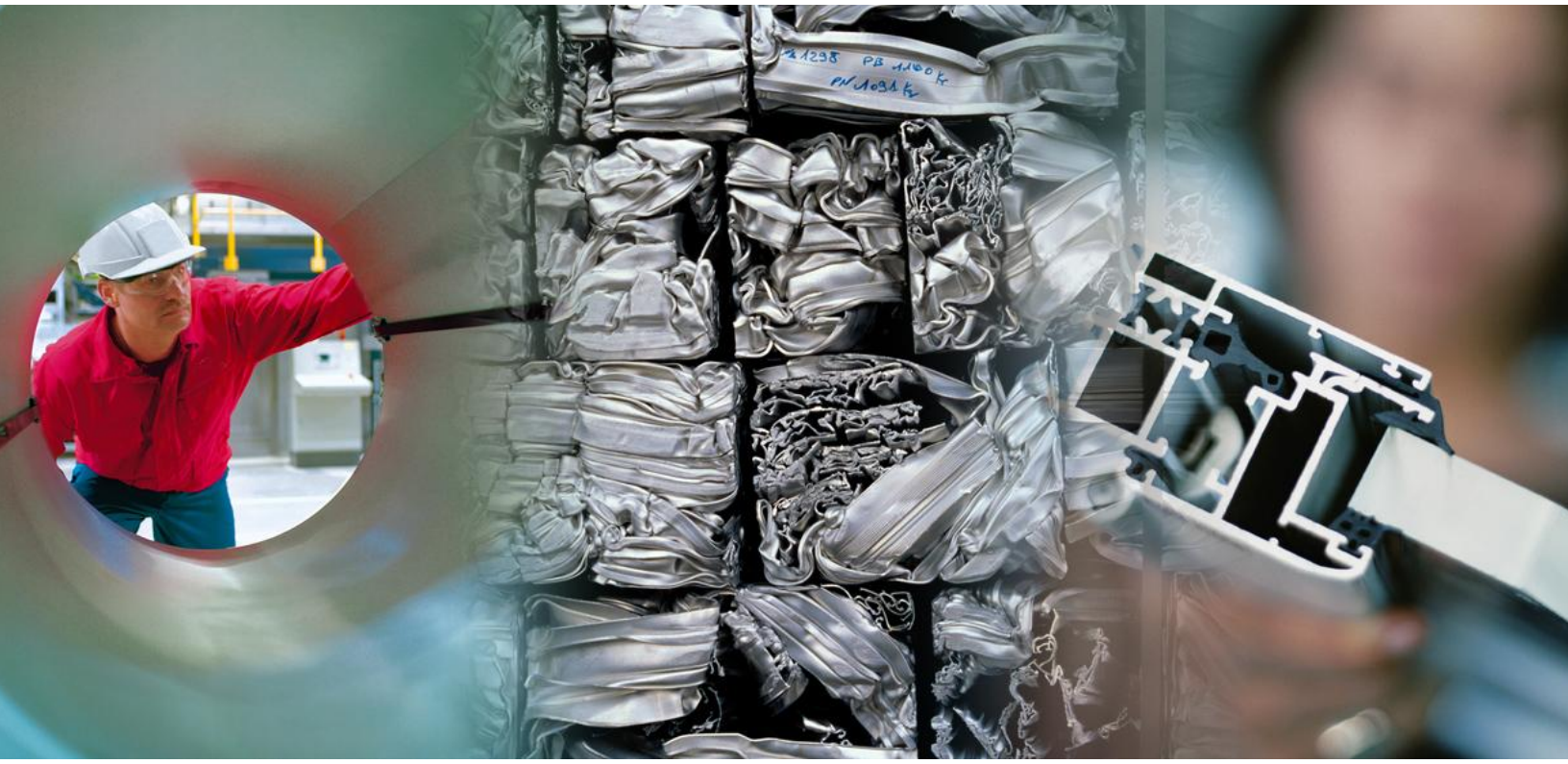

Responsible Aluminium Scoping Phase

Main Report

Track Record

December 2010

The Responsible Aluminium Scoping Phase was conducted by Track Record Global Ltd (Track Record), administered by the Eden Project in consultation with participating industry (upstream and downstream) and not-for-profit stakeholders. This report is the outcome of six months of consultations and research, which started at the beginning of June 2010. In this document, Track Record presents a series of options on how a Responsible Aluminium Scheme might best operate. The Responsible Aluminium Working Group may decide to take selected options forward into a wider Stakeholder Consultation process in 2011.

Track Record has an international reputation for delivering top quality, highly innovative and intelligent services linked to responsible sourcing and associated value-chain compliance checking, chain-of-custody and traceability.

The report consists of 3 parts:

1. An Executive Summary

2. A Main Report

3. Main Report Appendices

The Main Report and Main Report Appendices should be read together.

Reliability statement: This is a Track Record report prepared by Alex Helan and Frank Miller. Sarah Baker completed the editing and Clive Sefton was responsible for the design. The information is given to the best of our knowledge, but without warranty. The use of the information in this document by others is beyond our control.

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RESPONSIBLE ALUMINIUM'S CHARTER FOR ORGANISATIONS

August 2010

Responsible Aluminium is a group of stakeholders collectively involved in the aluminium value-chain which have initiated a scoping phase seeking to establish a non-for-profit initiative to promote responsible practices relating to business ethics, social, human rights and environmental performance throughout the aluminium supply chain, from mining of the resource to metal production, product manufacturing, use and end-of-life.

As defined in the Options Paper of January 2010, Responsible Aluminium will evaluate a range of options to develop a credible and independently verifiable aluminium scheme that seeks to minimise impact and improve performance throughout the aluminium value-chain, recognised by the industry and external stakeholders. In a transparent and accountable manner, Responsible Aluminium will:

- Ensure responsible ethical, social and environmental practices throughout the value-chain
- Enable industry to demonstrate openness, responsibility and improvements
- Reinforce and promote consumer and stakeholder confidence in products containing aluminium
- Set operational excellence goals, driving better performance within industry
- Enable selection of suppliers and materials throughout the supply chain on their sustainable performance in addition to technical performance
- Reduce reputational risks

In pursuing these objectives all organisations defined in the Governance document as actively participating in the scoping phase formally commit to:

- Promoting responsible ethical, social, human rights and environmental practices in a transparent and accountable manner throughout the full life-cycle of the products.
- Working with stakeholders and industry participants to evaluate existing standards and processes, and, where necessary, initiate the development of new standard and processes that are relevant, achievable and address key ethical, social, human rights and environmental challenges with due regard to the business objectives of the industry.
- Actively contributing to, and co-operating in the Scoping Phase to achieve timely outcomes, including supplying resources to work in different sub-committees established for the Scoping Phase
- Transparently communicating regularly on progress of the work of this scoping phase.
- Seeking to be inclusive and extending the participation opportunity throughout interested parties

A participation fee of [xxxxxx] is asked of all industrial partners to cover the cost of Track Record doing the consultant work and to cover the financial services provided by the Eden Project during the scoping phase.

Signed by .....

Date.....

On behalf of

DEFINITIONS

Civil society	The totality of voluntary civic and social organisations that form the basis of a functioning society as opposed to the force-backed structures of a state (regardless of that state's political system) and commercial institutions of the market (derived from London School of Economics' Centre for Civil Society).
Civil society stakeholder	A stakeholder representing voluntary civic or social interests rather than force-backed interests of state or the commercial interests of the market.
Commercial stakeholder	A stakeholder representing a commercial interest in the market.
Boundary level 1 issues	Activities within the direct control of the operation, directly involved in the Al value-chain.
Boundary level 2 issues	Activities within the direct control of the operation, directly involved in the Al value-chain but occurring off site. This would include notable issues such as captive power mix in alumina smelting.
Boundary level 3 issues	Activities occurring as a direct consequence of the procurement of the products and services but outside the direct control or ownership of the organisation directly involved in the Al value-chain, i.e., purchase of anodes by smelting operations.
End user stakeholder	A stakeholder representing a commercial interest on the near-market end of the value chain, namely product fabrication.
Fabricator	A company manufacturing door, window, curtain walling products etc., from profiles supplied by Systems' companies. In today's complex market place some Systems' companies own their own fabricator and some Systems Companies can produce their own extrusions in-house. Some fabricators then supply finished product to installing companies while others have their own in-house installation division.
Main contractor	A contractor who oversees aspects of a construction project from planning, cost control to project managing.
Materials stewardship	Overarches the stewardship approach, including resource, process and product stewardship.
New scrap / Pre-Consumer Scrap	Raw material mainly consisting of Al and/or Al alloys, resulting from the collection and / or treatment of metal that arises during the production of aluminium products before the aluminium product is sold to the final user or consumer. Fabricator and internal scrap are included in the new term.
Old Scrap / Post-Consumer Scrap	Raw material mainly consisting of Al and or Al alloys, resulting from the collection and / or treatment of products after use; that have reached the end of their useful life.
Process stewardship	A program of actions focused on ensuring that processes used to produce mineral products are undertaken in a social and environmentally responsible manner.
Primary aluminium	Aluminium metal that has directly originated from a bauxite mine and has never been recycled.

Product stewardship	Involves protecting human health and the environment by aiming to minimise the net environmental impact from product use – including manufacturing, distribution, servicing, and end-of-life management. This approach attempts to engage people who may be involved at any point in the life cycle.
Reserve base	That part of an identified resource that meets specified minimum physical and chemical criteria related to current mining and production practices including those for grade, quality, thickness, and depth. The reserve base is the in-situ demonstrated (measured plus indicated) resource from which reserves are estimated. It may encompass those parts of the resources that have a reasonable potential for becoming economically available within planning horizons beyond those that assume proven technology and current economics.
Reserves	That part of the Reserve Base that could be economically produced or extracted at the time of determination.
Resource	A concentration of naturally occurring solid, liquid, or gaseous material in or on the Earth's crust in such form and amount that economic extraction of a commodity from the concentration is currently or potentially feasible.
Resource stewardship	A program of actions to ensure that resource inputs to a process (including minerals, water, chemicals and energy) are being used for their most efficient and appropriate use.
Secondary (Recycled) Aluminium	Metal originating from traded new and post-consumer scrap.
Stakeholder	Those who have an interest in a particular decision, either as individuals or representatives of a group. This includes people who influence a decision, or can influence it, as well as those affected by it (Hemmati et al.2002.2).
Supplier	In the context of aluminium in building, a supplier is any other company than a Contractor, Systems Company or Fabricator who is involved in the supply chain. This includes for example powder coaters, hardware companies, glass suppliers and other window and door component companies.
Systems supplier	A company producing a proprietary range of door, window, curtain walling products etc. The bespoke aluminium profiles for these products are laid with aluminium extruders.

PARTICIPATING ORGANISATIONS

Alcoa
AMAG Austria Metall AG
Amcor
Australian Aluminium Council
BHP Billiton
Canadian Aluminium Association
Carbon Disclosure Project
Chimbo
Constantia-Teich & Flexibles
Council for Aluminium in Building (CAB)
Eden Project
European Aluminium Foil Association (EAA)
First Peoples Worldwide
Hydro
International Aluminium Institute (IAI)
International Union for the Conservation of Nature (IUCN)
Jaguar Land Rover
Nespresso
Novelis
Rio Tinto
Rio Tinto Alcan
Tetrapak
WWF

ACRONYMS

Al	Aluminium
BBOP	Business Biodiversity Offsetting Programme
BSI	Better Sugarcane Initiative
BINGO	Big International (business and industry) Non-Government Organisation
BREEAM	BRE Environmental Assessment Method
C2C	Cradle-to-Cradle Certification
CBD	Convention on Biological Diversity
CoC	Chain-of-Custody
CSI	Cement Sustainability Initiative
EAA	European Aluminium Association
EIA	Environmental Impact Assessment
EITI	Extractive Industries Transparency Initiative
FSC	Forest Stewardship Council
GEMI	Global Environmental management Initiative
GHG	Greenhouse Gases
GRI	Global Reporting Initiative
GRIMM	Global Reporting Initiative Mining and Metals Supplement
IAI	International Aluminium Institute
ICMM	International Council on Mining and Metals
IFC	International Finance Corporation
IHA	International Hydropower Association
ILO	International Labour Organisation
IPCC	Intergovernmental Panel on Climate Change
IPPC	European Directive concerning Integrated Pollution Prevention and Control
ISEAL	ISEAL Alliance – global association for social & environmental standards
LCA	Life Cycle Analysis
LCSA	Life Cycle Sustainability Analysis
LCP	European Directive concerning Large Combustion Plants

LEED	Leadership in Energy & Environmental Design
MSC	Marine Stewardship Council
MSP	Multi Stakeholder Process
NGO	Non-Government Organisation
OECD	Organisation for Economic Co-operation and Development
OHSAS	Occupational Health and Safety Advisory Service
PEFC	Programme for the Endorsement of Forest Certification Schemes
PET	Polyethylene terephthalate for bottle production
RA	Responsible Aluminium
RJC	Responsible Jewellery Council
RS	Responsibly Sourced
RTRS	Roundtable on Responsible Soy
RSPO	Roundtable on Sustainable Palm Oil
SAI	Social Accountability International
UNCAC	United Nations United Nations Convention against Corruption
UNCCD	United Nations Convention to Combat Desertification
UNFCCC	United Nations Framework Convention on Climate Change
UNECE	United Nations Economic Commission for Europe
UNEP	United Nations Environment Programme
UNEP WCMC	UNEP World Conservation Monitoring Centre
UNESCO	UN Educational, Social and Cultural Organisation
WBCSD	World Business Council for Sustainable Development
WCD	World Commission on Dams
WFN	Water Footprint Network
WRI	World Resources Institute

SECTION 1
STRUCTURE & CHALLENGES

1. INTRODUCTION TO SECTION 1

Sustainability is now widely accepted as a guiding principle both for public policy and for private commercial strategy. This acknowledges the fact that environmental issues can no longer be disaggregated from industrial practice. There is a growing awareness of the world's finite resources and of the increasingly delicate balance that needs to be struck between environmental impact and economic imperative. These issues rank high on the agenda of most government legislators, while civil society and media are proactively stimulating interest in sustainability and environmental issues among the public in general and consumers in particular.

This has led to increased – often public - scrutiny of the practices of private companies, with reputations consequently at stake. At the same time, tools for discerning investors in capital markets, such as the Domini Social 400, FTSE4Good and Dow Jones Sustainability indices, are growing and becoming ever more part of the evaluation process.

A recent study of the Boston Consulting Group (2009) noted that, while many companies were, in various ways, responding to sustainability and environmental issues, most were not acting decisively enough to exploit all the opportunities and to mitigate the risks. It added that only a minority of companies were acting aggressively on sustainability and consequently reaping substantial rewards. Looking to the future, the report concluded that:

- With the prices of water, energy and other resources becoming increasingly volatile, companies that integrate sustainability as a fundamental principle of their business models will be less exposed to these fluctuations

- The growing involvement of governments in developing sustainable policies is exerting legislative pressure and that companies proactively pursuing sustainability initiatives will be less vulnerable to regulatory changes and better positioned to have a voice in shaping policy rather than simply reacting to it

- 'First movers' are likely to gain a commanding lead and it may become increasingly difficult for competitors to catch up.

With such strong indications of a growing impetus, the biggest challenge for most organisations is the real and substantial implementation of a 'sustainability' concept. This is a key objective for the aluminium industry in its evaluation of strategies for meeting multiple demands to demonstrate responsible sourcing.

In funding this Scoping Phase programme the aluminium sector is acknowledging that there are definite negative issues to be addressed within their industry and that there is scope to potentially promote and recognise best practice for the greater good of the planet.

Figure 1 shows a framework for locating the objectives of corporate strategy over time (BCG.2009.16).

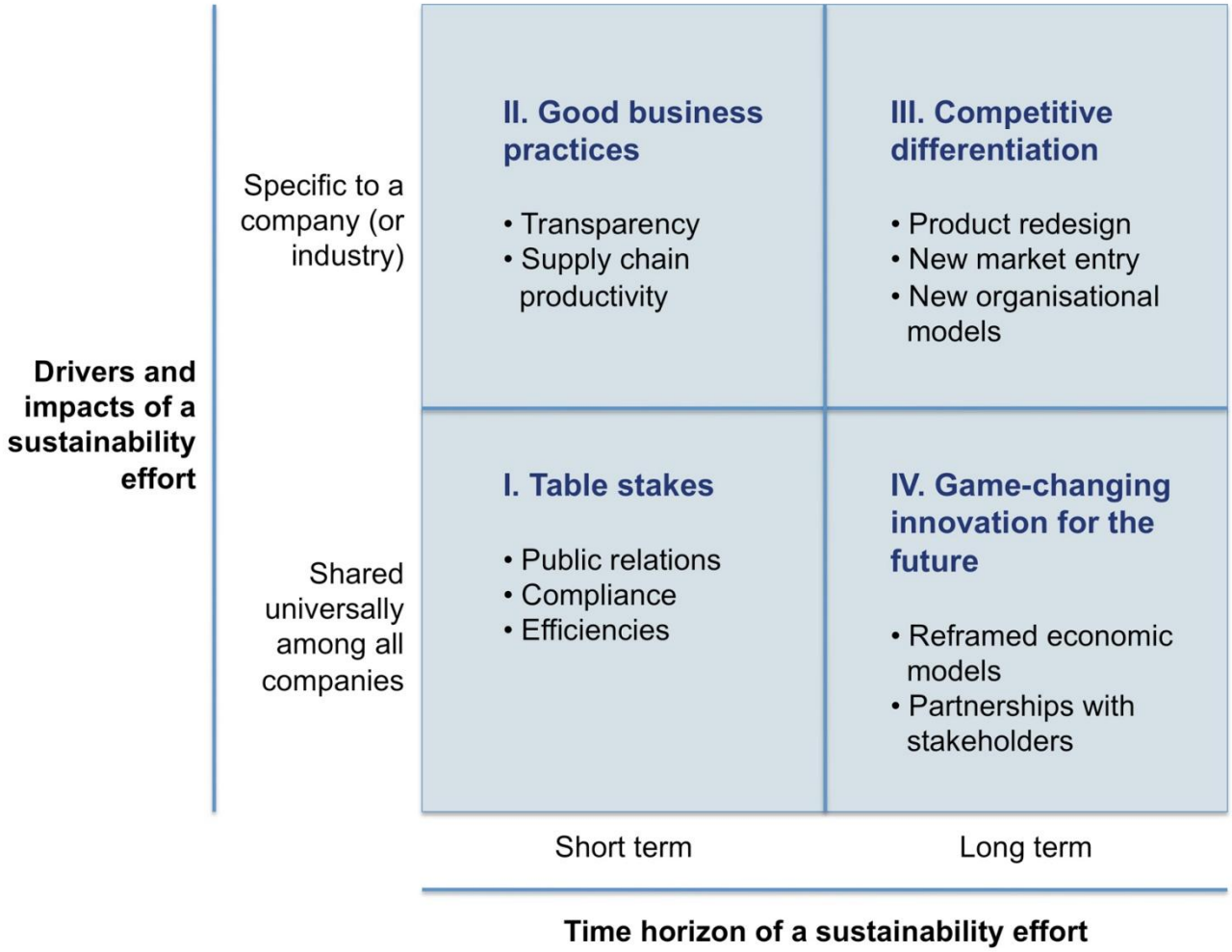

FIGURE 1 - A FRAMEWORK FOR LOCATING THE OBJECTIVES OF CORPORATE STRATEGY OVER TIME. SOURCE: BOSTON CONSULTING GROUP. 2009. 16

The Responsible Aluminium (RA) Scoping Phase was convened primarily by a number of commercial stakeholders in aluminium (Al), each with an interest in addressing current and future threats and in exploiting opportunities arising from the increasing focus on sustainability. Several civil society stakeholders joined this group to begin to construct some shared insights as to how these commercial interests could be harnessed in a credible and mutually beneficial way. It is notable that the Working Group accommodated a broad spectrum of interests, both in terms of expectations and in desired outcomes, from which the development of a collective vision subsequently evolved.

Section 1 provides a view of the Al value-chain from the perspective of Responsible Sourcing (RS), outlining the structures and challenges facing the industry. The attributes and issues gleaned in Section 1 provide a backdrop for the Section 2, which outlines potential solutions, in terms of implications and options for an RS programme.

2. STRUCTURE OF THE ALUMINIUM INDUSTRY

Despite the existence of RS programmes already in operation for other commodities, it is important that RA remains informed by the particular nature of its commodity and the structural characteristics of the Al value-chain. This section outlines several of these factors, which will act as important bearings in directing the course of RA.

A centralised industry

Compared to other global commodities, including other minerals, the upstream Al industry is highly centralised, owing to an extremely high benchmark for entry, requiring large levels of fixed capital and technical expertise. As such:

- There is little or no small scale or artisanal bauxite mining, alumina refining or smelting, unlike mineral or agricultural commodities such as gold, silver, copper, mercury, tin, diamonds, timber, oil palm or sugarcane.

- There are relatively few corporations and few facilities, with approximately

    - 20-30 operational mines.

    - 80 refiners, operated by around 20 companies, and

    - 200 smelters, operated by less than 100 companies, with 20 companies producing 80% of the annual production of primary Al.

(Source: Estimates and conclusions drawn from discussions with Communities and Small Scale Mining (CASM) on 17/08/10 and International Aluminium Institute (IAI) on 01/11/2010).

The centralisation of the upstream Al industry (both in terms of few corporations and few facilities), and the uniformity of upstream processes mean that data collection and industry-wide consultation are achievable goals. This has been demonstrated by the extensive data set collected and managed by Al associations.

Recyclability of the aluminium commodity

Unlike other commodities, one of the major material features of Al is its recyclability. The life cycle of an Al product, if subject to the appropriate processes, can be perceived as a "cradle-to-cradle" rather than "cradle-to-grave" sequence (IAI.2009.6). This process has many benefits, such as greatly reducing the environmental impact of Al production vis-à-vis primary metal, requiring just 5% of the energy and producing 5% of the emissions (Ibid).

Compared to the production of primary Al, recycling is relatively decentralised. In 2008, there were 1566 recorded Al recycling plants worldwide (IAI.2009.10).

Recycled Al, however, will never satisfy global market demand owing to factors such as population increase, rapid growth in emerging economies and because certain products, or product components require primary metal. In addition, the availability of recycled Al levels is limited by their lifetime of Al in products (buildings may stand for decades) as well as scrap collection rates and the efficiency of extraction, dismantling, shredding, separation and re-melting processes.

Optimising Al's sustainability credentials is, therefore, not only contingent on improving performance in primary metal production, but also on maximising recycling, thereby leveraging the 'cradle-to-cradle' benefits of Al products. 'Stewardship' should therefore be conceived of as a cross-value-chain concept.

The World Business Council for Sustainable Development provides just such an holistic approach in its concept of 'eco-efficiency', which suggests the 'types' of stewardship responsibilities that apply to different stages of the value-chain. These stewardship

responsibilities are collectively called 'material stewardship', constituted by three overlapping forms: resource stewardship, process stewardship and product stewardship.

Resource stewardship refers to the sustainability of bauxite, water, energy resources (and scrap resources).

Process stewardship means a programme Process stewardship covers the mining, refining, smelting, recycling, fabrication and other processes.

Product stewardship means the stewardship of primary semi-fabricated & fabricated products but most importantly products in their useable form, from design through their use to end of life. This approach aims to engage people who may be involved at any point in the life cycle.

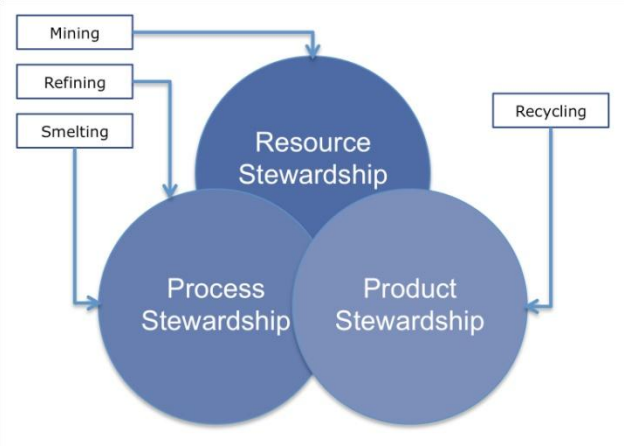

FIGURE 2 - MATERIALS STEWARDSHIP

While resource and process stewardships are most applicable to the upstream stages of primary production (as they account for the majority of resource inputs), it is evident that responsibilities of product stewardship apply to those downstream stages of fabrication, retail, use and recycling (RET.2006.3; WBCSD.2000). Process stewardship similarly applies to these stages, in selecting the most efficient and benign technologies in collection, refining and recycling.

Highly globalised value-chain

The Al value-chain is a multi-stage process, with each stage requiring different inputs. For instance, bauxite mines are obviously determined by bauxite reserves, refining sites by a suitable location to deposit bauxite residue, while smelting requires secure access to cheap energy, often in the form of captive power. As a consequence, the Al value-chain is often sequenced over a large geographical area, with companies operating in a wide range of locations.

Bauxite is embedded in high-grade deposits, which are mainly concentrated in a tropical climatic zone of up to 20 degrees north and south of the equator. The USGS estimates the world's bauxite resource is 32 billion tonnes.

An important environmental challenge is posed by the fact that bauxite reserves are sometimes located in areas of high biodiversity and in places with delicate hydrological networks. In the Amazon Basin and Guyana Shield, the soils also have a low buffering capacity, making them more prone to damage. In addition, these reserves are often in areas with potentially vulnerable indigenous populations.

Table 1 details the global bauxite reserves and bauxite reserve bases of major world suppliers. The Corruption Perceptions Index (CPI) given in the fourth column is published annually by Transparency International, ordering the countries of the world according to "the degree to which corruption is perceived to exist among public officials and politicians". The organisation defines corruption as "the abuse of entrusted power for private gain".

Table 2 depicts the regional mass balance of bauxite in 2007. By continent, Asia (China, India, Kazakhstan), Australasia (Australia, Indonesia) and South America (Brazil, Guyana, Jamaica, Venezuela) take the leading positions in mining of bauxite (Kazakova.2009.17).

The second process of alumina refining, due to the large mass of bauxite, mostly takes place close to the mine sites. As such, Asia, Australasia and South America represent the regional leaders in worldwide alumina output (see Table 3 and Table 4). Figure 3 illustrates the global flows of alumina, the majority of which is bound for Al smelters.

Country	Bauxite Reserves (x'000 dry tonne)	Bauxite Reserve Base (x'000 dry tonne)	Corruption Perceptions Index
Guinea Bissau	7,400,000	8,600,000	1.8
Australia	5,800,000	7,900,000	8.7
Vietnam	2,100,000	3,800,000	2.7
Jamaica	2,000,000	2,500,000	3
Brazil	1,900,000	2,500,000	3.7
India	770,000	1,400,000	3.4
China	700,000	2,300,000	3.6
Guyana	700,000	900,000	2.6
Greece	600,000	650,000	3.8
Suriname	580,000	600,000	3.7
Kazakhstan	360,000	450,000	2.7
Venezuela	320,000	350,000	1.9
Russia	200,000	250,000	2.2

TABLE 1 – GLOBAL BAUXITE RESERVES AND BAUXITE RESERVE BASES (IN THOUSAND DRY METRIC TONNES). SOURCE: USGS (2009)

Country	Regional Output (x'000 dry tonne)	Regional Consumption (x'000 dry tonne)	Regional Balance (x'000 dry tonne)
Asia	64,722	64,334	389
Australasia	58,628	52,935	5,693
Europe	5,578	22,391	-16,812
FSU	9,735	15,065	-5,330
MENA	0	385	-385
North America	0	16,786	-16,786
South America	55,907	41,517	14,390
Sub-Saharan Africa	19,964	1,447	18,517
World Total	**214,535**	**214,858**	**-323**

TABLE 2 - BAUXITE REGIONAL MASS BALANCE IN 2007 (IN THOUSANDS DRY METRIC TONNES). SOURCE: HATCH (2007) REFERENCED IN KAZAKOVA.2009.17

These figures serve to demonstrate the highly globalised nature of the Al value-chain. In its area of operation, the Al industry can offer many social and economic benefits to the locations in which it operates, such as providing jobs and training, developing infrastructure or, at a national/regional level, through economic diversification thereby potentially helping to raise CPI scores.

However, weak governance or corruption, either at a government or corporate level, can seriously hinder the delivery of these benefits. In addition, where transparent government and corporate commitment to assisting and improving the lives of those affected by the industry is absent, it may significantly undermine the existing resources and livelihood of these residents.

Country	Regional Output (x'000 dry tonne)	Regional Consumption (x'000 dry tonne)	Regional Balance (x'000 dry tonne)
Asia	23,394	29,419	-6,025
Australasia	19,249	4,798	14,451
Europe	8,142	12,200	-4,058
FSU	6,813	9,254	-2,441
MENA	140	4,379	-4,239
North America	6,104	11,833	-5,729
South America	15,097	5,214	9,883
Sub-Saharan Africa	526	3,077	-2,551
World Total	**79,465**	**80,175**	**-710**

TABLE 3 - ALUMINA REGIONAL MASS BALANCE IN 2007 (IN 000'S TONNES). SOURCE: IBID

Country	Regional Output (x'000 dry tonne)	Regional Consumption (x'000 dry tonne)	Regional Balance (x'000 dry tonne)
Asia	14,089	18,000	-3,911
Australasia	2,315	386	1,929
Europe	5,196	8,555	-3,360
FSU	4,523	1,096	3,426
MENA	2,234	832	1,402
North America	5,643	7,468	-1,825
South America	2,558	1,198	1,359
Sub-Saharan Africa	1,570	306	1,264
World Total	**38,126**	**37,841**	**285**

TABLE 4 – ALUMINIUM REGIONAL MASS BALANCE (IN 000' TONNES). SOURCE: IBID

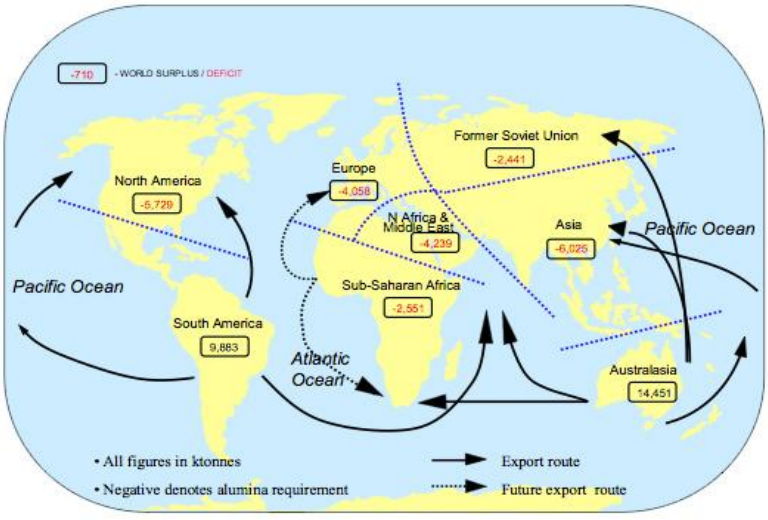

FIGURE 3 – MAP OF REGIONAL MASS BALANCE OF ALUMINA IN 2007. SOURCE: IBID

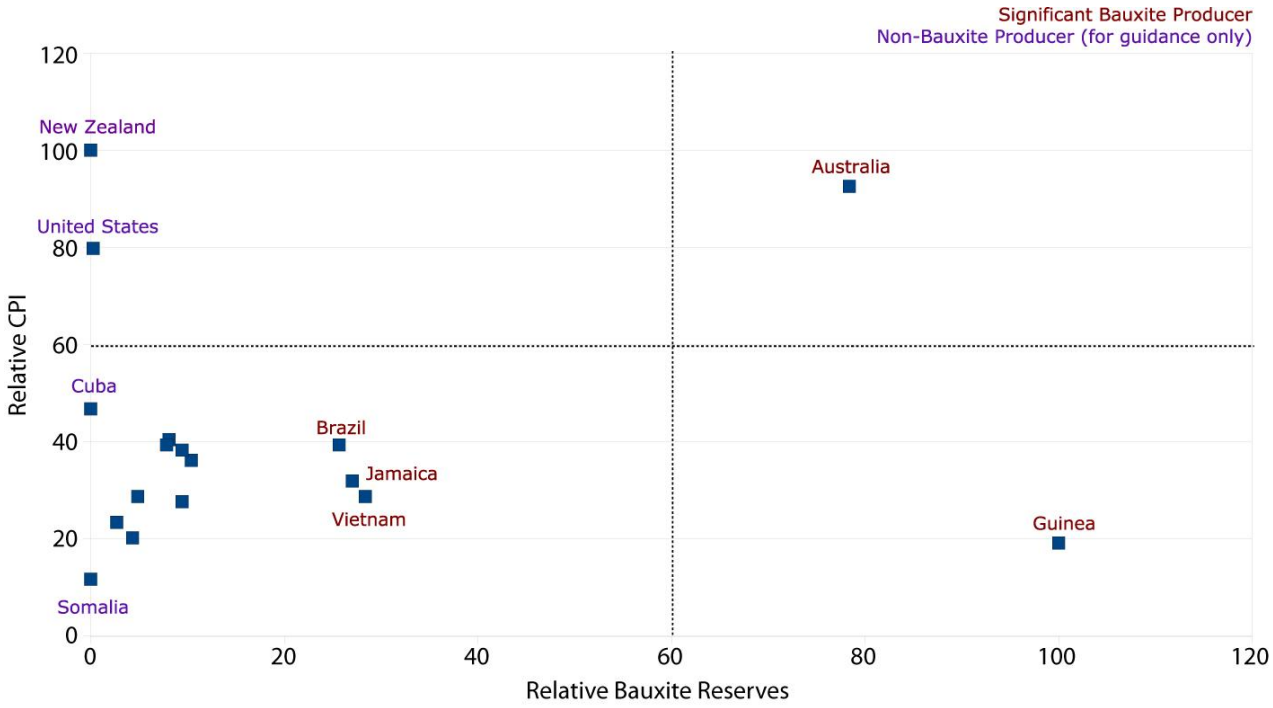

FIGURE 4 – CORRUPTION TO BAUXITE RESERVES

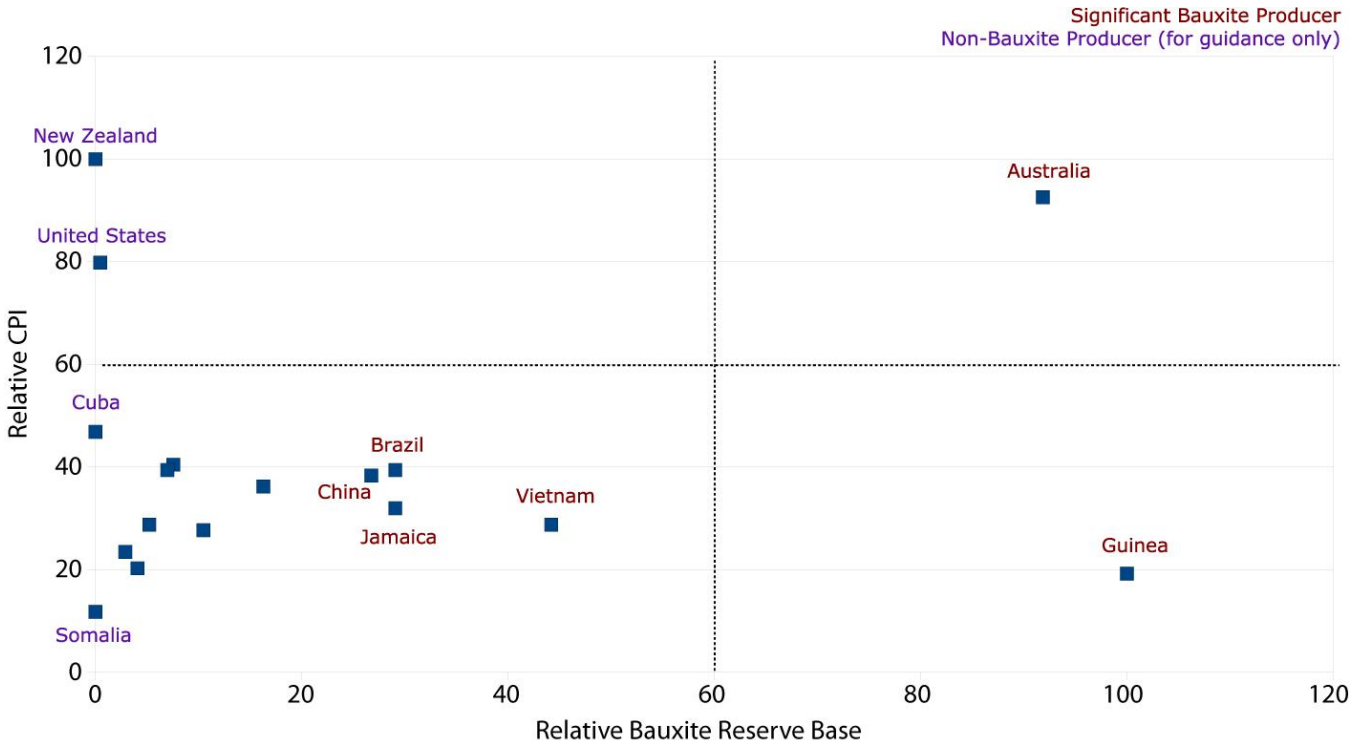

FIGURE 5 - CORRUPTION TO BAUXITE RESERVE BASE

It is clear that a substantial proportion of Al mining and refining operations take place in regions where government corruption, poverty and social conflict present a strong risk. The World Bank, among other institutions, has cited corruption and embezzlement as a major factor inhibiting economic development, income equality and poverty alleviation (World Bank.2010).

Figure 4 and Figure 5 plot the correlation between Bauxite Reserves and CPI, and Bauxite Reserve Base and CPI respectively.[1]

From the graph, it is clear that all countries possessing significant bauxite reserve bases (except Australia) have a CPI in the lower half. Future bauxite mining therefore may occur in locations of weak governance, or where regulatory authorities and the judiciary are corrupt.

Summary

The three fundamental characteristics of Al and the Al value-chain are critical points of reference for any potential RS solutions posited. Alongside the direction provided by the Charter, market demand and stakeholder pressure, these factors will determine what is needed from a solution, and is most feasible and viable.

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[1] Bauxite figures taken from USGS in Table 1. In order to ensure proportionality, Relative Bauxite Reserves / Reserve Base are calculated as percentage of the country with the highest bauxite reserves / reserve base (Guinea). Similarly, Relative Corruption is measured with the country possessing the highest CPI as the upper limit (New Zealand). Original data is included in the Appendix (TI.2009; USGS.2009). New Zealand, United States, Cuba and Somalia are included for guidance.

3. MARKET INTEREST & DEMAND FOR RESPONSIBLE ALUMINIUM

Sustainability Initiatives and RS programmes, as highlighted in the introduction, are a clear and growing trend in the primary production and extractive industries. Assessing the market interest and/or demand for RA is a critical enabling factor to moving any such programme forward and to make it economically viable.

The Scoping Phase was convened by a number of prominent commercial stakeholders in Al with an evident interest in a scheme that addressed current threats or pre-empting future threats to Al's use in certain applications or sectors. The RA Charter states that the scheme should:

- "Reinforce and promote consumer and stakeholder confidence in products containing aluminium"
- "Enable selection of suppliers and materials throughout the supply chain on their sustainable performance in addition to technical performance"
- "Reduce reputational risks"

These goals clearly indicate a market-orientated scheme that addresses stakeholder concerns and creates an Al metal market differentiated by verified social and environmental performance.

This section draws on primary research conducted via the end user subcommittee, which engaged 18 Al foil users (Europe and Sub-Saharan Africa), 49 UK building and construction companies and 2 major UK retailers through the 'end user questionnaire' in the Appendix. Since this research was conducted primarily through the association members of the end user subcommittee, of which there was no direct engagement with any automotive representation, there was no engagement with the automotive sector.

In addition, it utilises the independent research previously conducted by Rio Tinto Alcan in 2009. Both sets of research exhibit similar conclusions on the risks of doing nothing, as well as the market opportunities in initiating an RS programme. Figure 6 depicts the 'push' and 'pull' forces exerted on the Al market.

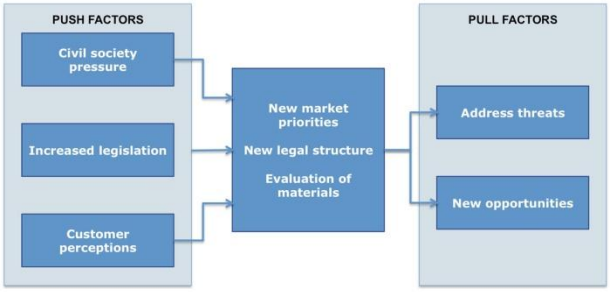

FIGURE 6 - 'PUSH' AND 'PULL' FACTORS FOR RESPONSIBLE ALUMINIUM

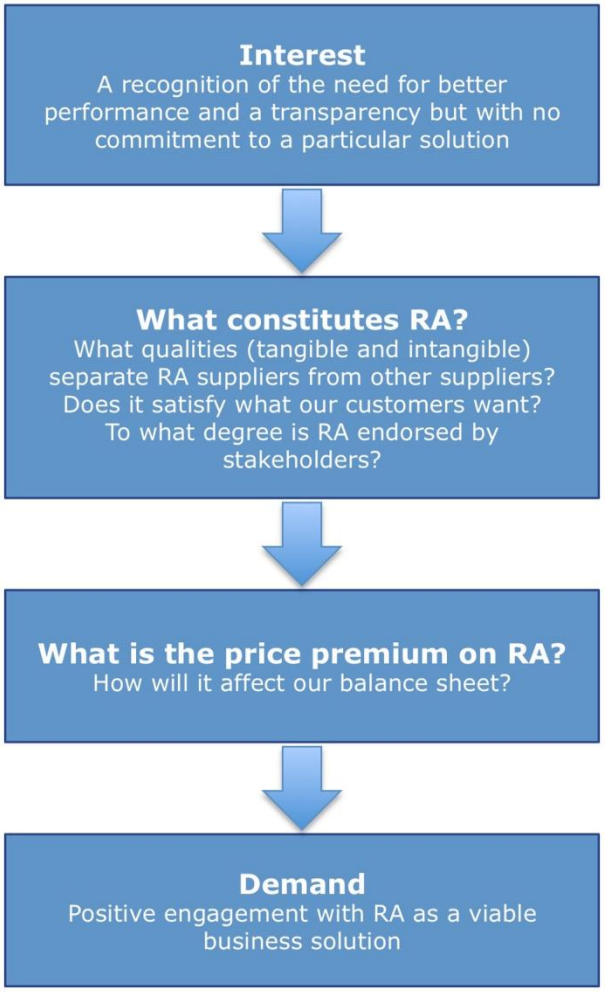

FIGURE 7 - MARKET INTEREST AND MARKET DEMAND

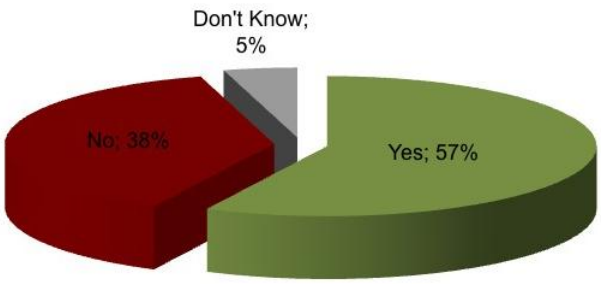

FIGURE 8 - ARE CUSTOMERS ASKING ABOUT THE SUSTAINABILITY OF ALUMINIUM

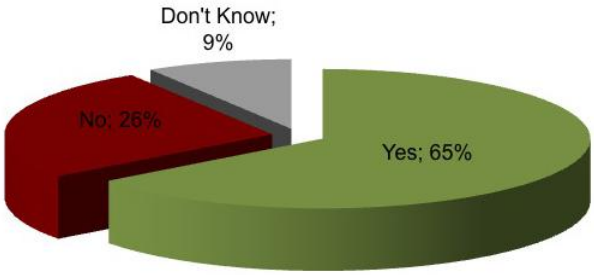

FIGURE 9 - ARE CUSTOMERS PREPARED TO CHANGE SUPPLIER FOR BETTER ENVIRO/SOCIAL PERFORMANCE?

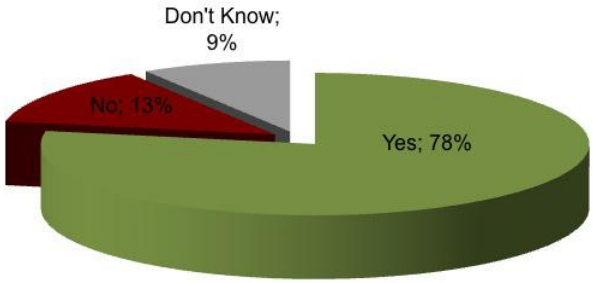

FIGURE 10 – IF 'SUSTAINABLE QUALITY' IS OFFERED, IS THIRD PARTY CERTIFICATION PREFERRED?

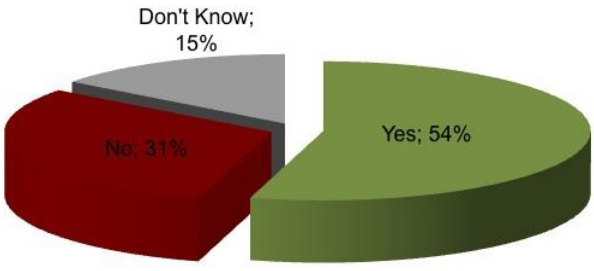

FIGURE 11 – FOR CERTIFIED PRODUCT IS PRODUCT LABELLING PREFERRED?

It is important firstly to distinguish between market interest and market demand.

Market demand hinges on a number of contingencies, expressed in Figure 7 in the form of questions that an end user would consider before their interest would develop into a demand.

Since RA is not yet a fixed entity, engagement with market end users helps inform us of what it should be, in terms of the kind of market demands that exist. It also helps shape what the programme could be, based around future needs.

Since market demand is specific both to sector and individual application (especially given the growing importance of the Life Cycle Analysis (LCA) approach), this section approaches market demand by sector.

This section frequently uses the concept of primary and secondary metal. While the material properties of Al ensure that its chemical composition is not altered and the material (whether primary or secondary) is fundamentally the same commodity, current LCA models do distinguish between primary and secondary (recycled). This is due to the different inputs and outputs involved in the production, with secondary producing far less CO_2 emissions than primary per functional unit. This has encouraged a trend of substituting primary for secondary metal in many applications, due to its superior 'environmental' performance. Clearly, a key objective of the industry must be to increase the level of recycling wherever feasible.

These procurement decisions of end-user companies are based on micro judgements regarding the inputs for specific products. When considering the macro system of Al flows, it is obvious that, in the final analysis, secondary metal production is dependent on a primary source. Increased demand for secondary aluminium will indirectly increase demand for primary. This may include primary sources, which do not meet with best practice guidelines, thereby potentially

negatively impacting the overall sustainability of the Al industry.

Automotive sector

Fuel efficiency is driving the demand for lighter vehicles, with EU producers aiming to reduce emissions of their fleets by up to 30% by 2012 (from 2006 levels). This puts Al, as a lightweight metal, in a strong position. However, Al competes with other materials such as magnesium and carbon composites, while the steel industry is concurrently proactively lobbying to protect steel automotive applications from substitution for Al (and other lightweight materials).

At present, there are only two LCA models concerning CO_2 for Al: recycled, with low CO_2 emissions and primary, with high CO_2 emissions. As such, at the initiative of producers, recycled content is becoming increasingly important: Jaguar Land Rover, for instance, through the Real Car project, illustrated in Figure 12, to create a Closed Loop Recycling Plan for Future Growth. The ability to recycle Al is one of the major 'responsible sourcing' advantages that the sector possesses.

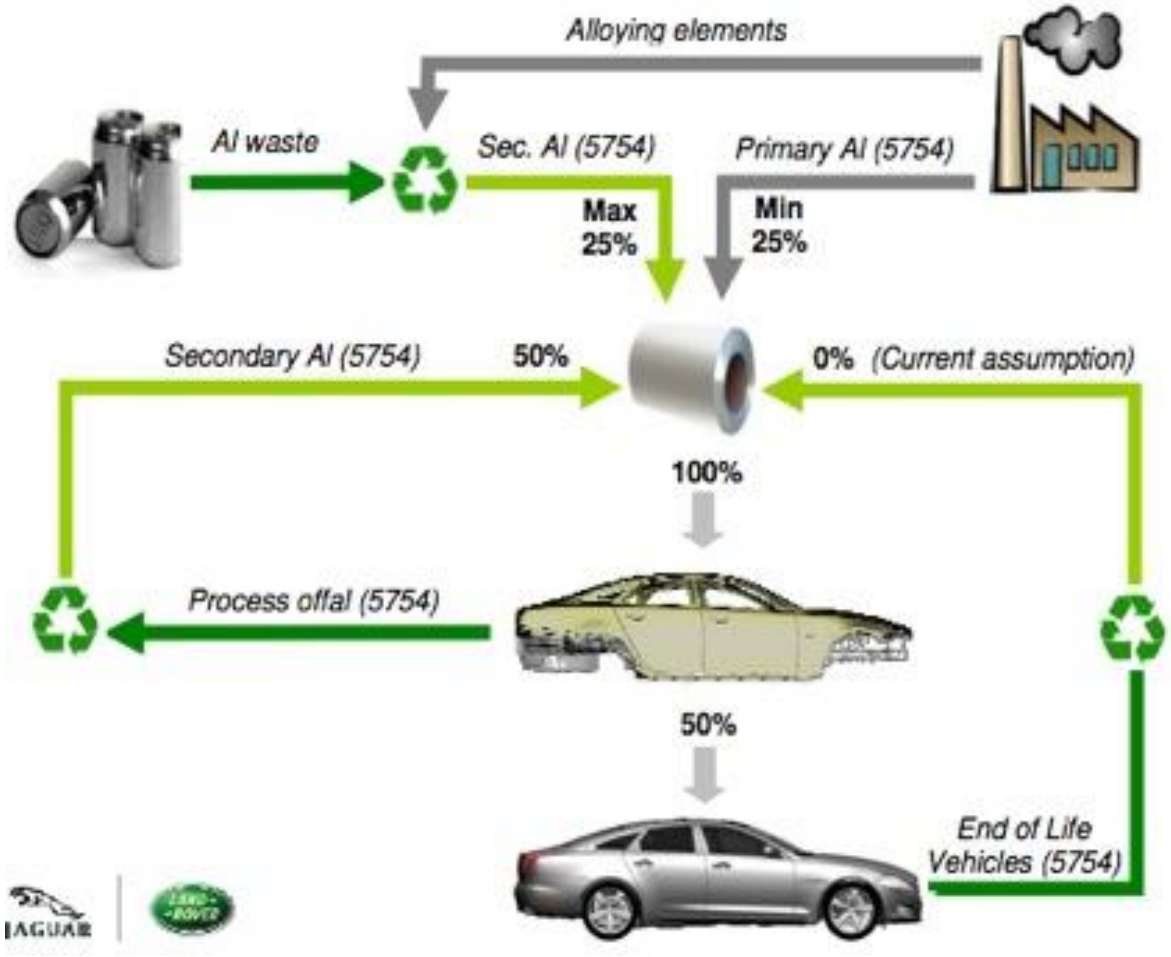

FIGURE 12 - 'REAL CAR' JAGUAR LAND ROVER CLOSED LOOP RECYCLING PLAN AND FUTURE GROWTH. SOURCE: REAL CAR FLYER. ALUMINIUM FEDERATION

Scenario matrix

Since Al is in a strong position as a lightweight material, market demand for an RS programme may well not be as urgent as in the packaging sector (see below). An RS programme, however, that differentiates the primary Al market offers several opportunities to readdress the demand for primary/secondary metal. This will ensure Al's prominent position as a lightweight substitution for steel, as well as rivalling other lightweight materials, such as magnesium and carbon composites.

Implications, if doing nothing	Opportunities in action
Lack of differentiation between primary metal sources (in terms of 'environmental quality') leads to secondary metal being seen as the only alternative, causing shifting demand and price for primary and secondary metal.	Identification of operators producing well managed, 'responsibly sourced', secondary product. Differentiated primary Al production with lower CO_2 will demonstrate to end customers that Al possesses appropriate 'responsibly sourced' qualities.
Promotion of other lightweight materials such as Mg or Composites. Al does not match its market potential as a lightweight material.	Increased demand for RS Al if superior performance is demonstrated in other criteria such as water use, social impact & recyclability. Increases potential application in new lightweight components

Building and construction sector

The construction of green buildings is a large and rapidly growing market. In this context, Al offers powerful solutions such as thermal barrier framing, sunshades for solar control, light shelves, extra windows and skylights for day lighting.

As Al also exhibits considerable longevity (corrosion resistivity, low maintenance, reparability and recyclability), these also enhance Al's potential in green building construction (EAA/Delft University, 2004).

In common with the automotive sector (and, as will be demonstrated, the packaging sector), increasing concern over GHG emissions (often referred to below as embodied carbon) has led to Building Regulations such as LEED driving the demand for recycled content, thereby increasing the substitution of primary Al with secondary Al. There is therefore a clear opportunity to differentiate in primary Al markets and to establish a lower CO_2 metal. Since building regulations are likely to move towards a more holistic LCA approach, this opportunity could be used to demonstrate Al's use phase advantages and also address a range of criteria that would highlight its social and environmental performance vis-à-vis other materials.

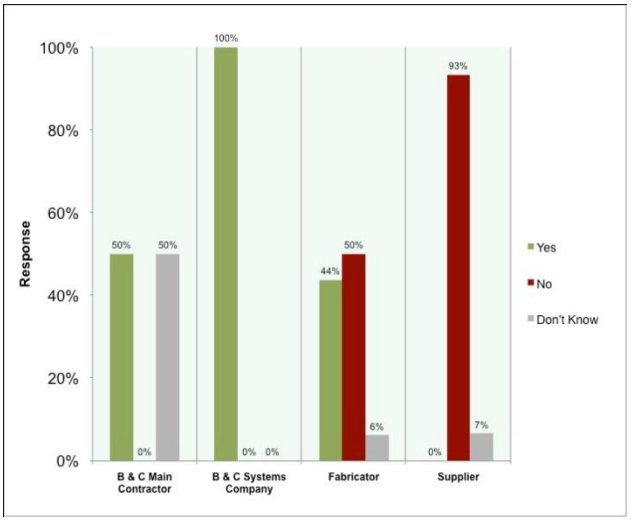

FIGURE 13 - HAVE YOUR STAKEHOLDERS OR YOUR CUSTOMERS BEEN ASKING QUESTIONS ABOUT THE SUSTAINABILITY OF ALUMINIUM IN YOUR PRODUCT?

In primary research undertaken during the Scoping Phase, respondents comprised 49 UK building and construction companies, ranging from main contractors to suppliers (please see definitions). When asked about stakeholder or customer interest in the sustainability of Al in their product (see Figure 13), 49% answered 'Yes', 45% answered 'No' and 6% were 'Unsure'. However, the results revealed a strong correlation with relative 'distance' to the market, with systems companies (100%) and main contractors (50%) returning a high level of positive responses. These were qualified by strong responses such as "100% recycled [content] is now being called for in 1 in 20 projects". As noted in the introduction, building standards are influential, with BREEAM and BES6001 being cited by 3 systems companies. Upstream organisations, in the form of fabricators and especially suppliers responded with a majority 'No'.

The UK and many other European Governments continue to promote the requirement that all products should be responsibly sourced. It is therefore more important than ever that the Specifier can be safe in the knowledge that our material can be easily and safely recovered from the building, is readily transported in bulk due to its light weight and has an extremely high recyclability. Many key Main Contractors that the Council for Aluminium in Building (CAB) has engaged with in recent months are enthused by the early steps being taken to develop a 'Responsible Aluminium' Scheme. They are passionate about driving Responsible Sourcing and it is already evident that the issue is entering 'Pre-purchase questionnaires' (PPQ's). Their message is clear, 'show us that the aluminium sector is taking this forward'.

Justin Ratcliffe, Chief Executive, Council for Aluminium in Building

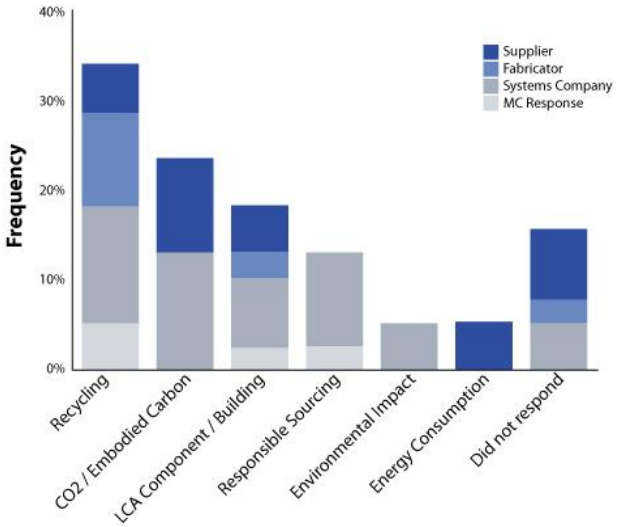

FIGURE 14 - WHAT SUSTAINABILITY ISSUES ARE MOST IMPORTANT TO YOUR COMPANY?

As expected, the drive towards substituting primary with recycled Al, 'Recycling' (which included answers both on recycled content and recyclability) is the most frequently cited issue. CO_2 and embodied carbon were the

second most cited issue, followed by an LCA of a component/entire construction, embodying several factors and reflecting the growing importance of an LCA perspective.

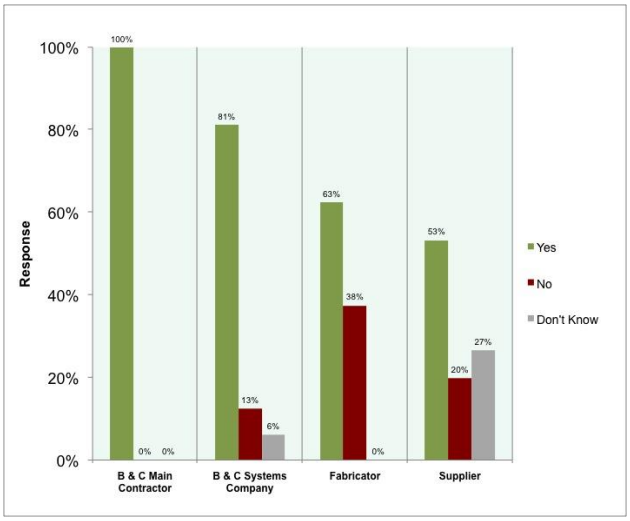

FIGURE 15 - WOULD YOUR COMPANY CONSIDER CHANGING ITS EXISTING ALUMINIUM SUPPLIER BASED ON SUPERIOR SOCIAL AND ENVIRONMENTAL PERFORMANCE?

Figure 15 clearly illustrates the correlation between 'market proximity' and the drive for upstream sustainability. In total 67% of respondents said they would change their existing suppliers based on new criteria. Seven organisations, including the two main contractors, stipulated that this would also be contingent on cost and on allowing them to remain competitive.

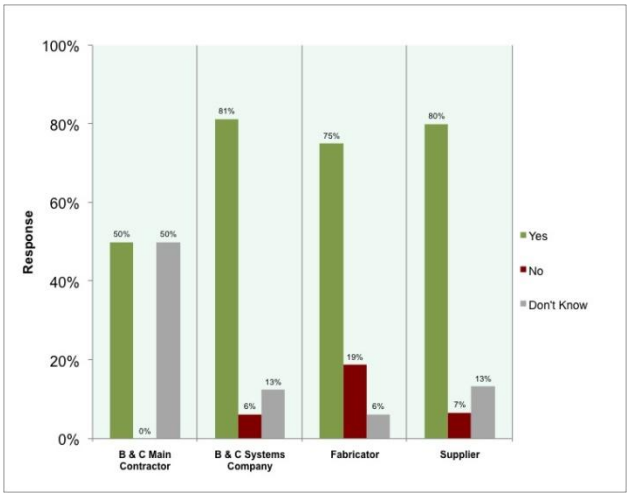

FIGURE 16 - IF A SUPPLIER OFFERED ALUMINIUM WITH A LOWER SOCIAL AND ENVIRONMENTAL IMPACT, IS THIRD PARTY CERTIFICATION NECESSARY TO ENSURE THE CREDIBILITY OF THE CLAIMS?

Figure 16 demonstrates the consistent appreciation of independent third party verification of claims. Out of the total group, 78% of companies responded that third party certification was necessary to ensure credibility of the claims. They justified this requirement with qualifications such as: "must be backed by relevant data and certificates", "to stop/eliminate rogue claiming of environmental credentials", "unfortunately not everyone is honest with figures, saying one thing but meaning another. Having appropriate accreditation would take out the ability to mislead". None of the 'No' responses provided any qualification.

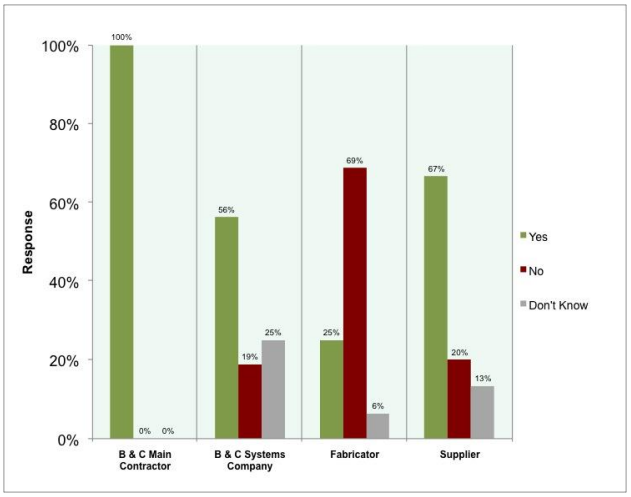

FIGURE 17 - IF A SUPPLIER OFFERED ALUMINIUM WITH LOWER SOCIAL AND ENVIRONMENTAL IMPACT, CERTIFIED BY A THIRD PARTY, IS AN ON-PRODUCT LABEL COMMUNICATING THIS NECESSARY OR DESIRABLE?

Responses to this question provided no clear correlations, with a relatively high level of uncertainty with 14% being unsure. In total 51% of participants responded 'yes', with near-market responses suggesting that such a symbol would create a worthwhile and recognisable industry standard: "Desirable at this stage. It will lead to necessity by default and will help give clients visual proof of compliance"; "this would help raise awareness"; "as long as we can provide an overall certificate to prove that we comply to a certain standard it is sufficient". Fabricators

constituted the majority of the 'no' responses, "as long as we can provide an overall certificate to provide we comply to a certain standard, it is sufficient", "would only be removed to fabricate the product".

Scenario matrix

Implications, if doing nothing	Opportunities in action
Building standards continue to drive substitution of primary metal by secondary metal. Lack of differentiation between primary metal sources (in terms of 'environmental quality') leads to secondary metal being seen as the only alternative, causing shifting demand and price for primary and secondary metal.	Differentiation of lower CO_2 primary metal encourages LCA thinking. Identification of operators producing well managed, 'responsibly sourced', secondary product. Differentiated primary Al production with lower CO_2 will demonstrate to end customers that Al possesses appropriate 'responsibly sourced' qualities.
Concerns about RS may reduce demand for Al. This could be compounded as other competing commodities with independently recognised environmental qualities are promoted via existing Stewardship Programmes.	RS programme demonstrates transparency and performance over sustainability criteria. Increase in demand for RA.
	Development of standards based on LCA approach (e.g. future LEED programmes?) highly advantageous and may lead to increased primary Al demand. Multiplier effect for 'Responsible Aluminium' based on superior performance.

Packaging sector

In contrast to Al's use in the building and construction and automotive sectors, its use in packaging features low quantities over a large number of products. As such, scrap is far more extensive and less concentrated, with recycling rates being generally lower (though varying between specific products and regions) than in the other sectors examined. The sustainability credentials of Al in packaging applications are therefore strongly contingent on a product's recyclability and recycling rates (in terms of carbon footprint, this presumes that the collection process is - or has the potential to be - more energy efficient than primary production).

Al presents strong sustainability attributes in packaging applications because it is light-weight and provides a strong protective barrier. Packagers, however, are under three major pressures: to reduce their carbon footprint, improve their product's end-of-life recycling rates and, where applicable, increase their product's recycled content. Large international retailers, such as Walmart and Tesco, have already developed scorecards, with a range of criteria to reduce emissions, maximise efficiency and minimise waste. Other national retailers, such as Sainsbury's and Marks and Spencer in the UK, have put in place CSR strategies to reduce their carbon footprint and reduce waste, which will inevitably shape their selected packaging solutions and exert pressure on suppliers. These developments reveal the direction of procurement criteria being developed by the market-end retailers. A proportion of companies in the packaging sector are being pressured by retailers to reduce their Al content, replace primary metal with recycled or remove the Al content altogether. There is therefore a strong threat of substitution for plastics and paper in packaging applications. This is not just limited to foil, as RTA research shows that one major beverage can supplier has mentioned the possibility of switching to PET.

Clearly, the pressures on packagers depend on the application in question, in terms of its use phase function, recyclability and technical specification. For instance, pressure will be highest where substitution for another material is not a viable option or when substitution for recycled metal is not possible owing to the requirement of primary metal (e.g. thin foil applications and beverage can 'end' sections).

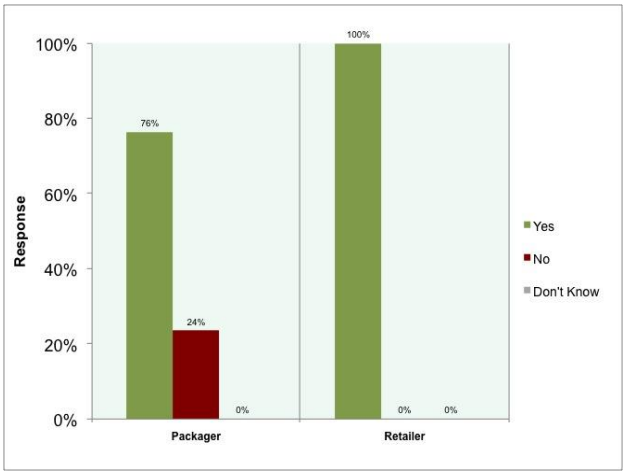

FIGURE 18 – HAVE YOUR STAKEHOLDERS OR YOUR CUSTOMERS BEEN ASKING QUESTIONS ABOUT THE SUSTAINABILITY OF ALUMINIUM IN YOUR PRODUCT?

The survey carried out during the Scoping Phase supports the conclusion that questions are frequently asked about the sustainability of Al in packaging applications. 77% of foil users questioned said that customers or stakeholders have asked about the sustainability of Al in their product.

Those who answered 'Yes' supplemented their answers with qualifications such as: "Many questions from stakeholders" and "Sustainability in all aspects of increasing importance". However, several answers highlighted the different pressures contingent on the foil application / final product, with comments such as "few [questions] in the pharmaceutical sector" and more questions "in confectionery and tobacco". Pressure from legislation is also keenly felt; that the jurisdiction in question "will enforce strict control with respect to raw material usage and recycling within the industrial sector".

Out of the four foil users who answered 'No', three acknowledged that the pressure on demonstrating sustainability could grow: "Not yet, but it might become an issue if big retailers are going to ask for it"; "might be an issue in future". This is supported by the findings of RTA research, which shows that there are increasing questions being asked by final customers, and increasing expectations from end users about RS potential.

The two major retailers engaged in this survey responded 'Yes', substantiating this with concerns about the scope three (entire-value-chain) impacts of using Al: "Mining in developing world creates social and environmental concerns, outside of our control".

The market demand for more sustainability in food and drink products is evident. Packaging is often perceived as waste and not as part of the solution to prevent waste by protecting the product it contains. Packaging design and use is thereby more and more led by environmental attributes like the amount of recycled materials used.

In view of an efficient and effective overall improvement such attributes in isolation may be even counterproductive. Therefore holistic approaches which also involve stakeholders to a much larger extent than simple self declarations become more popular and are perceived positively also from consumers as they increasingly appreciate joint initiatives and participatory approaches. Therefore the market seems open for responsible aluminium which is produced with best practice defined in an integrated and transparent approach and the recognition of the three pillars of sustainability.

Christian Bauer, European Aluminium Foil Association

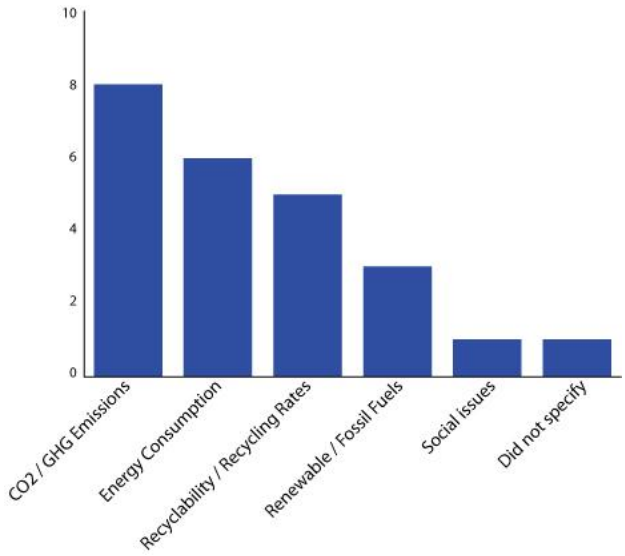

FIGURE 19 – WHICH SUSTAINABILITY ISSUES ARE MOST IMPORTANT TO YOUR COMPANY?

Issues of GHG Emissions, Energy Consumption and Recycled Content / Recyclability are clearly prominent in this sector. These were the most frequently cited issues that also emerge as significant components in quantitative LCA analyses. Several responses suggested that a more holistic interpretation of the issues facing Al packaging is in prospect: "today urgency is on GHG [Greenhouse Gases], non renewable energy and WFP [Water Footprint], tomorrow it will may be a 'consequence of packaging on human health' or something else. However, there might be a huge issue in the Al value-chain we are not aware of, and this is why we need to address a list of issues."

The definition of 'sustainable packaging' adopted by the Sustainable Packaging Coalition, an industry Working Group of nearly 200 companies, also highlights salient packaging issues and how these might affect the future of the sector.

Sustainable packaging:

- *Is beneficial, safe & healthy for individuals and communities throughout its life cycle;*
- *Meets market criteria for both performance and cost;*
- *Is sourced, manufactured, transported, and recycled using renewable energy;*
- *Optimizes the use of renewable or recycled source materials;*
- *Is manufactured using clean production technologies and best practices;*
- *Is made from materials healthy in all probable end of life scenarios;*
- *Is physically designed to optimize materials and energy;*
- *Is effectively recovered and utilized in biological and/or industrial closed loop cycles.*

Sustainable Packaging Coalition

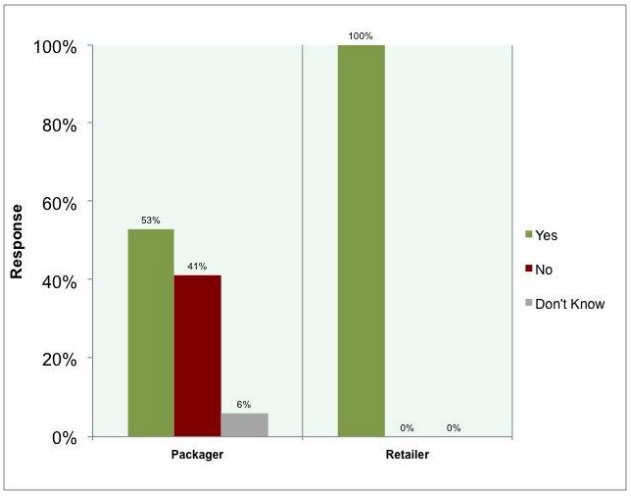

FIGURE 20 – WOULD YOUR COMPANY CONSIDER CHANGING ITS EXISTING ALUMINIUM SUPPLIER BASED ON SUPERIOR SOCIAL AND ENVIRONMENTAL PERFORMANCE?

Over 50% of foil users questioned stated that they would change Al supplier based on superior social and environmental

performance. This question was complicated, however, by the presence of at least two integrated companies, which, while responding negatively, demonstrated a positive interest in an RS scheme. Four positive responses stated that this demand was contingent on price, which would need to be the same or near enough to remain competitive, reflecting the difference between market interest and demand.

The response from the retailers was positive, but predicated on the ability of suppliers to verify such performance: "if it could be demonstrated". This indicates the requirement of an independent verification system (Figure 21).

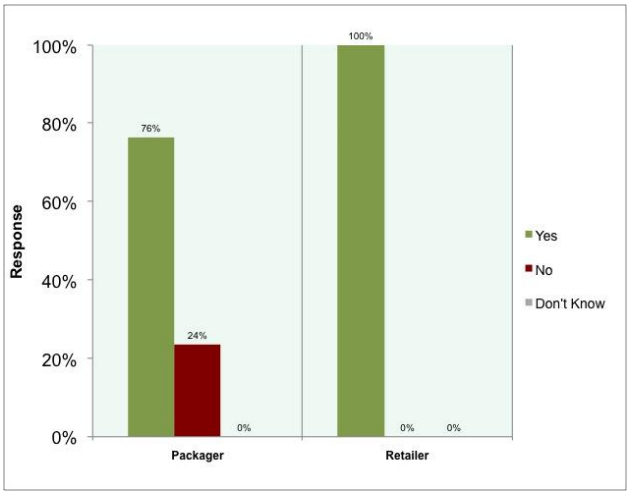

FIGURE 21 – IF A SUPPLIER OFFERED ALUMINIUM WITH A LOWER SOCIAL AND ENVIRONMENTAL IMPACT, IS THIRD PARTY CERTIFICATION NECESSARY TO ENSURE THE CREDIBILITY OF THE CLAIMS?

When questioned whether third party certification was necessary, 76% of the foil users consulted answered 'yes', qualifying their answer with comments such as: "validation of such claims is crucial. We believe that an independent, objective audit process will measure and confirm the claimed reduction of adverse environmental impact"; "absolutely necessary'; "certification is necessary, e.g. "Aluminium Stewardship Council" and "it would increase confidence and credibility". 24% responded 'No', claiming that they did not consider third party certification to be necessary, qualifying this with comments such as: "not observed up till now" and "as long as transparency is sufficiently high".

The two major retailers engaged in this survey stated that third party certification was necessary, commenting, for instance that 'it would fit right in with our CSR strategy".

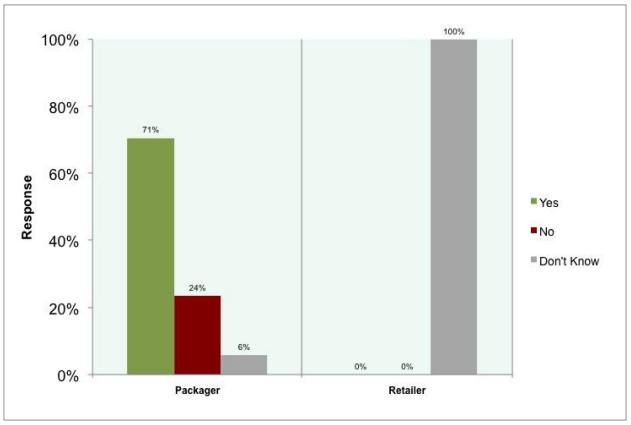

FIGURE 22 – IF A SUPPLIER OFFERED ALUMINIUM WITH LOWER SOCIAL AND ENVIRONMENTAL IMPACT, CERTIFIED BY A THIRD PARTY, IS AN ON-PRODUCT LABEL COMMUNICATING THIS NECESSARY OR DESIRABLE?

71% of responders answered 'Yes', noting its potential positive image for both Al in general and their product, in particular: "Such a communication will reinforce the image of Al as a raw material properly treated and traded, with correlative effect on all users of final products made of this natural metal"; "We believe that communicating (on the package graphics) the fact that the use of such Al products has low adverse impact on the environment, creates awareness in the minds of the consumer of environmental and social responsibility". Five positive responses stated that, at the moment it was desirable but not strictly necessary. One 'No' response claimed that "self-declaration of certification is sufficient".

Both retailers questioned were unsure about the need for labelling, stating that "customers have enough logos already" and that perhaps it should remain "a B2B [Business-to-Business] communication".

Scenario matrix

Implications, if doing nothing	Opportunities in action
Lack of differentiation between primary metal sources (in terms of 'environmental quality') leads to secondary metal being seen as the only alternative, causing shifting demand and price for primary and secondary metal.	Identification of operators producing well managed, 'responsibly sourced', secondary product. Differentiated primary Al production with lower CO_2 will demonstrate to end customers that Al possesses appropriate 'responsibly sourced' qualities.
Al substituted by other materials with acknowledged sustainability credentials, e.g. paper with FSC label or recycled PET.	Protect Al's use in applications
CO_2 Labels undermines Al position	Increased demand for differentiated low CO_2 Al
Dematerialisation leads to less quantity for packaging	Dematerialisation presents opportunities for AI as a barrier at low thickness.
	Increased demand for Al from promotion of LCA approach. Accompanied by low CO_2 Al could act as multiplier.
	Increased demand for RS leads to increased demand for RA.

Summary

This analysis reveals some consistencies and some nuances between sectors and applications using Al. Al's material properties place it in an advantageous position in many instances, especially when applying a cradle-to-cradle LCA analysis. This, is however, inhibited by the lack of differentiation in the primary metals market, underpinned by the dichotomous approach to Al between high carbon primary and low carbon recycled.

While issues of carbon footprint and energy use are foremost, the questionnaire reveals a range of issues concerning end users, which an RA programme would be wise to include, in order to future-proof such a scheme from becoming, or being portrayed as having, a reductionist, single issue focus.

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IDENTIFIED ISSUES

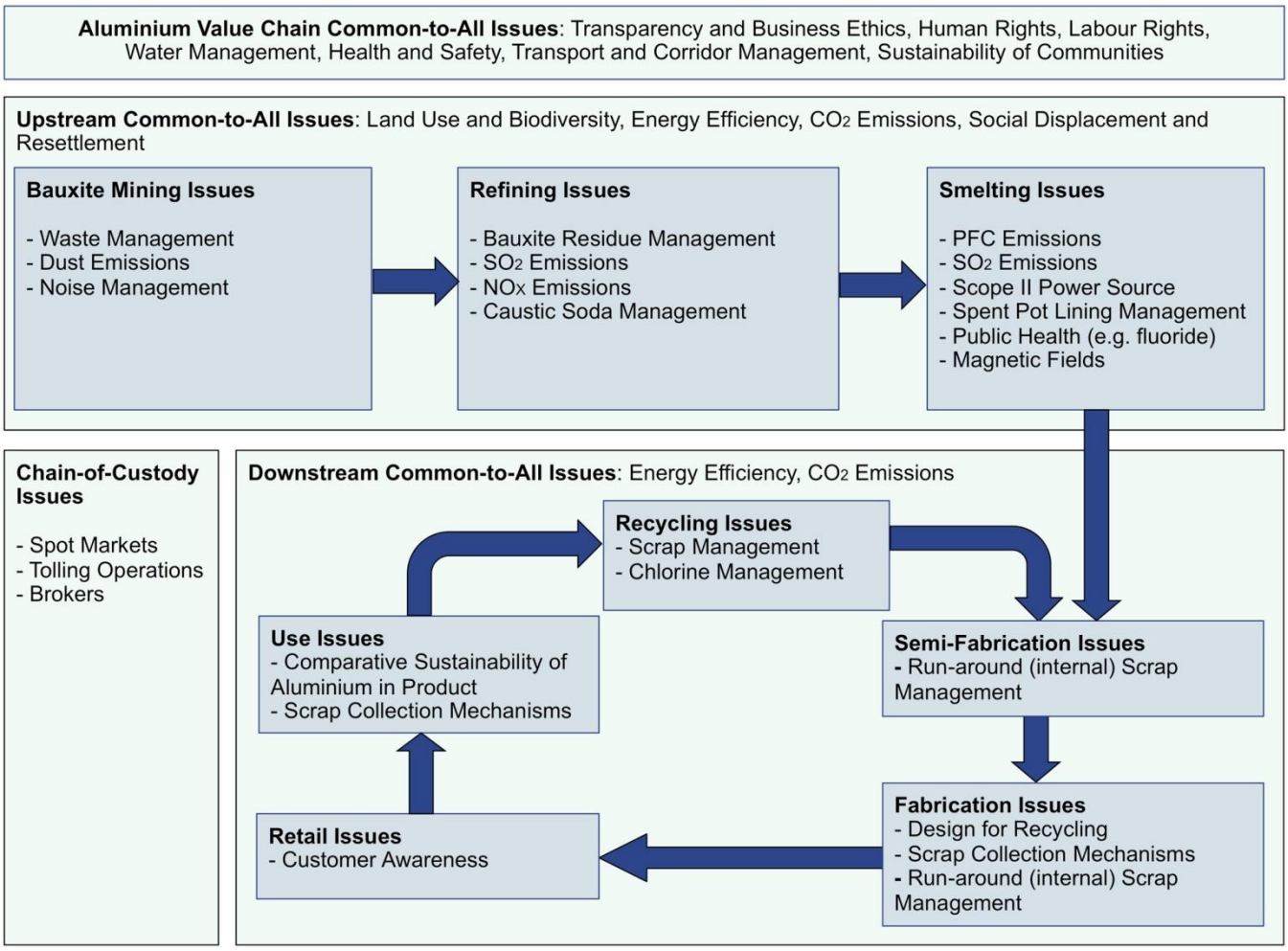

FIGURE 23 – PRELIMINARY LIST OF VALUE CHAIN ISSUES

The Al value-chain is multi-stage and geographically extensive. As such, there is a diverse range of issues, which must be acknowledged and addressed in a credible and reasoned manner by any RS programme initiated. Some of these issues are unique to Al (such as spent pot lining). Some are common to other metals (land use and biodiversity) and many are generic issues common to most commercial value-chains (human rights, labour rights and business ethics and transparency). This is very much a preliminary list that will be expanded on during any MSP.

Due to the wide range of issues, it was considered appropriate to identify a preliminary list of priority issues. The Appendix outlines the methodology used to prioritize the range of issues. This is discussed in greater detail in the Options Section This is not regarded as a definitive list because the number of stakeholders consulted was necessarily restricted.

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4. STAKEHOLDERS IN THE ALUMINIUM VALUE-CHAIN

A 'stakeholder' can be defined as anybody who possesses "an interest in a particular decision, either as individuals or representatives of a group. This includes people who influence a decision, or can influence it, as well as those affected by it". (Hemmati et al.2002.2)

As such, stakeholders represent a wide variety of social structures, and possess a range of financial and organisational resources. Theoretically, they can be broadly divided into three categories, depending on the social structures they primarily represent:

- **Civil society stakeholders** - representing voluntary civic or social interests rather than force-backed interests of state or the commercial interests of the market.

- **Commercial stakeholders** - representing a commercial interest in the market.

- **Government stakeholder** – representing the force-backed (legal) interests of state.

However, these typologies tend to oversimplify a reality in which social structures overlap and regularly exhibit interdependency (Calton et al.2003). Multi-stakeholder dialogues (MSDs) are built upon the premise that the diverse interests of stakeholders are not mutually exclusive. A developmental, exploratory, coherent approach can help construct shared insights and meanings, in order to address the complex problems of interdependency between stakeholders (Calton et al.2003). This can be achieved by bringing people who hold different perspectives together in processes that respect and value the diversity of views. A generic instance of this is provided by the following example:

A community may want sustainable socio-economic development, and look to its government for assistance.

Government authorities require the investment and know-how of a private developer to exploit national resources and raise money for public spending.

The developing company requires the consent, cooperation and support of local authorities and local communities to minimise risk and provide it with a sustainable business model.

Strategies for managing these interdependencies are included later in stakeholder engagement techniques (page 56). These should be considered in the context of the following overview of the different types of stakeholders relating to the Al value-chain.

Civil society stakeholders

- International social and environmental NGOs, advocacy and campaign groups representing international social and environmental concerns

- National and regional NGOs, community groups and individuals representing more localised social and environmental issues in specific regions affected by Al production

- Local NGOs and indigenous federations

- Trade Unions and Organised Labour groups

- Scientific and academic communities

- Consumer groups

Commercial stakeholders

- Companies involved in the production, use and recycling of Al which, in turn, represent their employees, shareholders and regional constituencies who are beneficiaries
- Industry Associations
- Financiers
- Consultancies
- Other industries affected by aluminium linked developments (such as tourism)

Government stakeholders

- Departments concerned with resource management, environmental management and sustainable development in those countries involved in Al production
- Departments concerned with public procurement, recycling, building standards in those countries using substantial amounts of Al
- Departments concerned with risks posed by global climate change
- Local government

Stakeholder map

While commercial stakeholders directly producing or using AI are represented in the RA Working Group, the following diagram maps out the civil society stakeholders identified during the Scoping Phase.

Stakeholders have been broken down into nine issue-based categories. This is by no means an exhaustive list. In any subsequent Phase the list would be refined and extended to incorporate local NGOs, indigenous federations, local government and other affected organisations. Where specific names have been identified they are included. The geographic scope provides an indication of the global / regional coverage of the identified stakeholders.

Organisation	Geographic Scope
Consumer Groups	
Consumers International	Global
Economics, Transparency and Business Ethics	
Extractive Industries Transparency Initiative (EITI)	Global
Global Reporting Initiative (GRI)	Global
Partnership Africa Canada (PAC)	Sub-Saharan Africa
Transparency International	Global
Global Witness	Global
Emissions, Energy and Climate	
Carbon Disclosure Project	Global
Climate Watch	Global
Pew Centre on Global Climate Change	Global
World Resources Institute (WRI)	Global
WWF	Global

Organisation	Geographic Scope
Environment and Biodiversity	
Business and Biodiversity Offset Programme (BBOP)	Global
BirdLife International	Global
Chimbo / Daridibó	Sub-Saharan Africa
Conservation International	Global
Equilibrium Research	Global
Fauna and Flora International	Global
Forest Footprint Disclosure	Global
International Institute for Environment and Development	Global
International Rivers	Global
IUCN Commission on Ecosystem Management	Global
IUCN programme Guinée Bissau	Sub-Saharan Africa
Red Mud Project	Europe / South Asia
The Nature Conservancy	Global
Wetlands International	Global
General Systems and Lifecycles	
BRE	Europe
Center on Sustainable Consumption and Production, Wuppertal	Global
Forum for the Future	Global
International Institute on Sustainable Development	Global
IPSRM (Sustainable Resource Management)	Global
Resource Consulting Services	Global
Rocky Mountain Institute	Global
Technische Universität Berlin, Department of Environmental Technology	Global
UNEP	Global
UN Global Compact	Global
World Business Council for Sustainable Development (WBCSD)	Global
World Economic Forum	Global
Wuppertal Institute	Global
Human Rights/Indigenous Peoples Rights	
Borneo Resources Institute (BRIMAS)	Asia-Pacific
Centre for Human Rights and the Environment	Global
First Peoples Worldwide	Global

Organisation	Geographic Scope
Forest Peoples	Global
Global Witness	Global
Human Rights Watch	Global
Indigenous Village Leaders of Suriname (VIDS)	South America
University of Canberra	Global
Investors	
European Investment Bank	Global
JP Morgan	Global
Middle Eastern Economic Digest (MEED)	Middle East and North Africa (MENA)
UNEP Finance Initiative	Global
World Bank International Finance Corporation	Global
Social	
Africa Institute for Corporate Citizenship	Sub-Saharan Africa
Alliance for Responsible Mining	Global
Both Ends Environment and Development Service	Global
Centre for Social Responsibility in Mining, University of Queensland	Global
Friends of the Earth Norway	Europe
North-South Institute	Global
OECD – Guidance for Minerals in Weak Governance Zones	Global
PACT	Global
Trade Unions	
International Labour Organisation	Global
International Federation of Chemical, Energy, Mine and General Workers' Unions	Global
South African Union of Mine Workers	Sub-Saharan Africa

TABLE 5 - STAKEHOLDER MAP

SECTION 2
IMPLICATIONS & OPTIONS

5. INTRODUCTION TO SECTION 2

Section 1 described the status quo forming the backdrop against which the RA initiative has been formed. The views of the market place and the focus of the RS attributes that they require, 'linked' to the metal and products that they purchase, have proved to be of particular importance. These will shape the construction and operation of any future Responsible Aluminium (RA) programme.

Section 2 considers the principal building blocks for a pragmatic verification programme that will deliver responsibly sourced Al. The functional areas covered are:

Standards – RS implies processes that are environmentally benign, socially beneficial and economically viable. These may be negatively impacted by a number of Al value-chain linked issues. Appropriate standards will need to be prepared to address these issues.

Stakeholder Engagement Techniques – civil society and government have a critically important role in setting standards and ongoing governance. Their involvement is a key factor in establishing the credibility of an RS programme. A range of techniques exists for involving stakeholders and these are reviewed.

Verification Systems – these are reviewed in terms of their appropriateness for application in the Al sector. Other RS programmes are considered to see if lessons can be learned.

Governance Structures – a number of existing quality programme governance structures are analysed in terms of their suitability for the Al value-chain.

Various programme options are evaluated in terms of delivering the RA Charter requirements.

Verification structures, governance systems and multi-stakeholder consultation options are provided and considered. These options are inherently constrained by the nature of the value-chain and the end of value-chain/market place requirements.

Finally, in the light of information gathered from other existing programmes and the options outlined, estimated costs for setting up a programme are also provided.

6. STANDARDS: TYPES AND PURPOSES

Having identified the issues relating to the Al value-chain, the following section looks at the concept of standards, which can used to address these issues in a RS Programme.

Standards are the formal articles or documents that establish uniform technical criteria, processes or practices. They specify an explicit set of requirements for an item, material, component, system or service.

Standards, therefore, are the central component of an RS programme, around which all other components operate. For instance, stakeholders are engaged with, to help develop and approve them, verification systems operate against them and governance structures inform their creation, ratification, use and adaptation. As such, an RS programme can only ever be as credible and robust as its standards.

Furthermore, stakeholder involvement is essential for the credibility of any programme.

This means:

- Helping develop standards through stakeholder engagement processes (subcommittees, interviews, conference calls or in scientific panels)
- Adapting and endorsing those standards through an ongoing governance structure

'Best practice' versus 'minimum acceptable practice'

A 'best practice' standard is a method, process or activity that is known to be more effective at delivering a particular outcome than any other method, process or activity when applied to a particular set of conditions. This should ensure that, with proper processes, checks, and testing, a desired outcome might be delivered with fewer problems and unforeseen complications. In economic terms, best practice may also be defined as the most efficient (least amount of effort) and most effective (best results) way of accomplishing a task, based on repeatable procedures that have proven themselves over time for a significant number of organisations. A best practice can evolve to become even more refined as improvements are discovered.

'Minimum acceptable practice' is often a level at which governments tend to regulate, and below which operation is illegal. Some quality standards allude to being aligned with 'best practice'. For example, The Round Table on Responsible Soy's stated criteria are: 'Environmental Responsibility', 'Responsible Labor Conditions', 'Good Agricultural Practice', Legal Compliance and Good Business Practice, and Responsible Community Relations (RTRS.2010). Best practice, however, can only be verified when the processes are mature and well established. By definition, 'best practice' is commonly achieved only by quality organisations.

The programme convened during the Scoping Phase is named 'Responsible Aluminium', with the stated aim of 'Setting operational excellence goals, driving better performance within industry". This implies a programme aligned with 'best practice'. If, on the other hand, the programme's standards constituted mostly 'minimum acceptable practice', then this would equate to 'Legal Aluminium'. The use of 'Responsible Aluminium' would therefore be misleading.

In a review of green labelling in North America, it falls under one of the 'Six Sins of Greenwashing'- the 'Sin of Irrelevance'. This refers to an environmental claim that may be truthful but unimportant and unhelpful for consumers seeking environmentally preferable products. "It is irrelevant and therefore distracts the consumer from finding a truly greener option." (TerraChoice.2007.4).

Implication

If the programme is to continue as 'Responsible Aluminium', the standards must, wherever possible, go above and beyond legal requirements, yet within the legal boundaries of national and international law.

Process and performance standards

Standards can be categorised in a number of ways. 'Process' and 'Performance' are commonly used to distinguish between two major 'types' as shown in Table 6.

Type	Process	Performance
Description	The act of an established or routine set of procedures used to minimise risk for a certain issue or set of issues.	Covers activities to ensure that goals are consistently being met in an effective and efficient manner. This often takes the form of a specific quantifiable compliance requirement.
Example	Environmental Impact Assessment, Employee Medical Assessment	Greenhouse Gas Emissions Targets, Water Consumption Targets
Common Usage	Dealing with issues deemed qualitative, and/or where there is little uniformity of process in activity (where quantitative figures lack comparability)	Applied to issues that are deemed quantifiable, often where there is strong uniformity of process that makes figures less arbitrary and more comparable.

TABLE 6 - PROCESS AND PERFORMANCE STANDARDS

Attributes of performance and process standards

Performance standards are aligned with issues deemed quantifiable and are a powerful tool to convey improvement over time, owing to the perceived precision and objectivity of numbers.

However, performance standards often become unrealistic and/or meaningless (and therefore potentially regressive) when applied to a diverse set of organisations and activities or geographically diverse adaptations of the same activity. They also run the risk of reductionism.

There is something "significant to be gained by encouraging members of whatever Responsible Aluminum program is eventually launched to include community-based evaluations of the benefits of industrial development to the community. This will help inoculate the industry against being in the position where the aluminum producers proudly talk about the amount of jobs created and social investment dollars given, while the rest of the world looks on and sees a community wracked by substance abuse, violence, widening economic inequality and general cultural disruption. If that disconnect is allowed to continue, it ultimately represents a threat to the Responsible Aluminum brand and image"

Scott Klinger, First Peoples Worldwide

This is equally the case when applied to complex and amorphous factors such as the sustainability of communities in and around operations: it can be unhelpful to pick selective and discrete metrics that do not construct a realistic picture of the experience 'on the ground'.

Process standards can be therefore be employed where:

- Conditions in which process is deemed relevant in and of itself, e.g. in demonstrating transparency through reporting or declaration protocol
- Conditions are deemed better measured by qualitative rather than quantitative analysis, often when addressing more subjective social issues
- There are not adequate performance standards in place, e.g. a community evaluation with the specific aim of developing appropriate performance standards (see comments above)
- Diversity of candidate organisations renders quantitative measures meaningless. For example, the ISO 9000 (Business Quality Standards) and the ISO 14000 (Environmental Quality Standards) series are equally as applicable to schools as to petrol refineries

A criticism regularly levelled at process standards is that an organisation can meet all the process requirements and still be a poor performer. In order to avoid this criticism, sector-focused stewardship programmes increasingly look to specify performance requirements, where appropriate, as part of a standard compliance requirement.

Owing to the range of social, environmental and economic issues, RA will enable the potential for developing both process and performance standards. Issues with well-developed and recognised quantitative methods such as Greenhouse Gas Emissions or Water Management, backed by the large body of performance data gathered by Al associations, exhibit clear tendencies towards performance standards (see Appendix). Other, more qualitative or specific process-based issues such as Complaints Resolution Procedures or Corruption Reporting Procedures show greater affinity with process standards (Ibid). It must, however, be remembered that the two are not mutually exclusive but can be combined to reinforce the robustness of a standard.

New and existing standards

All actors involved in developing standards desire these to be rigorous and credible and established through the most effective means possible. The preliminary list of issues outlined on page 33 includes many that are unique to the Al value-chain. It also incorporates salient issues within the mining and minerals sector, or generic issues shared by many value-chains. While new standards would most likely need to be developed to address the unique issues, there is a wide range of existing standards that could be

adopted to address those of a more generic type.

This approach has the advantage of 'not reinventing the wheel': spending time and resources on the protracted processes of multi-stakeholder dialogue, consultation and negotiation, where an appropriate and widely accepted standard already exists. It can therefore expedite the initial standard setting process and reinforce the work and effort invested in creating the original standard. However, when using an existing standard, its criteria should be carefully scrutinised against the specific characteristics of the Al value-chain and the goals of RA. Where full standards do not exist, then other existing documents can be used to provide guidance in creating new standards. The gap analysis included in the Appendix details the existing international conventions, guidelines, quantitative and qualitative indicators that could be employed in the case of the identified issues.

Figure 23 outlines a comparative methodology that could be used to assess existing standards or develop new standards.

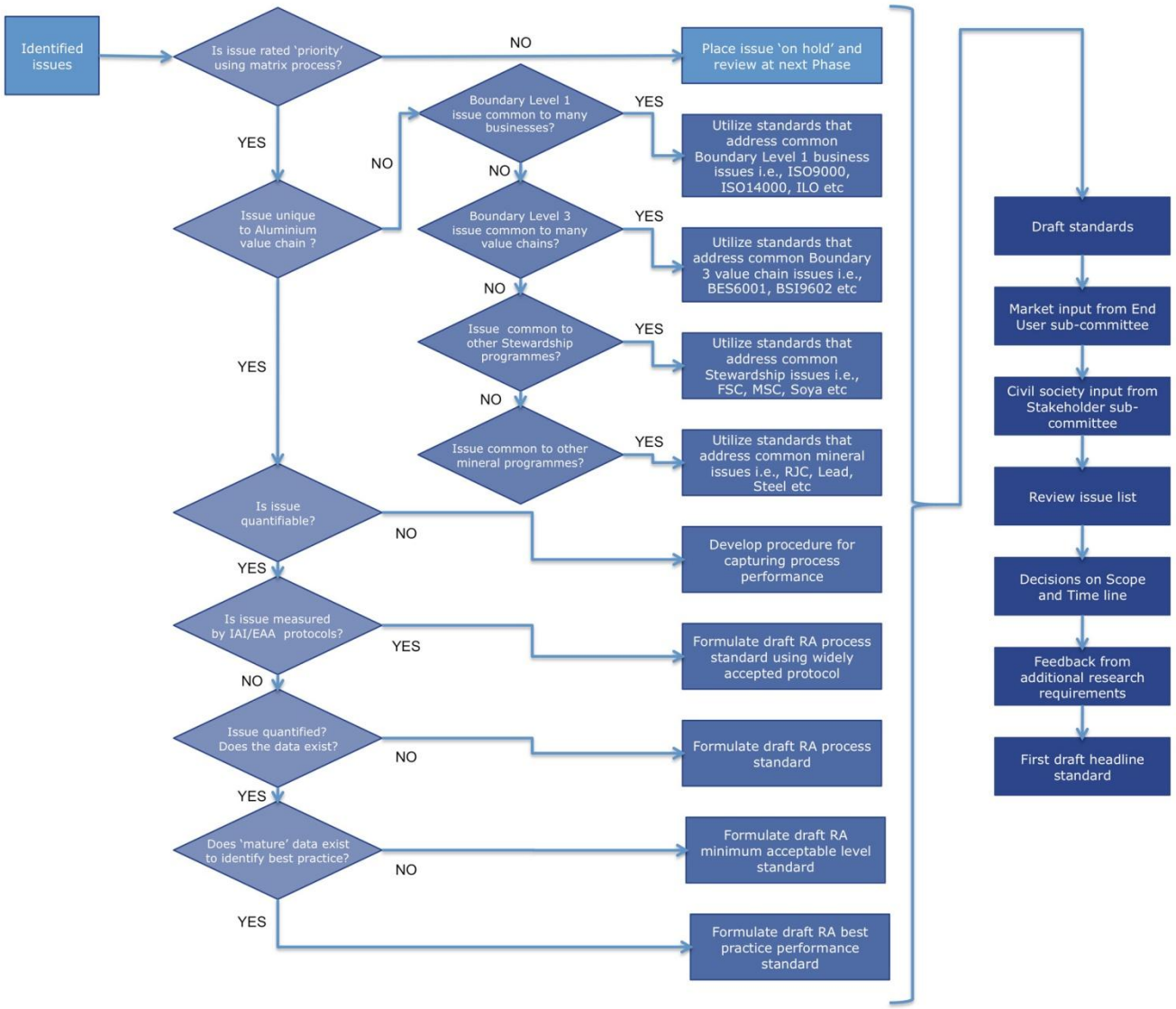


FIGURE 23 – PROCESS FOR STANDARDS FORMULATION

Measuring compliance

Standards are used to articulate a certain level of process or performance that a candidate needs to achieve in order to be compliant. However, 'compliance' in a programme usually constitutes a number of standards. How, therefore, is compliance measured in relation to the standards developed?

Binary compliance/non-compliance

Overall compliance is met by satisfying all the constituent standards. If the candidate fails to meet any constituent element, the candidate is non-compliant. All constituent elements are therefore of equal weight.

Weighted rating compliance

Overall compliance is achieved by satisfying a threshold level of the constituent standards, calculated through a specific aggregate system where constituent elements may have more weight than others. Therefore not every element must be satisfied in order to achieve overall compliance.

The large majority of business-linked standards (ISO 9000, ISO 14000) and stewardship programmes (FSC, PEFC, MSC) have adopted the binary compliance/non-compliance approach. This method delivers a clear-cut, easy-to-understand, easy-to-audit approach that is transparent to markets and stakeholders by assuring that every stipulated element is satisfied. As such, it has potential to retain the credibility of set standards.

Weighted Rating Compliance is less commonly used. Its weighting of certain elements and its method of determining overall compliance can be difficult to defend in a rational way. However, it does provide a level of flexibility in order to encompass site-specific conditions. Recent developments in Life Cycle Sustainability Analysis (LCSA) also point towards its potential in balancing the occasionally antagonistic economic, environmental and social dimensions of sustainability, by delivering an holistic score.

An example of this can be extrapolated from Figure 24 – The Life Cycle Sustainability Triangle (Finkbeiner et al.2010). This approach exemplifies the ability to balance multiple dimensions, weighing the constituent scores of Economic, Environmental Standards and delivering a balanced overall threshold for compliance.

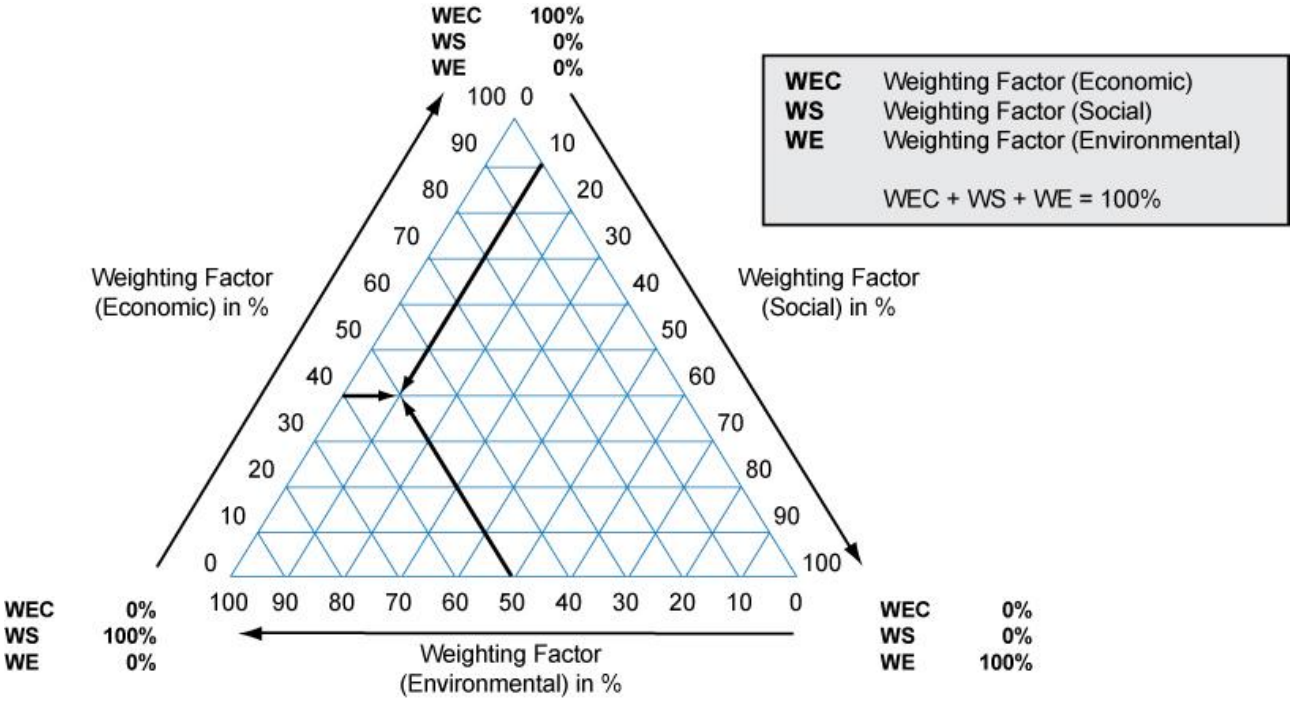


FIGURE 24 – THE LIFE CYCLE SUSTAINABILITY TRIANGLE

Such a system, however, exemplifies the difficulties in presenting and defending the process of measurement and weighting, which can be perceived as arcane, technocratic or non-transparent.

Since these compliance systems can only ever be as good as the standards themselves, the following table considers the inherent pros and cons, highlighting the potential strengths and weaknesses of these two systems.

"Apart from challenges with regard to indicators and weighting issues, LCSA has to deal with the trade-off between validity and applicability. The inherent complexity of an approach that is supposed to allow a valid measurement of the sustainability performance is a challenge for decision-makers."

Finkbeiner et al.2010.3220

Scenario matrix

Type	Strengths	Weaknesses
Compliance-Non compliance	1. Transparent. Clear demonstration of performance over a range of criteria. Easily communicates to markets and stakeholders what compliant facilities 'look like'.	1. Blunt? Does it adapt to local conditions or capture the complex dimensions of sustainable development, e.g. economic, environmental and social. 2. Over-perceptive? Bluntness in addressing issues provides benefits in managing perceptions but undermines efforts to address complex multi-dimensional issues.

Weighted Rating Compliance	1. Nuanced. Able to match local material conditions and balance the three dimensions of Sustainable Development (Ibid).	1. Arbitrary? Weighting systems fail to address certain criteria held as fundamental to stakeholder groups. 2. Opaque? Weighting systems are extremely technocratic and problematic to comprehend. Difficulty in interpreting what a compliant facility really 'looks like', undermining credibility of programme.

While some programmes or research institutions have adopted or advocate Binary Compliance and others, Weighted Rating Compliance, these two approaches are not necessarily either/or. A nascent example is The Better Sugarcane Initiative (BSI), which determines compliance based upon a two-stage process. This comprises a core set of criteria judged by binary compliance / non-compliance, followed by a weighting system where 80% of all criteria must be met (BSI Production Standard).

Scope of standards

The scope of a standard refers to the technical dimensions, or boundary conditions in terms of which value-chain activities will be covered by the standard.

Chronological scope

The chronological scope refers to the timescale applied to the activities of a candidate organisation against the agreed set of standards. Since the operational life of a bauxite mine, or the lease of a hydropower facility often amounts to a relatively long time period, credible solutions must be established that stand up to the scrutiny of stakeholders and markets.

It is possible that across the range of operations managed by any multinational business, some operations will be compliant and others not. If compliance is set as performance target, some business units will move into compliance faster than others because of their historical starting points. This needs to be recognised and accepted.

A retrospective review of non-compliant activities and mechanisms is therefore critical, in order to address discrepancies (in satisfying the developed standard where necessary or in negotiating a settlement with stakeholders). It is key to a programme's overall credibility.

Operational scope

As Section 1 highlighted, principal bauxite deposits are in countries including Guinea, Australia, Brazil and Jamaica. Al value-chains beginning in these countries commonly stretch across continents, ending at the world's major industrial and consumer centres where finished products are delivered. The material flow from the bauxite mine progresses through several value-adding steps, culminating in the delivery of semi-fabricated metal to End Users. After the use phase, Al's recyclability means that most value-chains do not terminate at their end-of-life location. Instead, scrap is collected, sorted and re-melted, thereby feeding back into the value-chain, generally as semi-fabricated metal.

The RA Charter (see page 6) calls for options to "develop a credible and independently verifiable Al scheme that seeks to minimise impact and improve performance throughout the Al value-chain". Recycled Al represents a critical component of global Al flows and is a keystone in supporting Al's cradle-to-cradle performance. Accordingly, the Working Group has worked on the premise that an RS Programme should cover both primary and recycled flows in its operational scope. This implies that technical standards, norms or

requirements may need to be developed for each major value-chain activity, from bauxite mines to recyclers.

VALUE-CHAIN BOUNDARIES

Since the steps in the value-chain represent discrete but interlocking processes, it is important to identify the best framework to establish responsibilities at each step in the value-chain, both in terms of compliance checking and of the value-chain as a whole. A useful conceptual model can be generated by adapting the Greenhouse Gas (GHG) protocols.

Boundary Level 1 issues – activities within the direct on-site control of the operation, directly involved in the Al value-chain.

Boundary Level 2 issues – activities within the direct control of the operation, directly involved in the Al value-chain but occurring off site. This would include the energy mix used for AI smelting, if captive power.

Boundary Level 3 issues – activities occurring as a direct consequence of the procurement of the products and services but outside the direct control or ownership of the organisation directly involved in the Al value-chain, i.e. purchase of anodes by smelting operations or energy from the grid.

PRIMARY AND RECYCLED ALUMINIUM FLOWS

Figure 25 is a model of the 'Global Aluminium Flow' that has been developed by the International Aluminium Institute (IAI), and depicts the quantitative flow of global Al stocks (IAI.2009.PP). The model demonstrates the relative flows in the material phase and metal phase, together with the losses from the system. It thereby highlights the interconnected flows of primary metal (where Al is manufactured directly from alumina) and recycled metal (which originates from re-melted scrap).

IAI estimates that the total semi-fabricated Al production is approximately 56 million tonnes per annum with approximately 18 million tonnes of that originating from scrap (IAI 2009). Scrap metal is sourced from collectors, dismantlers, metal merchants and scrap processors. This scrap can take two transient forms:

- Post-consumer scrap is formed from products that have passed through their use phase, often regarded as being no longer fit-for-purpose. In terms of their position in the value-chain, they are Al products created and sold on by manufacturers (to consumers and businesses) and then effectively discarded. Examples of this are an empty beverage can and the Al from a discarded vehicle.

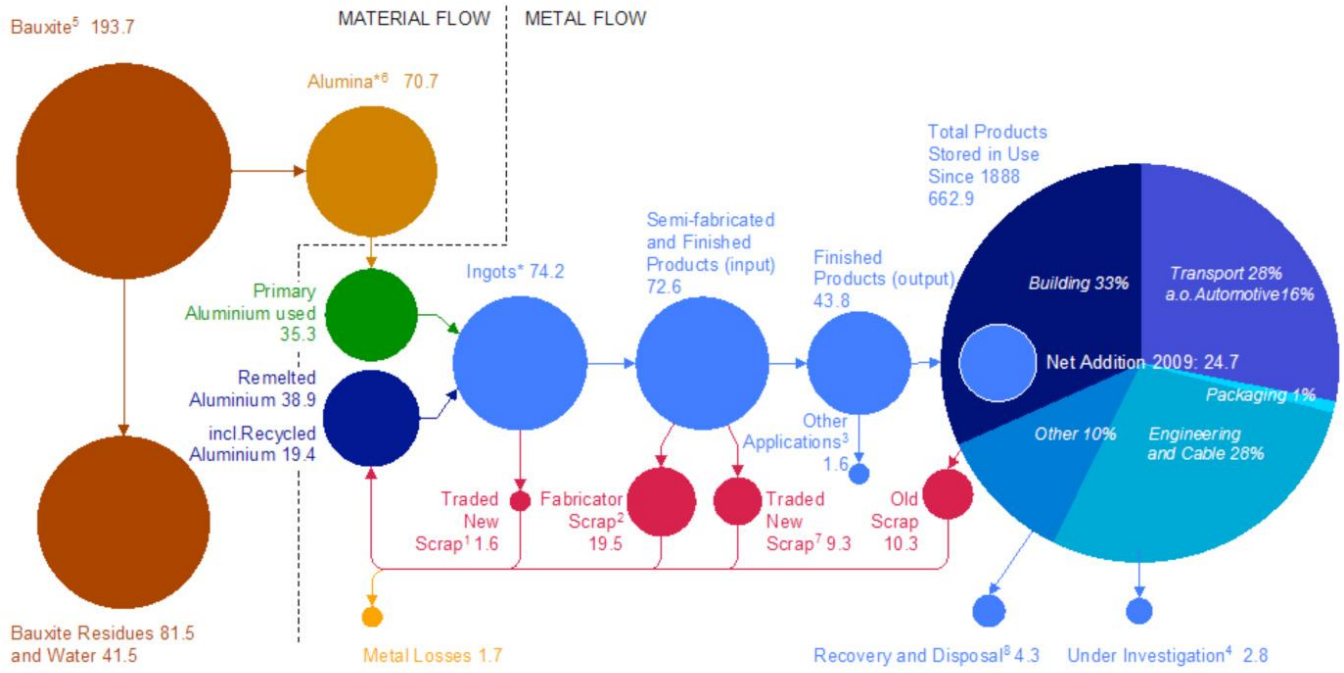
- Pre-consumer scrap, or traded 'new' scrap, is another source of scrap metal, created by semi-fabricators, fabricators and manufacturers during the manufacturing process. Pre-consumer scrap has not passed down the value-chain beyond the manufacturer. It is a by-product of the various industrial processes that lead up to the development of a finished manufactured product, which is sold to a consumer.

Both pre-consumer and post-consumer scrap is sold onto refiners and remelters, who then generally recycle the metal back into the value-chain at the semi-fabrication or fabrication stage. Recycled Al, however, is not necessarily all responsibly- sourced metal purely because it is has been processed via the recycling loop. Pre-consumer scrap, when it is a direct by-product resulting from industrial processing, is still essentially primary metal because it has not passed through the 'goods out' gate of the manufacturer, or served any use phase.

Pre-consumer scrap could be generated from a primary materials and metal flow that adopts practices that RA deems as non-compliant.

Increasing the efficiency of scrap recovery and recycling should, as already indicated,

remain a fundamental goal of the programme. However, the ability of value-chain operators to convert what would otherwise be non-compliant primary metal into compliant recycled metal, by categorizing it as scrap and recycling it, is a potential 'leak' in the verification system. This could undermine the future integrity of the programme unless recognised and addressed.



Values in millions of metric tonnes. Values might not add up due to rounding. *Change in stocks not shown
1 Aluminium in skimmings; 2 Scrap generated by foundries, rolling mills and extruders. Most is internal scrap and not taken into account in statistics; 3 Such as deoxidation aluminium (metal property is lost) 4 Area of current research to identify final aluminium destination (reuse, recycling, recovery or disposal); 5 Calculated based on IAI LCI report - update 2005. Includes, depending on the ore, between 30% and 50% alumina; 6 Calculated. Includes on a global average 52% aluminium; 7 Scrap generated during the production of finished products from semis; 8 Either incinerated with/without energy recovery, material recovery or disposal.

FIGURE 25 - GLOBAL ALUMINIUM FLOW

Implication

Al's recyclability is a key material attribute, and its performance is strongly contingent on the realisation of its potential recycling rates.

RA's operational scope should therefore continue to embrace the entire value-chain.

'PRODUCT' AND 'SUPPLIER' STANDARDS

Historically, individual organisations within a value-chain have looked to prove to their customers that they are capable of delivering a certain, independently acknowledged level of quality product or service. Organisations, therefore, have concentrated on factors within their immediate operational control, thereby focusing on Boundary Level 1 scope.

As the market place has become more sophisticated, discriminating and demanding in terms of the provenance of products, so the near market retailers have focused increasingly on RS (Boundary Level 3). They are not only interested in the proof of quality that their tier 1 suppliers hold, but also want to know that the products they are purchasing carry inherent qualities. Some of these will be measurable in performance terms (e.g. carbon dioxide footprint, water footprint) and some will be intangible and linked to their geographic origins (e.g. conflict zones or areas of weak governance) and characteristics of the value-chain.

These Boundary Level 3 issues are firmly linked to the supply-chain and the product

being traded along it. The role of the suppliers in the value-chain is critical in 'preserving' the qualities inherent in the product as it morphs from raw material to manufactured item, but it is the product that carries the quality. Suppliers play the role of 'passing' the quality product (via a chain-of-custody (CoC)) onto the next supplier. Suppliers are qualified in terms of their capacity to convey the product – with the product quality still intact – to the next operator in the value-chain. Each supplier in the value-chain must have the quality systems in place, in order to maintain the product quality.

SUSTAINABILITY ASSESSMENTS

This cross-value-chain view has been reinforced through the development of Sustainability Assessments, which are methods of modelling the impact of a product or functional unit during a particular timeframe, or scope. The drive realistically to assess a product's lifecycle has encouraged actors to look outside their Scope 1 impacts and along the value-chain. Figure 24 is a simple illustration of the 'Sustainability Assessment Toolbox' (Adapted from Finkbeiner et al.2010).[2]

Al exhibits strong benefits when adopting a cradle-to-cradle approach, which includes the use phase. For example, this is demonstrated in applications such as light-weighting in automotive vehicles. It may therefore seem beneficial, both to the Al industry and to evidence-based approaches to product functionality, to include use phase standards within the scope of RA.

However, since a full life-cycle or cradle-to-cradle perspective is product specific, its direct analytical use in creating standards for RA would require performance standards for fabricators on their Al product during the use phase. Since Al is used in products with extremely diverse functions and designs that change with innovation, devising standards for performance during a use phase may well prove arbitrary and ineffective. There are however, existing guidelines for product designs which could be utilised. In addition, process standards could be a more viable option in terms of the use phase. They are relatively more versatile, exemplified by the requirement of the manufacturer to conduct a robust sustainability assessment on the product in question.

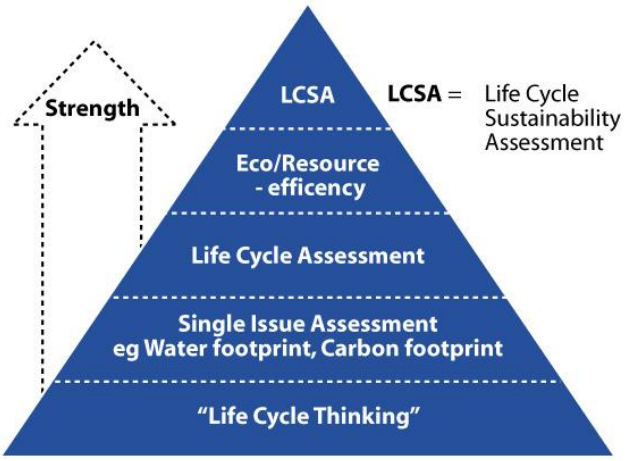


FIGURE 26 - LIFE CYCLE THINKING

Life Cycle Thinking represents the basic qualitative concept of assessing the environmental impacts of whole value-chains or product systems from 'cradle-to-grave'. Its aim is to look along the value-chain and prevent negative impacts being shifted from one particular value-chain actor or stage to another.

Single Issue Assessment is a quantitative process, to model the impact of a product or functional unit: for instance, the 'carbon footprint', 'water footprint' or 'forest footprint'.

Life Cycle Assessment is a well-established quantitative method that aims comprehensively to model the environmental impact of a product.

Eco/Resource-Efficiency aims to incorporate economic impacts into a life-cycle

[2] These approaches do not constitute a simple methodological hierarchy and the methods employed are often guided by the nature of the investigation or the resources of the analysts. However, the pyramid does imply the comparative sophistication and rigour of the methods in modelling the material impacts of a functional unit.

assessment, combining environmental and economic indicators.

Life Cycle Sustainability Assessment (LCSA) aims to provide the most authoritative sustainability assessment by incorporating social impacts into the eco-efficiency/resource-efficiency approach.

As such, the *direct* application of cradle-to-cradle analysis seems to continue to be best conducted by the fabricator. In this instance, fabricators would make value decisions on the nature of its Al use, based upon the overall performance of its product, market demand and stakeholder scrutiny. RA could position itself to:

- Provide diversity in the Al commodity market, allowing end users potentially to improve their sustainability performance through use of RA
- Highlight the role of downstream phases in the responsibility of post-consumer reclamation of their product
- Highlight the role of fabricators in conducting their own product-based Life Cycle Assessments while RA remains informed by the research and metrics developed for such cradle-to-cradle analysis, thus providing a compatible framework for end users.

Implications

Responsible Aluminium is a commodity specific programme. It must therefore address the specific issues of the aluminium commodity rather than its use in a product. It can, however, act as a positive route to improving the life cycle performance of a product containing aluminium, by offering improved performance indicators and a compatible framework. RA can consequently indirectly leverage the benefits of a cradle-to-cradle scope.

Chain-of-custody and traceability

Standards, together with their method of verification, are used to demonstrate the level of performance and/or process taking place in an operation. In the case of the multi-stage and geographically extensive Al value-chain, an RS scheme must demonstrate that the marketed Al product contains intangible qualities relative to the non-verified product, which is gained higher up the value-chain.

This requires a system that guarantees compliance at each stage in the value-chain. It is a system of CoC or traceability that provides the 'glue', adhering attributes like RS to materials and metals en route to the market place.

Traceability specifically concerns the geographic origin of a product and the physical movement of the product on having left its origin. It requires putting in place physical systems (as part of or attached to goods) that enable practical monitoring of a product's physical movement along the value-chain. The practical systems used include labelling techniques such as barcodes, Radio Frequency Identification Devices (RFID), DNA Labelling and Isotopic Labelling.

In an RS context, traceability systems are used when the identification of the geographical origin of goods is important, such as where goods are high value, discrete, lacking in fungibility and where there is a high risk of mixing or substitution.

CoC systems do not necessarily provide evidence of the geographical source of materials. Instead, they function to guarantee that no mixing or substitution of a commodity has taken place along the value-chain, by ensuring that:

- all operators handling the commodity are verified against the appropriate standards
- the quantitative flow of the commodity can be accounted for through an agreed accounting scheme

For example, if two shipments of RS bauxite arrive at an alumina refinery from different geographic origins and are bulked together for refining (without any mixing from non-controlled sources), the ability to identify the origin of the bauxite is clearly lost. Since the Al value-chain is multi-staged, this problem is compounded further as the material continues downstream. In this case, while determining the precise geographic origin of the bauxite is impossible, it is still possible to say, with complete confidence, that any unit of the bulked material was 'responsibly sourced'.

Implication

A CoC or traceability system is key to the integrity and marketability of RA. However, since both primary and recycled flows of aluminium concern material that is fungible and whose functional unit is amalgamated and of an atomic scale, a CoC system is the only workable solution for the foreseeable future.

A review of CoC systems is featured below.

Chain-of-custody systems

A CoC is the chronological physical or electronic documentation—and/or paper trail—showing the acceptance/purchase, custody, control, transfer and disposition of a product or associated sustainable attributes. ('Chain-of-custody options for sustainable biofuels'. 2010, IPICEA).

There are three commonly used methods of CoC accounting:

- Physical segregation
- Mass balance
- Book-and-claim

There is a range of stewardship type programmes that use CoC systems to ensure there is no unpermitted mixing or substitution along value-chains.

CoC are (or will be) supporting trade along value-chains for the following types of materials and products:

- Palm oil
- Soy
- Timber
- Fish
- Gold, platinum and diamonds

The CoC system is essentially a revised process of buying and selling between verified operations, and is now well established for supply chains that stretch across the world. Spot buying and broking activities can seriously disrupt CoCs when there is limited trade in verified material.

To illustrate how CoCs function it is useful to consider the variety of businesses involved in supporting a CoC that underpins FSC certified plywood being used in the velodrome for the London 2012 Olympics.

Pine logs, from certified forests in New Zealand, are shipped to China to be manufactured into veneers and then glued together to form plywood. The core veneers for the plywood originate from poplar logs from certified forests in China. The product is then shipped to the UK by a large-scale importer. The importer then sells the plywood to a large-scale supplier to the construction sector, who in turn sells the product to the construction company building the velodrome at the London Olympics site.

The businesses that support the CoC systems in this value-chain include:

- New Zealand forest management
- Chinese forest management
- Chinese veneer and plywood manufacturer
- UK plywood importer
- UK construction sector supplier
- UK construction company

This illustrates the international nature of CoC systems and how they are successfully used to support intangible qualities linked to the product – in this case, sustainable forest management – from one end of the value-chain to the other. All these organisations (apart from the forest managers) can also trade in non-verified products alongside the verified materials.

Below are descriptions of the three types of principal CoC systems currently in use. There are also variants of these that are not described.

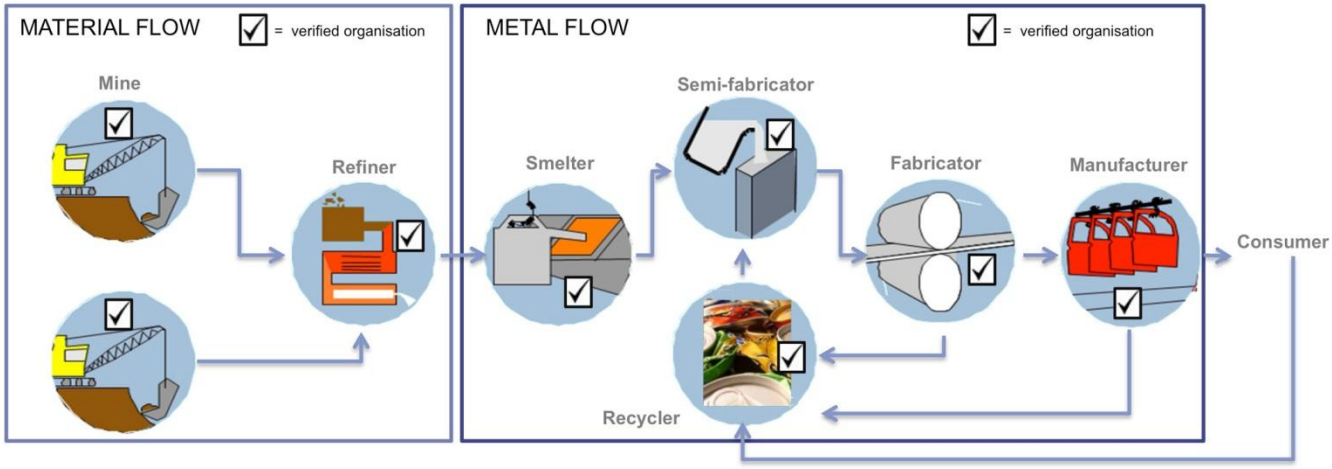


FIGURE 27 – SEGREGATION APPROACH

Potential 'quality' contamination is a key concern. Once a certain flow of materials or products has been recognised as having an additional quality (typically not physically manifest in the context of RS), it is critical to prevent (usually cheaper) products without that quality from being substituted for the 'quality' materials.

The segregation approach is designed to prevent this kind of mixing and substitution. Those goods with the RS attributes are kept physically separate at all stages from those that do not. Figure 27 represents how this might function for the Al value-chain.

It is a requirement that each value-chain operator's CoC accounting systems are periodically verified to demonstrate that their procedures ensure there is no physical mixing or substitution. The majority of FSC CoC's use this model. Where multiple certified forests supply a single primary processor, it is not possible to state from which certified forest the processed items leaving the processor facility have originated.

The key advantage of the segregation approach to RA is that it would directly link the mined bauxite and resultant metal with compliant mines and compliant value-chain operators. Many stakeholders and customers regard this as important (see page 21 - Market interest & demand for responsible aluminium).

Since bauxite, alumina and Al and recycled scrap are fungible materials that go through centralised processes (e.g. refining, smelting or re-melting), segregation is only viable (without major infrastructural changes) if the value-chain trades exclusively in RA.

As such, for the foreseeable future, segregation is not a practical solution until a significant number of value-chain operators are verified and trade exclusively in RA.

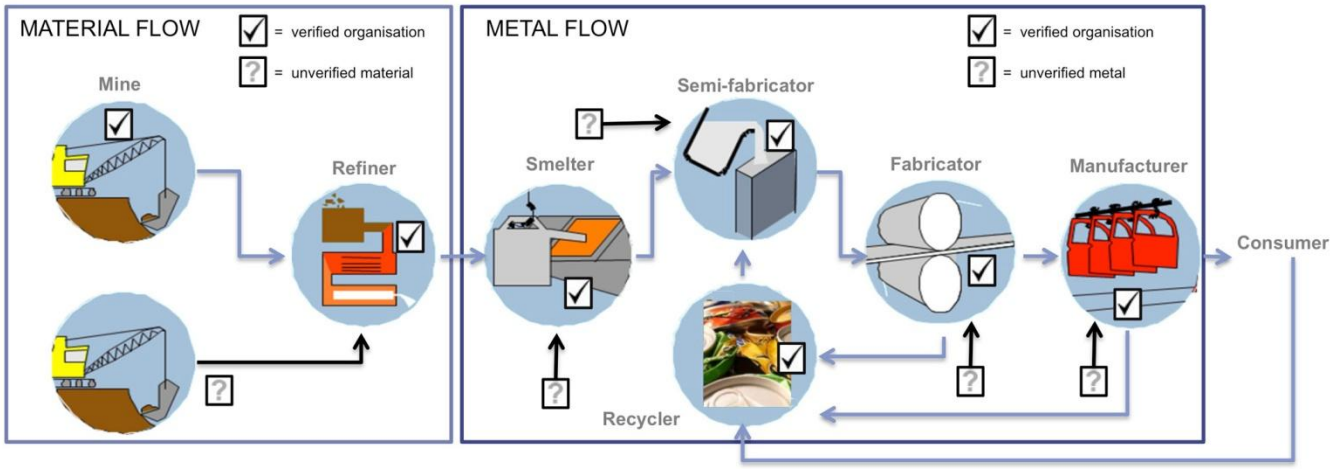


FIGURE 28 – MASS BALANCE APPROACH

A mass balance approach is based on the accounting concept that, if a known quantity of 'input' verified material is fed in at any point along the value-chain and all the losses in quantity – in terms of conversion factors – are also known, then it is possible at each stage accurately to estimate the quantity of 'output' verified material that results. The calculated quantity of verified product can then be traded as such, even though the 'output' material may not have originated from a verified source. This system is based on administrative segregation rather than physical segregation.

It allows mixing of verified and non-verified material within individual operator's processes on the condition that each operator has verified accounting systems in place to monitor the flow of verified and non-verified product. These ensure that the volumes of verified product traded with the next value-chain operator reflect the correct proportions of the input. Mass Balance Systems are used by palm oil processors recognised under the RSPO programme and by large-scale sawmills operating FSC and/or PEFC CoCs. This approach suits industrial processes with large-scale continuous processing systems handling fungible material because no segregation is required.

The final outcome of the Mass Balance system is that consumers may purchase verified metal that was not subject to 'best practice' standards along the value-chain. Bearing in mind that the correct mass of verified Al should be accounted for, and the material and perceived ends (in terms of increasing social, environmental and economic performance and reducing commercial reputational risk) achieved, this problem may not be significant.

A major advantage for this approach is that value-chain operators can simultaneously process both verified and non-verified material and metal until the hypothetical time when operators are trading only in verified material (when a segregation approach would be most applicable). Therefore, no major changes to infrastructure are required to deal with CoC requirements (other than those specified in the technical standards).

The disadvantages of this approach include the need for rigorous and transparent accounting regarding material and metal inputs and outputs. There is also a de-coupling of the verified material identified at the origin of the value-chain from the verified metal sold to the consumer, which, while capable of reasoned defence, is regarded by some stakeholders as conceptually flawed.

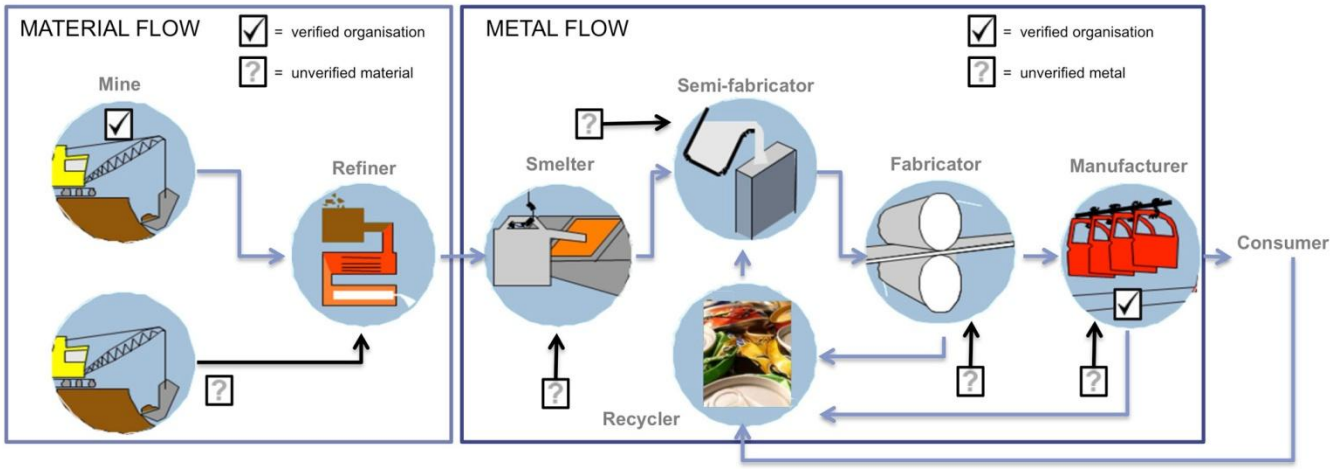


FIGURE 29 – BOOK AND CLAIM APPROACH

The principal characteristic of the book-and-claim approach is that there is complete de-coupling of the verification and trade-in product.

If implemented in the Al sector, it would rely on the mine(s) being verified as being compliant. The mine would then be able to request vouchers that are linked to the amount of material mined. The vouchers could then be traded with any organisation down the value-chain. By way of illustration, the manufacturer, at the end of the value-chain, purchases the vouchers. The manufacturer also has to be recognised as compliant with the programme requirements. The manufacturer can then state (while making reductions for the accepted conversion losses that normally take place over the length of the value-chain) that it has, available for purchase, compliant metal 'equivalent' in amount represented by vouchers it purchased from the mine. Figure 29 depicts this system as it might appear for the Al value-chain.

As soon as the compliant metal has been traded by the manufacturer, the vouchers are regarded as 'redeemed' and cannot be claimed against. They effectively are destroyed.

This system relies on a centralised system being in place for issuing and redeeming vouchers. This approach is used by the RTRS scheme and for some Fair Trade coffee. A major advantage of the book-and-claim approach is that administrative costs are lower than for the other two systems. There are no major changes required in the way that the value-chain operates.

Book-and-Claim systems do not require value-chain operators 'in the middle' (such as refiners and smelters) to change their practices at all. This would fundamentally undermine the objectives and proposed structure of RA. The programme, as currently envisaged, assumes that all value-chain operators would be required to demonstrate compliance. It is also inevitable that many key not-for-profit stakeholders would regard this approach as lacking any credibility – particularly because of the lack of participation of those elements of the value-chain presenting some of the most challenging issues.

The Book-and-Claim approach is incompatible with the principal sentiments of the RA Charter, which specifies the involvement of the entire value-chain. Book-and-Claim sidesteps the need to do this. In addition, such an approach would lack market-place credibility because some of the most serious issues faced by the sector are associated with the primary and recycled processing elements of the value-chain.

Summary

The above review covers a number of key factors that must be considered when developing standards. It highlights a number of implications and options that can steer the development of standards in subsequent phases. While the implications provide more explicit guidance, the options presented are not cut and dried decisions but a matter of careful consideration and negotiation. What is of utmost importance is that the standards address the issues of the Al value-chain in the most credible and robust manner.

Implication

The mass balance system is by far the most workable CoC solution for both primary and recycled metal flows.

Implications	Options
Standards must represent 'Best Practice' wherever possible within the bounds of national, regional and international law	Where to develop or apply process and/or performance criteria?
A Mass Balance CoC system (as the only workable solution) is critical to integrity and marketability of RA.	Where to develop new standards or apply existing standards? Use Binary or Weighted Ratings Methods to judge overall compliance? Or develop a combination of both?
Use phase standards not realistic within scope of RA. Cradle-to-cradle product analysis remains prerogative of fabricator.	How to manage chronological scope for candidates with existing non-compliant operations? How much stakeholder engagement and oversight?

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7. STAKEHOLDER ENGAGEMENT

Principles of multi-stakeholder processes

Stakeholders in a globalised industry such as Al are multiple and geographically extensive. Against this backdrop, the Working Group that convened the Scoping Phase mostly comprised industry actors, with the aim of creating a programme that:

- Enables industry to demonstrate openness, responsibility and improvements
- Reinforces and promotes consumer and stakeholder confidence in products containing Al.

These two ends can only realistically be achieved through stakeholder engagement.

Multi-Stakeholder Processes (MSPs) are integral to demonstrating openness and achieving increased confidence in an industry or product. MSPs are built on the premise that the diverse interest of stakeholders are not mutually exclusive; that an exploratory, coherent approach can help construct shared insights and meanings among stakeholders, and to manage the complex problems of stakeholder interdependency more effectively. (Calton et al.2003). Bringing people who hold different perspectives together in processes that respect and value diversity of views can yield constructive solutions.

MSPs therefore act as a platform for managing interdependencies in a positive way; where different stakeholders are identified, invited and assisted to interact in a deliberative space that focuses on:

- sharing knowledge and perspectives,
- generating and examining options
- informing and shaping negotiations and decisions

(Dore et al.2010.37)

This deliberative space is ultimately designed to generate and ratify a set of standards, the integrity of which is recognised by a range of industry, civil society and government stakeholders. This can be seen as stakeholder 'buy-in', where actors can contribute to the development and maintenance of standards, both through initial engagement and ongoing governance structures.

> *The UNED forum describes MSPs as "bring[ing] together all major stakeholders in a new form of communication, decision-finding (and possibly decision-making) on a particular issue. They are also based on recognition of the importance of achieving equity and accountability in communication between stakeholders, involving equitable representation of three or more stakeholder groups and their views. They are based on democratic principles of transparency and participation, and aim to develop partnerships and strengthened networks between stakeholders. MSPs cover a wide spectrum of structures and levels of engagement. They can comprise dialogues on policy or grow into consensus-building, decision-making and implementation of practical solutions. The exact nature of any such process will depend on the issues, its objectives, participants, scope, time lines, etc."*
>
> ***Earth Summit 2002***

Stakeholder engagement techniques

MSPs represent a common but flexible framework with an inclusive, participative and deliberative space at its centre. A variety of media and techniques can be employed to achieve this, tailored to fit the structure of the industry and the nature of the initiative itself.

The nature of multi-stakeholder engagement in RA will be shaped by:

- Value judgements on the level and extent of stakeholder involvement in the initiative, guided by the options set out in the Scoping Phase. This is itself a reflection of the overall direction of RA
- The structure of the Al industry (e.g. geographies of operations, types of stakeholders affected by specific processes)

Since MSPs are consciously managed engagements, they are usually carefully controlled by a core group of conveners, which provides initial structure to proceedings. During the Scoping Phase, the stakeholder consultation subcommittee has adopted this role. This management should consider the key questions of who to engage with, and how and when to engage with them.

Who to engage with?

Outlining or mapping stakeholders relating to the Al value-chain and determining with whom to engage is a delicate task. Inevitably, strong, value-laden judgements will surface around notions of participation and inclusivity in the process. Experience from previous MSPs suggests that it is sensible to hear from all interested parties, including their opinions on how they can be constructively involved (Dore et al.2010).

A preliminary 'Stakeholder Map' is included on page 37. This map should remain 'open-ended', to become more refined through the process of engagement itself. A number of techniques can be used, including brainstorming, interviews with key informants or producing 'rich pictures' with focus groups (Dore et al.2010).

While the question of with *whom* to engage clearly shapes the process of inclusivity, *when* and *how* to engage with them are decisions of equal consequence.

When to engage with them?

In a globalised industry such as Al, it is evident that not all identified stakeholders can be invited to participate simultaneously.

If, in subsequent phases, RA decides to incorporate a significant multi-stakeholder dimension, a time line outlining when formally to engage with groups of stakeholders in the process should be considered as a critical asset.

Anecdotal evidence from previous initiatives suggests that it is pragmatic to include at least a quorum of stakeholders from as early a stage as possible. Since MSPs are a group learning experience, as well as a space for deliberation and decision-making, early engagement prevents a programme from progressing down a narrow path based on meanings and insights, which are not shared by important stakeholders. Resultant backtracking and second-guessing at later stages can cost time, money and resources. The stakeholders that participated in the Scoping Phase strongly endorsed this view.

"Stakeholder engagement from an early stage will serve the process well. It creates a sense of ownership and shared experience among all the stakeholders involved. It is best to include a diverse array of perspectives early on for it is human nature to defend that which the group creates. If a broad group of stakeholders creates a process and standards, they will be more likely to defend it with pride, rather than having external stakeholders included only after the process is well underway express questions and concerns about prior work and having their concerns met with defensiveness by the group that created the initial product. The increased investment of time and money in considering diverse perspectives early on, will pay dividends of increased trust allowing the group to avoid costly delays later as the process unfolds".

Scott Klinger, First Peoples Worldwide

With an extensive list of stakeholders, the steering group for RA will have to keep each phase of stakeholder engagement in line with the agreed direction and resource of the programme. It must therefore make pragmatic decisions regarding with whom to engage at each particular stage, applying criteria such as:

- Balanced commercial / civil society representation
- Representative geographical diversity
- Balanced gender representation
- Previous experience in MSPs
- Representative sectoral diversity of commercial stakeholders
- International/national/regional civil society stakeholders
- Single or multi-issue civil society stakeholders.

How to engage with them?

Not all stakeholders can be engaged with simultaneously or by using the same engagement mechanisms. Stakeholders in the Al value-chain are located in a diverse array of locations and have varied access to financial and organisational resources. If wide participative engagement is the goal of RA, then the steering group must scrutinise and select the most effective set of engagement techniques, within the given financial and institutional resources provided. These techniques can be loosely categorised into 'Top-down' and 'Bottom-up' approaches.

'TOP DOWN':

Centralised techniques where discussions and deliberations feature relatively few stakeholders, with large constituencies.[3]

- Central Working Group
- Organs of programme, e.g. subcommittee
- Scientific Panel
- Targeted Interviews
- Community based work-shops
- Web-based feedback platforms
- Surveys and questionnaires

'BOTTOM UP':

Decentralised, extensive techniques designed to capture a wide selection of opinion, engaging a large number of actors often over diverse geographies.

As part of the development of stakeholder engagement strategies, the steering group

[3] Representation of stakeholder constituencies is often a difficult and complex concept, especially when delegates attempt or claim to represent hugely diverse groups such as 'Indigenous Peoples'. This point was emphasized by Kanyike Sena (Indigenous Peoples of Africa Co-ordinating Committee) and Marcus Colchester (Forest Peoples) (Sena.14/09/10; Colchester.14/09/10). There is therefore a need successfully to integrate 'Top-down' and 'Bottom-up' techniques.

must ensure that the invited participant possesses both the *means* and *incentives* to engage, each of which require explicit mechanisms within the governance structure.

Means: ensure that there are no barriers to entry for identified stakeholders with the will to participate

Financial barriers? i.e. insufficient financial resources to engage	Equitable financing mechanisms in governance structure
Logistical barriers? e.g. lack of common language or necessary technology	Select appropriate engagement technique and/or provide facilities (for long term engagement)
Constitutional barriers? i.e. Inability of NGOs to deal or receive direct funds from extractive industries	Lever existing Working Group partnerships and create indirect funding mechanisms

Incentives: providing willing stakeholders with the prospect of positive gains that could be yielded from participation. Central to this is creating a position of *influence* and/or *authority* in shaping processes and decisions, articulated in governance structures.

	Are stakeholders being invited to:
Influence	Come together primarily informally to build relationships and share information?
	Provide information through questionnaires to shape standards?
	Set the agenda for subsequent MSPs?
	Provide counsel and recommendations to a specific subcommittee or scientific panel?
Authorise	Engage as a full participative member of the Working Group with equal voting rights?

Whatever the decisions of the steering group regarding how and when to engage with selected stakeholders, the terms of engagement (including the provision of means and incentives) should be made clear and explicit from the outset. This can be expressed in terms of a clear, unambiguous and documented social contract to ensure that reality falls in line with expectations, and prevents potential disillusionment in the process (Dore et al.2010.51).

Key considerations regarding technique

Certain techniques of engagement display immediate affinities with certain stakeholders. For instance, large NGOs with experience in previous MSPs and delegates serving set institutional roles would appear to be coherent and effective candidates for centralised engagement. Conversely, stakeholders with less formal experience in MSPs and delegates with less institutionalised roles and greater ambiguities in representation may appear to be more effectively engaged with through 'bottom-up' techniques such as community work-shops.

However, in selecting techniques based on rigid criteria, the steering group runs the risk of facilitating the creation of 'new elites' at the centre of the process, in those organisations or delegates who regularly feature in MSPs (Nussbaum.14/09/2010). This can potentially subvert an MSP's aim of genuinely creating new cooperative relations between industry and civil society and can also undermine the overall credibility of the programme.

This was the experience of the Round Table on Responsible Soy (RTRS) when it began in 2005 without the support of key local civil society groups. Constituted by BINGOs (Big / Business friendly NGOs) and Transnational Corporations, it became an "ideal campaign target". Consensus had to be rebuilt the following year through a series of meetings and workshops.

(Dros.14/09/2010)

Summary

Stakeholder engagement is a process-orientated component of an RS programme, which seeks opinions from those groups with an interest in the Al value-chain, and allows collective shaping of the programme.

Options when it comes to stakeholder engagement are not pre-determined, but comprise a continuum of possible routes to achieving a programme that optimally balances credibility and effectiveness.

- **Credibility**, in demonstrating to stakeholder participants and to general external scrutiny, that the process is indeed inclusive and that the input of stakeholders does shape process and/or decisions
- **Effectiveness**, in preventing deadlock and moving forward in constructing shared meanings, leading to popular decisions among the group

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8. COMPARATIVE VERIFICATION SYSTEMS

Verification Systems are means of evaluating whether or not an operation complies with all-important standards. These are quality control processes that test the evidence of whether or not the specifications, as determined by the compliance requirements, have been achieved.

The RA Charter states that:

"Responsible Aluminium will evaluate a range of options to develop a credible and independently verifiable AI scheme that seeks to minimise impact and improve performance throughout the AI value-chain, recognised by the industry and external stakeholders."

As such, an independent verifiable scheme is a critical component of any potential future programme. However robust the standards are, the credibility of the whole programme is contingent on having an impartial and transparent method of evaluation against those standards.

Verification is part of a quality cycle as per Figure 30.

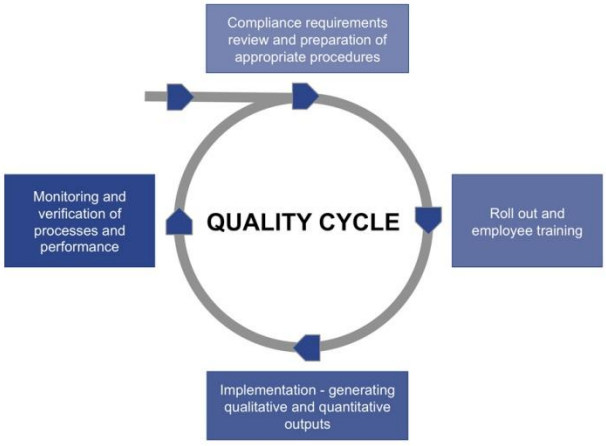

FIGURE 30 – THE QUALITY CYCLE

Verification can serve a number of purposes. It principally delivers independent evidence of whether or not a product or service meets a specified compliance requirement. It gives consumers the information they need when there is no direct relationship between the consumer and those delivering the product or service. When implemented appropriately, typically in accordance with various ISO norms, the outcomes should be *impartial*, *consistent* and *replicable*. Increasingly, verification approaches are being sought – especially in the social and environmental assessment specialities – that contribute to and reinforce the beneficial impacts of the relevant standards.

Other key factors that need to be considered are the transparency of the verification process and its outcomes, plus the competence of the auditors. Overall communication expectations are high. Any activity that is seen as frustrating transparency also undermines credibility and impacts negatively on consumers' perceptions of the associated products and services.

Having competent auditors who can consistently evaluate the compliance of a product or service against a set requirement is absolutely central to a robust verification process. Social and environmental compliance requirements are inherently difficult to assess, owing to the sheer variety of qualitative and quantitative attributes requiring verification and the considerable spectrum of context and circumstances. Auditors, therefore, need to be highly trained, properly evaluated and systematically supported by a programme of continuous improvement.

Verification methodologies

The range of verification models reflects different levels of investment in time and resources spent in gathering both qualitative and quantitative compliance information.

First party verification: self-verification or self-assessment

This method is typified by an organisation undertaking an internal audit; one that an organization performs on itself, using its own personnel. While there are no external costs associated with this approach, internal ones apply.

This type of audit is commonly used by businesses seeking to address inefficiencies and to maximise competitiveness. It enables them to see where they are positioned against internal targets set during a review phase. These tend to be Boundary Level 1 assessments i.e., looking at issues directly under the control of the organisation. As such, there is little or no independence in the assessment process.

Even so, there are many organisations that operate in a relatively open manner and can be relied upon to deliver honest self-appraisals. There are many others, however, where self-assessment results would rightly be regarded with extreme scepticism by the marketplace, because of the major conflicts of interest involved. This is particularly true of those countries in which the regulatory authorities have very limited capacity and are therefore ineffective.

While this method may still have some perceptible value, it evidently lacks sufficient objectivity in order to satisfy stakeholders and sophisticated marketplaces. For instance, self-verification does not satisfy the 'must-be' criteria for WWF engagement; nor does it meet the Verification Code of the ISEAL Alliance, a global association of recognised voluntary standards organisations (WWF.2010; ISEAL.2010).

Critically, this method also does not satisfy the terms of the RA Charter that stipulates "a credible and independently verifiable AI scheme... recognised by the industry and external stakeholders".

Second party verification

A second party verification method is an external form of verification that an organisation performs on a supplier of goods or services. These are Boundary Level 2 and Boundary Level 3 type assessments. As with first party verification, there are no external costs. Internal costs will include staff time and possibly staff travel (with these sometimes being passed on to suppliers).

The outputs from these verifications are generally for internal use within the buying organisation and are frequently oriented towards sourcing and quality managers. The assessments tend to centre on issues that have important commercial implications in terms of trade between the two parties and so usually remain confidential. Potentially serious conflicts of interest could arise if such information was made more transparent to others.

Environmental and social issues demand specific technical skills and knowhow, requiring assessors to review objectively a wide variety of circumstances. Only large-scale organisations have the capacity to retain personnel with such skills.

Second party verifications are inherently inappropriate for an RS programme because of the lack of transparency and fundamental conflicts of interest.

Third party verification

Third party verifications are external assessments conducted by one independent organisation upon another. This approach is widely accepted as having the greatest level of credibility because of the independence of the verification organisation and therefore objectivity of the assessment, as well as assessors' skill in identifying compliance and non-compliance with the stipulated requirements.

Third party verification has been used to facilitate trade for hundreds of years and there are large-scale international businesses specialising in this arena (certification bodies and associated auditing organisations), which have been operating profitably for several decades. Figure 31 summarises the typical organisational structure around which third party verification operates. RA is used for illustrative purposes only, to demonstrate where it would be located in such a structure.

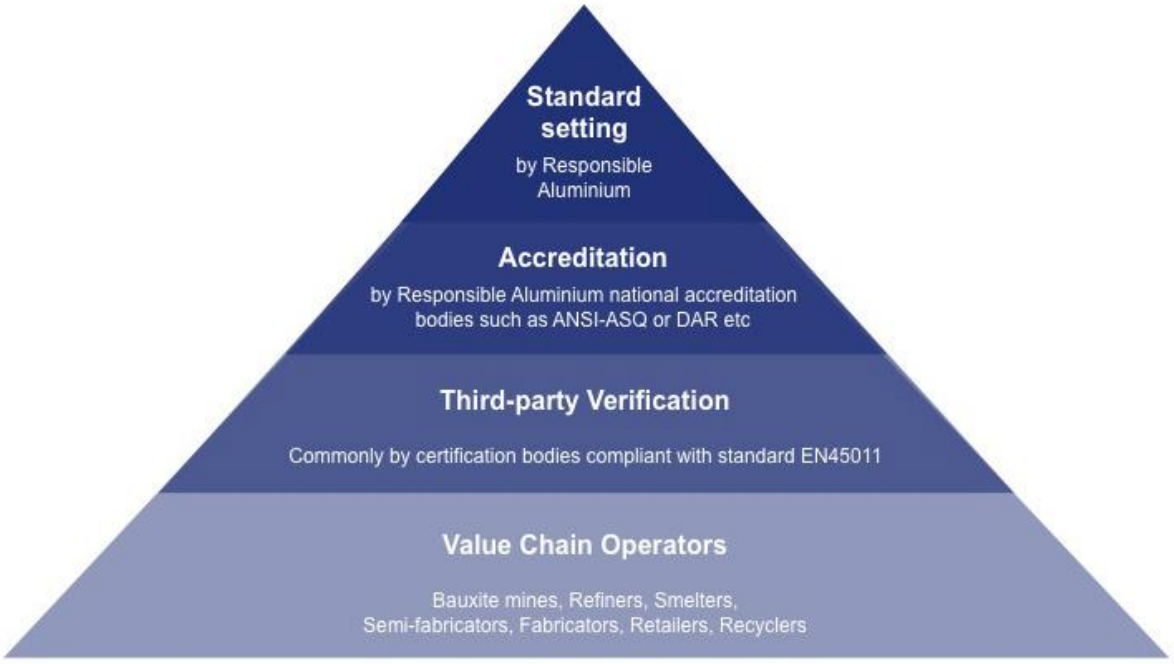

FIGURE 31 - ORGANISATIONAL STRUCTURE SUBJECT TO THIRD PARTY VERIFICATION

At the pinnacle of a third party verification is the task of 'standard setting', whose content is controlled by a 'standard setting body'.

- Accreditation is the process of selecting which organisations are qualified to evaluate value-chain operators against these standards. Accreditation organisations are effectively specialist verifiers, whose principal task is to verify that certification bodies have the necessary capabilities to assess against a particular set of compliance requirements. Accreditation organisations tend to have strong links with government. Some standard-setting organisations also act as accreditation bodies.
- Third party verification is typically conducted by certification bodies, which are awarded an accreditation to operate against the standards.
- Value-chain operators are those organisations that wish to be certified as compliant against the standards set by the 'standard setting body'.

Third party verification organisations – provided they have the personnel with the capacity and skills – can undertake many types of assessment with scopes covering Boundary Levels 1, 2 and 3 as required.

The third party approach undoubtedly delivers assessments with minimum conflict of interest, maximum objectivity and, therefore, the type of credible verification process that stakeholders and the marketplace desire (see page 21 - Market interest & demand for responsible aluminium).

This credibility comes at a price, which will always be significantly higher than for first and second party verification, because certification bodies need to maintain their systems, the assessors, their training and the accreditation.

Third party verification is sometimes criticised for failing to help encourage the organisations being assessed towards compliance. Some approaches fail to provide sufficient transparency in terms of the verification decision-making process.

A range of first and third party verification programmes have been reviewed during the

course of the Scoping Phase. The results of this review are presented in the Appendix. The programmes reviewed included: BES6001, BS8902, BSI, c2c, CSI, FSC, Green Lead, IAI, ISO14000, MSC, PEFC, RJC, RSPO, and RTRS.

These were assessed against criteria extracted from relevant ISEAL and WWF documents. More detail is given in the Appendix.

For the three Stewardship programmes that scored the highest:

- Their scope included the entire value chain.
- Multi-stakeholder involvement was a fundamental plank of the standards development process and central to governance structures.
- Transparency regarding standards development and governance was seen as critical.
- Robust standards review systems and procedures for process complaints about the programme were regarded as important
- CoC systems were key to effective implementation of the programme and should not be left for a second implementation phase.

For the three programmes that scored the lowest:

- Their scope focused on a component part(s) of the value chain or a product.
- There was limited evidence of multi-stakeholder (such as civil society) involvement in standards development or ongoing governance.
- There was limited evidence on exactly how standards were derived and how they will be developed going forwards.
- The governance of the programmes gave the appearance of being dominated by a major interest group and therefore was potentially unbalanced.

The implications are that the above points should all be avoided when building a Responsible Aluminium programme.

Implication

Third party programmes are the norm for objective, independent verifications where appropriately skilled assessors deliver (relatively) transparent verification decisions. It is the only method with the potential to deliver the stakeholder engagement and market credibility stipulated in the charter.

There are external costs associated with this approach that need to be met by the organisation hosting the verification.

Summary

There is a wide range of verification approaches currently in use. Those applicable to RA fall broadly into two categories, namely:

- First party self assessment – which place a strong reliance on the organisations involved gathering and reporting information about themselves
- Third party independent – where processes are put in place to improve the credibility and objectivity of the verification system

Factors that need to be taken into consideration when selecting an approach are associated with the level of credibility delivered at the market end of the value-chain and likely levels of endorsement from civil society stakeholders.

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9. COMPARATIVE GOVERNANCE STRUCTURES

When establishing an RS programme, the 'unique organs' of the programme tend to be addressed first: determining objectives, identifying issues and drafting standards. This focus means that the governance structure can end up as a post-hoc creation, yet it represents a critical factor in the development of any initiative consciously seeking to generate workable cross-stakeholder partnerships. It also reflects the initial - and ongoing - credibility of the programme. It is the means of connecting, complementing and reinforcing the work of the programme's various components and will ultimately determine the effectiveness of the entire process.

Roles of governance structures

All RS programmes, sustainability initiatives and commodity stewardship programmes share certain constituent attributes (however minimally), as illustrated in Figure 32.

FIGURE 32 - GENERIC GOVERNANCE STRUCTURE

The systems of governance can be seen as the formal procedural relationships that connect these and other, additional organs, by balancing the influence and authority of members and constituencies, thereby predicating the overall nature, direction and adaptability of the programme.

Comparative governance structures

A study undertaken by Mallet and Wenban-Smith (2007) analysed a range of governance structures deployed by a number of organisations (IFOAM, FSC, PEFC, MSC, and FLO) operating quality assessment programmes. Each programme was analysed in terms of:

- The different hierarchical governing structures that direct the programme
- The way members of the governing bodies were selected, their representation and accountability
- The type of voting structures the bodies use and how they make decisions

Table 7 charts the governance structures of those organisations analysed by Wenban-Smith, along with two more programmes (RJC and IAI). See the Appendix for a more detailed analysis.

Influential factors

The type of governance structure adopted by these programmes is strongly influenced by its principal objectives: its origins, in terms of why it was established; the nature of the problems being addressed; and the geographic extent or scope of the value-chains being encompassed. The influential factors are studied in more detail below.

Membership

Members are the core constituency of a programme and normally provide the bulk of the funding. Given that programmes, including RA, are typically sector-specific, there is usually a discrete population of organisations wishing to become members. This is even more likely for an AI programme where primary operations are highly centralised.

Since credible RS programmes aim to build constructive cross-stakeholder partnerships, membership would typically include

representation not just from commercial stakeholders, but also from civil society and potentially, also from governments. This body of members often has subgroups or chambers founded upon issue base (e.g. Economic, Environmental and Social in FSC), value-chain position (e.g. Six 'Fora' in RJC) or geography (e.g. North / South divide also present in FSC). How the programme is structured will be strongly influenced by the characteristics of the value-chain.

TABLE 7 - COMPARISON OF VERIFICATION PROGRAMME GOVERNANCE STRUCTURES

Name	Mission – promotes	Stakeholder		Board members		Manages accreditation?	Governance		
		Types with voting rights	Involvement in strategic decisions	Number	How elected		Perceived strengths	Perceived weaknesses	Costs (relative)
IFOAM	Lead, unite & assist the international organic movement	750 + international associations, institutions, traders and certif. bodies	High – members have voting rights via General Assembly	10 + 3 = 13	General Assembly that meets every 3 yrs	No – delivered by a specific independent not-for-profit organisation	Providing robust means for unifying and supporting membership	Weak in terms of imposing common standards across industry	Medium to High
FSC	Environmentally appropriate, socially beneficial, economically viable management of the world's forests	650 + international eNGOs, social NGOs, academic institutions, forest management companies, traders, retailers	High – members organised on basis of 3 chambers (social/enviro/econo) and then north and south representation.	9	General Assembly every 3 yrs	No – undertaken by a specific for-profit organisation	Able to implement a 'top down' approach to upholding the standard and also effectively deal with controversial issues	Limited ability to take policy decisions quickly	High
PEFC	Framework for the development and mutual recognition of national or sub-national forest certification schemes	30 – 50 national forest owner organisations	Low – programme originally aimed at governments and industry. Recently has developed market traction.	5 -13	General Assembly every year	No – undertaken by national accreditation organisations	Strong representation of forest owners' views	No support from wider social or environmental interests	Low
MSC	Responsible fishing practices		High – via a MSC Stakeholder Council that elects 2 members for the Board	10 -15	Stakeholder Council meets yearly	No – undertaken by a specific for-profit organisation	Involvement of both technical experts and stakeholders at modest cost	Not explicitly democratic	Low - Medium

Name	Mission – promotes	Stakeholder		Board members		Manages accreditation?	Governance		
		Types with voting rights	Involvement in strategic decisions	Number	How elected		Perceived strengths	Perceived weaknesses	Costs (relative)
FLO	The market for Fairtrade-certified production	22 national labelling initiatives, producer organisations, traders and external experts	High - standard setting; Lower – strategic development	13	By constituencies	No – undertaken by a specific for-profit organisation	Perceived as having a high level of legitimacy because national members strongly involved. A clear mission has united governance objectives.		Medium
RJC	Responsible ethical, human rights, social and environmental practices in the jewellery sector from mine to retail – with a strong consumer market focus	260 members inc, trade assoc., miners, processors, manufacturers, retailers	High – standard setting from members; Low - strategic development and from civil society	24	By Commercial Member fora	Yes – managed by RJC	Has strong commercial support from the industry and its processes are transparent	No traceability or CoC systems and limited civil society involvement	Low - medium
IAI	Promote Al under sustainability credentials, highlighting the net benefit of industry using cradle-to-cradle perspective.	Data collected internally from members and non-members, all of which are industry stakeholders. Also works with End Users and research institutes.	Programme entirely member-driven. Research institutes play a part in developing indicators but have no involvement in analysis and presentation.	27	Working committees made up of membership & association membership. Ad-hoc relationship to research institutes.	There is no verification and hence no accreditation of verifiers	High coverage of data on annual basis. Process & performance indicators. Issues selected according to material risk. Long-term global coverage.	Data is not currently verified. Significant non-reporting cohort in group -related to rapid growth in Chinese production.	Low

Since members are the constituency, their role is to determine the programme's activities and direction. Typically, this occurs in a General Assembly, convened periodically to allow all members to attend and interact and, usually, to vote for candidates for elected institutions such as a Board of Directors (covered below) to act as representatives for a fixed period.

Which members possess voting rights (whether all, or a predetermined type or proportion of members) for this and other votes is a fundamental reflection of the programme's nature. Some programmes, for example, those implemented by trade associations such as the IAI, typically limit membership to those with strict sector-based commercial interest, as a means of ensuring a coherent industry focus and control.

For similar reasons, other programmes, such as PEFC, are principally designed to meet government procurement criteria rather than to gain wider market traction (unlike the FSC) and therefore only accept non-commercial organisations as associate members with no voting rights. In this way, voting rights are sometimes denied to not-for-profit civil society groups, thereby offering them little by way of influence, authority or shared ownership over any decisions.

Such a system of governance is ultimately driven by industry and will always be perceived as 'industry-owned'. This will undermine the likelihood of the programme achieving sufficient stakeholder interest and the endorsement needed for gaining credibility and long-term marketability. This would be especially true for RA, given that it wishes to promote its brand all the way along the value-chain to the retail end of the market.

Implications

In order to match the requirements of the Charter, Responsible Aluminium must, in a transparent and balanced way, provide its contingent of participative stakeholders with a position of equitable influence and authority.

The governance structure developed by Responsible Aluminium must ensure the balance, influence and authority of downstream and upstream commercial stakeholders, to ensure workable partnerships not just between industry and civil society, but also between commercial operations *along* the value-chain.

Elected bodies

Realistically, not every member can be involved in each decision-making process. For instance, highly democratic decisions could be made during general assemblies (presuming all members possessed voting rights), but such a process would be slow and would mean that few decisions could be made and acted upon during the interregnum.

As such, a governance structure usually contains elected components, such as a rotating Board of Directors, which represents its members as part of a more effective decision-making process. A range of checks and balances can be employed to ensure accountability and practical representation of the different interest groups within the membership. While a Board of Directors is a typical elected component, this model can be applied to any group or chamber requiring an effective and accountable decision-making body.

Implication

Assuming that the Responsible Aluminium membership is fairly extensive, constituting both upstream and downstream commercial operators and civil society actors, it is probable that the governance structure will feature one or several elected bodies to effect decision making.

Consultative bodies

Programmes built around complete value-chains can mean the involvement of a wide range of highly technical activities. As such, an appropriate number of technical experts needs to be available, in order to provide advice to decision-making bodies on key issues requiring 'in-depth' knowledge. In addition, since quantitative targets and metrics are not objective in and of themselves, such a group needs to be as independent as possible.

A review of the AI value-chain raises several, highly quantitative, technocratic issues, such as emissions and water consumption, which could require the objective analysis of such a consultative body of experts, both in the process of standard-setting and in other tasks.

Implication

The presence of several highly scientific, technical issues in the aluminium value-chain would require the consultation of an independent group of experts to guide and vet the decisions of the group.

Income generation

Governance structures, including the administrative secretariat, cost money to operate. How this money is generated is largely determined by the nature of the value-chain and the issues at hand. For example, Green Lead and the Marine Stewardship Council receive funds from governments and supranational institutions, reflecting the transnational drivers of the initiatives (trans-boundary toxicity and international fish stocks, respectively).

For most commodity programmes, members provide the main source of funding, in the form of membership fees.

Implication

Owing to the high level of private commercial and non-governmental interest in initiating a Responsible Aluminium programme, membership fees are likely to generate the majority of funds for subsequent phases and for running the final programme.

Standard setting

The ISEAL Alliance Code of Good Practice for Setting Social and Environmental Standards sets out an increasingly recognised and accepted methodology for standard setting. At the centre of this approach lie an open and transparent stakeholder consultation process and a balanced stakeholder engagement methodology.

When a programme's members (seeking recognition as quality operators) are geographically diverse and operating within highly variable regulatory systems, national interpretations of international standards can be required. In such cases, the Board of Directors will need to approve these national standards as supporting - and being consistent with - the overarching requirements of the entire programme.

Accreditation of verification organisations

Historically, natural resource-linked stewardship programmes have accredited the certification bodies, which then assessed those value-chain operators seeking compliance with the programme standard.

The majority of these now tend to appoint legally independent, specialist organisations to take over responsibility for accreditation. However, some, such as the Rainforest Alliance, remain as both standard-setting and accreditation organisations.

Hypothetical governance structure

As already demonstrated, governance structures cannot be presented as cut and dry options but, like stakeholder engagement, represent a continuum of different elements that need to be carefully balanced to be credible and effective.

Figure 33 illustrates a hypothetical option for a governance structure, partly proposed during a Working Group meeting.

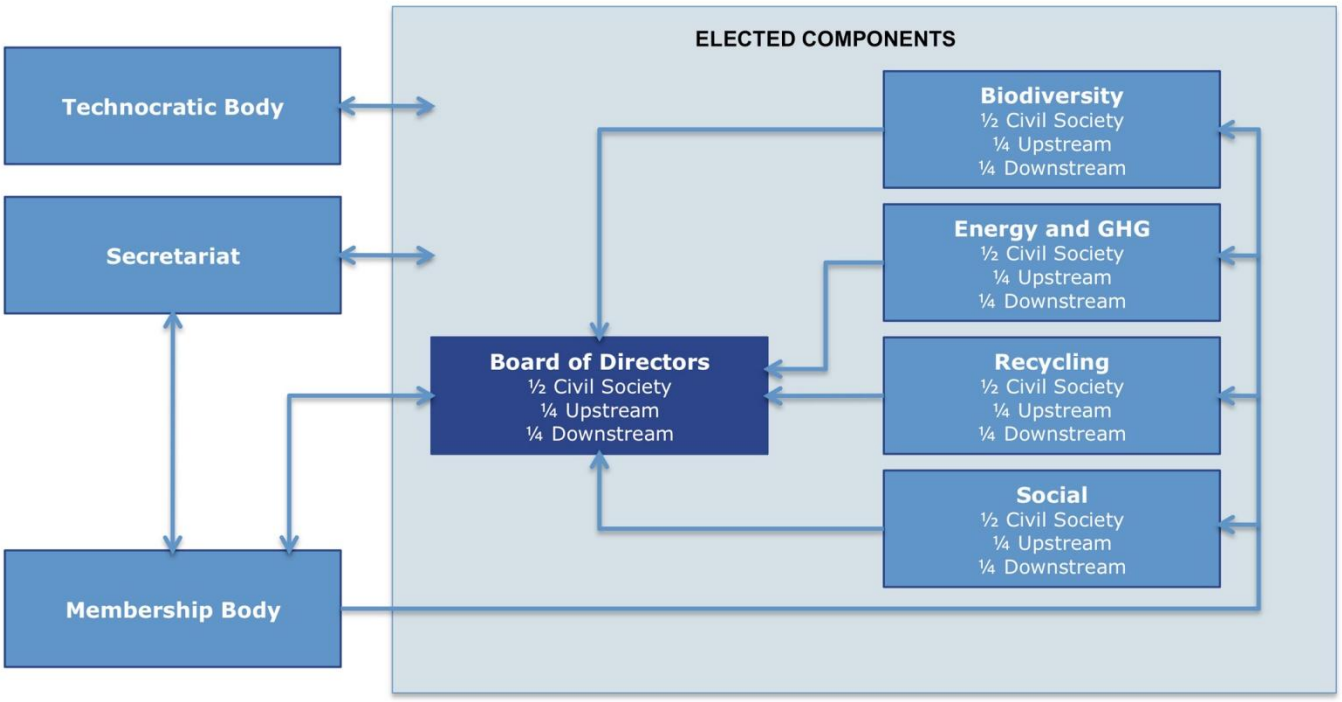


FIGURE 33 - HYPOTHETICAL GOVERNANCE STRUCTURE

The diagram proposes that the membership body creates:

- An elected board of directors with balanced representation from civil society and industry, as well as between upstream and downstream organisations. This body would be accountable to the membership body and, ultimately, would be responsible for ratifying standards and the verification process
- An independent scientific body to provide technocratic advice
- Four chambers founded upon issue-bases critical to the Al value-chain, constituted by elected members and with balanced representation drawn from civil society, industry, upstream and downstream organisations. These groups would, in consultation with the technocratic body, generate and update standards, for review by the Board of Directors
- An independent secretariat to conduct the day-to-day administration of the programme.

Timeframe for implementation

The time and external costs of implementing an RS programme vary depending on the type of governance structure concerned.

Based on experience, any RS programme would take around 3-5 years to develop, from initiation to operation and, potentially, achieving some market traction. A third party verified programme is at the upper end of this timeframe, while a first party programme is at the lower end.

This period of implementation will principally involve the establishment and operation of an independent secretariat and functioning governance structure. This will include integral steps in developing documentation, coordination, capacity building and marketing. Table 8 details which activities are typically associated with first and third party programmes.

Activity	First Party Self-Verification	Third Party Independent Verification
1. Coordination of meetings	▯	▯
2. Civil society participation		▯
3. Development of governance structures	▯	▯
4. Multi-stakeholder consultation		▯
5. Standards preparation	▯	▯
6. Web site development - promotion	▯	▯
7. Membership documentation	▯	▯
8. Stakeholder communications		▯
9. Representation at public meetings	▯	▯
10. Financial management	▯	▯
11. Annual assembly		▯
12. Specialist consultants	▯	▯
13. Field trials	▯	▯
14. Development of verification protocols	▯	▯
15. Development of verifier training courses		▯
16. Programme promotion		▯
17. Web-based database management		▯
18. Funding secretariat staff & infrastructure	▯	▯

TABLE 8 - PROBABLE SCENARIO OF ACTIVITIES LINKED TO FIRST PARTY AND THIRD PARTY VERIFICATION

Programme	Years since initiated	Secretariat size (number of people)	Members (number, approx., inc paying & non-paying)	Revenue (in 2009, USD, millions, approx.)	Revenue source (major)
BSCI	1	5	30	?	Members
c2c	15	?	100	?	Assessment fee per product
CSI	10	?	24	0.8	Members
FSC	15	40	900	10.3	Accreditation fees, members, grants
IAI	7	2	27	0.3	Members
MSC	10	70	No members	14.5	Grants & label use
PEFC	12	30	500 000	2.6	Members
RJC	5	6	260	1.7	Members
RSPO	4	11	500	1	Members
RTRS	6	5	145	0.6?	Members, donations

*This information was supplied by the individual programmes or sourced from their respective web sites

TABLE 9 - VERIFICATION PROGRAMMES - SIZE AND REVENUES

Comparative external costs

This period of implementation will, of course, incur costs, with a third party programme costing significantly more than a first party programme. The inevitable difference in costs is owing to the lower requirements of a first party programme, in terms of networks, institutions and processes that need to be put in place.

A range of programmes has been reviewed in context of their verification approach. Table 9 summarises the characteristics of those – in terms of size and revenue - that relate most closely to the options being considered for RA.

This information can be viewed in a number of ways.

All programmes reviewed, with the exception of c2c are not-for-profit. Revenue, therefore, approximates to expenditures. For most programmes, membership fees provide the majority of the revenue to support the activities of the secretariat and governance structures. Alternative or additional sources of revenue include:

- Grants from government and institutions
- Fees collected as a result of label use
- Accreditation fees collected from third party verifiers
- Fees from training auditors

A first party programme, such as the Cement Sustainability Initiative (CSI), has received USD 8m funding from its members over the last 10 years, thereby averaging USD 0.8m per year.

The Responsible Jewellery Council (RJC) and Roundtable on Responsible Soy (RTRS) programmes are both third party verified programmes – which started 5 and 6 years ago – and have revenues of USD 1.7m and USD 0.6m (estimate) respectively.

As noted, the external costs that might be incurred by a future RA programme would depend on the direction taken following the Scoping Phase. However, judging from the above figures, it is estimated that operating an adequately resourced international verification programme would cost approximately USD 0.4 million – USD 0.8 million per year for the first few years of implementation. Experience suggests that the cost of a first party programme would be towards the lower end of that cost bracket and a third party programme, at the upper end. Once the programme is generating a public standard of compliance, this figure will rise.

For the first 1 – 2 years (the start-up phase), the programme can run at slightly lower levels of expenditure. During this period it will be largely reliant on donations, because revenue from membership fees is unlikely to meet expenditure. Costs involved in running the programme will significantly increase after the start-up phase, because of the steadily growing number of activities described above.

Should the programme go ahead, how much to charge value-chain operators for membership merits careful consideration. The amount levied could be a flat fee or have grades related to a companies' profits. It should, however, reflect the value of being involved in the programme and also ensure that it is adequately resourced.

Scenarios

The annual costs involved in running a programme based upon first party self-assessment would be similar to those of a third party verification programme. Its total start-up cost, however, would be modest, given its shorter start-up period.

Assuming the programme start-up phase initiates in 2011 and is based on third party verification, it is anticipated that the first compliant organisations would be recognised in approximately 4 - 5 years, i.e. 2015/2016. At this point, additional income could be generated from inspection body accreditation

fees and from training programmes for auditors.

Those third party programmes that have been operating for a decade or more have revenues of over USD 10m. These programmes have developed a network of international offices reflected in a broad membership, with many programme staff to support those members. Figure 34 depicts how expenditure for a third party programme could evolve over the forthcoming years.

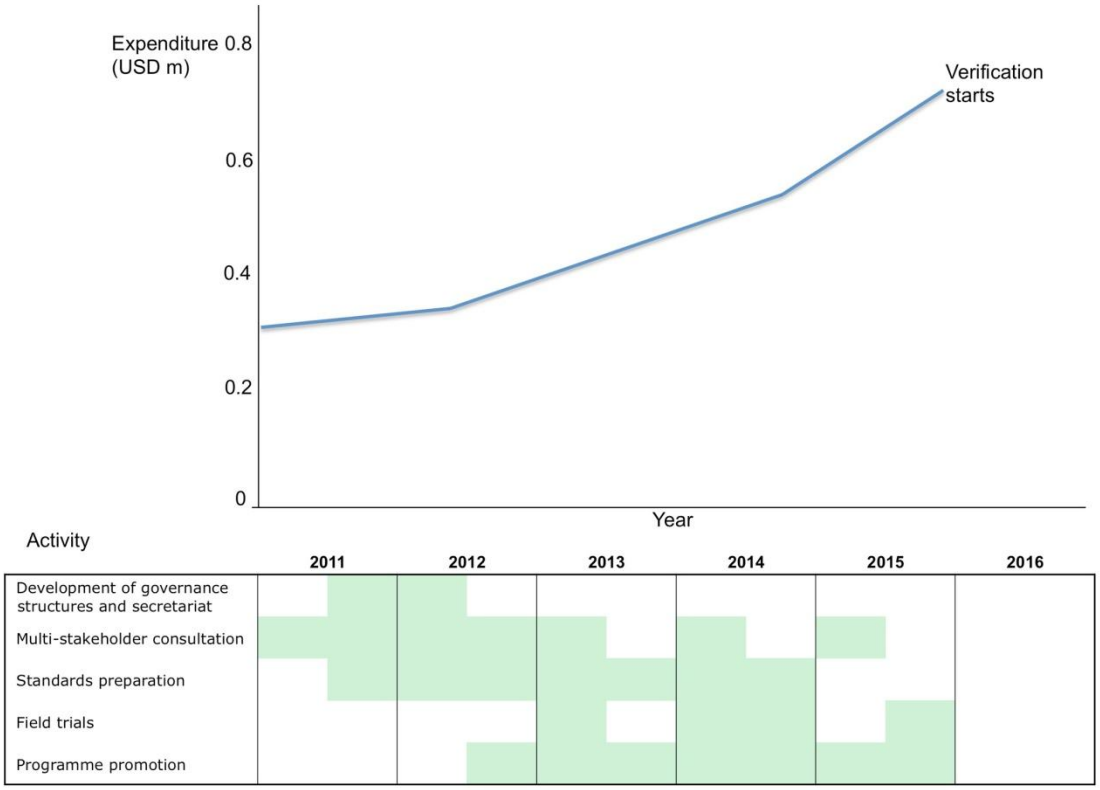


FIGURE 34 - ESTIMATED EXPENDITURE REQUIRED FOR THIRD PARTY VERIFICATION PROGRAMME

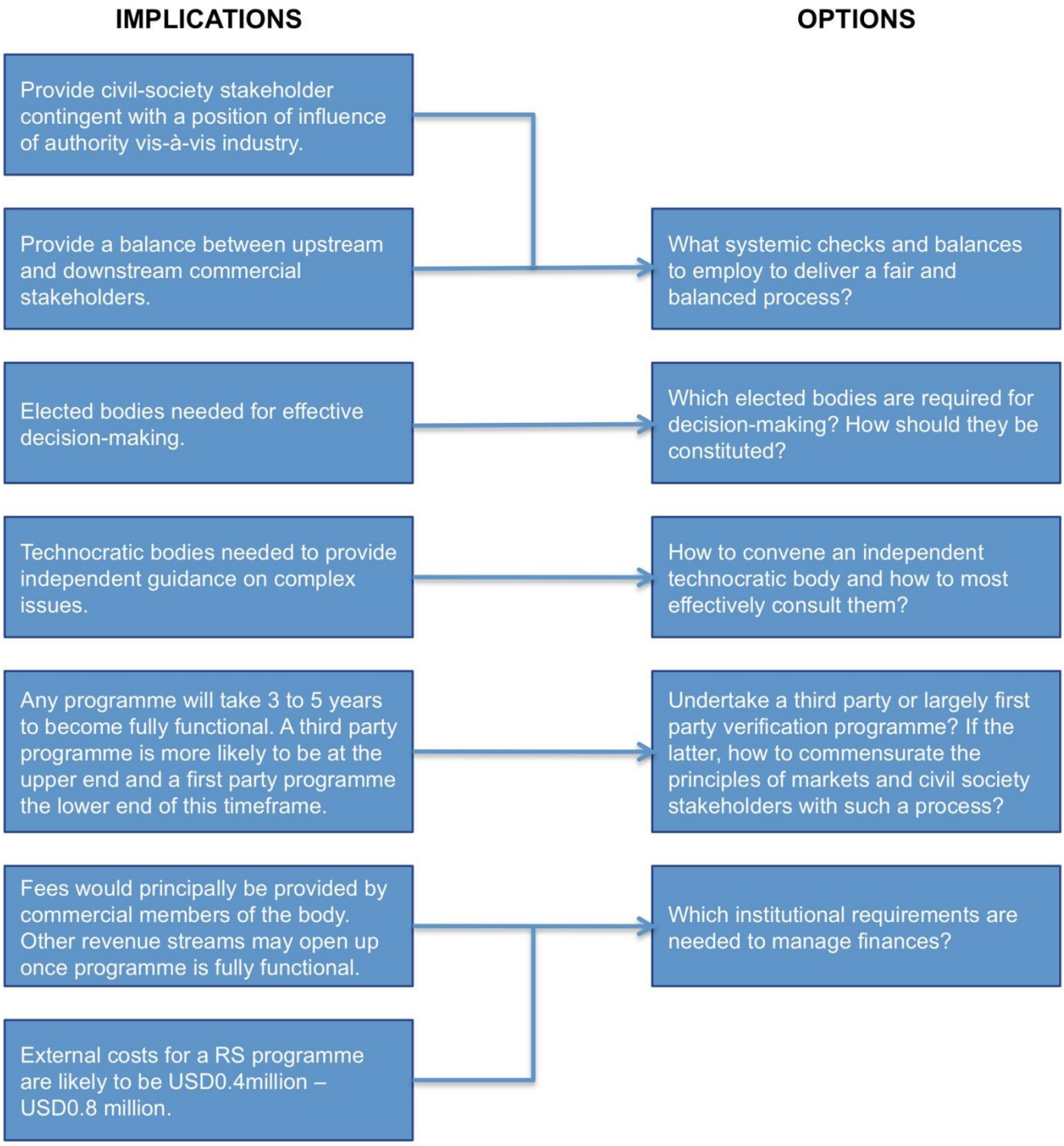
Implications

Any programme will take 3 to 5 years to get up and running. A first party programme is likely to be operational before a third party programme because it is simpler to initiate, owing to the fact that fewer components have to be mobilised.

For any programme, there is a critical list of activities to be implemented by a secretariat and overseen by a governance structure (that would in time replace the working group). These tasks would need to be successfully completed before the programme becomes fully operational.

The funds for the secretariat would need to start as donations and then be substituted with membership fees as the programme matures. Revenues would be augmented with accreditation fees and associated income when full-blown verification starts.

Summary


IMPLICATIONS
OPTIONS
Provide civil-society stakeholder contingent with a position of influence of authority vis-à-vis industry.
Provide a balance between upstream and downstream commercial stakeholders.
What systemic checks and balances to employ to deliver a fair and balanced process?
Elected bodies needed for effective decision-making.
Which elected bodies are required for decision-making? How should they be constituted?
Technocratic bodies needed to provide independent guidance on complex issues.
How to convene an independent technocratic body and how to most effectively consult them?
Any programme will take 3 to 5 years to become fully functional. A third party programme is more likely to be at the upper end and a first party programme the lower end of this timeframe.
Undertake a third party or largely first party verification programme? If the latter, how to commensurate the principles of markets and civil society stakeholders with such a process?
Fees would principally be provided by commercial members of the body. Other revenue streams may open up once programme is fully functional.
Which institutional requirements are needed to manage finances?
External costs for a RS programme are likely to be USD0.4million – USD0.8 million.

10. OPTIONS FOR RESPONSIBLE ALUMINIUM

Constraints on possible options

The Scoping Phase was convened by a group largely comprising commercial stakeholders in Al. These commercial stakeholders were joined by several civil society stakeholders, who provided input to the process. While the group has achieved much in constructing shared insights, there is no simple, single solution that will deliver exactly what each of the individual organisations wants from RA.

Additionally, the scope or boundaries for RA have already been broadly defined in the Charter, signed and agreed by all the members of the Working Group. In this context, this section evaluates options that are realistic and viable within the constitutional bounds of the Charter.

The Charter features several strong normative statements, which should guide the implications and options for what a programme 'might look like'. Most important is the stipulation that "Responsible Aluminium will evaluate a range of options to develop a credible and *independently verifiable* Al scheme that seeks to minimise impact and improve performance throughout the Al value-chain, *recognised by the industry and external stakeholders"* (emphasis added).

This explicitly notes the need for independent verification and cross-stakeholder recognition (upstream and downstream commercial stakeholders, end users, markets, governments and crucially, civil society).

The Scoping Phase, for expediency sake, has been organised around five separate functional elements. However, in reality, these elements are not discrete, but interlocking. Figure 35 shows how these interrelate. While options for each of these elements appear easy to 'mix-and-match' on paper, they would neither function nor be achievable in reality, with decisions in each area having ramifications for the others.

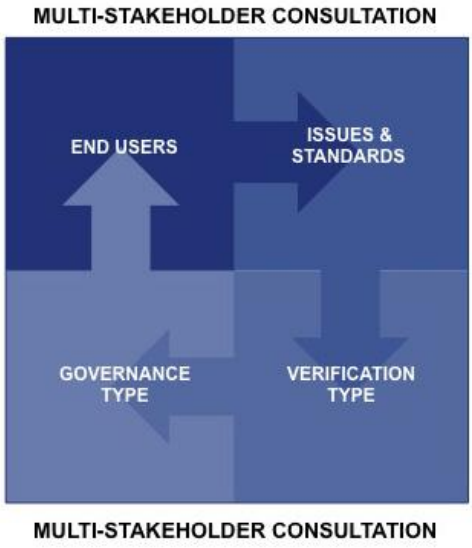


FIGURE 35 - PRINCIPAL FUNCTIONAL ELEMENTS OF SUSTAINABILITY PROGRAMMES

As emphasised in the Stakeholder Engagement, Verification and Governance sections, the overall thrust of the programme must be coherent and its subcomponents mutually reinforcing. Anything less, in terms of combining ill-fitting components, is likely to present practical problems, induce questions of legitimacy and also 'false economy' on the part of the commercial conveners (in the context of the programme's marketability and longevity).

For instance, significant multi-stakeholder 'buy-in' is unlikely without a democratic and accountable governance structure and an independent third party verification system. As such, an option for intense multi-stakeholder consultation is nullified without certain systemic provisions in areas of governance and verification systems.

Given the RA Charter specification, once a particular verification option is selected, only a restricted number of governance types and multi-stakeholder consultation strategies apply. In order to cater for the range of Working Group expectations, however, a variety of options are presented.

Options

The greatest influence on choice of methodologies for implementing an RA programme is the selection of a verification approach. As such, the options are led by this decision, which has fundamental implications on the multi-stakeholder 'buy-in' and for institutions such as governance structures. It also has a major influence on costs.

Below are set out 5 programme options, namely:

Option 1: First party verification – self-assessment

Option 2: First party verification with third party component

Option 3: Third party programme – limited multi-stakeholder consultation

Option 4: Third party programme – limited issues

Option 5: Third party programme – full stewardship programme

These analyses are based on all the information garnered during the course of the Scoping Phase.

These are clearly not the only possible options in terms of programme structure but they do represent models that have been successfully used by other industrial sectors. Those sectors, however, do not face the same issues that the international Al sector has to address. There are many key issues that are totally unique to Al.

There is no single 'right answer'. Even once a particular option has been selected it is inevitable that it will morph and be adapted significantly over time, influenced by experience and market demand.

	Option 1: First party verification – self-assessment
Brief Description	A first party approach is one whereby a self-assessment of performance and processes is adopted by participating value chain operators. The performance and processes under consideration would be those directly associated with the issues identified and highlighted in Figure 23. A key aspect of this approach is that there is no independent verification of the information gathered by participants.
Time (yrs) to first verifications:	1.5 – 3 years.
Budget for operating the programme (annual):	**Pre-verification:** USD 200k – USD 300k. **Post-verification (yr 1):** USD 300k – USD 350k.
RA issues covered:	All the issues identified in Figure 23 could be included in the self-assessment approach. Each organisation in the value chain would be able to self-assess against a basic set of common-to-all issues and also against a specific set of requirements appropriate to the value chain operators taking part. Owing to the nature and focus of this type of approach, there is likely to be less attention paid to value chain operator impacts that occur offsite. Since this is likely to be a site by site / value chain operator by value chain operator programme, CoC would be irrelevant.
Value chain coverage (potential extent):	The entire extent of the value chain could be covered. However, because first party approaches tend to be focused on Boundary 1 issues (internal and site specific), little could be declared about the performance of an entire value chain. The performance and processes assessed are focused instead on each isolated organisation forming part of the programme.
Governance model:	As part of this scenario, it is suggested that each member organisation has an equal vote used for electing Working Committees and electing the Board of Directors. Such programmes typically have little substantive external stakeholder involvement, apart from those that are directly relevant to the internal processes and performance of on-site activities. These may include trade bodies, research institutes and technical specialists.
Verification model:	This approach relies on self-verification and there is no independent external verification. Self-assessment is likely to involve completing dedicated online questionnaires or template spreadsheets, with the secretariat gathering, compiling and reporting results.
Stakeholder involvement in Governance and Standard setting:	External stakeholders involvement is typically limited, except where there are technical skills to advise on which parameters are to be assessed in order to judge performance and process in the appropriate context.

	Option 1: First party verification – self-assessment
Product labelling:	There is no potential for labelling product under this approach because of the market credibility issues.
Market credibility:	This approach would have limited market place recognition. Any attempt to seek such recognition may result in civil society groups aligning themselves against the programme: most notably, the BINGOs, which have significant influence over market acceptance.
B2B and/or B2C:	This is a B2B approach and lends itself to benchmarking individual organisations performance against their peers.
Consumer acceptance:	Consumers are not a target for this type of programme.
Similar programmes already operating:	GRI Mining and Metals Sector Supplement International Aluminium Association Aluminium for Future Generations Sustainability
Positive aspects:	There is a range of potential benefits for the participants. Best practice information can be captured and distributed. It provides a strong opportunity for benchmarking performance and encouraging the sharing of best practice information. It is likely to result in the adoption of good practice by the more innovative and forward thinking participating organisations. It is potentially more accessible to a wider range of operators than any other more 'transparent' programme since it is also likely to be less demanding.
Negative aspects:	It would fail to ameliorate the concerns of market place users of Al, expressed by Unilever and others. They would continue to see primary Al as a major source of carbon in any product LCA. They may also regard it as a failure by upstream and downstream operators to adopt a more rigorous approach and as a signal that the Al industry was inflexible and too distant from civil society and customers to address their concerns. This approach is likely to encourage further differentiation and stimulation for the secondary Al market. It is also in direct contravention of the Charter, which specifies that the scheme must be 'independently verifiable'.
Implications for Phase II:	This approach would have a positive effect on sustainability linked processes and performance. It would also be relatively cheap and fast to implement. However, it may well alienate some NGOs, fail to meet the market place requirements and be in contravention of the RA Charter.

	Option 2: First party verification with third party component
Brief Description	A key aspect of this approach is that, in addition to the self-assessment of performance and processes, as described on page 77, there is an element of independent verification of the information gathered by participating organisations. This typically involves the overarching organisation (running the programme) having a publicly stated policy. Although performance targets may be set, the policy would be more generally focused on process rather than specific performance, against which the participating organisations are independently assessed for compliance. Typically, the independent assessor is acknowledged as a credible verification organisation within the industry. This allows the compliant participating organisations to state publicly that they belong to the programme and have been independently shown to meet its broad requirements.
Time (yrs) to first verifications:	2 – 3 years.
Budget for operating the programme (annual):	**Pre-verification:** USD 250k – USD 350k. **Post-verification (yr 1):** USD 400k – USD 500k.
RA issues covered:	The issues identified (or a subset of them) could be included in the self-assessment approach. Each organisation in the value chain could self-assess against a basic set of common-to-all issues and then, in addition, against a specific set appropriate to the individual value chain operators taking part. All data sets would need to be collated in a standardised manner to facilitate verification.
Value chain coverage (potential extent):	The entire extent of the value chain could be covered. However, because first party approaches tend to be focused on Boundary 1 issues, little could be stated about the cohesive 'sustainability' of an entire value chain. The performance and processes that are ultimately assessed relate to each isolated organisation forming part of the programme. Therefore, there is no holistic view, but rather a series of individual organisations with compliant management processes.
Governance model:	As part of this scenario, it is suggested that each member organisation has an equal vote used for electing Working Committees and electing the Board of Directors. Such programmes typically have little substantive external stakeholder involvement apart from those directly relevant to the internal processes and performance of on-site activities. These may include trade bodies, research institutes and technical specialists.

	Option 2: First party verification with third party component
Verification model:	Self-assessment is likely to involve completing dedicated online questionnaires or template spreadsheets, with the central programme organisers gathering, compiling and reporting results. The verification process involves the selection of a credible verifier. This may be pre-specified by the coordinating organisation running the programme. Alternatively, the individual organisations seeking to demonstrate compliance may be given a degree of licence to select their own verifier. The verification process is generally a desk-based exercise where the verifier checks that the participant organisation's processes are functioning and operating according to the norms expected under the programme. There tends to be limited public censure of poor operators, which are usually required to 'do better' on the occasion of the next assessment.
Stakeholder involvement in Governance and Standard setting:	External stakeholders' involvement is typically limited, except where there are technical skills to advise on which parameters need to be assessed, in order to judge performance and process in terms of an identified issue.
Product labelling:	There is no potential for labelling product under this approach. This approach is not about the quality of the product; it is much more about qualifying suppliers.
Market credibility:	This approach would have some limited market place recognition because of the independent verification element. It could start to redress the perceived imbalance between primary and secondary Al in terms of environmental impact. If an attempt was made to gain serious market place recognition through claims that issues identified in the public domain had been addressed, civil society groups may align themselves against the programme: most notably, the BINGOs, which have significant influence over market acceptance.
B2B and/or B2C:	This approach is principally about improving the image through verified improvements in performance and processes. It is not intended to appeal directly to consumers but operates rather through a 'trickle-down' effect.
Consumer acceptance:	Most consumers are completely unaware of programmes pitched at this level and structured in this way. It will not register with them.
Similar programmes already operating:	WBCSD Cement Sustainability Initiative The UK Timber Trade Federation's Responsible Purchasing Policy

	Option 2: First party verification with third party component
Positive aspects:	There is a range of potential benefits for the participants. Best practice information can be captured and distributed. It provides a strong opportunity for benchmarking performance and encouraging the sharing of best practice information. It is likely to result in the adoption of good practice by the more innovative and forward-thinking participating organisations. The element of independent verification clearly adds a degree of rigour to any programme and is likely to boost participant organisations 'sustainability' linked processes and performance. It is more in tune with the aspirations set out in the Charter than straightforward self-assessments.
Negative aspects:	It would probably fail to ameliorate the concerns of market place users of Al, such as Unilever and others. They would continue to regard primary Al as a significant source of GHG in any product LCA. They may also regard the adoption of such an approach as a failure by upstream and downstream operators seriously to address their concerns. They might see it as indicating that the Al industry was too inflexible and distant from civil society and its customers. While there is an element of verification, there is no chain-of-custody process, so it would be impossible to know if the Al in a particular product came from a 'verified' organisation. This approach is likely to encourage further differentiation and stimulation for the secondary Al market.
Implications for Phase II:	This approach would have a positive effect on sustainability linked processes and performance. It would be relatively cheap and fast to implement. However, it may alienate the NGOs, and fail to meet the market place requirements. Those operators at the market end of the value chain would need to be convinced that there was sufficient evidence and surety for them to make claims about the Al that they were using – otherwise such a programme may be regarded as an attempt at 'greenwashing'. While there may be significant 'buy in' to such a programme amongst the upstream operators of the value chain, there is likely to be less enthusiasm for participation amongst downstream operators because of its failure directly to address market demands.

	Option 3: Third party programme – limited multi-stakeholder consultation
Brief Description	A third party approach is one whereby an independent specialist, auditing organisation undertakes the compliance checking of performance and processes of the participating organisations. Central to this verification approach is that there is no perceived conflict of interest during the assessment process. The compliance assessment is credible because it is objective. Figure 23 highlights a wide range of issues identified as meriting consideration for inclusion in a quality programme. As part of this scenario, all these issues could potentially be included, with a standard required for each. The unique characteristic of this approach is a reduced level of multi-stakeholder consultation during the standards formulation process. This cuts down on cost and time to the start of verification. There will be further, consequent reductions in time inputs by those administering the programme, given fewer organisations to work with during standards formulation and a limited number of organisations to co-ordinate during governance associated activities.
Time (yrs) to first verifications:	3 – 4 years.
Budget for operating the programme (annual):	**Pre-verification:** USD 400k – USD 500k. **Post-verification (yr 1):** USD 550k – USD 650k.
RA issues covered:	Figure 23 highlights a wide range of issues identified as meriting consideration for inclusion in an Al value chain quality programme. As part of this scenario, all these issues could potentially be included, with standards required to address process and/or performance for each.
Value chain coverage (potential extent):	The entire extent of the value chain can be part of the programme, including all the Boundary 1, 2 and 3 type issues. Chain-of-custody could also be covered, linking the component organisations that form the value chain together, to provide a comprehensive and coherent programme.

	Option 3: Third party programme – limited multi-stakeholder consultation
Governance model:	A range of governance models could be applied. By working with a selected number of stakeholders, the governance structure could be smaller. When stakeholder organisations agree to sanction a particular 'sustainability' initiative of this type, they usually require some involvement in its governance in exchange. The involvement of fewer stakeholders will translate into fewer organisations wanting a 'say' in how the programme is run. The principal value chain operators will need to be represented. From an external perspective, the programme will potentially be seen as industry owned, owing to the lack of a comprehensive MSP. Successful programmes, such as PEFC, have used this tactic.
Verification model:	The verification model should follow the standard third party one. An independent specialist verification organisation, either accredited by the programme organising the scheme, or approved because they hold an appropriate certificate themselves, compliance check any value chain operator seeking recognition.
Stakeholder involvement in Governance and Standard setting:	Limiting the number of multi-stakeholder organisations involved will present some challenges. The key to success will be engaging with the right stakeholders. The active involvement and endorsement of large-scale international NGOs will immediately give the programme market place credibility. However BINGOs may not be prepared to sanction any programme where all the relevant, on-the-ground stakeholders were neither adequately consulted, nor play an active role. Involving a limited number of smaller, lesser known social and environmental not-for-profits may be an alternative option. They, however, may not bring all the skills, broad know-how and market credibility that is likely to be required.
Product labelling:	This type of programme provides a mechanism for product labelling.
Market credibility:	Any Al programme, because of the size and importance of the sector, will receive significant media attention and become known in the market place – particularly as it is currently the only serious contender. The comprehensiveness of MSP at the initiation of the programme could become an issue, particularly if the BINGOs do not support it.
B2B and/or B2C:	All programmes based on third party verification have the potential to deliver a credible message to consumers. A reduced MSP – while having little impact on credibility with other value chain operators - could negatively impact credibility with consumers.

	Option 3: Third party programme – limited multi-stakeholder consultation
Consumer acceptance:	Owing to a lack of a comprehensive MSP, well-known consumer BINGOs could step away from a programme based on this type of approach.
Similar programmes already operating:	PEFC BES6001
Positive aspects:	Owing to the reduced administrative burden resulting from a limited MSP, the time to launch (and the costs to launch) will be reduced. The subsequent administrative effort associated with the governance of any programme will also be reduced, because of the smaller constituency to communicate with and organise.
Negative aspects:	The BINGOs may be reluctant to endorse any programme that did not have a comprehensive MSP. This could seriously undermine market credibility and, therefore, 'buy in' from the retail sector. In addition, the relative importance and nuances associated with particular issues could be potentially missed or misinterpreted in the absence of the right stakeholders giving feedback.
Implications for Phase II:	This approach leads to a flexible and faster moving programme. However, the reduced stakeholder 'weight' also means that the programme is less robust and generally diminished, because it will not have gone through the full MSP process. Consequent lack of BINGO support may lead to poor market place acceptance, so undermining the whole reason for the programme.

	Option 4: Third party programme – limited issues
Brief Description	A third party approach is one whereby an independent specialist, auditing organisation undertakes the compliance checking of performance and processes of those participating organisations. Central to this verification approach is that there is no perceived conflict of interest during the assessment process. The compliance assessment is credible because it is objective. Figure 23 highlights a wide range of issues identified as meriting inclusion in a quality programme. Under this approach a limited or subset of these issues would form the core of the programme. The scenario posed here is that the issues are prioritised in terms of their impact on 'responsible sourcing' (assuming this is possible) and a core set of 'must be addressed' issues is decided on. This will have the knock-on effect of reducing the number of issues to be reviewed during any MSP and potentially reducing the range of stakeholders that need to be consulted. It also simplifies and cuts down the volume and duration of the work to be completed in order to raise the programme to the point where it becomes operational.
Time (yrs) to first verifications:	3 – 4 years – depending on the level of reduction of issues to be addressed.
Budget for operating the programme (annual):	**Pre-verification:** USD 450k – USD 600k. **Post-verification (yr 1):** USD 600k – USD 650k.
RA issues covered:	Figure 23 highlights the wide range of issues identified (during the Scoping Phase) as meriting consideration for inclusion in an Al value chain quality programme. During the Scoping Phase, a limited issue prioritisation exercise was undertaken. Table 10 on page 94 highlights the issues identified as 'priorities' linked to each value chain sector. It is indicative only – resulting from a survey of a limited number of industry experts. For this scenario, it is used for illustrative purposes. The prioritisation results in reducing 104 issues (across all sectors) to 23. Three issues (business ethics & transparency; sustainability of communities; and labour conditions / health & safety) are common to all value chain sectors. Approximately 50% of issues are specific to individual sectors e.g., bauxite residue management is specific to alumina refining. Logic suggests that this would result in a total of 18 standards (as opposed to 23 if all issues were addressed from the moment the programme was launched).
Value chain coverage (potential extent):	The entire extent of the value chain will be part of the programme, including all Boundary 1, 2 and 3 type issues. Chain-of-custody should also be covered, linking the component organisations that form the value chain together, to provide a comprehensive and coherent programme.

	Option 4: Third party programme – limited issues
Governance model:	A range of governance models can be applied. An appropriate model in this case would be one in which both civil society and the full range of value chain operators are represented. Figure 33 in the Main Report proposes a structure that aims to achieve this balance.
Verification model:	The verification model that best 'fits' this type of approach is the third party one whereby an independent specialist verification organisation, either accredited by the programme organising the scheme, or approved because they hold an appropriate 'audit' certificate themselves, compliance checks any value chain operator seeking recognition.
Stakeholder involvement in Governance and Standard setting:	The active involvement and endorsement of large-scale international NGOs will immediately give the programme market place credibility. However, the BINGOs may not be prepared to sanction any programme where it is perceived that some issues have been put to one side and consequently not adequately addressed. Given the scale and number of issues to be dealt with, they may nonetheless be receptive to the concept of prioritisation, if it is systematically implemented and carried out in a transparent manner. There is nothing to stop additional issues (and consequent new standards to address them) being added to the programme over time. This is a practice followed by other programmes.
Product labelling:	This type of programme provides a mechanism for product labelling.
Market credibility:	This approach is pragmatic and entirely credible, assuming the BINGOs support it.
B2B and/or B2C:	This would qualify on both accounts.
Consumer acceptance:	Assuming the BINGOs support the programme, it is highly likely it will be accepted by consumers.
Similar programmes already operating:	FSC – does not assess labour conditions and health and safety issues for primary and secondary processors once the certified timber has left the 'forest gate.' It does, however, require CoC compliance checks for these businesses. RJC – has no chain-of-custody system although it is now working on one.

	Option 4: Third party programme – limited issues
Positive aspects:	A significant reduction in the number of issues to be addressed would cut back on workload and effort required to get verification work launched. This is because there would be fewer standards to draft and proportionally less stakeholder dialogue on the contents of each standard. This approach does not negate the steady adoption of additional standards over time, once the programme is up and running.
Negative aspects:	BINGOs may be reluctant to endorse a programme that did not adequately address all the acknowledged issues from the outset. If this happened, it would undermine the immediate credibility of the programme. It may be possible to offset this potential criticism through a programme commitment to review all issues within a specified time frame. It is an accepted reality that the content of all pragmatic programmes evolves over time.
Implications for Phase II:	Adoption of this scenario could result in reduced time to launch and cost to launch in comparison with Phase II where all issues are tackled from day one. Other successful international third party programmes, such as RJC, launched its programme without any CoC standards. RJC is only now (1 -2 years or so after awarding the first site certificates) starting to address chain-of-custody issues, yet it has a membership of over 260 companies and is steadily growing.

	Option 5: Third party programme – full stewardship programme
Brief Description	A third party approach is one whereby an independent specialist, auditing organisation undertakes the compliance checking of performance and processes of those participating organisations. Central to this verification approach is that there is no perceived conflict of interest during the assessment process. The compliance assessment is credible because it is objective. Figure 23 identifies the preliminary wide range of issues specified as meriting consideration for inclusion in a quality programme during the Scoping Phase. This is not the definitive list. It would be necessary to initiate the programme with a full MSP to identify the range of issues and then draft standards for each. A second round of consultation will be required to finalise the standard and agree a governance structure.
Time (yrs) to first verifications:	4 years minimum.
Budget for operating the programme (annual):	**Pre-verification:** USD 600k – USD 700k. **Post-verification (yr 1):** USD 800k – USD 900k.
RA issues covered:	Figure 23 and Table 10 on page 94 highlight the wide range of issues identified (during the Scoping Phase) as meriting consideration for inclusion in an Al value chain quality programme. A significant number of the issues (8 out of 26) are common to all sectors. In such cases, it will be possible to draft a single standard that can be used for compliance checking across all value chain operators. Other issues are very specific to a single sector – e.g., bauxite residue management for alumina refining. This would require a separate standard. On the basis of this provisional list, there is a need for 26 separate standards, with each standard likely to have multiple criteria.
Value chain coverage (potential extent):	The entire extent of the value chain would be covered by the programme, including all Boundary 1, 2 and 3 type issues. Chain of custody should also be covered, linking the component organisations that form the value chain together, to provide a comprehensive and coherent programme. Due to Al being highly fungible, it is suggested that a mass balance approach to chain-of-custody is adopted.
Governance model:	A range of governance models can be applied. An appropriate model in this case would be one in which both civil society and the full range of value chain operators are represented. Figure 33 in the Main Report proposes a structure that aims to achieve this balance.

	Option 5: Third party programme – full stewardship programme
Verification model:	The verification model that best 'fits' this type of approach is the third party one, whereby an independent specialist verification organisation, either accredited by the programme organising the scheme, or approved because they hold an appropriate 'audit' certificate themselves, compliance checks any value chain operator seeking recognition.
Stakeholder involvement in Governance and Standard setting:	The key to success will be involving the right stakeholders. The active involvement and endorsement of large scale international NGOs would be expected to give the programme market place credibility. An MSP, if appropriately applied, should also ensure that the smaller civil society groups are given the opportunity to contribute. A provisional list of organisations is provided in Table 5 on page 37.
Product labelling:	This type of programme provides a mechanism for product labelling.
Market credibility:	This approach is pragmatic and entirely credible. It is likely to be supported by the BINGOs, particularly if it follows the 'best practice' models suggested by ISEAL.
B2B and/or B2C:	This would qualify as both.
Consumer acceptance:	Assuming the BINGOs support the programme structure in this manner, it is highly likely it will be accepted by consumers.
Similar programmes already operating:	MSC RTRS RSPO
Positive aspects:	This approach would follow the model adopted by a range of other well publicised stewardship programmes. Stewardship programmes of this type are supported by the BINGOs and are widely accepted as a signal of responsible sourcing at the market end of the value chain. The highly structured and 'limited' number of value chain operators means that it will be possible to ensure that the majority of organisations potentially involved understand what is required. It is clear that there is already a demand for responsibly sourced Al.
Negative aspects:	There is a wide range of issues to address and for standards to be prepared. This will take an extensive MSP, which will be time consuming and relatively costly. The same will follow for the standards once they are prepared.

	Option 5: Third party programme – full stewardship programme
Implications for Phase II:	Adoption of this scenario could result in a comparatively longer pre-verification phase, but will result in rigorous standards and a robust programme that is likely to have comprehensive market place recognition (based on other commodity programme experience).

Increasing demand for Al, owing to its attractive strength-to-weight characteristics, means that the global demand is steadily rising. The growing importance of a product's (and product component's) carbon footprint means that in carbon conscious markets, primary Al faces a number of challenges. These same quality constraints also provide opportunities for growing secondary Al sales. Yet clearly primary Al and secondary Al production are highly interdependent. Increasing demand for secondary Al will result in increasing demand for primary Al.

A Responsible Sourcing programme provides the gamut of Al value chain operators with the opportunity to broaden the quality debate away from the single (but important) issue of carbon footprint to other key quality issues linked to social, environmental and economic performance and processes.

A successful RA programme will be one that differentiates verified operators creating quality products, enabling them to take full advantage of the market demand for responsibly sourced Al.

This report seeks to identify a practical way forward and a sound basis for the Responsible Aluminium Working Group to make a decision regarding Phase II, in the knowledge that market place credibility is intimately linked to progressive civil society involvement and transparency.

	Bauxite Mining	Alumina Refining	Smelting	Semi-Fabrication	Fabrication	Retail	Recycling
Environmental							
Bauxite residue							
Caustic soda							
Chlorine management							
CO_2 emissions							
Design for recycling							
Dust emissions							
Energy efficiency							
Land management							
NO_x emissions							
PFC emissions							
Protected areas							
Run around scrap							
Scope II energy issues							
Scrap availability							
Scrap for recycling							
SO_2 emissions							
Spent pot lining							
Corridor management							
Water management							
Economic							
Economic revenue							
Site selection							
Sustainable communities							
Social							
Recycling awareness							
Human rights							
Business ethics							
Labour conditions							
Displacement							
Magnetic fields							

TABLE 10 - ISSUE PRIORITY STRUCTURE

Key	
	Important
	Quite important
	Unimportant
	Not applicable
	Limited data/not rated

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APPENDICES

Please see separate document.