SUMMARY MAP

STRATEGIC ROADMAP OF BRAZIL'S ALUMINUM INDUSTRY CHAIN 2030

abal
ASSOCIAÇÃO BRASILEIRA DO ALUMÍNIO

INTRODUCTION

The Brazilian Aluminum Association (ABAL) brings together companies that represent the bauxite mining sector, aluminum producers, recycling companies and those that transform aluminum into products that are a part of our daily lives.

Of all the base metals that are fundamental to life as we know it, aluminum is the most recent addition. Its use for industrial purposes dates back just 100 years. This brings about several possibilities for market growth of the aluminum chain and a higher degree of dynamism when compared to other average materials – since it is still in the introduction stage regarding new uses for this metal. On the other hand, this also results in a number of challenges, such as devising a knowledge base that is accessible to everyone.

The global configuration of the production and consumption of aluminum changed completely with the industrialization of China in the past 15 years, displacing countries that had been leading this market for the entire 20th century. This translated into higher levels of complexity and uncertainties as far as Brazil and its industries were concerned as they were facing increasingly higher costs and loss of competitiveness.

In this scenario, the question is: How do we want the aluminum chain to fit into the national economy structure in little over a decade from now? And how can we be prepared for that?

These concerns from ABAL's Steering Board at the close of 2016 led us to seek answers that were not just an exercise on possible futures. Such demands have led us to the very important decision to, first of all, ponder the enormous challenges we now face, and, together, devise a sustainable future for the Brazilian aluminum industry. Those reflections are both essential and a priority to legitimize long term planning.

To help us ponder the possible answers, we called in our partners: MDIC – Brazil's Ministry of, Industry, Foreign Trade and Services, CNI – Brazilian National Confederation of Industry and State of Paraná Observatory Group who readily joined in on this project to devise a new agenda of actions for building up the vision of future we want. Aside from these partners, we also counted on the substantial participation of the entire segment, not only from ABAL members but also from upstream and downstream industry sectors, as well as academic, government and third sector representatives.

We are proud to have journeyed on this path with all of those interested in strengthening the aluminum industry in Brazil inasmuch as, together, we have mapped our own path.

As Bernard Shaw once said, "*We are made wise not by the recollection of our past, but by the responsibility for our future.*" ABAL believes in the possibility of building a stronger Brazil with the support of a more competitive and sustainable national aluminum industry.

Milton Rego
Deputy President
ABAL – Brazilian Aluminum Association

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140
EXPERTS INVOLVED

75
PUBLIC AND PRIVATE INSTITUTIONS

7
STATES REPRESENTED

4
EXPERTS PANELS

2
CYCLES OF INTERVIEWS WITH STRATEGIC STAKEHOLDERS

2
WEB CONSULTATIONS

242
CONSOLIDATED ACTIONS

60
STRATEGIC ACTIONS

1
STRATEGIC ROADMAP OF BRAZILIAN ALUMINUM INDUSTRY CHAIN

1
SUMMARY MAP

SUMMARY MAP OF THE STRATEGIC ROADMAP OF BRAZIL'S ALUMINUM INDUSTRY CHAIN 2030

Aluminum is a material known for its lightness, strength, durability, versatility and recyclability. It is globally renowned for its innovation and sustainability potential with a critical impact on industrial and economic processes.

Regarded as strategic in the largest economies of the world, the aluminum industry has established itself as being one of unquestionable importance for the progress of a nation. In this context, the need to promote the competitiveness of Brazil's Aluminum Industry is a priority and is intertwined with its systemic impact on the production of wealth, jobs and income.

Devised to meet the unique needs of the different strands that comprise the industry, the Strategic Roadmap of Brazil's Aluminum Industry 2030 was conceived by employing the roadmapping methodology and segmented the aluminum chain into four major links:

- the mining and primary production industry that encompasses areas from bauxite mining, the refining of this ore to obtain alumina to the production of primary aluminum;
- the industry of recycling and secondary aluminum, responsible for recycling end products and industrial scrap metal;
- the semi-finished goods industry, which is the first stage after the production of aluminum (primary or secondary), such as its transformation into sheets and profiles;
- the industry of finished aluminum products that manufactures the items we see in everyday life, in all industry segments.

This Summary Map of the Strategic Roadmap was devised aiming at consolidating in a concise manner the proposals that are available for consultation, emphasizing strategic issues that strengthen Brazil's Aluminum Industry. It is worth highlighting the fact that actions have been grouped into themes of major impact by the similarity of their content.

The Summary Map is organized as a matrix in which each action described addresses one of the strategic themes and one or more links of the chain.
Each link bears a vision that reflects its foresight regarding the desired future for the segment within a 12-year horizon. The global vision demonstrates the synergy between links in shaping a common future to be achieved by the industry by 2030.

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Global Vision:

Competitive, innovative, sustainable and integrated Brazilian aluminum industry.

CHAIN LINKS	Mining and Primary Production	Recycling	Semi-finished Products	Aluminum Products Application
VISIONS	Competitive, innovative and sustainable bauxite mining industry and primary production oriented towards adding value and market expansion, with self-sufficiency in primary aluminum.	A formalized, integrated, innovative and sustainable recycling chain, oriented towards maximizing the recycled content.	A coopetitive aluminum transformation industry that provides sustainable, innovative and high technology solutions.	Aluminum as an integrated solution, a protagonist in adding value, innovation and sustainability.
COORDINATION OF STAKEHOLDERS			Implement an interaction agenda between transformation industry and end users focused on the automotive, transportation and civil construction industries.	
	Extend and strengthen dialog among sector associations to devise a common platform for policy, project and action propositions that have a positive impact on Brazil's aluminum chain. Extend and strengthen dialog between the chain and state and federal governments to defend interests and the proposition of policies, projects and actions that have a positive impact on Brazil's aluminum chain. Extend and strengthen industry partnerships with academia and research institutions for the development of research, programs, projects, products and technologies. Establish coopetition strategies among sector companies to devise pre-competitive projects. Promote exchange and partnerships among local companies and international organizations aiming at market prospection and the transfer of technologies.			
COMMUNICATIONS AND MARKETING	Promote national and international campaigns that prize the low carbon footprint of Brazil's aluminum.			
	Establish a communications plan to prize the upstream sector.			
		Implement communications and marketing programs to magnify the promotion of the advantages and benefits of aluminum products.		
MARKET EXPANSION			Development of prospection and publicizing studies of market opportunities for aluminum semi-finished products industries. Development of insertion and expansion plans for the use of aluminum both in potential and consolidated markets.	
	Development of policies of incentives for exporting Brazilian products. Expand agreements and alliances for foreign trade. Conduct national and international events that promote new applications and technologies related to aluminum.			
				Prepare sector consumer behavior studies on the use of aluminum packaging and utensils.
		Map and publicize information on credit lines for the recycling and semi-finished goods industries, especially from green funds.		
		Develop a feasibility study of the scale of recycling of products from different aluminum alloys.		
INFRASTRUCTURE AND LOGISTICS	Identify infrastructure and logistics demands in the aluminum chain.			
	Expand Public/Private Partnerships to modernize the logistics infrastructure in the areas in which the upstream sector operates. Develop a study about the impact of freight costs on the competitiveness of the upstream sector.			

	Mining and Primary Production	Recycling	Semi-finished Products	Aluminum Products Application
QUALITY, CERTIFICATION AND STANDARDIZATION	Implement an international green seal as a value criterion for low carbon footprints and its competitive edge in the market for primary aluminum.			
	Expand initiatives to meet technical specifications and standards related to aluminum products. Implement a program to stimulate the use of certification seals in the aluminum chain.			
			Implement standards and criteria for quality and sustainability of aluminum products.	
HUMAN RESOURCES	Expand the availability of training for professionals connected to the aluminum chain. Develop qualification programs focused on innovation, technological development and management in the aluminum chain. Expand the insertion of aluminum related content in the study plans of technical and graduation courses in architecture, engineering, industrial design and similar. Devise outreach and postgraduate courses with a focus on aluminum.			
ENERGY SAFETY	Revise long-term energy-policy proposal for the aluminum chain with a focus on the supply of energy at competitive prices. Promote incentives for the self-generation of energy. Develop a program for the expansion of the infrastructure and the use of natural gas.			
	Conduct workshops on the feasible alternatives of the energy models for the upstream sector.			
SUSTAINABILITY	Devise a monitoring system for the social, environmental and economic transformations of the bauxite mining regions in Brazil.			
		Study and development of the management, collection and processing of aluminum scrap, aiming at improving the system's efficiency.		
		Development of partnerships for the creation of reverse logistics systems.		
		Expand strategies that reduce the gap between scrap collector cooperatives and associations with the recycling industry.		
	Devise an agenda between ABAL and regulating agencies to promote aluminum in issues related to sustainability.			
				Develop comparative studies of life-cycle analyses for aluminum products and its main competitors. Promote the sustainability concept as a criterion for government purchases policy.

	Mining and Primary Production	Recycling	Semi-finished Products	Aluminum Products Application
TECHNOLOGY AND INNOVATION		Expand projects for the development of the concept and application of Design for Recycling. Promote the development of research projects on alloys, processes and aluminum products.		
	Devise a technological monitoring program for the aluminum chain. Expand the promotion funding for RD&I focused on the aluminum chain. Establish a workgroup to align the aluminum transformation industry to the Brazilian development plan of industry 4.0. Establish an agenda for the aluminum sector to attract investments, modernization and boost competitiveness. Develop of projects for the creation and speeding up of startups connected to the aluminum chain. Create a specialized analysis group of government incentives for obtaining resources to support RD&I projects. Devise a high-performance technology center for aluminum products.			
			Make databases available containing technical data for aluminum and its alloys to be used in modeling product process simulation software with multi-material solutions. Develop an open innovation project involving transformation industries and aluminum product application companies.	
	Develop and implement systems that enable the tracking of aluminum scrap shipments.			
	Promote research oriented towards the mitigation of impacts, the innovation in treatment and the adding of value to scrap from the upstream sector. Implement an incentive program for the modernization of technology and for the manufacturing infrastructure in the primary aluminum chain.			
TAXATION AND FORMALIZATION		Foster technical support to projects that formalize companies, associations and cooperatives connected to the aluminum chain.		
		Promote and follow-up the proposal for reducing the taxation for recycling.		
	Defend tax isonomy among Brazilian states for the commercialization of products of the aluminum chain.			
	Prepare a feasibility study for simplifying taxes that apply to companies of the aluminum chain.			
		Expand surveillance over informal activities in the aluminum chain.		
		Diagnose and monitor progress regarding formalization in the transformation and aluminum recycling sectors.		
	Promote tax reduction policies for raw materials imports for the upstream sector.			

Undertaken by

ABAL ASSOCIAÇÃO BRASILEIRA DO ALUMÍNIO

Executed by

Sistema Fiep FIEP SESI SENAI IEL

OBSERVATÓRIO SISTEMA FIEP

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