 4.7 Bn or \$1.2 Bn. 98% of the shipment is raw Aluminium (Unwrought Aluminium, HS Code 7601). and 2% is the scrap Aluminium. In raw Aluminium, alloyed and unwrought Aluminium is the major exported product.

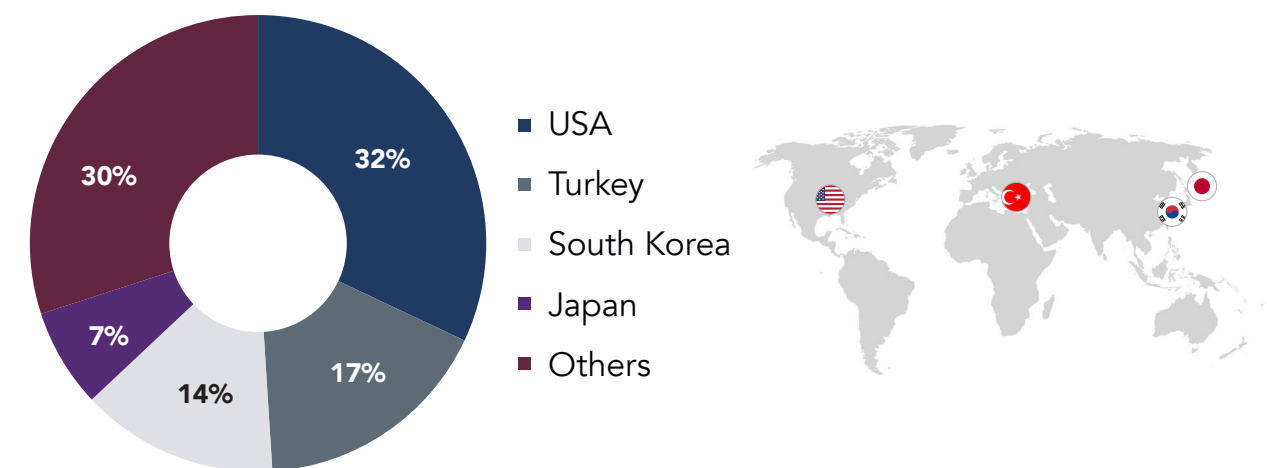
**Table 6: HS Code wise export of Aluminium products by Qatar, 2020**

Code	Product label	QAR in 2020	% Share
7601	Unwrought Aluminium	4,295,200	98.0%
7602	Waste and scrap, of Aluminium	6,079	0.1%
7604	Bars, rods and profiles, of Aluminium	45,424	1.0%
7605	Aluminium wire	14,473	0.3%
7606	Plates, sheets and strip, of Aluminium, of a thickness of > 0,2 mm	3,815	0.1%
7607	Aluminium foil, "whether or not printed or backed with paper, paperboard, plastics or similar backing materials", of a thickness "excluding any backing" of <= 0,2 mm	0	0.0%
7608	Aluminium tubes and pipes	124	0.0%
7609	Aluminium tube or pipe fittings "e.g., couplings, elbows, sleeves"	91	0.0%
7610	Structures and parts of structures "e.g., bridges and bridge-sections, towers, lattice masts, pillars and columns, roofs, roofing frameworks, doors and windows and their frames and thresholds for doors, shutters, balustrades", of Aluminium; plates, rods, profiles, tubes and the like, prepared for use in structures, of Aluminium	8,347	0.0%
7611	Reservoirs, tanks, vats and similar containers, of Aluminium, for any material (other than compressed or liquefied gas), of a capacity of > 300 l, not fitted with mechanical or thermal equipment, whether or not lined or heat-insulated	113	0.2%

Code	Product label	QAR in 2020	% Share
7612	Casks, drums, cans, boxes and similar containers, incl. rigid or collapsible tubular containers, of Aluminium, for any material (other than compressed or liquefied gas), of a capacity of <= 300 l, not fitted with mechanical or thermal equipment, whether lined or heat-insulated,	0	0.0%
7613	Aluminium containers for compressed or liquefied gas	0	0.0%
7614	Stranded wire, cables, plaited bands, and the like, of Aluminium	0	0.0%
7615	Table, kitchen or other household articles, sanitary ware, and parts thereof, of Aluminium, pot scourers and scouring or polishing pads, gloves and the like, of Aluminium	473	0.0%
7616	Other articles of Aluminium	2,319	0.1%

Source: UN Comtrade Data

**Chart 17: Export split by country - QAR 4.7 bn (USD 1.2 bn), 2020**



Source: UN Comtrade Data

<sup>15</sup> Source: UN Comtrade Data

## 4.2.2 IMPORTS<sup>16</sup>

Total imports stood at QAR 566 Mn (USD 152.9 Mn). Aluminium structures are majorly imported with a total value of QAR 160 Mn or 28%. Aluminium structures are imported for construction application. Secondly, Aluminium plates account for 17% of imports which majorly includes aluminium alloys and pure Aluminium in plate / sheet / strip form with t>0.2m.

**Table 7: HS Code wise import of Aluminium products by Qatar, 2020**

Code	Product label	QAR in 2020	% Share
7601	Unwrought Aluminium	11,932	2%
7602	Waste and scrap, of Aluminium	0	0%
7603	Powder and flakes, of Aluminium	84	0%
7604	Bars, rods and profiles, of Aluminium	68,618	12%
7605	Aluminium wire	4,954	1%
7606	Plates, sheets and strip, of Aluminium, of a thickness of > 0,2 mm	92,729	17%
7607	Aluminium foil, "whether or not printed or backed with paper, paperboard, plastics or similar backing materials", of a thickness "excluding any backing" of <= 0,2 mm	45,518	8%
7608	Aluminium tubes and pipes	8,445	2%
7609	Aluminium tube or pipe fittings "e.g., couplings, elbows, sleeves"	1,161	0%
7610	Structures and parts of structures "e.g., bridges and bridge-sections, towers, lattice masts, pillars and columns, roofs, roofing frameworks, doors and windows and their frames and thresholds for doors, shutters, balustrades", of Aluminium; plates, rods, profiles, tubes and the like, prepared for use in structures, of Aluminium	157,266	28%

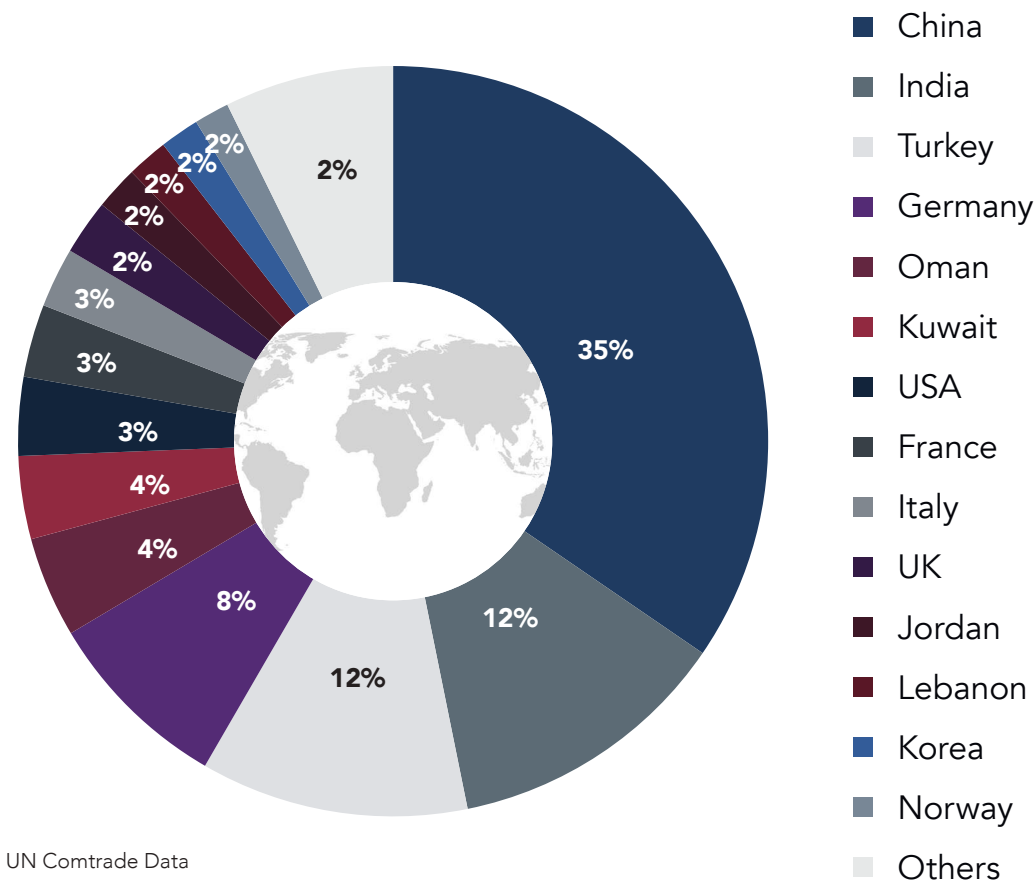
Code	Product label	QAR in 2020	% Share
7611	Reservoirs, tanks, vats and similar containers, of Aluminium, for any material (other than compressed or liquefied gas), of a capacity of > 300 l, not fitted with mechanical or thermal equipment, whether or not lined or heat-insulated	6264	1%
7612	Casks, drums, cans, boxes and similar containers, incl. rigid or collapsible tubular containers, of Aluminium, for any material (other than compressed or liquefied gas), of a capacity of <= 300 l, not fitted with mechanical or thermal equipment, whether lined or heat-insulated,	27,952	5%
7613	Aluminium containers for compressed or liquefied gas	14,010	3%
7614	Stranded wire, cables, plaited bands, and the like, of Aluminium	14,156	3%
7615	Table, kitchen or other household articles, sanitary ware, and parts thereof, of Aluminium, pot scourers and scouring or polishing pads, gloves and the like, of Aluminium	39,822	7%
7616	Other articles of Aluminium	63,602	11%

Source: UN Comtrade Data

<sup>16</sup> Source: UN Comtrade Data



**Chart 18: Import split by country - QAR 566 Mn (USD 152.9 Mn), 2020**



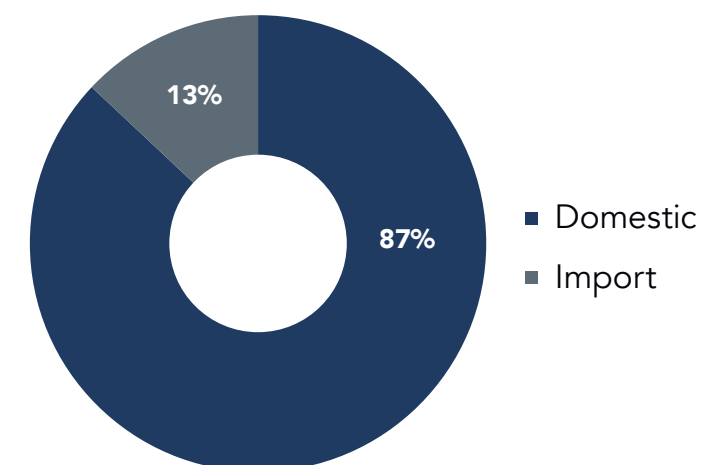
## 4.3 QATAR ALUMINIUM MARKET (2020)

### 4.3.1 UNWROUGHT ALUMINIUM

Qatar has single manufacturer (Qatalum) of the primary Aluminium who is manufacturing extrusion ingots and foundry alloys. Qatalum is generating 97% of their total revenue of QAR 4.7 bn (USD 1.2 bn) from export and local sales has only 3% share. Qatalum is selling around ~14,500 MT (QAR 127 Mn) which is around 2.2% of their total volume sales in Qatar.

Qatar imported ~2,200 MT of unwrought Aluminium in 2020 which makes the total market of unwrought Aluminium as ~16,700 MT (QAR 139 Mn) in 2020

**Chart 19: Qatar market for unwrought Aluminium, demand split by source - QAR 138.2 Mn (USD 38.2 Mn), 2020**



Source: UN Comtrade Data



Qatar had a high self-sufficiency for the demand of unwrought Aluminium supplying 87% of the total market in 2020.

### 4.3.2 ALUMINIUM EXTRUDED PROFILES

Aluminium extruded profiles are manufactured from extrusion ingots requiring 7'8' extrusion presses, hot log shear, log oven, quench unit for billets, intense run out cooling system, precision profile cutting, die ovens, power coating and others. Different profiles can be manufactured by changing dies in the presses and these are mainly used in the construction industry.

Main customer segment of the unwrought Aluminium in Qatar is the extruded Aluminium profile industry where Qatar Aluminium Extrusion Co (QALEX) and Abdul Noor Aluminium Extrusion Factory (ANAEF) are the main players. QALEX is an extrusion profile manufacturing company where as ANAEF is a forward integrated unit with fabrication and supply of profile products.

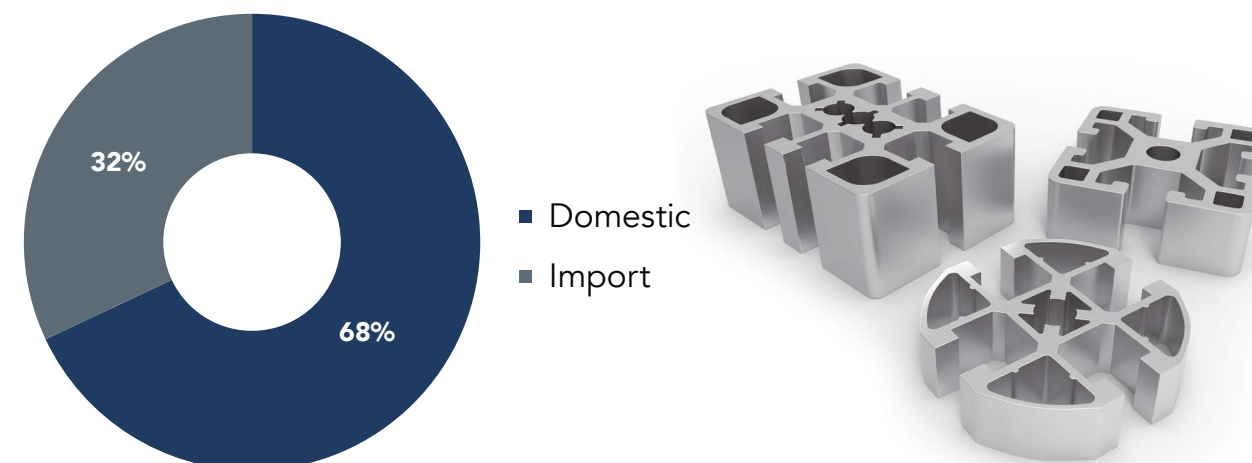
QALEX has acquired the extrusion assets of ANAEF in 2020 with an authorized capital of QAR 100 mn. Deal was financed in cooperation with Qatar Development Bank (QDB). With this acquisition QALEX becomes the main company in Qatar having a capacity of 30,000 ton per annum of Aluminium extruded profiles - in all types of finishes (MF, PC, Anode) and colored. QATALUM is the main source of the raw material (extrusion ingots) for QALEX, now having a total requirement of around 15-20,000 tons per annum.

ANAEF will continue to supply the local market with their Aluminium system in addition to their powder coating service and trading of Aluminium profiles in cooperation with QALEX. On this respect, QALEX signed a long-term supply agreement with ANAEF to supply to them all the Aluminium profiles used in their BREDI SYSTEM in addition to all other future systems related to windows, doors, and façades which ANAEF will develop to cater the needs in the local market.

Along with ANAEF, QALEX is supplying to all the main Aluminium profile fabricators in the country i.e., Sasco Aluminium, Dessert Line Aluminium, Alutec, Profession Aluminum Company and others. Total market size for Aluminium extrusion structure and profiles including curtain wall, window and doors, shutters, sections, and others was around 25,000 tons and QAR 460 mn (USD 125 mn) in 2020.



**Chart 20: Qatar market for Aluminium extrusion structure and profiles - QAR 460 Mn (USD 125 Mn), 2020**



Source: UN Comtrade Data

Total demand for Aluminium extrusion structures and profiles was around 25,000 tons in 2020. After acquisition of ANAEF, QALEX now have a total capacity of around 30,000 tons. Combined capacity is likely to improve the cost economics and help company increase the share of the domestic manufactured products.

There are around 10-12 Aluminium fabrication companies manufacturing different Aluminium profiling products such as doors, window, curtain wall, structural glazing, handrails & balustrade, cabinet system, louvers, scaffolding, solar panel kit and other profiles.

Abdul Noor Aluminium, Sasco Aluminium, Dessert Line Aluminium, Alutec, Profession Aluminum Company, Qatar Belgium Aluminum Company, Kyda International and others are the main players offering products and installation services in Qatar.

UPVC is also an emerging threat for the Aluminium extrusion profiles in the low-rise buildings offering an economic option for doors and window frames. This is likely to act as a restrain for the growth of Aluminium profiles in the construction industry.



### 4.3.3 ALUMINIUM FLAT ROLLED SHEET AND FOIL

Qatar has no local manufacturing of sheet and coils of Aluminium and therefore all the Aluminium sheet and foils are imported. Total demand for the Aluminium sheet, foil and other flat rolled products is around 15,000 tons.

Qatar National Aluminum Panel Co. is the leading manufacturer of the composite panels and other Aluminium sheet products. Al Amer Factory for Aluminium Foils is the main manufacturers of the packaging products importing Aluminium foils. There is no large-scale Aluminium packaging cans manufacturing plant in Qatar.



### 4.3.4 ALUMINIUM PRODUCT MARKET (HS CODE) IN QATAR (2020)

Qatar market is quite small across most of the product category for any large manufacturing unit to grow considering only local market.

**Table 8: HS Code wise Qatar market of different Aluminium product categories, 2020**

Code	Type	Export QAR Mn	MT	Import QAR Mn	MT	Qatar Market (QAR Mn)	Market MT	Growth Rate (CAGR)
7601	Raw Aluminium	4,295	6,40,800	10.9	2,200	138	16,700	NA
7602	Scrap Aluminium	7.3	1,800	-	-	-	-	NA
7603	Al Powder	-	-	0	-	-	25	NA
7604	Aluminium Bars	43.7	3,750	69	25	272	25,000	4%
7605	Aluminium Wire	-	-	3.6	7,000	3.6	415	6%
7606	Aluminium Plate/Sheets	3.6	330	91	415	125	9,670	8%
7607	Aluminium Foil	-	-	47.3	10,000	63	4,275	8%
7608	Aluminium Tube & Pipes	0	5	7.3	4,275	12	386	2%
7609	Aluminium Tube & Pipe Fittings	0	2	0	390	2	24	2%
7610	Aluminium Structures	7.3	375	156.5	25	210	8,525	3%
7611	Large Aluminium Containers	0	1	7.3	8,900	9	66	4%
7612	Aluminium Cans, boxes (Packaging)	-	-	29.1	65	41	1,500	6%
7613	Aluminium Gas Containers	-	-	14.6	1,450	20	385	4%
7614	Stranded Aluminium Wire	-	-	14.6	385	20	1,450	3%
7615	Aluminium Housewares	0	28	40	1,450	56	2,972	7%
7616	Other Aluminium Products	3.6	82	61.9	2,800	90	2,838	5%

Source: UN Comtrade Data

## 4.4 DISTRIBUTION CHANNEL

There is only one primary Aluminium manufacturer in Qatar, QATALAM, which mainly supplies extrusion billets to the only downstream extrusion company that is QALEX. QALEX is mainly in the manufacture of extruded products majorly targeting the building and construction segment.

There are 40-50 fabricators who are sourcing these extruded products either from local manufacturer, QALEX, or through import. These fabricators are mainly into converting these Aluminium profiles into finished products like facades, doors, windows, sliding, sun shading, furniture, kitchen products, etc.

## 4.5 QATAR MARKET DRIVERS/RESTRAINTS

### 4.5.1 MARKET DRIVERS

Construction segment is the main consumer of Aluminium extrusion billets in the region and is considered as one of the major drivers.



The GDP data for the first three quarters of 2021 showed that construction activities witnessed a recovery of 115%, as the annual rate of change increased from negative 3.9% in 2020 to negative 0.6% by end of September 2021.



As per the Qatar Economic Outlook 2021-2023 by the Planning and Statistics Authority (PSA); the level of contribution of the construction sector performance to the GDP is either expected to grow modestly by 0.6% in 2022, and stabilize in 2023 for the base scenario, or it is likely to grow in 2022 by 2.4% and 3% for both the medium and optimistic scenario, respectively then it will decline slightly in 2023 to positive 2.1% for the medium scenario but will grow again in the optimistic scenario by 4.3%.

The beverage industry is replacing plastic with Aluminium packaging which is another driver for market growth. In Qatar, Aluminium cans and other related containers are the 3rd highest imports by product category in the Aluminium segment.

## 4.5.2 MARKET CHALLENGES/RESTRAINTS

Qatar is a self-sufficient country in primary Aluminium production and majorly exports it; though the downstream industry is limited only to extruded products. Building and construction is the major end-use segment catered by the manufacturer of extruded products.



Downstream industries other than Building & Construction, which are the major consumers of Aluminium globally, are Automotive and Electrical & Electronics. These industries are currently non-existent in Qatar. The domestic demand and ecosystem for these industries are not supportive in Qatar and hence these industries are not likely to contribute much to the growth of the Aluminium demand in Qatar.



The other significant consumer segments of Aluminium are packaging and industrial; though these industries are present in Qatar, the demand is not sufficient for setting up a viable capacity. Companies planning to setup manufacturing for these segments will have to consider targeting global market rather than be dependent on domestic demand.

## 4.6 MARKET ATTRACTIVENESS

There are lot of upcoming construction projects in Qatar which shall drive the Aluminium industry. Marquee project like the Katara Towers, Wadi Lusail, South Dome Field, Eco, Floating Hotel, Connecting Lusail City with The Expressway Network and others.

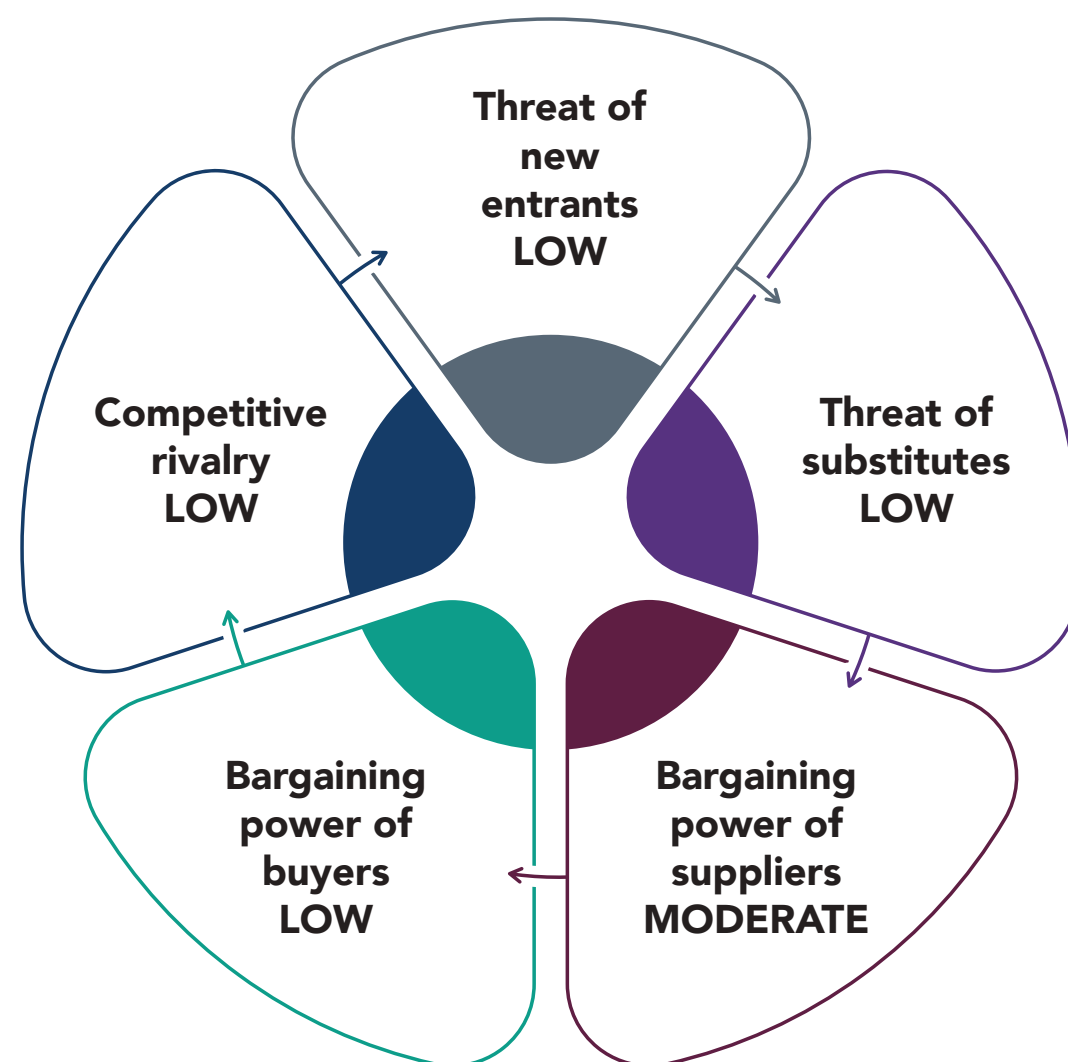
Qatar is hosting the FIFA World Cup, 2022 which is scheduled in Nov-Dec 2022. With this, the State of Qatar has invested in multiple entertainment and commercial districts.

The government is also planning to expand Hamad Airport, creating opportunities for the market studied. As a result, the country is expected to hugely invest in several utility projects during the next five years.



On the other side, Qatar does not have domestic auto production, but it has automotive investments in several countries, including bus production in Oman and vehicle production in Turkey. Qatar is taking serious steps towards electrification. Qatar plans to install 600 charging stations to support electric buses in advance of the 2022 FIFA World Cup and it aims to have 25% of Qatar's public transit bus fleet from gasoline to electric by 2022.

**Figure 7: Industry attractiveness - Porter's 5 force analysis**



#### 4.6.1 BUYER POWER

As buyers are typically large companies with more capital, there is more ability to negotiate and enter long-term contracts with suppliers. In case of Qatar, there is only one buyer of primary Aluminium, QALEX which consumes only 2% of the total production of QATALAM. Around 98% of QATALAM's total production is exported out of Qatar.

Overall, buyer power in the Aluminium industry is assessed as low.

#### 4.6.2 SUPPLIER POWER

Suppliers to this industry mainly include producers of bauxite, and energy providers. To produce primary Aluminium, manufacturers convert bauxite to alumina, which is then smelted into primary Aluminium. The production of Aluminium is highly energy intensive; electricity costs can account for one-third of Aluminium production cost. Manufacturers tend to produce electricity for captive use or have long-term contracts with suppliers of electrical power or fuel.

Overall, supplier power in this industry is assessed as moderate.

#### 4.6.3 NEW ENTRANTS

The scarce bauxite resources have already been split among the key Aluminium producers. Moreover, the extraction of bauxite requires billions of dollars of investment. On top of that, Aluminium-producing companies need to own proprietary technologies and have steady access to cost-competitive energy. Rising energy costs have proven prohibitive for entering the primary Aluminium production industry and have resulted in several smelters closing down across the globe as production costs have spiraled due to the increasing price of energy.

The threat of new entrants to the Aluminium industry is assessed as low.

#### 4.6.4 THREAT OF SUBSTITUTE PRODUCTS/SERVICES

Properties such as lightness, strength, and the ability to withstand pressure, as well as being cost-effective make Aluminium an ideal metal for several different industries. This implies that a beneficial substitute is generally not available in many of its applications. Composite materials can, however, substitute Aluminium in aircraft fuselages and wings. Glass, paper, plastics, and steel can be used instead of Aluminium in packaging. Magnesium, titanium, and steel can substitute for Aluminium in ground transportation and structural uses.

Substitutions, however, require changes to production processes as well as intensive research and design into the properties of alternative materials. This would result in extra costs for the buyer and lowers the threat of substitutes. As the price of Aluminium fluctuates, buyers can be tempted to switch production to alternative materials.

Moreover, the demand for Aluminium in Qatar is also increasing and as well as the plastic is being replaced with cans and hence substituting the product is quite difficult.

Overall, the threat of substitutes is assessed as low.

#### 4.6.5 COMPETITIVE RIVALRY

The key suppliers of primary Aluminium are limited in the GCC region and in Qatar there is only one primary Aluminium producing company. Though there are other primary Aluminium manufacturers in the GCC, their major focus is on export markets with more than 70% of the total production in the GCC is being exported.

Rivalry is assessed as low in the Aluminium industry.



## 4.7 QATAR ALUMINIUM - SWOT

### 4.7.1 STRENGTH



Aluminium being an energy intensive industry, Qatar has an advantage over non-energy producing countries. GCC is one of the leading global sources for different primary and secondary Aluminium products having 9-10% share of the global demand. Along with other GCC countries, Qatar also enjoys the advantage of having easy access to the US, Europe, Middle East, Africa, and Asia markets. Central location is an added advantage.

Qatar already has a primary producer and an established supply chain. Addition of new products and capacities would add to the eco-system.

### 4.7.2 WEAKNESS



Qatar is currently exporting most its Aluminium production as Ingots and Billets and has no capacity for flat rolled products (FRP). The local eco-system for most of the downstream industry of FRP product is also weak. Neighboring countries such as UAE, KSA and Bahrain have an early mover advantage having larger capacities and better local eco-system for downstream industries.

### 4.7.3 THREAT



Qatar is sourcing alumina to produce primary Aluminium and any disruption in the supply chain of Alumina can impact the production. Aluminium industry is moving towards large scale integrated plant to take advantage of economy of scale and reduces to costing. These integrated players are moving towards value added downstream products and therefore, an integrated plant approach is required.

### 4.7.4 OPPORTUNITIES



Aluminium is a fast-growing metal replacing steel, tinplate, copper, and other metals in different applications. Geo-political and recent sanction on Russia which is a leading supplier of Aluminium products is creating a demand supply gap in the global market. Qatar can look into the emerging global opportunities of different Aluminium products.





## 5 - PRODUCT SELECTION FRAMEWORK

Manufacturing of downstream Aluminium products depends on the local availability of the respective primary material. GCC is one of the important Aluminium producing region of the world. Taking the benefit of lower cost of energy, GCC countries have been able to become a global source for the energy intensive products and processes such as primary Aluminium, flat rolled products, Aluminium foils, extrusion products and others.

Further, considering the current geo-political challenged towards the global trade after the Russia and Ukraine conflict, it is likely to increase the demand of Aluminium products from the GCC. Russia has a share of 6.4% of the global 65.1 mn tons and after the recent sanctions from the western countries on Russia. This supply is likely to shift to the GCC, India and China.

Qatar is only manufacturing extrusion products and foundry grade primary aluminum and therefore local manufacturing for flat rolled products is currently absent in the country.

Considering the industry dynamics of Aluminium, local market is not a very critical factor towards the evaluation of a new business. GCC is currently exporting 71% of their total primary productions and nearly exporting most of their production of secondary and tertiary Aluminium products.

**Table 9: HS Code wise product categories, Qatar Trade in 2020**

Code	HS Code description	Product Type	Export (MT)	Import (MT)	Comments
7604	Bars, rods, and profiles, of Aluminium	Aluminium Bars, Rods, and Profiles	3,750.0	7,000	Mainly exporting Al profiles and importing bar, rods, and profiles
7605	Aluminium wire	Aluminium wire	0	415	Importing war rods and processing Wire locally and exporting the same
7606	Plates, sheets, and strip, of Aluminium, of a thickness of > 0,2 mm	Aluminium Plate/Sheets	330.0	10,000	High import of Aluminium sheet
7607	Aluminium foil, "whether or not printed or backed with paper, paperboard, plastics or similar backing materials", of a thickness "excluding any backing" of <= 0,2 mm	Aluminium Foil	0.0	4,275	No local processing of Aluminium foil
7608	Aluminium tubes and pipes	Aluminium Tube & Pipes	4.5	390	Limited local processing of Aluminium tubes and pipes
7609	Aluminium tube or pipe fittings "e.g., couplings, elbows, sleeves"	Aluminium Tube & Pipe Fittings	1.5	25	Limited local processing of Aluminium tubes and pipes fittings
7610	Structures and parts of structures "e.g., bridges and bridge-sections, towers, lattice masts, pillars and columns, roofs, roofing frameworks, doors and windows and their frames and thresholds for doors, shutters, balustrades", of Aluminium; plates, rods, profiles, tubes and the like, prepared for use in structures, of Aluminium	Aluminium Structures	375.0	8,900	Importing sections doors, fittings, roofing, and others. Mainly exporting finished doors, windows, and others

Code	HS Code description	Product Type	Export (MT)	Import (MT)	Comments
7611	Reservoirs, tanks, vats and similar containers, of Aluminium, for any material (other than compressed or liquefied gas), of a capacity of > 300 l, not fitted with mechanical or thermal equipment, whether or not lined or heat-insulated	Large Aluminium Containers	1.0	65	Limited local processing of Aluminium Cylinders
7612	Casks, drums, cans, boxes and similar containers, incl. rigid or collapsible tubular containers, of Aluminium, for any material (other than compressed or liquefied gas), of a capacity of <= 300 l, not fitted with mechanical or thermal equipment, whether or not lined or heat-insulated,	Aluminium Cans, boxes (Packaging)	0.0	1,450	No local processing of Aluminium cans, boxes and others
7613	Aluminium containers for compressed or liquefied gas	Aluminium Gas Containers	0.0	385	No local processing of Aluminium gas containers
7614	Stranded wire, cables, plaited bands and the like, of Aluminium	Stranded Aluminium Wire	0.0	1,450	No local processing of Aluminium stranded wire
7615	Table, kitchen or other household articles, sanitary ware, and parts thereof, of Aluminium, pot scourers and scouring or polishing pads, showers, gloves and the like, of Aluminium	Aluminium Housewares	28.0	2,950	Limited local processing of Aluminium housewares



Code	HS Code description	Product Type	Export (MT)	Import (MT)	Comments
<b>7616</b>	Other articles of Aluminium include door handles, latches, heat sinks, clips, screws, fasteners, rivets, lighting accessories, mountings & brackets, parts of machines & engines like windmill, wire mesh, electrical housing & fixtures, etc.	Other Aluminium Products	82.0	2,800	NA

Source: UN Comtrade Data

**Table 10: Trade from GCC Countries, 2020**

Code	HS Code description	Import		Export		Avg. Export Price (QAR/Kg)	Top 5 Export Countries (% Share)
		KT	QAR Mn	KT	QAR Mn		
<b>7604</b>	Aluminium Bars, Rods and Profiles	75.9	922.2	82.9	896.8	10.8	KSA, UAE, Kuwait, Egypt, Netherlands (76%)
<b>7605</b>	Aluminium Wire	64.1	514.6	270.0	2,061.4	7.6	KSA, USA, Morocco, Egypt, Brazil (75%)
<b>7606</b>	Aluminium Plate/Sheets	240.2	2,239.4	390.5	3,949.6	10.1	USA (43%), KSA, Egypt, Switzerland, UAE (69%)
<b>7607</b>	Aluminium Foil	151.3	1,456.2	82.3	403.8	4.9	USA, KSA, Morocco, Kuwait, Egypt (81%)
<b>7608</b>	Aluminium Tube & Pipes	10.3	126.4	1.8	21.4	12.2	UAE, KSA, Spain, India, UK (81%)
<b>7609</b>	Aluminium Tube & Pipe Fittings	1.4	35.6	0.2	2.9	12.2	Kuwait, India, Indonesia, Morocco, UAE (81%)
<b>7610</b>	Aluminium Structures	51.8	1,167.5	25.2	378.1	15.0	KSA, Egypt, USA, UAE, India (75%)

Code	HS Code description	Import		Export		Avg. Export Price (QAR/Kg)	Top 5 Export Countries (% Share)
		KT	QAR Mn	KT	QAR Mn		
<b>7611</b>	Large Aluminium Containers	0.5	13.1	0	0.5	NA	
<b>7612</b>	Aluminium Cans, boxes (Packaging)	23.2	493.5	26.3	565.0	21.5	USA, UAE, Jordan, Kuwait, KSA (77%)
<b>7613</b>	Aluminium Gas Containers	5.7	57.7	0.1	2.1	17.3	UK, Pakistan, Germany, Kuwait, India (80%)
<b>7614</b>	Stranded Aluminium Wire	7.0	65.5	39.2	335.2	8.6	USA, KSA, Morocco, Kuwait, Egypt (81%)
<b>7615</b>	Aluminium Housewares	48.5	885.1	7.7	88.6	11.5	KSA, USA, UK, Morocco, Jordan (79%)
<b>7616</b>	Other Aluminium Products	23.8	741.0	6.2	135.0	21.7	KSA, Kuwait, UAE, USA, Jordan (84%)

Source: UN Comtrade Data

With this criterion, product segments where manufacturing eco-system of end customer is weak in Qatar are eliminated. Focus is primary and secondary aluminum products

Following framework is designed to shortlist high potential products among the long list, which is given in the below the table.

**Table 11: Product selection framework, Aluminium**

Parameters	Weightage
Market size	10%
Potential growth	15%
Potential for import substitution	10%
Degree of Customization of products	20%
Export from GCC Countries	25%
Average Price	10%
Countries of Export	10%
Total	100%



#### Market Size (QAR Million):

Qatar market in volume terms is estimated for each product category, which was then converted in value terms by multiplying the same with average price.

1

The market size in value terms is equally divided into 5 numerically equal segments from zero to the highest value of market size. The product category with highest market size is scored as 5 and each of the other product categories are scored from 1 to 5 depending on which of the 5 segments the value for the product category falls in.

#### Potential Growth (% CAGR till 2025):

Demand / consumption growth rate for each product category was estimated based on secondary and primary research.

2

The growth rate in value terms is equally divided into 5 segments from zero to the highest value of growth rate. This is then scored at 5 and each of the other product categories are scored from 1 to 5 depending in which of the 5 segments the value for the product category belongs to.

#### Potential for Import Substitution:

Import data for each product category has been analyzed and products which are marginally imported/ not imported were scored as 1. The products that had maximum imports were scored at 5. Other products that are imported were relatively scored in between.

3

#### Degree of Customization of Products:

This parameter is based on understanding of manufacturing process for each product category developed through expert interviews and primary interactions. Products that have standard features like in case of plates / sheets (the only differentiator is the thickness and plates / sheets) and can be manufactured in bulk are scored at 5.

4

In case products are customized or mass customized (like houseware or engineering structures) there is significant chance that these products have a large range of product portfolio or require significant capability in terms of manufacturing (e.g., engineering structures). Such products are scored at 1. All other products with limited customization are scored at 3



5

#### Export from GCC Countries (QAR Mn):

Exports of Aluminium products from the GCC is estimated in QAR Mn terms. Export value is then equally divided from zero to highest value. The export value falling in the highest bracket is scored as 5 followed by lower scoring for the export value of products falling in the consequently lower brackets.

6

#### Average Price (QAR/Kg):

Average prices for product categories were estimated by dividing total value of export by total tonnage. Price is considered as one of the parameters since higher price indicates higher value addition.

7

#### Degree of Customization of Products:

Countries of Export: Top 5 countries of export were identified for each of the product category. In case the export of a particular product is largely happening in developed countries, then the product category is scored at 5. In case a product category is largely exported to developing countries then the product category is scored at 1. All other products are scored in-between based on the type of countries they are largely exported to.

**Table 12: Product selection analysis and outcome (selected products are marked in green)**

Parameters	Qatar Market size (QAR Mn)	Potential growth	Potential for Import substitution (QAR Mn)	Degree of Customization of Products	Exports from GCC Countries (QAR Mn)	Average Price (QAR/Kg)	Countries of Export	Total
<b>Weightage</b>	10%	15%	10%	20%	25%	10%	10%	100%
Aluminium Wire	1	4	1	5	4	3	4	3.5
Aluminium Plate/Sheets	3	5	4	5	5	4	4	4.5
Aluminium Foil	2	5	2	5	3	2	4	3.5
Aluminium Tube & Pipes	1	2	1	3	1	5	3	2.2
Aluminium Tube & Pipe Fittings	1	2	1	3	1	5	2	2.1
Aluminium Structures	4	1	5	1	3	5	4	2.9
Large Aluminium Containers	1	3	1	3	1	4	1	2.0
Aluminium Cans, boxes (Packaging)	1	4	1	3	3	5	5	3.2
Aluminium Gas Containers	1	3	1	3	1	5	2	2.2
Stranded Aluminium Wire	1	3	1	5	3	3	4	3.1
Aluminium Housewares	2	4	2	1	2	4	5	2.6
Other Aluminium Articles	2	3	3	1	2	5	3	2.5

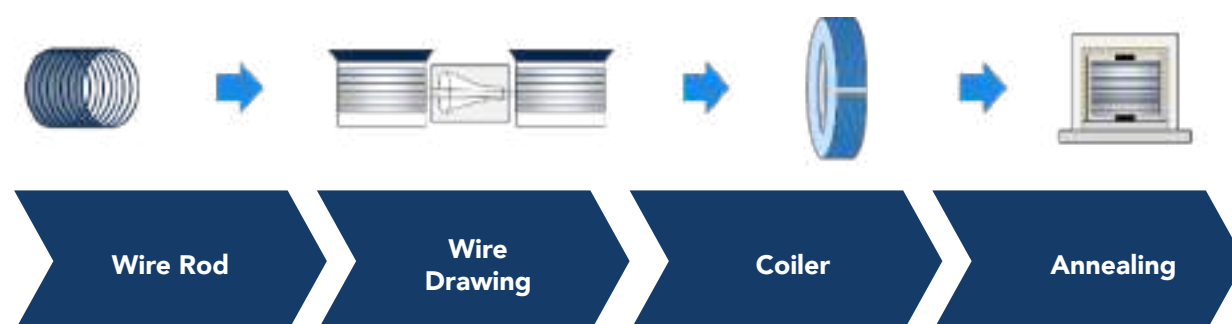
The shortlisted products for further analysis include Aluminium Wires, Stranded Aluminium Wires, Aluminium Plate/Sheets, Aluminium Foil and Aluminium Cans. Some other products that may have manufacturing potential in future include Aluminium Wheel Castings and Primary Aluminium.

## 6 - OVERVIEW OF ALUMINIUM WIRE

### 6.1 PRODUCTION PROCESS

Aluminum Wire is produced by hot rolling of the Aluminium Rods which is called as Wire Drawing. Wire Rods are produced by casting of Aluminium Ingots and therefore to save the cost, normally, Aluminium rods are produced by the primary producers directly from the molten Alloy. Aluminum rods are then transferred to the wire drawing line, where rods are rolled to reduce the thickness and acquire the desired diameter and length.

**Figure 8: Schematic production process of Aluminium Wire**



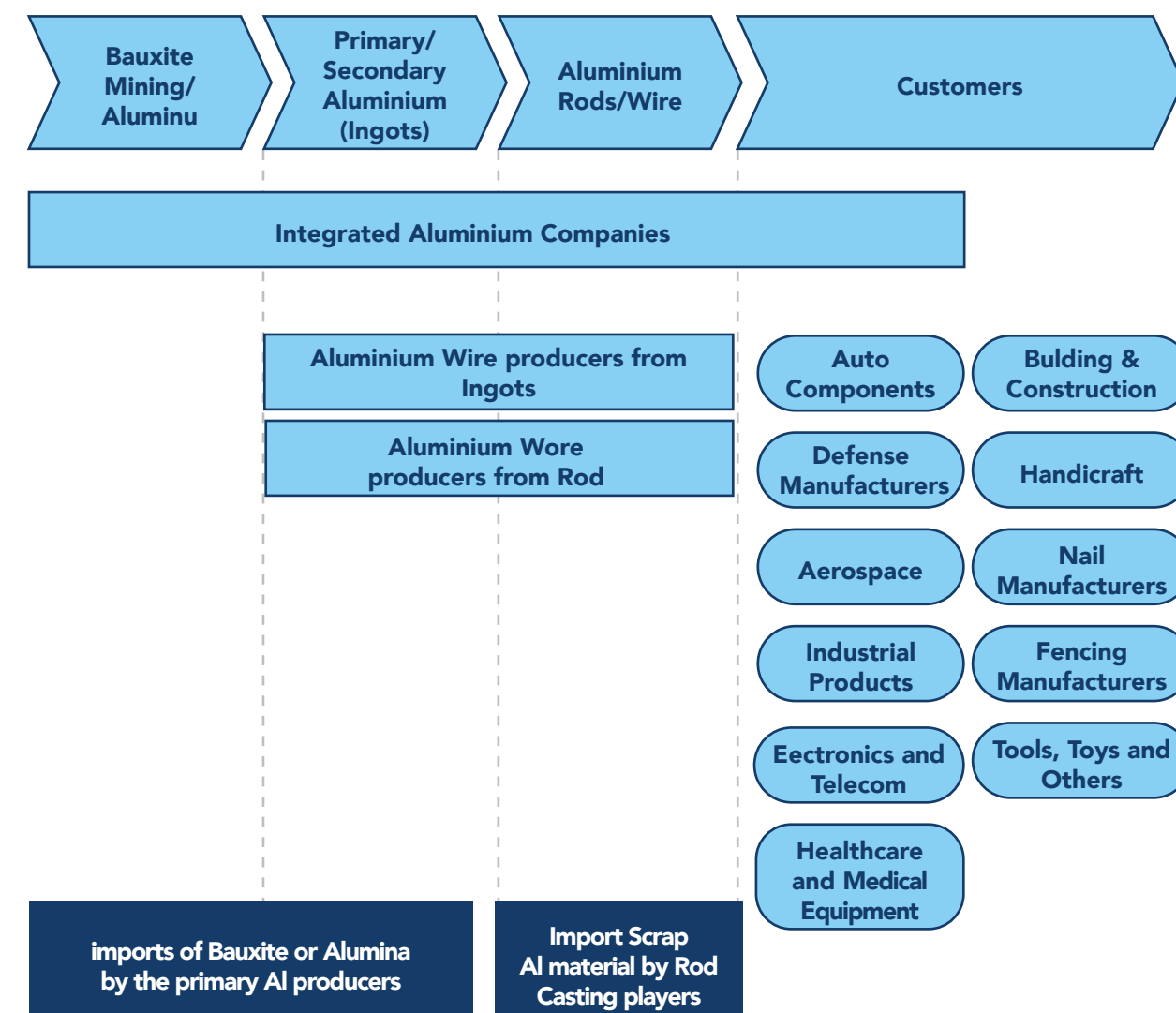
Source: QDB Research

Post the wire drawing processes, Aluminium Wire Coils are annealed, which is a heating and cooling process to obtain desired strength. High purity Aluminium wire and Aluminum Alloy Wire are used across several industries i.e., Electrical, Electronics, Industrial Machinery, Handicrafts, Packaging, Engineering, and others. These are supplied in Spools or Bundles as per requirement.

## 6.2 ALUMINIUM WIRE VALUE CHAIN

Aluminum wire manufacturers in Qatar, imports Wire Rods and manufacturer wire for domestic markets or captive consumption. Al Wire coils are supplied to different customer segment.

**Figure 9: Aluminium Wire Value Chain**



Source: Primary Interview with Suppliers







Overhead high voltage electrical wire, Stranded wire, Nails, Toys, Handicraft are some of the main customer segments. Qatar has a high level of import, where the electrical cable manufacturers import Aluminium wire of >7mm thickness and roll them to manufacture product of their requirement.

Qatar doesn't have any major manufacturers of Aluminium wire. Doha Cable is the main player manufacturing overhead Aluminium conductors importing >7mm Aluminium wire.

### 6.3 GCC IMPORT AND EXPORT – ALUMINIUM STRANDED WIRE AND CABLES

Total GCC import of Aluminium wire was QAR 757.6 mn (USD 210.4 mn) in 2020. Saudi Arabia was the biggest importer followed by Kuwait, UAE, and Bahrain. Qatar import share in the total GCC was 0.06% in 2020.







**Table 13: Import of Aluminium Wire, GCC Countries vs World (QAR mn)**

Importers	2018	2019	2020
 <b>Saudi Arabia</b>	363.0	353.0	568.7
 <b>Kuwait</b>	64.5	63.5	85.1
 <b>UAE</b>	33.7	49.3	57.9
 <b>Bahrain</b>	28.1	21.9	23.1
 <b>Oman</b>	12.0	5.5	17.9
 <b>Qatar</b>	8.2	5.7	4.9
<b>Gulf Cooperation Council (GCC) Aggregation</b>	509.5	498.9	757.6
<b>World</b>	14,008.6	12,486.8	12,206.3

Source: UN Comtrade Data

Total GCC export of Aluminium wire was QAR 2,517.4 mn (USD 700 mn) in 2020. Bahrain was the biggest exporter followed by UAE and Oman. Qatar has negligible export of Aluminium wire in 2020.

**Table 14: Export of Aluminium Wire, GCC Countries vs World (QAR mn)**

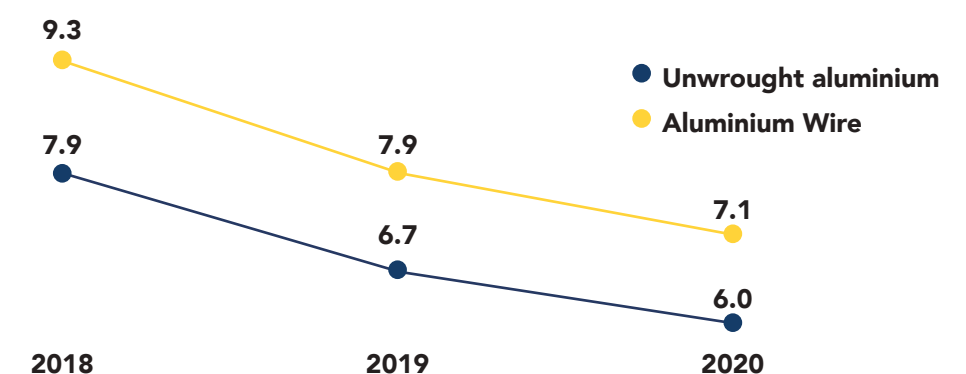
Importers	2018	2019	2020
 <b>Bahrain</b>	2,867.8	2,263.3	1,682.1
 <b>UAE</b>	554.0	662.1	529.1
 <b>Oman</b>	422.5	259.7	243.1
 <b>Saudi Arabia</b>	65.5	82.5	59.5
 <b>Kuwait</b>	2.3	1.7	3.5
 <b>Qatar</b>	-	0.1	-
<b>Gulf Cooperation Council (GCC) Aggregation</b>	3,912.1	3,269.3	2,517.4
<b>World</b>	14,008.6	12,486.8	12,206.3

Source: UN Comtrade Data

### 6.4 GCC EXPORT PRICES –ALUMINIUM WIRE

Aluminium wire prices vary with prices of Aluminium global price index. Based on average of the value and volume of Unwrought Aluminium and Aluminium wire, exported from GCC region during 2018-2020, it can be understood that the average value addition for converting Aluminium into Aluminium Wire was around 18% in 2020.

**Chart 21: Export price trends – Unwrought Aluminium vs Aluminium Wire (2018-2020) (QAR/Kg)**



Source: UN Comtrade Data

## 6.5 INVESTMENT OPPORTUNITIES AND SETUP

Global trade of Aluminium wire was QAR 12,206 mn (USD 3,390 mn) in 2020. GCC's total export was QAR 2,520 mn (USD 700 mn) having a significant global share of 20.6% in 2020.

Bahrain and UAE were the main exporters of the Aluminium Wire products from the GCC. US, Europe, and neighboring countries are the main destination of the export. Share of Qatar in the total import and export of GCC Aluminium wire was negligible.

Bahrain was the world's leading producer and exporter of Aluminium Wire having a 14% value share in 2020 followed by Canada and Russia having 11% and 9% value share, respectively. Leading Aluminium wire producers in Bahrain are Comet Arabian, AL Kissoof and SMATCO.

Some of the other top Aluminium wire manufacturers in the market are – HongFan Holdings, Norsk Hydro, RUSAL, Vedanta Resources and Vimetco.

Aluminium wire offers an economical substitute to copper wire in several applications ranging from electrical, automobile, commercial appliances, industrial machineries, and others. Global demand of Aluminium wire is expected to grow at a CAGR of 2% over the next 5 years.

### Some of the key attraction for Aluminium Wire

- 1 Energy advantage**  
Aluminium wire is manufactured directly from the molten Aluminium alloys, save energy cost, and help achieve better pricing. Qatar is already having a primary producer and therefore, having a wire manufacturing unit nearby can help source raw material directly.
- 2 Location advantage**  
GCC has a better trade route to US, Europe, and Africa in comparison to India and China. Therefore, a unit in Qatar can cater to a wider region and customers.
- 3 Market growth**  
Global demand of Aluminium wire is expected to grow at a CAGR of 2% over the next 5 year. Recent sanction on Russia which is a leading exporter of Aluminium wire having a 10% market share in the global trade by value in 2020, is likely to create opportunities for a new player in GCC.

**4**

### Local market

The ecosystem of downstream manufacturing of stranded wire and other value-added product of Aluminium wire is missing in Qatar. A local availability of the wire will help develop the manufacturing ecosystem of value-added downstream products.

The total project cost excluding the land cost of setting up a new Aluminium Wire unit having an annual capacity of 100,000 tones is around QAR 35-45 mn.

**Table 15: Project Cost of a new automatic Aluminium wire plant of 100,000 tons per annum**

Sl no	Facilities	QAR ('000) per unit	Total Cost QAR Mn
1	Automatic Al Wire Drawing line having inbuilt cleaning, annealing, and coiling (Capacity: 5,000 tons per annum x 20 lines)	150-200	30-40
2	Other Capex	-	4-5
	Total Cost		35-45

Source: Primary Interview with Industry Experts



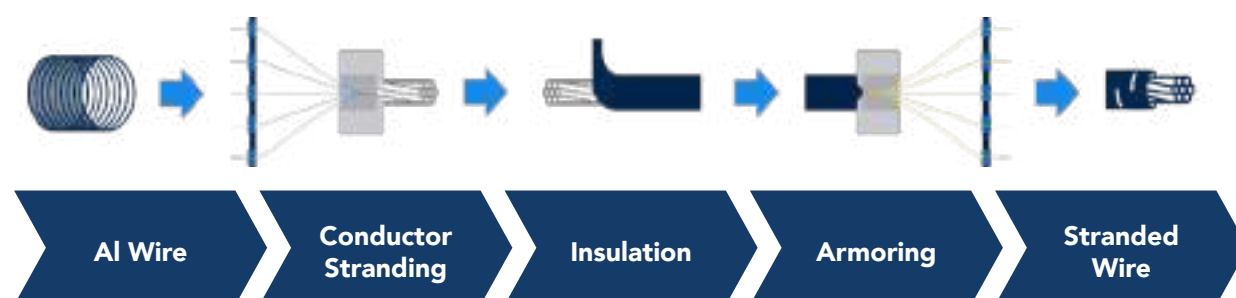


## 7 - OVERVIEW OF ALUMINIUM STRANDED WIRE

### 7.1 PRODUCTION PROCESS

Aluminum Stranded Wire is produced by combining different sizes of Aluminium wires which can be sheathed or left uninsulated based on the requirement. Electrical Aluminium Wire and Aluminium Overhead Conductors are common stranded wires.

**Figure 10: Schematic production process of Aluminium Stranded Wire**



Source: Primary Interview with Industry Experts

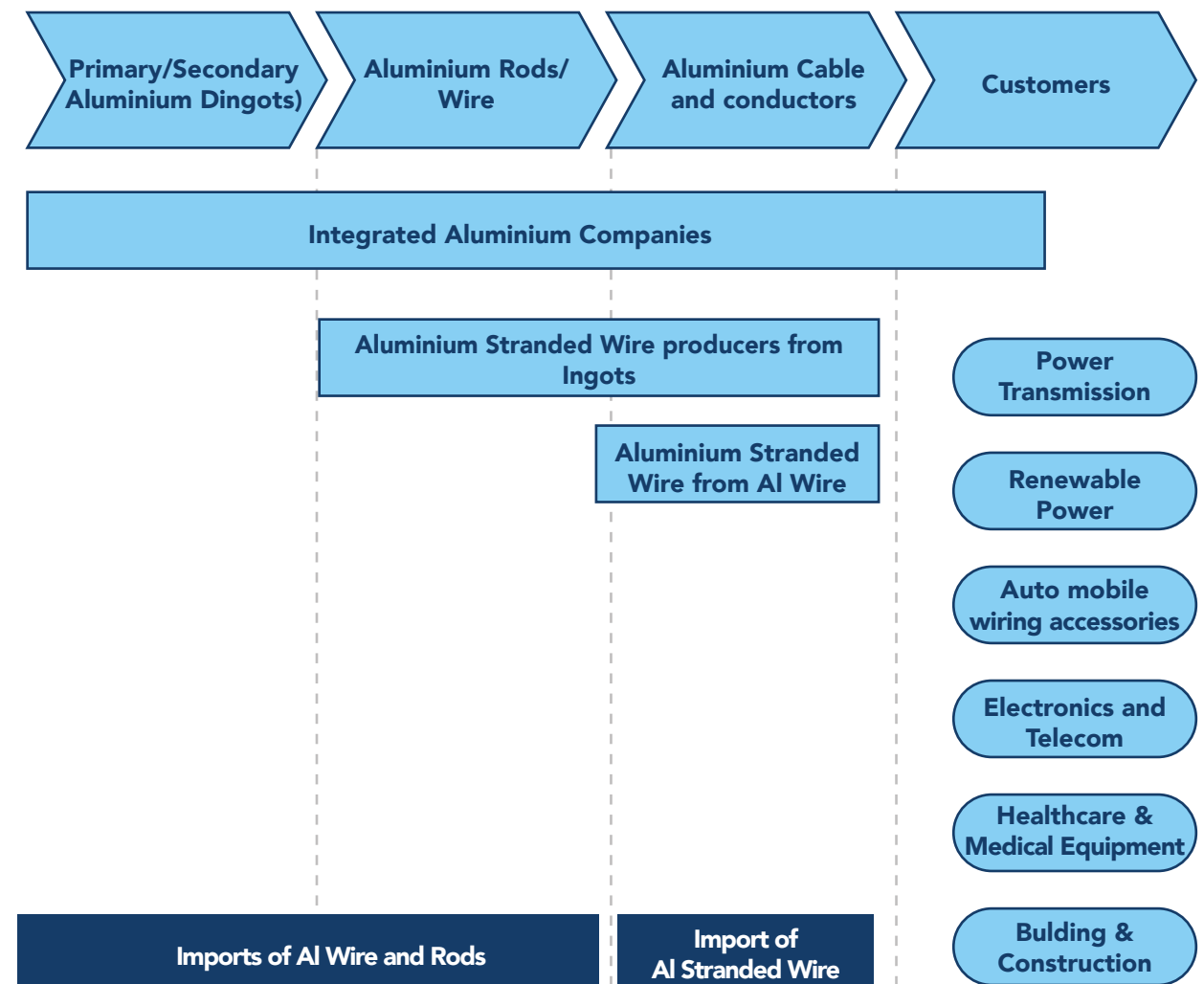
Aluminium wire of the desired size is fed to the cable making line which include Conductor Stranding, Insulation and Armoring. Automatic cable making lines are used to manufacture different type of Sheathed Wires, Cables, and Conductors. Aluminium Conductors are mainly used for high and medium voltage conductors used for transmission and distribution. Aluminium wiring is used across different customer segments as a substitute of copper wire and cables.

### 7.2 ALUMINIUM STRANDED WIRE VALUE CHAIN

Aluminum Stranded wire manufacturers in Qatar, import Aluminium Wires and are mainly producing for the domestic market or for captive consumption. Al Stranded Wire coils are supplied to different customer segments and sold through retail network.



**Figure 11: Aluminium Stranded Wire Value Chain**







Source: Primary Interview with Industry Experts

Doha Cables is the main manufacturer of Aluminium stranded wire in Qatar. There was no export of Aluminium stranded wire from Qatar, domestic manufacturing was limited, and the industry imported QAR 14.2 mn worth of Al Stranded wire in 2020.

## 7.3 GCC IMPORT AND EXPORT – ALUMINIUM STRANDED WIRE AND CABLES

Total GCC import of Aluminium stranded wire was QAR 241.2 mn (USD 65.1 mn) in 2020. Saudi Arabia was the biggest importer followed by Kuwait, Qatar, and UAE. Qatar import share in the total GCC was 6% in 2020







**Table 16: Import of Aluminium Stranded Wire, GCC Countries vs World (QAR mn)**

Importers	2018	2019	2020
 Saudi Arabia	66.4	43.3	160.8
 Kuwait	13.3	37.6	49.7
 Qatar	11.6	12.7	14.2
 UAE	79.3	49.9	13.1
 Oman	3.1	1.5	3.3
 Bahrain	4.0	0.4	0.1
Gulf Cooperation Council (GCC) Aggregation	177.7	145.4	241.2
World	4,495.0	4,721.0	4,905.5

Source: UN Comtrade Data

Total GCC export of Aluminium wire was QAR 433.2 mn (USD 120 mn) in 2020. Bahrain was the biggest exporter followed by UAE and Saudi Arabia. Qatar had negligible export of Aluminium stranded wire in 2020.

**Table 17: Export of Aluminium Stranded Wire, GCC Countries vs World (QAR mn)**

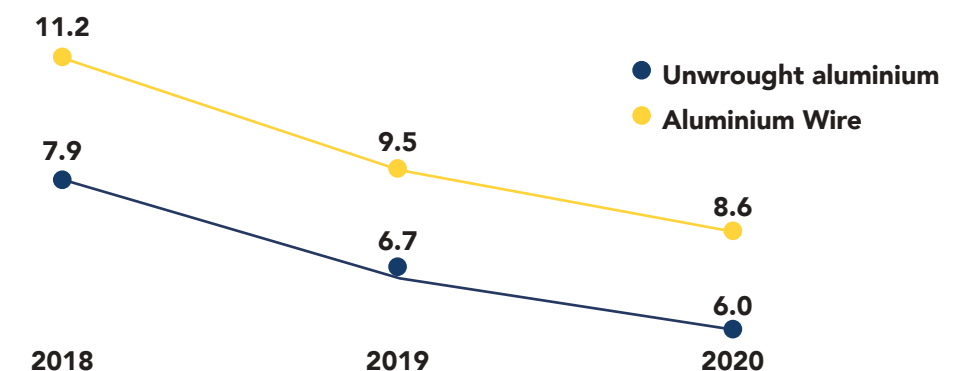
Exporters	2018	2019	2020
 Bahrain	538.5	411.4	379.6
 UAE	21.2	6.8	24.8
 Saudi Arabia	39.4	24.7	24.2
 Oman	7.8	7.0	4.6
 Kuwait	0.2	0.0	0.0
 Qatar	0.0	0.0	0.0
Gulf Cooperation Council (GCC) Aggregation	607.0	449.9	433.2
World	4445.6	4669.2	4851.6

Source: UN Comtrade Data

## 7.4 GCC EXPORT PRICES –ALUMINIUM STRANDED WIRE

Total GCC import of Aluminium stranded wire was QAR 241.2 mn (USD 65.1 mn) in 2020. Saudi Arabia was the biggest importer followed by Kuwait, Qatar, and UAE. Qatar import share in the total GCC was 6% in 2020

**Chart 22: Export price trends – Unwrought Aluminium vs Aluminium Wire (2018-2020) (QAR/Kg)**



Source: UN Comtrade Data



## 7.5 INVESTMENT OPPORTUNITIES AND SETUP

Global trade of Aluminium stranded wire was QAR 4,905.5 mn (USD 1,350 mn) in 2020. GCC total export was QAR 440 mn (USD 120 mn) having a share of 8.9% in 2020.

Bahrain and UAE are the main exporters of Aluminium Stranded Wire products from the GCC. US, Europe, and Neighboring countries are the main destination of the export from Bahrain and UAE. Share of Qatar in the total import and export of GCC Aluminium wire was negligible.

China was the leading exporter having 40% value share followed by India with 20% value share in 2020. Bahrain is the world's third largest producer and exporter of Aluminium Wire having a 7.8% value share in 2020.

Midal Cables, Ducab Aluminium, Oman Aluminum, Mark Cables, Bahra Cables, Al Fanar, RESCAB, QICC are some of the leading Aluminium stranded wire manufacturers in GCC.

Copper is losing around 2% a year of demand to Aluminium, or about 500 thousand tons as per the estimate of a London-based researcher CRU. Aluminium is about 1/3rd the cost of copper and as per warehouses supply monitored by London Metal Exchange, it has more than 10 times better supply than copper. Some of the key attraction for Aluminium Stranded Wire.

### Integrated Wire Unit

Aluminium Stranded wire in an integrated unit with Aluminium wire which can be manufactured directly from the molten Aluminium alloys, saves energy cost, and help achieve better pricing. Qatar is already having a primary producer and therefore, having an Aluminium wire and Stranded Wire manufacturing unit nearby can help source raw material directly

### Location advantage

GCC has a better trade route to US, Europe, and Africa in comparison to India and China. Therefore, a unit in Qatar can cater to a wider region and customers

### Market growth

Global demand of Aluminium stranded wire is expected to grow at a CAGR of 3% over the next 5 year. Aluminium is fast emerging as an economical substitute to Copper in several applications. Higher growth in Renewable energy, expansion of electricity network in the Africa, Middle East and Asian Countries, R&D in the Al alloys are some of the growth drivers for Aluminium Stranded Wire

Total project cost excluding the land cost of setting up a new Aluminium Stranded Wire units having an annual capacity of 100,000 tones is around QAR 45-55 mn.

**Table 18: Project Cost of a new automatic Aluminium Stranded wire plant of 100,000 tons per annum**

Sl no	Facilities	QAR ('000) per unit	Total Cost QAR Mn
1	Automatic Al Wire Stranded line having inbuilt cleaning, sheathing, and coiling (Capacity: 5,000 tons per annum x 20 lines)	200-250	40-50
2	Other Capex	-	4-5
	Total Cost		45-50

Source: Primary Interview with Industry experts

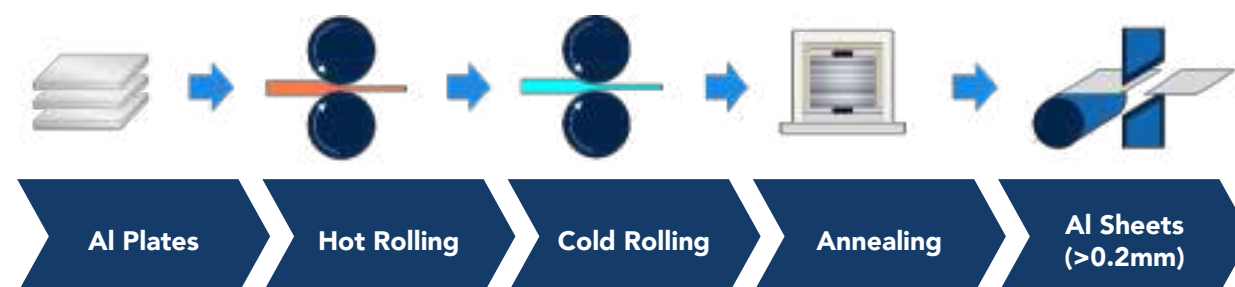


## 8 - OVERVIEW OF ALUMINIUM SHEET

### 8.1 PRODUCTION PROCESS

Aluminum Sheets is produced by hot/cold rolling of Aluminium plate produced by casting of Aluminium Alloy. Aluminium Sheets is normally produced by the primary Aluminium producers where the molten metal is cast into plates which are then rolled using a continuous high-speed line to produced Sheet Coils of different specifications.

Figure 12: Schematic production process of Aluminium Sheets



Source: Primary Interview with Industry experts

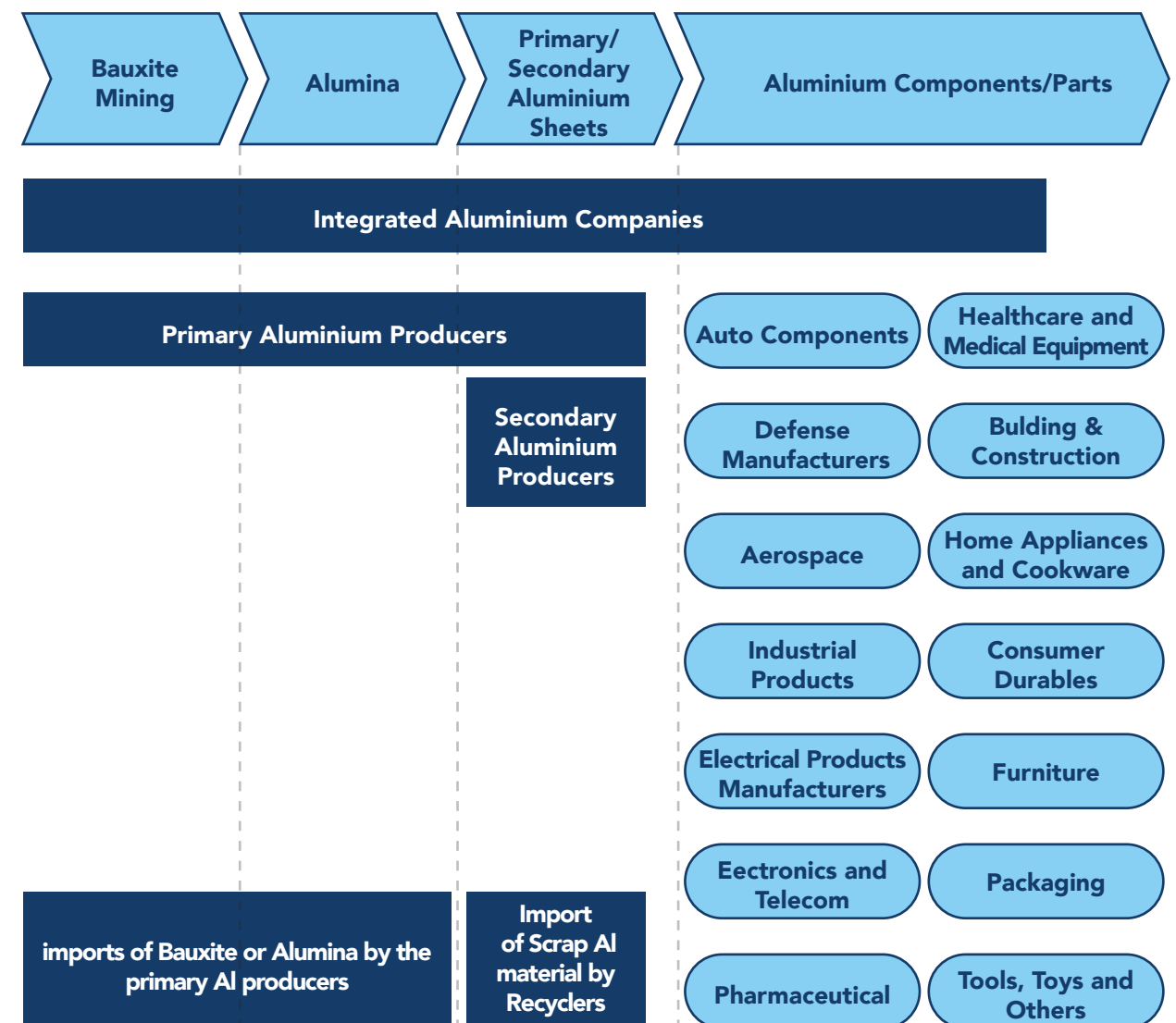
Continuous casting and rolling lines are used to manufacture Aluminium sheets. These lines come with minimum capacity limitation and therefore, new sheet manufacturing plants normally consider a minimum capacity of more than 200,000 tons.

Sheets are supplied to customers across different segments as Coils or Sheet (Cut to length Aluminium sheets). Aluminium foil is the main value-added products and several sheet making units have forward integration into Aluminium foil. Aluminium foils are Aluminium sheets having less than 2 mm thickness.

### 8.2 ALUMINIUM SHEET VALUE CHAIN

Aluminum Sheet manufacturers are normally integrated units of primary Aluminium producers. Secondary sheet producers (buying HR coils and having cold rolling process to manufacture Sheets) have limited scope across the globe, as their costing of integrated primary producers is normally quite lower as compared to secondary producers. Currently there are no Aluminium sheet manufacturer in Qatar.

Figure 13: Aluminium Sheet Value Chain



Source: Primary Interview with Industry experts



## 8.3 GCC IMPORT AND EXPORT – ALUMINIUM SHEETS

Total GCC import of Aluminium Plate/Sheets was QAR 2,448.8 mn (USD 670 mn) in 2020. UAE was the biggest importer followed by Saudi Arabia and Kuwait. Qatar import share in the total GCC was 4% in 2020

**Table 19: Import of Aluminium Plates/Sheet, GCC Countries vs World (QAR mn)**

Importers	2018	2019	2020
UAE	1,392.9	1,283.1	1,250.2
Saudi Arabia	1,229.0	877.0	816.9
Kuwait	277.3	305.3	150.7
Oman	99.0	115.6	99.6
Qatar	153.0	92.3	92.7
Bahrain	188.3	81.5	38.7
Gulf Cooperation Council (GCC) Aggregation	3,339.5	2,754.7	2,448.8
World	4,495.0	1,17,900.4	1,00,646.6

Source: UN Comtrade Data

Total GCC export of Aluminium Plates/Sheet was QAR 4,218.7 mn (USD 1,160 mn) in 2020. Saudi Arabia was the biggest exporter followed by Oman and Bahrain. Qatar had negligible export (re-export) of Aluminium Sheet in 2020.

**Table 20: Export of Aluminium Plates/Sheet, GCC Countries vs World (QAR mn)**

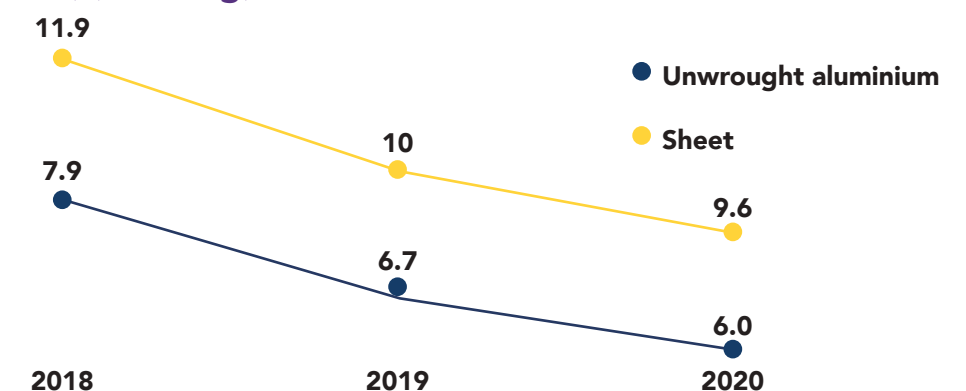
Exporters	2018	2019	2020
Saudi Arabia	1,784.5	2,606.4	2,421.1
Oman	904.3	870.1	649.9
Bahrain	1,319.7	1,157.6	619.1
UAE	564.6	557.0	524.1
Qatar	0.5	0.6	3.8
Kuwait	8.6	13.3	0.7
Gulf Cooperation Council (GCC) Aggregation	4,582.2	5,205.0	4,218.7
World	1,27,895.0	1,17,900.4	1,00,646.6

Source: UN Comtrade Data

## 8.4 GCC EXPORT PRICES –ALUMINIUM SHEET WIRE

Aluminium sheet prices vary with prices of Aluminium global price index. Based on the average of the value and volume of Unwrought Aluminium and the Aluminium sheet, exported from GCC region during 2018-2020, it can be understood that the average value addition in Aluminium Sheet was around 60% in 2020.

**Chart 23: Export price trends – Unwrought Aluminium vs Aluminium Sheet (2018-2020) (QAR/Kg)**



Source: UN Comtrade Data


## 8.5 INVESTMENT OPPORTUNITIES AND SETUP

Global trade of Aluminium Sheet was ~QAR 100 bn (USD 27.6 bn) in 2020. GCC total export was QAR 4,218.7 mn (USD 1,160 mn) having a share of 4% in 2020.

China (20%), Germany (16%) and USA (8%), Korea (6%), and France (5%) were the top five exporters of the Aluminium plates/sheets in 2020. Saudi Arabia was the 10th leading players in the Aluminium sheet export having a 2% share in the global trade by value.

Global demand of Aluminium sheet is expected to grow with a CAGR of 4% over the next 5 years. Large capacities of integrated continuous line (<500,000 tons) in China, Korea, Europe, and USA are making it competitive for smaller capacity plants (<200,000 tons). Smaller capacity plants are forward integrating in Aluminium Foil, Al Cans for Beverages and other value-added products.

Some of the key attraction for Aluminium sheet are as follows:

- 
**Integrated Unit**  
 Aluminium Sheet plant offers an opportunity for local unit of Aluminium foils and Aluminum Cans for Beverages along with other packaging industry.
- 
**Location advantage**  
 GCC has a better trade route to US, Europe, and Africa in comparison to India and China. Therefore, a unit in Qatar can cater to a wider region and customers
- 
**Market growth**  
 Global demand of Aluminium sheet is expected to grow at a CAGR of 4% over the next 5 year. Aluminium is fast emerging as an economic substitute to Mild Steel products in Automobile and Construction along with other applications. With the growth of EV, demand for lighter material is growing which is the main driver for the growth of Aluminium sheets.

The total project cost excluding the land cost of setting up a new Aluminium Sheet units having an annual capacity of 200,000 tones is around QAR 900-1,100 mn.

**Table 21: Project Cost of a new automatic Aluminium sheet plant of 100,000 tons per annum**

Sl no	Facilities	Total Cost QAR Mn
1	Casting and HR Coil Rolling line	450-500
2	Cold Rolling line	400-450
2	Other Capex	50-100
	Total Cost	900-1,050

Source: Primary Interview with Industry experts



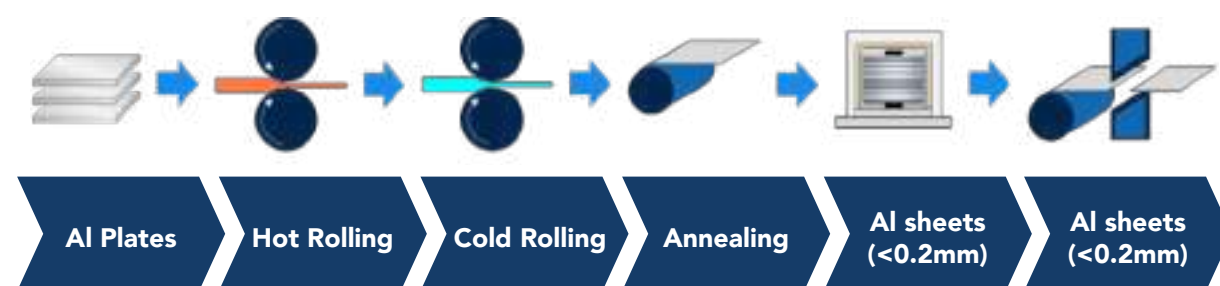


## 9 OVERVIEW OF ALUMINIUM FOIL

### 9.1 PRODUCTION PROCESS

Aluminum Foil is produced by cold rolling of the Aluminium sheets. These are high speed continuous rolling lines having high thickness precision. Aluminium Foils are normally produced by the primary Aluminium producers where the molten metal is cast into plates which are then rolled using a continuous high-speed line to produce Sheet Coils specific for Aluminium Foil. These coils are then processed to produce Aluminium Foil Coils.

**Figure 14: Schematic production process of Aluminium Foil**



Source: Primary Interview with Industry experts

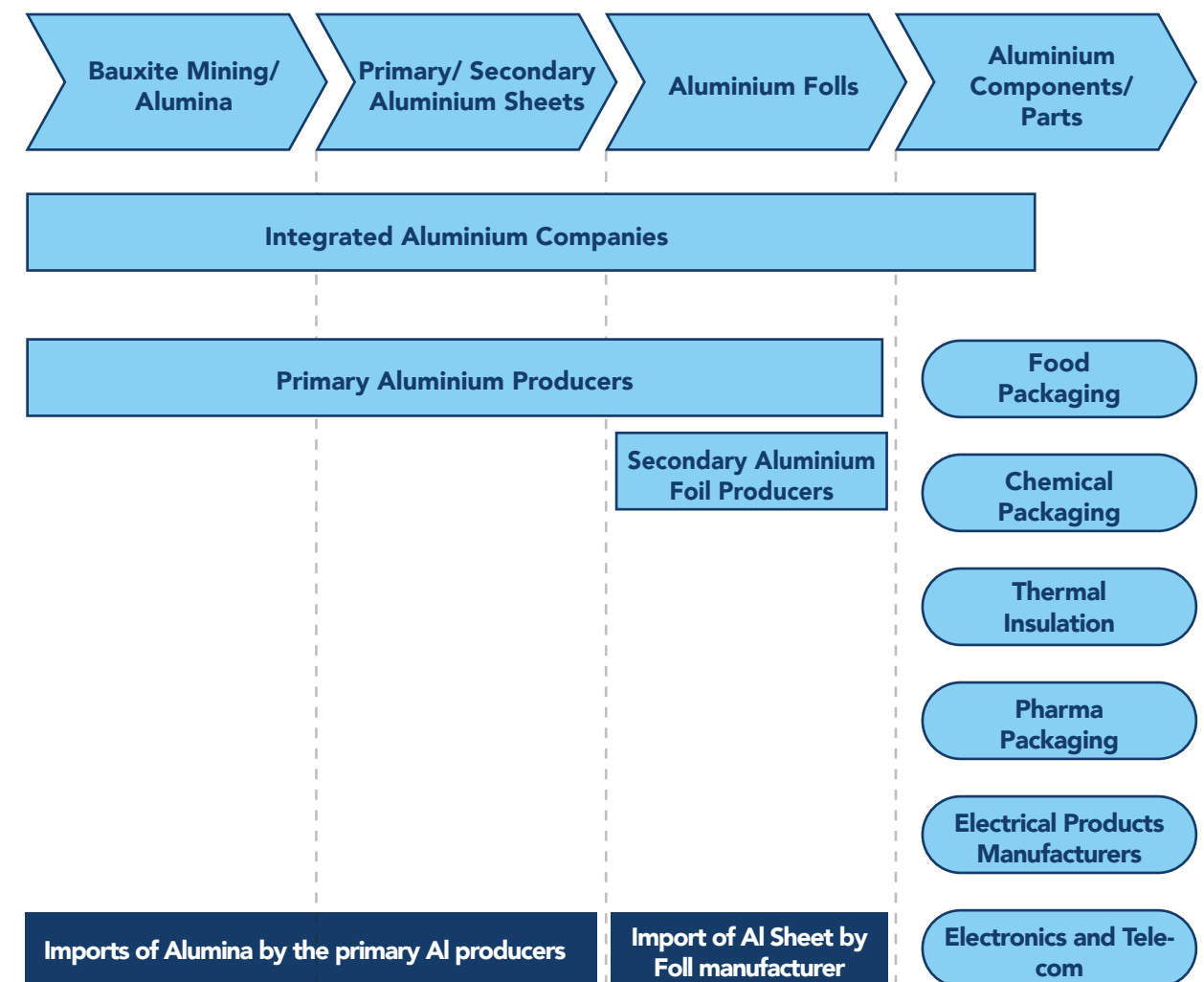
Continuous casting and rolling lines are used to manufacture Aluminium sheets and Aluminium Foils. These lines come with minimum capacity limitation and therefore, new sheet manufacturing plants normally consider a minimum capacity of more than 10,000 tons.

Foils are supplied to customers across different segments as coils of different sizes. Aluminium foil is the main value-added products and several sheet making units have forward integration into Aluminium foil. Aluminium foils are Aluminium sheets having less than 2 mm thickness.

### 9.2 ALUMINIUM FOIL VALUE CHAIN

Aluminum Foils manufacturers are normally integrated units of primary Aluminium producers. Secondary sheet producers (buying HR coils and having cold rolling process to manufacture Sheets and foils) have limited scope across the globe, as the costing of integrated primary producers is normally quite lower as compared to secondary producers. There are no Aluminium foil manufacturer in Qatar.

**Figure 15: Aluminium Foil Value Chain**









Source: Primary Interview with Industry experts

## 9.3 GCC IMPORT AND EXPORT – ALUMINIUM FOIL

Total GCC import of Aluminium Foil was QAR 45,570 mn (USD 12,520 mn) in 2020. Saudi Arabia was the biggest importer followed by UAE and Kuwait. Qatar import share in the total GCC was 3% in 2020







**Table 22: Import of Aluminium Foil, GCC Countries vs World (QAR mn)**

Importers	2018	2019	2020
 Saudi Arabia	614.7	718.1	739.0
 UAE	697.1	721.4	667.6
 Kuwait	95.2	98.9	84.1
 Oman	47.5	64.9	51.9
 Qatar	60.8	44.3	45.5
 Bahrain	41.6	45.1	42.5
Gulf Cooperation Council (GCC) Aggregation	1,556.9	1,692.7	1,630.6
World	50,197.7	47,111.0	45,569.9

Source: UN Comtrade Data

Total GCC export of Aluminium Foil was QAR 464 mn (USD 127 mn) in 2020. UAE was the biggest exporter followed by Oman and Saudi Arabia. Qatar had negligible export of Aluminium Foil in 2020.

**Table 23: Export of Aluminium Foil, GCC Countries vs World (QAR mn)**

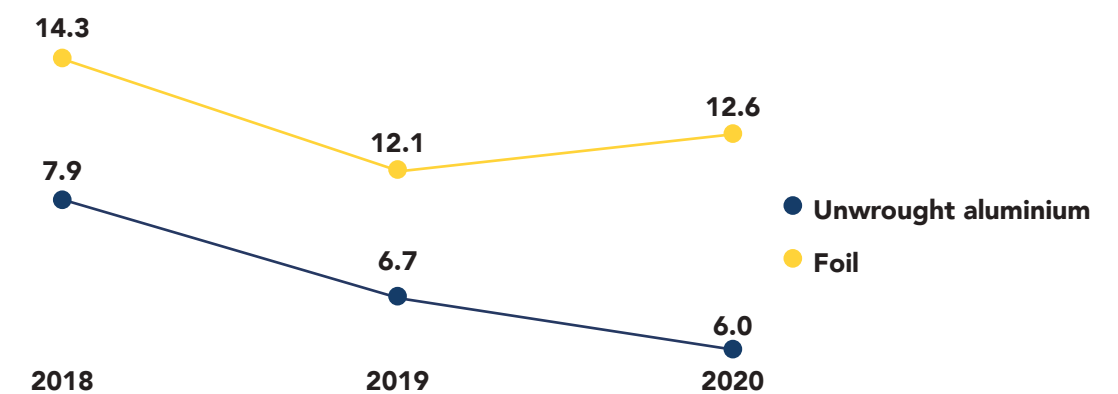
Exporters	2018	2019	2020
 UAE	266.8	258.4	234.6
 Oman	79.4	192.4	146.6
 Saudi Arabia	72.8	76.2	73.3
 Kuwait	5.5	4.1	5.6
 Bahrain	3.4	2.4	3.6
 Qatar	-	-	-
Gulf Cooperation Council (GCC) Aggregation	427.9	533.4	463.6
World	50,197.7	47,111.0	45,569.9

Source: UN Comtrade Data

## 9.4 GCC EXPORT PRICES –ALUMINIUM FOIL

Aluminium Foil prices vary with prices of Aluminium global price index. Based on average of value and volume of Unwrought Aluminium and the Aluminium foil, exported from GCC region during 2018-2020, it can be understood that the average value addition in Aluminium Foil was around 110% in 2020.

**Chart 24: Export price trends – Unwrought Aluminium vs Aluminium Sheet (2018-2020) (QAR/Kg)**



Source: UN Comtrade Data



## 9.5 INVESTMENT OPPORTUNITIES AND SETUP

Global trade of Aluminium Foil was QAR 45.5 bn (USD 12.5 bn) in 2020. GCC total export was QAR 464 mn (USD 127 mn) having a share of 1% in 2020.

China (32%), Germany (12%), Japan (5%), Italy (5%), USA (4%) and Korea (3%) are the top five exporters of the Aluminium foil in 2020. Saudi Arabia was the 10th leading players in the Aluminium Foil export having a 2% share in the global trade by value.

Global demand of Aluminium Foil is expected to grow with a CAGR of 4% over the next 5 years. Large capacities of integrated continuous line (>100,000 tons) in China, Germany, Japan, Italy and USA are making it competitive for smaller capacity plants (<10,000 tons).

### Some of the key attraction for Aluminium Foils



#### Integrated Unit

Aluminium Foil plant offers an opportunity for local units of Aluminium Packaging industry for food, pharma, chemicals and others



#### Location advantage

GCC has a better trade route to US, Europe, and Africa in comparison to India and China. Therefore, a unit in Qatar can cater to a wider region and customers



#### Market growth

Global demand of Aluminium foil is expected to grow at a CAGR of 4% over the next 5 year. Aluminium foils driven by the growth of Food packaging, pharma packaging, chemical packaging, thermal insulation and others

Total project cost excluding the land cost of setting up a new Aluminium Sheet units having an annual capacity of 10,000 tones is around QAR 35-50 mn.

**Table 24: Project Cost of a new automated Aluminum Foil plant of 10,000 tons per annum**

Sl no	Facilities	Total Cost QAR Mn
1	Casting and HR Coil Rolling line	35-40
2	Cold Rolling line	5-10
	Total Cost	40-50

Source: Primary Interview with Industry experts



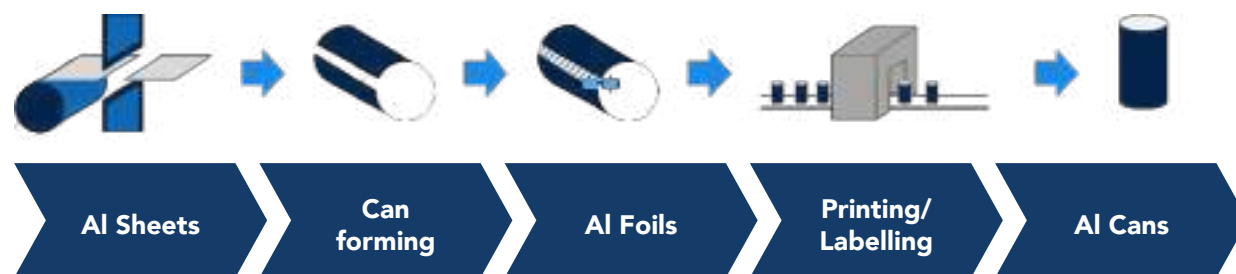
## 10 - OVERVIEW OF ALUMINIUM CANS

### 10.1 PRODUCTION PROCESS

Aluminum Cans is produced by cold forming of the Aluminium sheets. These are high speed continuous forming lines managing low thickness sheet with precision. Globally, Aluminium Cans are now fast replacing the tinplate cans for beverages.

Can making units procure Aluminium sheet from the primary producers and process the same to manufacture different type of Cans.

**Figure 16: Schematic production process of Aluminium Cans/Packaging**



Source: Primary Interview with Industry experts

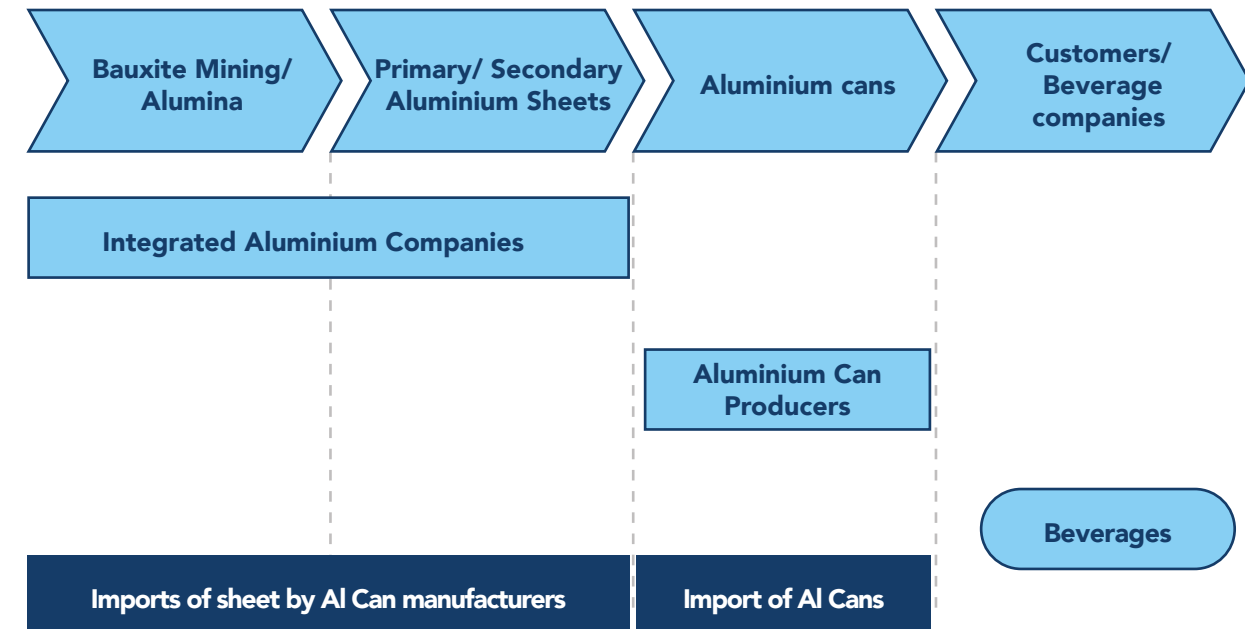
Al Cans are difficult to transport and therefore, it is manufactured at the beverage plant or close of the same. Shift of beverage manufacturers globally to Aluminium cans from Tinplate cans is the main growth driver. Pharma and Cosmetics packaging are the other type of packaging having fast growing demand.

### 10.2 ALUMINIUM CANS

Aluminum Foils manufacturers are normally integrated units of primary Aluminium producers. Secondary sheet producers (buying HR coils and having cold rolling process to manufacture Sheets and foils) have limited scope across the globe, as the costing of integrated primary producers is normally quite lower as compared to secondary producers. There are no Aluminium foil manufacturer in Qatar.



**Figure 17: Aluminium Cans Value Chain**



Source: Primary Interview with Industry experts











## 10.3 GCC IMPORT AND EXPORT – ALUMINIUM CANS/PACKAGING

Total GCC import of Aluminium Cans/packaging was QAR 610 mn (USD 168 mn) in 2020. UAE was the biggest importer followed by Oman and Saudi Arabia. Qatar import share in the total GCC was 5% in 2020.







**Table 25: Import of Aluminium Cans/packaging, GCC Countries vs World (QAR mn)**

Importers	2018	2019	2020
 UAE	385.3	270.8	263.7
 Oman	74.1	14.6	123.6
 Saudi Arabia	61.4	70.2	102.1
 Bahrain	73.6	49.4	54.4
 Kuwait	59.4	43.6	38.5
 Qatar	44.8	36.3	28.0
Gulf Cooperation Council (GCC) Aggregation	698.7	485.0	610.3
World	18,929.4	18,696.6	21,606.2

Source: UN Comtrade Data

Total GCC export of Aluminium Cans/Packaging was QAR 940 mn (USD 260 mn) in 2020. UAE was the biggest exporter followed by Saudi Arabia and Kuwait. Qatar had negligible export of Aluminium Cans/Packaging in 2020.

**Table 26: Export of Aluminium Can/packaging, GCC Countries vs World (QAR mn)**

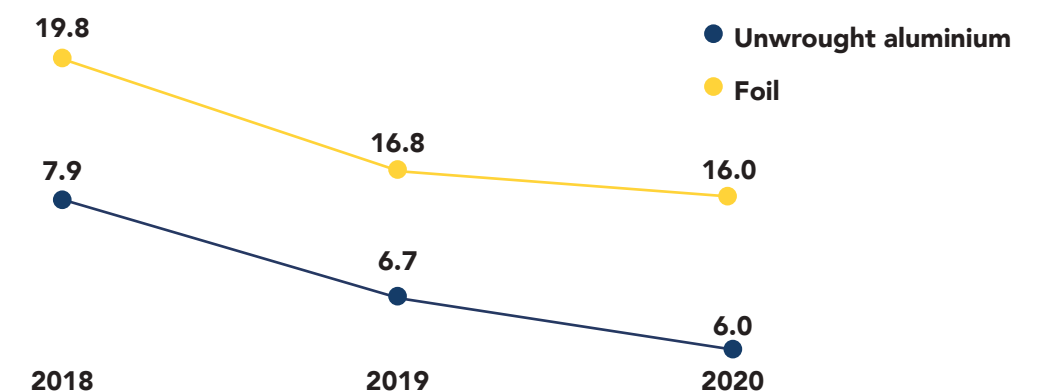
Exporters	2018	2019	2020
 UAE	302.8	278.4	485.7
 Saudi Arabia	715.7	347.2	445.6
 Kuwait	17.6	8.9	8.9
 Oman	0.5	0.1	0.1
 Bahrain	2.6	0.4	0.1
 Qatar	0.3	0.1	-
Gulf Cooperation Council (GCC) Aggregation	1,039.5	635.0	940.4
World	18,929.4	18,696.6	21,606.2

Source: UN Comtrade Data

## 10.4 GCC EXPORT PRICES –ALUMINIUM CANS

Aluminium Cans prices vary with prices of Aluminium global price index. Based on average of value and volume of Unwrought Aluminium and the Aluminium Cans, exported from GCC region during 2018-2020, it can be understood that the average value addition in Aluminium Cans was around 165% in 2020.

**Chart 25: Export price trends – Unwrought Aluminium vs Aluminium Cans/Packaging (2018-2020) (QAR/Kg)**



Source: UN Comtrade Data

## 10.5 INVESTMENT OPPORTUNITIES AND SETUP

Global trade of Aluminium Cans/Packaging was QAR 21.6 bn (USD 5.9 bn) in 2020. GCC's total export was QAR 940 mn (USD 258 mn) having a share of 4% in 2020.

Germany (11%), USA (9%), Mexico (6%), China (5%), and Netherlands (4%) were the top five exporters of the Aluminium Cans/Packaging in 2020. Global demand of Aluminium Cans/Packaging is expected to grow with a CAGR of 4% over the next 5 years. Fast replacement of tinplate with Aluminium cans is the main growth driver.

### Some of the key attraction for Aluminium Cans/Packaging



#### Local demand

Local availability of Aluminium sheet is an added advantage. Total import of Aluminium Cans/Packaging was QAR 28 mn which is equivalent of around 1,750 tons per annum.



#### Location advantage

GCC has a better trade route to US, Europe, and Africa in comparison to India and China. Therefore, a unit in Qatar can cater to a wider region and customers



#### Market growth

Global demand of Aluminium Cans/Packaging is expected to grow at a CAGR of 4% over the next 5 years. Key drivers of demand for Aluminium Can are growth of F&B segment, replacement of tinplate with Aluminium and others

Total project cost excluding the land cost of setting up a new Aluminium Can units having an annual capacity of 10,000 tones is around QAR 120-155 mn.

**Table 27: Project Cost of a new automatic Aluminium can plant of 10,000 tons per annum**

Sl no	Facilities	Total Cost QAR Mn
1	Punching, Forming, Cleaning, Printing, Neck Making, Packaging lines (10,000 tons per annum)	110-140
2	Other Capex	10-15
	Total Cost	120-155

Source: Primary Interview with Industry experts





## 10.6 CRITICAL SUCCESS FACTORS

### Focus on the global market:

Slabs are used to produce flat rolled products (FRP). However, in many cases, FRP units are setup next to the primary smelter having a direct supply of molten Aluminium for continuous casting lines, manufacturing flat rolled products

### Downstream value-added products:

Primary Aluminium products require high capital investment and therefore, addition of value-added products or investment in downstream products become important. Therefore, an optimal balance with downstream products will help maintain sales growth and profitability. For eg: forward integration to increase the value addition and internally utilizing a significant share of the production. This is specifically applicable for the following:

1

Manufacturing of  
Aluminium Foil from  
Aluminium Sheets

2

Manufacturing of  
Aluminium Cans from  
Aluminium Sheets

3

Manufacturing  
of Stranded Wires  
from Wires

### Tie-up with primary aluminium manufacturer:

For being cost competitive it becomes imperative to have a tie-up with primary aluminium producers and be in close vicinity to their plant. This helps to source hot or molten aluminium which can be fed directly to the manufacturing process and save on energy required to heat the feedstock like billets / slabs / sheets to the required processing temperature before converting it into sheets or wires.

### Low-cost production:

Aluminium being a commodity product, it is necessary to have low cost of production to be competitive. Middle east countries, having low-cost energy gives them a natural advantage for manufacturing of energy intensive commodity products. Usage of new production technologies and renewable energy are also being used to further reduce the cost of production.

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## ACRONYMS AND ABBREVIATIONS

Al	Aluminium
ALBA	Aluminium Bahrain B.S.C
Bn	Billion
CAGR	Compound Annual Growth Rate
EGA	Emirates Global Aluminium
FRP	Flat Rolled Products
GARMCO	Gulf Aluminium Rolling Mill
GCC	Gulf Cooperation Council
GDP	Gross Domestic Product
KMT	Kilo Metric Tons
KSA	Kingdom of Saudi Arabia
Mn	million
MT	Metric Tons (1000 Kg)
OARC	Oman Aluminium Rolling Company
QAMCO	Qatar Aluminium Manufacturing Company
QAR	Qatari Riyal
SME	Small and Medium Enterprises
UAE	United Arab Emirates
USD	United States Dollar

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