ASI implementation around the world

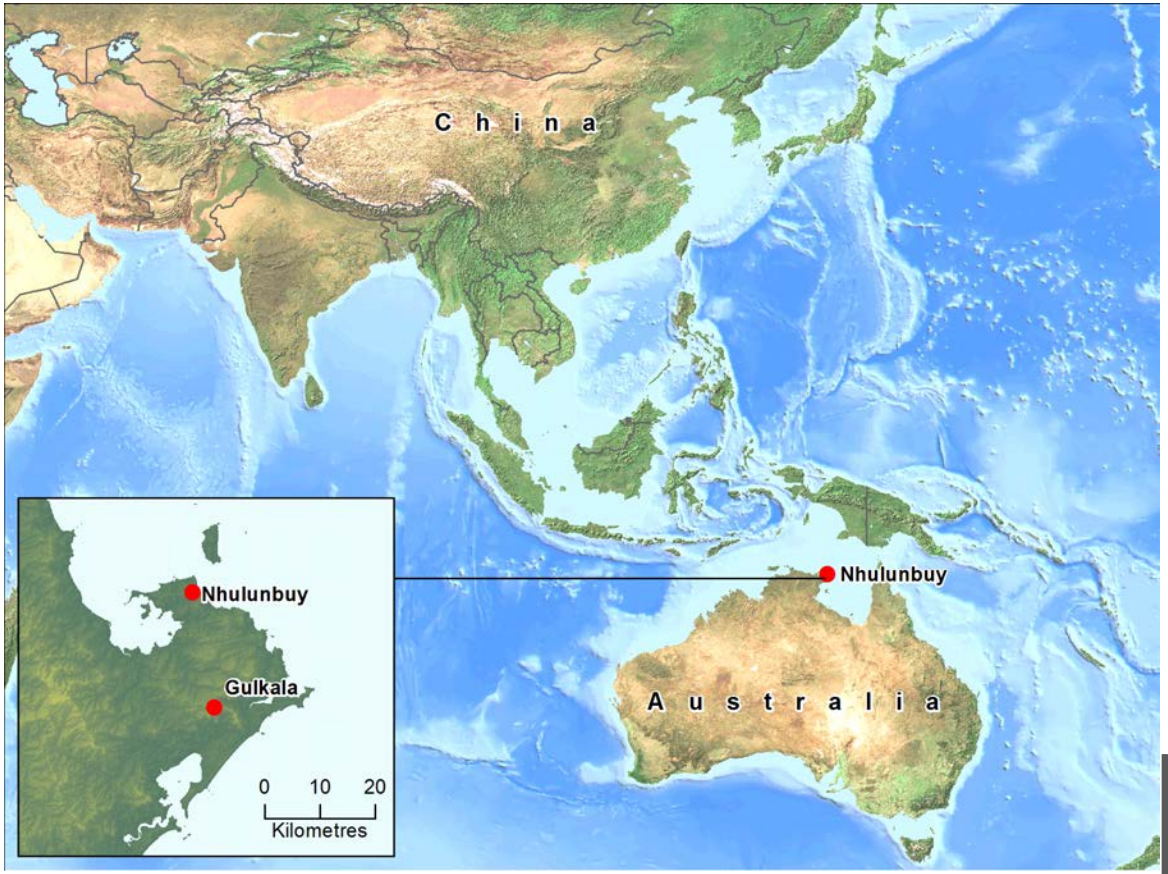
Gulkula

ASI AGM Week, Molde Norway, Tuesday 4 June 2019

Gulkula

Aluminium Stewardship Initiative

Where are we?


China
Nhulunbuy
Australia
Nhulunbuy
Gulkala
0 10 20
Kilometres

What we do?

What do we do?

How we approached ASI Certification

Engaged an ASI Registered Specialist to:

- Perform a gap analysis ASI Performance Standard vs Gulkula's Systems developed during first 18 months of operation
- Map out a process to complete our HSEC Framework
- Advise with development and implementation of Policies, Procedures etc

Aluminium Stewardship Initiative

What we learned

- A large cumbersome management system was not pratical for Gulkula

- Following the ASI Standards allows elements of fit for purpose options and solutions

Aluminium Stewardship Initiative

Practical outcomes

- Identified several not so obvious deficiencies in our existing systems
- Adopting ASI helped consolidate several processes together
- Forced Gulkula to review its existing documentation

Aluminium Stewardship Initiative

Next steps

- Gulkula is still in implementation phase
- Documentation & Framework complete
- Implementation of some components still ongoing
- Q3 2019 – Final check & pre-audit upload into Element AI
- Q4 2019 – Audit planned for Certification

Aluminium Stewardship Initiative

ASI implementation around the world

Constantia Flexibles

Dr. Thomas Greigeritsch
Vice President Group Sustainability

ASI AGM Week, Molde Norway, Tuesday 4 June 2019

Constantia Flexibles

Aluminium Stewardship Initiative

Where we are and what we do

Based on the guiding principle of **'People, Passion, Packaging'**, we manufacture tailor-made flexible packaging solutions.

#3 Globally

#2 in Europe

~ 8,300
employees

38
Production sites in 16 countries

SALES BY REGION

Europe	65%
America	16%
Middle East /Africa	7%
Asia / Pacific	12%

PRODUCTION

aluminum-based **52%**

film-based **46%**

paper-based **2%**

HEADQUARTERS
in Austria, Vienna

2 BUSINESS SEGMENTS

Consumers **~75%**

Pharma **~25%**

& 16.6% stake in MCC

SHAREHOLDERS

Wendel Group **~61%**

AREPO Foundation **~27%**

MaxburgCapital Partners **~11%**

Constantia Flexibles

asi Aluminium Stewardship Initiative

How we approached ASI Certification

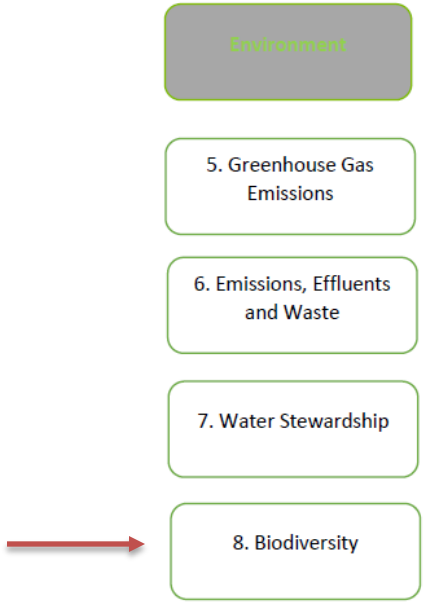
- **Responsible sourcing** is a key element of Constantia Flexibles Sustainability Strategy.
- Constantia Flexibles is a **founding member** of the ASI.
- We actively promote the uptake of the standards among our **suppliers** to close the supply chain for ASI CoC certified material.
- Largest plant Constantia Teich already certified against the **ASI Performance Standard** and soon against the ASI CoC Standard
- Assessment for future certification / rollout of **other Constantia Flexibles plants** in progress.

Constantia Flexibles

asi Aluminium Stewardship Initiative

What we learned

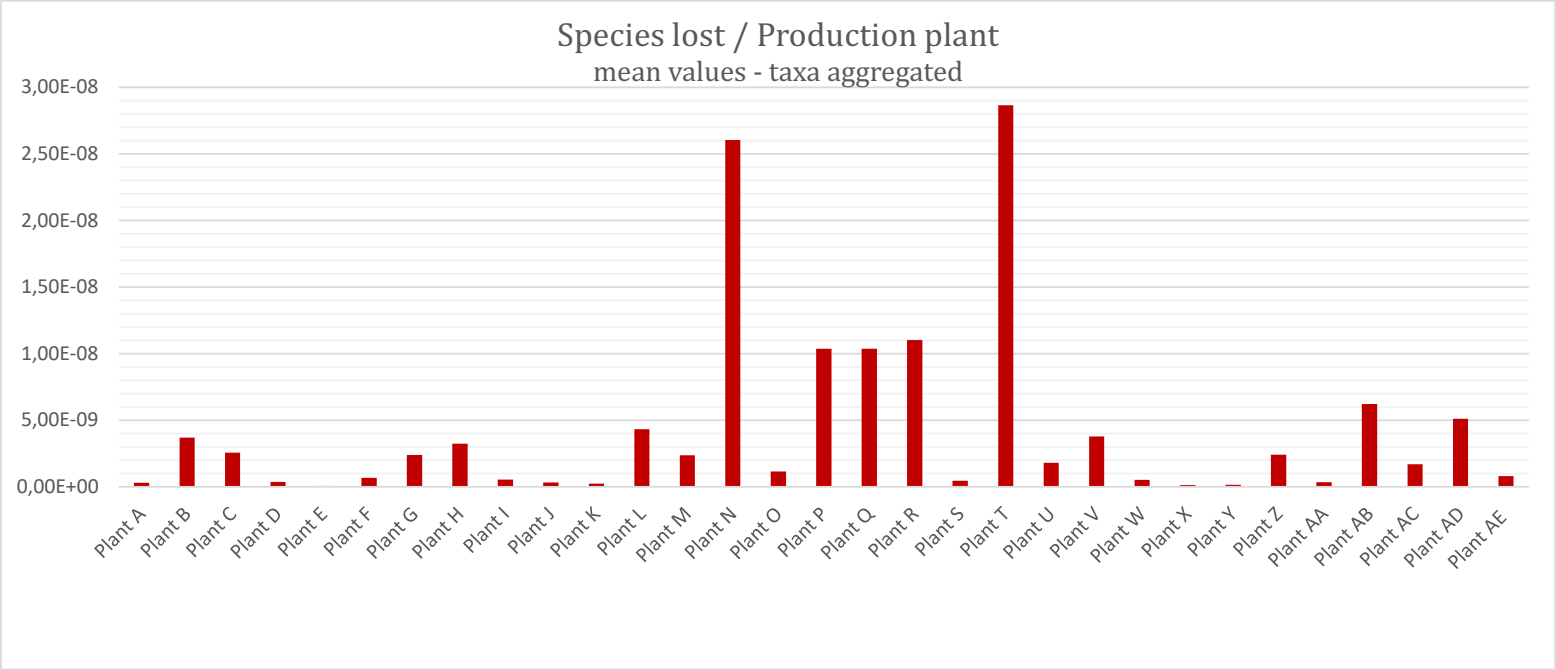
- Constantia Flexibles conducted a group-wide comprehensive Biodiversity Assessment
- Impact evaluation of diverse land use shares on our environmental impact
- Species-Area-Relationship (SAR) models were used to predict the species loss due to land use for each production plant (following the method and characterization factors developed by Chaudhary and Brooks, 2018)



Constantia Flexibles

asi Aluminium Stewardship Initiative

What we learned



Constantia Flexibles

asi Aluminium Stewardship Initiative

Practical outcomes

- Integration of ASI-criteria into existing **ISO 9001 management system**
- **Biodiversity Assessment**
- Redefinition and extension of our **Code of Conduct for Supplier and Subcontractors** (to cover all requirements)
- Integration of **Mass Balance Percentage System** into our existing Order/Stock Information System, allowing to track ASI Material Inputs and Outputs (semi-finished products, products and waste) throughout the Entity

Constantia Flexibles

asi Aluminium Stewardship Initiative

Next steps

- Further testing of mass balance system integration
- ASI Chain of Custody certification audit
- Promotion of further uptake within our value chain
- Evaluation of certification for further CFlex plants

Constantia Flexibles

Aluminium Stewardship Initiative

ASI implementation around the world

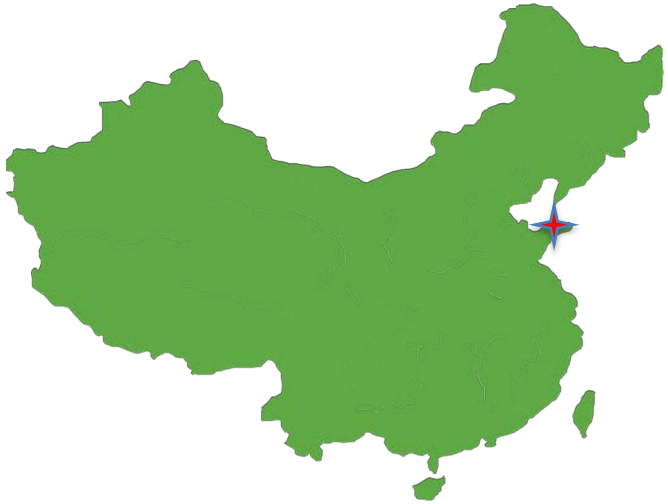
Nanshan Aluminum Co., Ltd.

ASI AGM Week, Molde Norway, Tuesday 4 June 2019

南山铝业
NANSHAN ALUMINIUM

Aluminium Stewardship Initiative

Where we are and what we do



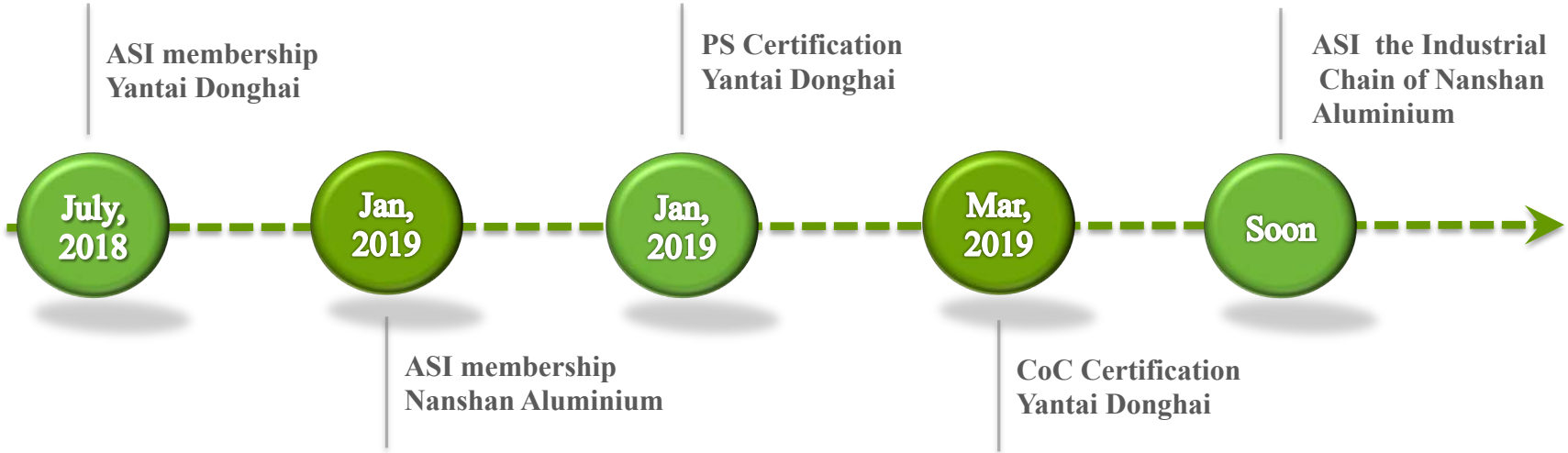
Located in Shandong Province, China

The most complete industrial chain in one region around the world

南山铝业
NANSHAN ALUMINIUM

asi Aluminium Stewardship Initiative

How we approached ASI Certification



南山铝业 NANSHAN ALUMINIUM

asi Aluminium Stewardship Initiative

What we learned

System and Team are important

- Dedicated Team Built
- System built is important

Green Property become more important

- Basic Use Properties
- Good Quality Properties
- Renewable Energy Power Used
- Less GHG Emission
- Higher Proportion of Recycled Aluminium

南山铝业 NANSHAN ALUMINIUM

asi Aluminium Stewardship Initiative

Practical outcomes

New Material Resourcing Strategy

- Quality & Price
- Renewable Energy Power Used
- 24kmt/year Green Aluminium Used on Aluminium Foil
- 6km/year Scrap Aluminium Used on Aluminium Foil

GHG Emission Decreased 163kmt Per Year

NANSHAN 南山铝业 NANSHAN ALUMINUM

asi Aluminium Stewardship Initiative

Next steps

Get ready for the ASI certification of the whole Nanshan Aluminium

A most advanced aluminium recycling center with capacity of 100kmt/year will be put into production at the end of 2020.

Be more transparent by working with CDP to publicly show our GHG emission and using more green aluminium in our products.

南山铝业 NANSHAN ALUMINIUM

Aluminium Stewardship Initiative

ASI implementation around the world

Aluminium Norf GmbH (Alunorf)

ASI AGM Week, Molde Norway, Tuesday 4 June 2019

ALUNORF

Aluminium Stewardship Initiative

Where we are and what we do

- Aluminium Norf GmbH ("Alunorf“) is the biggest aluminium rolling and remelt facility in the world.
- With a workforce of approx. 2,200 people one of the biggest employers in Neuss
- Product: Aluminium coils – hot and cold-rolled band with a wide range of alloys (semi-finished stock for cans, foil, products for the automotive and printing industry)
- Sales volume: 1.5 million tons per year
- Shareholders: 50 % Hydro Aluminium Rolled Products GmbH // 50 % Novelis Deutschland GmbH

ALUNORF

asi Aluminium Stewardship Initiative

How we approached ASI Certification

- **Hydro had to determine overall ASI certification scope**
  - From the beginning it was clear that Alunorf had to be included
- **Approach Novelis & Alunorf with our proposal**
  - Approval from management teams from JV partner and Alunorf
- **Clarification of way forward together with ASI**
  - ASI Membership Status
  - PS & CoC Certification at Alunorf →what does this mean for each JV partner?

ALUNORF

asi Aluminium Stewardship Initiative

How we approached ASI Certification

- Kept necessary on-site resources to a minimum
  - JV partners communicated with ASI on any open issues
  - Element AL assessments done by JV partners
  - Sharing of information, best practices, etc
  - Utilized the same auditing firm that had previously audited Alunorf against other certifications
  - JV Partners participated in the PS certification audit where necessary

- Close alignment on announcement of Alunorf PS Certification

ALUNORF

asi Aluminium Stewardship Initiative

What we learned

- There was no „One size fits all“ approach
  - For every decision taken, there were 3 points of view
    - Hydro
    - Novelis
    - Alunorf

- Open mind allows for:
  - Increased Flexibility
  - Improved Communication

ALUNORF

asi Aluminium Stewardship Initiative

Practical outcomes

- More communication between the 3 stakeholders
  - Build on the initial certification work for the ASI Performance Standard
  - Use the wide-ranging scope of PS criteria to improve operations not only at Alunorf but other JV partner locations

ALUNORF

asi Aluminium Stewardship Initiative

Next steps

- Delivery of CoC certified material to Hydro's customers
- Further develop and refine the Chain of Custody certification scope

ALUNORF

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ASI implementation around the world

Emirates Global Aluminum

ASI AGM Week, Molde Norway, Tuesday 4 June 2019

EGA

asi Aluminium Stewardship Initiative

Where we are and what we do

2.6 t MILLION
cast metal production

4 %
of world production

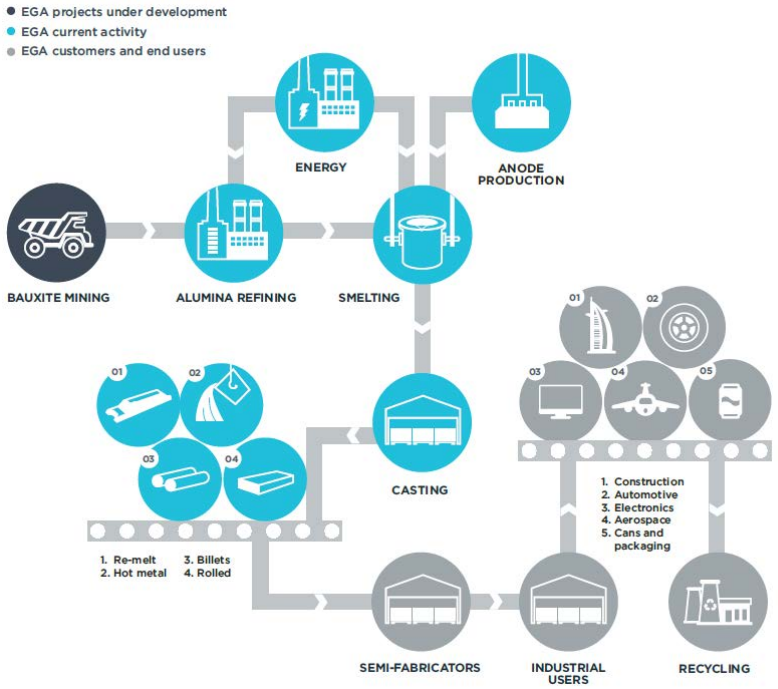
60+
Countries supplied

Jebel Ali
Smelting and Casting

Al Taweelah
Smelting and Casting

Al Taweelah
Refinery

Guinea
Mine (under construction)



EGA

asi Aluminium Stewardship Initiative

How we approached ASI Certification

- Focussed on one site for first certification
- Strong support from top management
- Process led by our Sustainability Team
  1. Gap Analysis
  2. Gap Closure
  3. Preliminary Audit (accredited auditor)
  4. Certification Audit (accredited auditor)
- Engagement with almost every department accross EGA

Al Taweelah

- 1,200 reduction cells
- 9 casting stations
- 3,100MW power plant
- 3.75 MGD desalination plant
- Size of 555 football fields

EGA

asi Aluminium Stewardship Initiative

What we learned

- If corporate values are in the right place. ASI certification is not a strenuous, difficult or costly exercise.
- Audits are unlike any other (level of detail expected and variety of topics covered).
- Do not underestimate the unfamiliarity people have with the terminology used.
- Genuine interest from staff from not only professional but also consumer viewpoint.

EGA

asi Aluminium Stewardship Initiative

Practical outcomes

- Awareness, awareness awareness.
- Sustainability initiatives aligned with international best practice
- Biodiversity efforts now formally documented, budgeted and aligned with international best practice.
- Social aspects much more clearly communicated, aligned with international standards and easily audited.
- Importance of ESG performance of supply chain much more clearly understood by influencers.

EGA

asi Aluminium Stewardship Initiative

Next steps

Jebel Ali

- 1,577 reduction cells in seven potlines
- 12 casting stations
- 2,350MW power plant
- 30 MGD capacity desalination plant
- Size of 250 football fields

EGA

Aluminium Stewardship Initiative

ASI implementation around the world

Sacha Brandt, Norsk Hydro

ASI AGM Week, Molde Norway, Tuesday 4 June 2019

Hydro

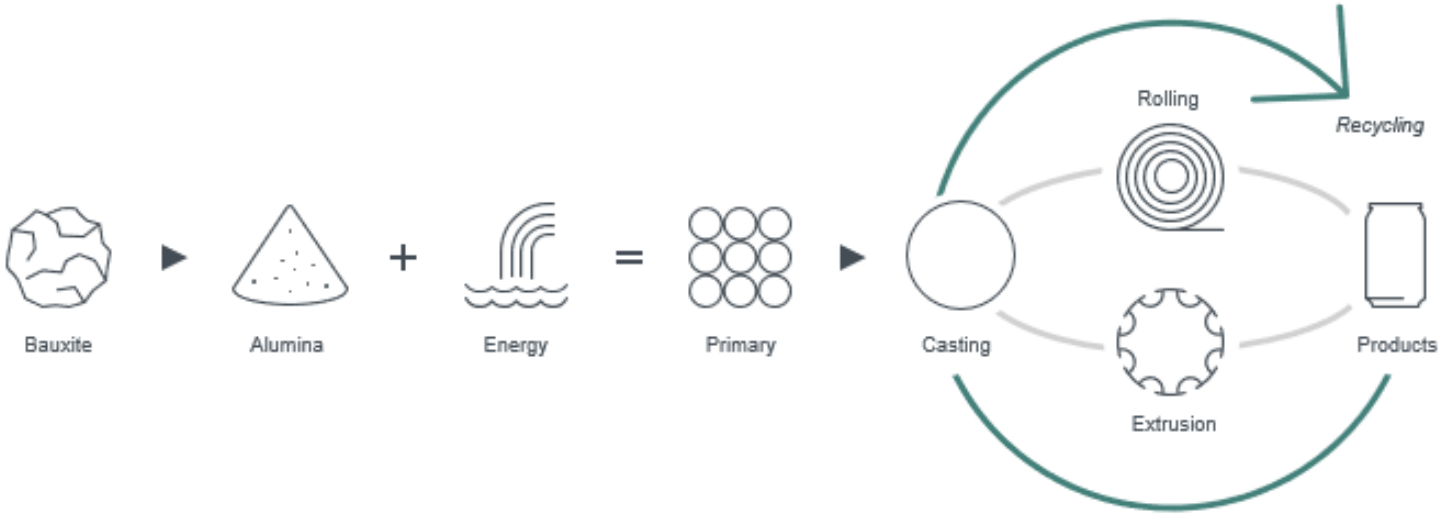
We are aluminium

asi Aluminium Stewardship Initiative

Where we are and what we do

Engaged in the entire aluminium value chain

Hydro



Hydro
We are aluminium

asi Aluminium Stewardship Initiative

Where we are and what we do

Marine/offshore applications

Zero-emission electrical car ferries in 100% aluminium for light-weighting

B&C, e.g. supertall buildings

Transportation, truck & trailer applications

Aluminium in solar panels

Industrial applications, e.g. furniture

Middle and high voltage cables, wire and cables for electrical applications

Automotive, strong drive towards EV

Hydro

We are aluminium

asi Aluminium Stewardship Initiative

How we approached ASI Certification

- **With a clear goal:**
  be a frontrunner as the first ASI certified integrated extrusion, anodizing and powder coating plant in the world to ensure also that our customers have a frontrunner position in their market.
- To save time we tried to involve current ISO auditing company in ASI certification process. They know our plant and processes.
- Made gap analyses with auditing company to find out what we were missing. Made checklists and document structures.
- Integrated ASI requirements in our ISO management systems.

Hydro
We are aluminium

asi Aluminium Stewardship Initiative

What we learned

- keep it simple and pragmatic, involve all stakeholders early in the process (e.g. people on the work floor, works councils, neighbors, etc. ..).
- communication about the certification and the reasons.
- People on the work floor are the real specialists when it comes to make improvements.
- Performance standard is only the basis, it is a “kick off” to do a lot more.

Hydro
We are aluminium

asi Aluminium Stewardship Initiative

Practical outcomes

- Improved awareness of own people, suppliers and customers at the plant for environment, safety and social aspects. (“**green chain reaction**”)
- Better overview (e.g. electricity, natural gas and water consumption) with clear improvement targets
- Decreased consumption of electricity, natural gas and water.
- Other Hydro plants benefit from our experiences.

Hydro
We are aluminium

asi Aluminium Stewardship Initiative

Next steps

- Certification according the ASI Chain of Custody (CoC). It ensures that that we deliver ASI certified material.
- Set more challenging targets to stay a frontrunner in sustainability and CO_2 footprint reduction.
- In Hydro “Care” is one of our 3 core values. Reducing our CO_2 footprint is high on the agenda.

Hydro
We are aluminium

asi Aluminium Stewardship Initiative

ASI implementation around the world

UC RUSAL

ASI AGM Week, Molde Norway, Tuesday 4 June 2019

RUSAL

Aluminium Stewardship Initiative

Where we are and what we do

Key facts

- ✓ Approx. 5.8% of the world's aluminium output → No. 1 producer outside China.
- ✓ About 6.2% of the world's alumina production.
- ✓ > 90% of aluminium produced with hydropower.

RUSAL in the Aluminium value chain

Bauxite/Nepheline mining	Bauxite Nepheline	7 bauxite mines: 2 are in Russia, 1 in Jamaica, 3 in Guinea, and 1 in Guyana; 1 nepheline mine in Russia
Alumina Refining	Alumina	8 alumina refineries: 3 are in Russia, 1 in Ireland, 1 in Ukraine, 1 in Jamaica, 1 in Italy and 1 in Guinea
Aluminium Smelting and Casthouses	Aluminium	10 aluminium smelters: 9 are in Russia, and 1 in Sweden
Semi-Fabrication	Foil Powders	4 foil mills: 3 are in Russia, and 1 in Armenia; 4 powder plants in Russia
Downstream	Wheels	2 wheels factories in Russia

RUSAL worldwide

Armenia, Guyana, Jamaica, Russia
Australia, Ireland, Kazakhstan, Sweden
Guinea, Italy, Nigeria, Ukraine

RUSAL

Aluminium Stewardship Initiative

How we approached ASI Certification

December 2015

UC RUSAL joined ASI

December 2017

ASI Standards are published

2018

UC RUSAL actions:

- ✓ Goal – to certify the **whole supply chain**: from bauxite mining to casthouse production;
- ✓ **Pilot sites** are identified (HQ, Boksit Timana, RUSAL Kamensk-Uralskiy, Shelekhov Branch of PJSC RUSAL Bratsk);
- ✓ Appointed ASI implementation **leaders** at the HQ;
- ✓ Certification scope defined (**Facility level**);
- ✓ Established **Working groups** at Pilot sites;
- ✓ **Training** materials (ASI PS, ASI CoC) are developed, trainings are conducted;
- ✓ Internal **gap-analysis**;
- ✓ **Corrective action** plan **implementation**

2019 Q1

Up to date:

- ✓ Internal audits conducted;
- ✓ **Certification audits** carried out

- *'Fresh angle' on existing systems and processes;*
- *Systemic approach;*
- *Some Standards requirements are stricter than legislative requirements;*
- *Some Policies were reviewed;*
- *New internal Procedures and Standards were implemented*

RUSAL

asi Aluminium Stewardship Initiative

What we learned

Standard with very specific requirements

Advantages

- ✓ No need to spend time on additional analysis
- ✓ No need to design or adapt anything new

Disadvantages

- – No flexibility in process design and adaptation
- – Lack of motivation and inspiration from the process-owner

Standard with general requirements

Advantages

- ✓ Deep analysis of certain process and comparing it with the best international practices
- ✓ To find solution for business-processes improvement, to choose the practice which is the most suitable for specific site and conditions
- ✓ Process-owners are interested to integrate the chosen practices

Disadvantages

- – Additional time and resources for analysis
- – Additional arguments to inspire process-owners are needed

Conclusion: *Flexibility of ASI Performance Standard allows to adapt and harmonize any process under the specific conditions in a Company, to make it convenient and easy to understand for the responsible. This ensures better survival rate for improvements / new procedures.*

RUSAL

asi Aluminium Stewardship Initiative

Practical outcomes

'Fresh angle' on the existing systems and approaches. Aspiration to comply with the best international practices.

One of the most challenging issues – to assess the risk and the extent of impacts on the biodiversity from existing on-going sites as:

- *Most of International Standards (IFC, IAIA, Equator principles etc.) are applicable only for biodiversity risks assessment at Project planning stage;*
- *Legislation is focused on Project planning stage;*
- *Due to historical reasons many of the Company's refineries and smelters were constructed decades ago; almost all biodiversity impacts have already happened; no baseline surveys were done as there were no requirements;*
- *The Company operates various Facilities of Aluminium value chain (mining, refinery, smelter, semi-fabrication, downstream), risk assessment approach should be universal but practical;*
- *The traditional assessment and monitoring system is mainly focused on chemical and physical parameters; the Company admits that* ecosystems can be disturbed even in the absence of pollution (the introduction of alien species, fragmentation of habitats, and others);
- *The Company needs to focus on real actions and practical output*

New UC RUSAL Standard for Initial biodiversity risks assessment:

- ✓ Takes into account "historical " aspects;
- ✓ Universal approach for all Company`s Facilities;
- ✓ Is used as a base for further actions and management decisions;
- ✓ Systemic approach, environmental staff can prepare initial assessment;
- ✓ Doesn`t replace biodiversity risks and impacts assessments for new projects and major changes

RUSAL

asi Aluminium Stewardship Initiative

Next steps

- Awaiting for ASI decision on the Certificates issuing for UC RUSAL (scope: HQ, mining, alumina refining, smelter) as independent ***certification audits were passed in March 2019***;
- ***Continuous improvement*** of existing systems and processes with a ***focus on practical outcomes***;
- ***Further phased implementation*** of ASI Standards requirements at other Facilities (to expand certification scope, “umbrella” approach);
- ***Customer-oriented approach***

RUSAL

asi Aluminium Stewardship Initiative

ASI implementation around the world

Audi AG

ASI AGM Week, Molde Norway, Tuesday 4 June 2019

Where we are and what we do

- German car manufacturer with global business

- Heavy user of Aluminum
  - Die casting
  - Metal sheet stamping / forming

How we approached ASI Certification

- Convinced people internally
- Chose a motivating scope
- Implemented Aluminum closed loop process

What we learned

- ASI audit / certification process is very efficient
- ASI criteria reflect real every-day subjects

- Reduction of number of different alloys

Practical outcomes

- We got certified
- People in Audi got more sensible regarding sustainability

Next steps

- Roll out of ASI certification on more products and sites / corporate level
- Encourage partners in the industry / value chain to go for ASI

- Use the ASI story for other material / components

Aluminium Stewardship Initiative

ASI implementation around the world

Companhia Brasileira de Alumínio

ASI AGM Week, Molde Norway, Tuesday 4 June 2019

cba

Aluminium Stewardship Initiative

Votorantim S.A

cba

- **Votorantim's businesses:** metals & mining, cement, energy, steel, orange juice and finance
- Presence in **20 countries**
- More than **40,000** employees around the world
- 2018 Revenue: **R$31.9 Billion (US$ 8.4 billion)**
- **Brazilian** company

cba

M

Mining
es)

0 ktpy
capacity

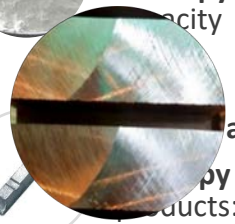
Cement

264 units

12 countries

Alumina Refinery

900 ktpy
acity



and Casting

py capacity
ducts: ingots and billets

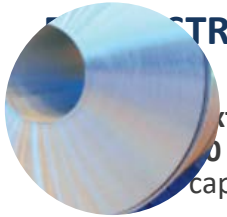
Zinc

15 units

6 countries

Metalex (recycling plant)

74 ktpy capacity



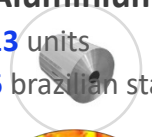
TREAM

xtrusion
0 ktpy
capacity

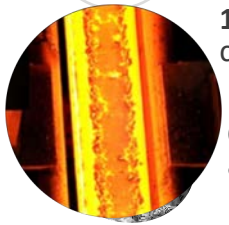
Aluminium

13 units

6 brazilian states



Sheet and Foil (Caster and Rolling Mill)



120 ktpy capacity

CBA Solutions & Services Center

Customized products

Steel

3 units

2 countries

NERGY

Energy

57 units

9 brazilian states

20 Power Plants

Self Generation: 600 MW

upplied by
e renewable energies

Orange Juice

46 units

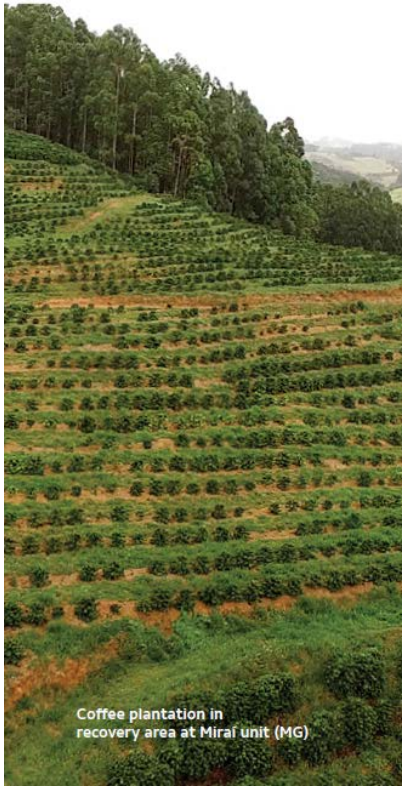
7 countries

asi Aluminium Stewardship Initiative

How/Why we approached ASI Certification

The Largest private reserve** of Atlantic Forest in Brazil with **31 thousands hectares

cba



- **US$ 10.4** millions in Environment
- **Rehabilitation areas:** coffee crops, eucalyptus, native species and pasture
- **Carbon footprint** (2,4 tCO_2eq/t Al)
- **Soderberg Project** (Lower $C0_2$ equivalents)

asi Aluminium Stewardship Initiative

What we learned

Improvement our:

- Controls
- Supply chain
- Process managment

cba

asi Aluminium Stewardship Initiative

Practical outcomes

- Integrate diferents areas to discuss: Environmental, Governance and Social issues
- Customers and consumers appreciate this certification

cba

asi Aluminium Stewardship Initiative

Next steps

Ensure all improvements and best pratices are implemented

Encourage suppliers and customers to be ASI‘s membership, improving the sustainability in the aluminium value chain

cba

asi Aluminium Stewardship Initiative

Fernando Varella

Downstream Business Unit Director

E-mail: fernando.varella@cba.com.br

ASI implementation around the world

Shanghai Shenhuo Aluminum Foil Co.,Ltd

Mike Mei (Export Manager)

ASI AGM Week, Molde Norway, Tuesday 4th June 2019

神火集团
SHENHUO GROUP

asi Aluminium Stewardship Initiative

What does SHENHUO in Aluminium Value Chain ?

Shenhuo Group

Shenhuo Group ranked 293 among 500 largest enterprises in China, consists in 14 subsidiaries , and Henan Shenhuo Power Co., Ltd is listed in Shenzhen Stock Exchange.

- SHENHUO is a vertical integrated aluminium group of companies with Production in 2018:

- Coal : 1,500,000 Mt
- Aluminum Ingot : 1,200,000 Mt
- Power Generating Capacity : 8.8 Billion KWT
- Aluminum Sheet & Strip : 55,000 Mt
- Aluminum Foil : 28,000 Mt
- New Aluminium Foil Plant : + 55,000 Mt (completion in 2019)
- **New Green Power Smelter : 900,000MT/Year Capacity** (completion in 2019)

神火集团 SHENHUO GROUP

asi Aluminium Stewardship Initiative

How we approached ASI Certification

ASI CERTIFICATION
PERFORMANCE
STANDARD

asi CERTIFIED PERFORMANCE

PRESENTED TO

SHANGHAI SHENHUO ALUMINIUM FOIL

CERTIFICATE NUMBER	ASI STANDARD	CERTIFICATION LEVEL	ASI ACCREDITED AUDITOR
19	PERFORMANCE STANDARD (V2 2017)	FULL CERTIFICATION	DNV GL

DATE OF ISSUE	DATE OF EXPIRY	CERTIFIED SINCE
28 FEBRUARY 2019	27 FBERUARY 2022	28 FEBRUARY 2019

AUTHORISED BY

Aluminium Stewardship Initiative Ltd
ACN 606 661 125, Australia
info@aluminium-stewardship.org

Validity of this Certificate is subject to continued conformance with the applicable ASI Standard and can be verified at
www.aluminium-stewardship.org

CERTIFICATION SCOPE

Shanghai Shenhuo Aluminium Foil Co., Ltd. located in Shanghai, China which carries out the manufacture of aluminium and aluminium alloy foils.

- Member since Year 2017
- Started certification process from Dec. 2018
- Get Certified on Feb. 28th, 2019
- To Achieve ASI Chain of Custody (COC) Standard in 2020.

神火集团
SHENHUO GROUP

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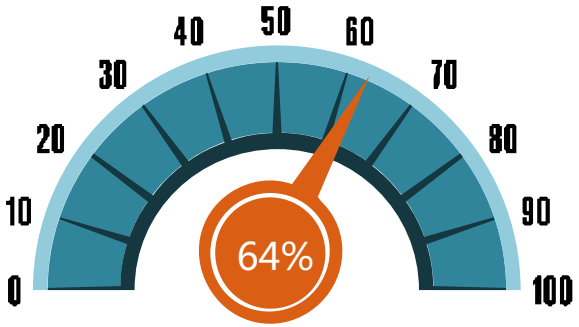
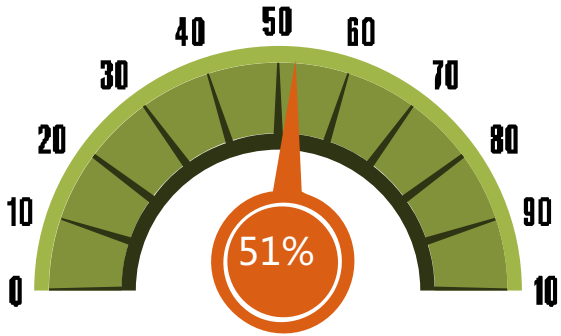
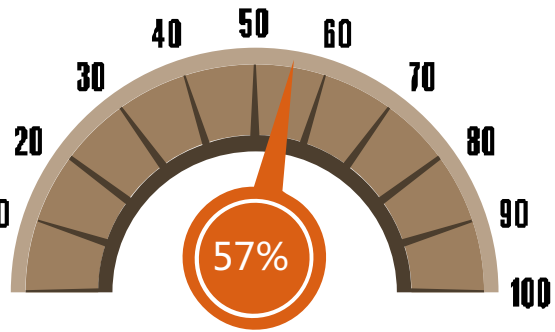
What we learned



Electricity



Rolling Oil



Water

Electricity Consumption	1917 Kwh/t	1223 Kwh/t
Rolling Oil Consumption	29.72 Kg/t	15.05 Kg/t
Water Consumption	2.8 t/t	1.6 t/t

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Practical outcomes

Customer

Employee

Supplier

Corporate- Social Responsibility
Business Ethics

Environment

Family

Society

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Next steps

1. SHENHUO new Aluminium Foil Plant, located in HENAN province, with 6 new Achenbach Foil Mills(New Capacity: 55,000MT/Year), will start production from Dec, 2019.

2. SHENHUO Green Power Smelter, located in YUNNAN Province, with total capacity of 900,000 MT/Year, will start production from July, 2019.

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Next steps

- SHENHUO FOIL University

We are cooperating with the University in HENAN, to create a structure for training people, our customers about Aluminium Foil, as well as promoting ASI objectives, vision, mission and values. SHENHUO will be a leading company for a sustainable aluminium strip and foil production.

Next steps

- 3. Circular Economy Thinking:
- Now we are also prepared to initiate an R&D project, for fully recycling of aluminium foil after lamination in flexible packaging. This will be a strategic industrial project for the circular economy.

Thank you!

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