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Innovation & Technology

EIT HEI Initiative

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Sustainable mining and the digital mine role in the digital age

Dr.-Ing. Dipl.-Wirt.Ing. Stefan Möllerherm



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HEI4S3^{RM}



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REPORTING AND CERTIFICATION

Standards



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Measuring Sustainable Development



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- define sustainable development by how it is measured
- define appropriate indicators and to measure them;
- extraordinarily broad list of items reflect the inherent malleability of “sustainable development” as well as the internal politics of the measurement efforts;
- explicit about the time period in which sustainable development should be considered. Despite the emphasis in the standard definition on intergenerational equity, most indicator efforts focus on the present or the very short term.

Indicator initiatives



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Indicator initiative	Number	Implicit or explicit?	What is to be sustained?	What is to be developed?	For how long?
Commission on Sustainable Development	58	Implicit, but informed by Agenda 21	Climate, clean air, land productivity, ocean productivity, fresh water, and biodiversity	Equity, health, education, housing, security, stabilized population	2020
Wellbeing Index	88	Explicit	“A condition in which the ecosystem maintains its diversity and quality—and thus its capacity to support people and the rest of life—and its potential to adapt to change and provide a wide change of choices and opportunities for the future	“A condition in which all members of society are able to determine and meet their needs and have a large range of choices to meet their potential”	Not stated
Global Reporting Initiative	97	Implicit	Reduced consumption of raw materials and reduced emissions of environmental contaminants from production or product use	Profitability, employment, diversity of workforce, dignity of workforce, health/safety of workforce, and health/safety/privacy of customers	Current reporting year

Sustainability Reporting



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Sustainability reporting: practice of measuring, disclosing, and being accountable to internal and external stakeholders for organizational performance towards the goal of sustainable development

Sustainability report: provide a balanced and reasonable representation of the sustainability performance of a reporting organization – including both positive and negative contributions

Sustainability schemes



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All minerals:

ICMM
GRI
IFC
MAC (Canada)
IRMA
Gold:
WGC
Cyanide Code

1

Key:

Scope with regard to the target mining sector
Large-Scale Mining
All company scales
Artisanal- and Small-Scale Mining*
Smelters (minerals from all company scales)

2

3I: iTSCi (Great Lakes Region)

3TG: RCM (Great Lakes Region)

3TG: CTC (DR Congo)

Gold: LBMA

3TG: CFSP

3

4

Gold, silver, platinum: Fairmined (Developing Countries)
Fairtrade (Developing Countries)

Natural stone: Xertifix (Asia)
Fair Stone

Diamonds, gold, platinum: RJC
Aluminum: ASI
Coal: Bettercoal

Sustainability schemes



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Reasons for scheme diversification

- Exert control on the standard setting and assurance process
- Focus on specific issue
- Less visible in an overarching scheme
- Gain broader acceptance
- Commodity specific requirements
- Differing processing and trading routes, i.e. supply chains

Sustainability schemes



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Challenges in sustainability schemes:

- Consensus-finding between various industries for developing resource-unspecific schemes covering the entire supply chain
- Which degree various supply chain tiers in the mineral supply chain also need to implement sustainability improvements

Sustainability Schemes for Mineral Resources



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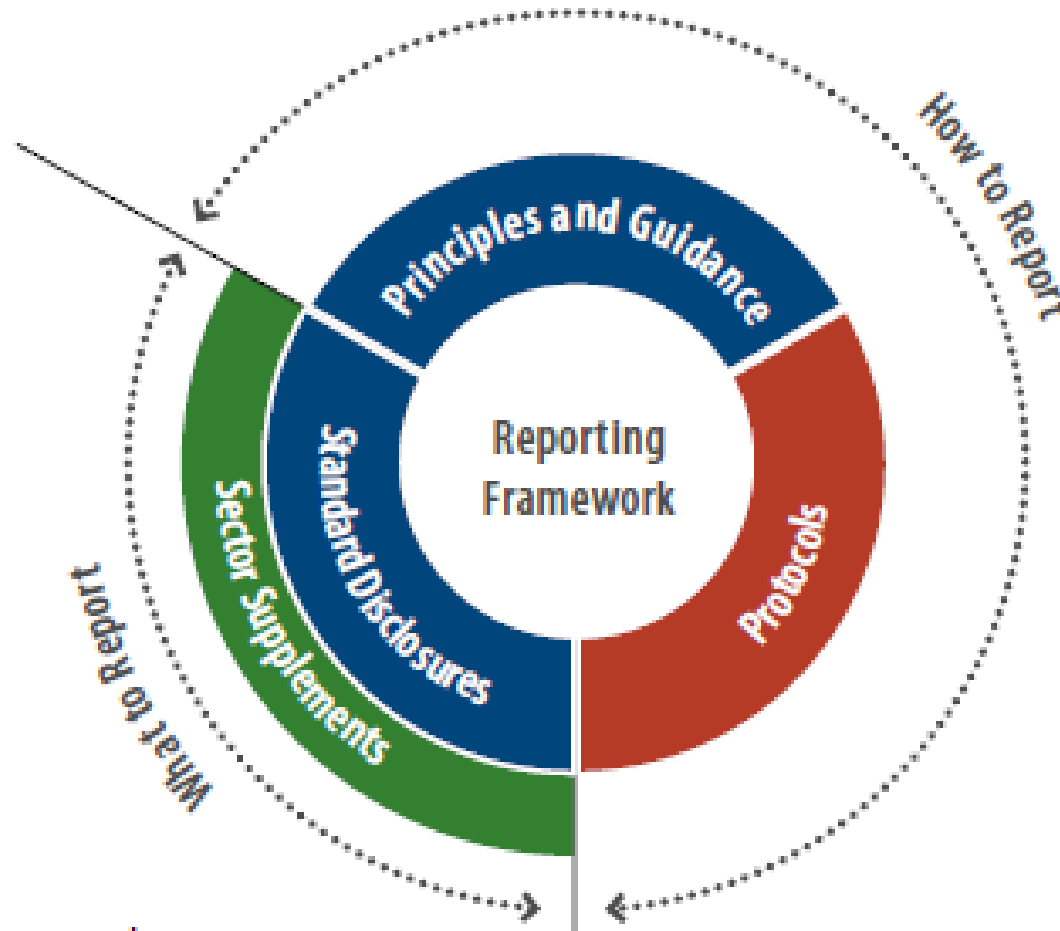
Supply Chain Phases		Upstream Supply Chain				Bottleneck	Downstream Supply Chain				Use/Re-Use Phase	
Supply Chain Tiers		Explora- tion	Mining & Processing	Interme- diary	Export	Smelting/ Refining	(Re)Im- port	Semi- Fabrication	Material Conversion	Manufac- turing	Wholesale & Retail	Recycling/ Smelting
Commodity	Scheme											
All minerals	GRI	r	r	r	r	r	r	r	r	r	r	r
	IFC	x	x									
	IRMA	x	x									
	MAC		c, r									
	ICMM		c, r									
Aluminum	ASI	x, t	x, t	t	t	x, t	t	x, t	x, t	t	t	x, t
Diamond*	RJC	x, t	x, t	x, t	x, t	x, t	x, t	x, t	x, t	x, t	x, t	t
Gold	CN Code		x									
	WGC		d									
Gold, silver, platinum	LBMA					d						t
	Fairmined		x, t	t	t	t	t	t	t	t	t	t
	Fairtrade		x, t	t	t	t	t	t	t	t	t	
Tin, Tungsten, Tantalum, Gold	RCM		d	d	d							
	CFSP					d	**	**	**	**		t
	ITSCI (only 3T)		d	d	d	d	**	**	**	**		
	CTC		x, t	t	t							
Natural Stone	Fair Stone		x, t	-	t		t			t***	t	
	XertifiX		x, t		x, t	-	t		-	-	-	-
Coal	Bettercoal		x	**	**		**			-	-	-

x	Implementation of sustainability requirements beyond commitment and reporting (may include due diligence on conflict risks and human rights violations)
c ; r	Sustainability commitments in company policies (c); Sustainability reporting requirements (r)
t	Requires traceability and tracking of origin of raw material, i.e. mine or secondary source
d	Requires supply chain due diligence on conflict risks and human rights violations (may include c, r and t on conflict risks and human rights violations)

Global Reporting Initiative



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Global Reporting Initiative



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Founding actors:

- civil society actors and private businesses

GRI membership:

- civil society actors, private businesses and public authorities

Global Reporting Initiative



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GRI global standard

- procedures (production/process management)

Chain of custody certification

- business to business certificate not visible to end consumer

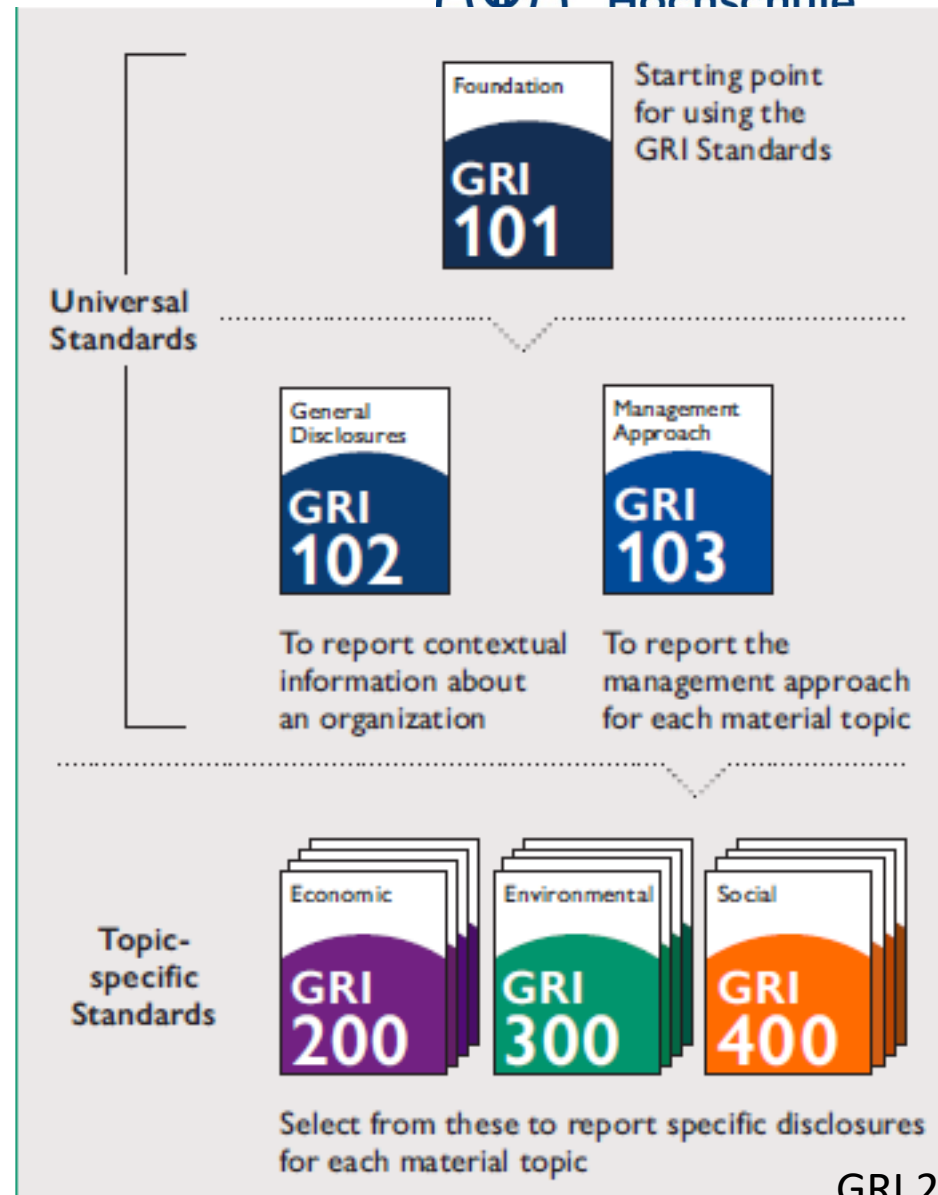
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GRI sustainability
reporting guidelines

- sustainability reporting guidelines, - indicator protocols set,
- the GRI application levels
- and the technical protocol



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Environmental indicators: Materials , Energy, Water, Biodiversity , Emissions, Effluents and Waste, Products and Services, Transport

Social indicators:

- **Labor Practices and Decent Work:** Employment, Labor/ Management Relations, Occupational Health and Safety, Training and Education, Diversity and Equal Opportunity, Equal Remuneration for Women and Men
- **Human Rights:** Investment, Discrimination, Association and Bargaining, Child Labor, Forced Labor, Security Practices, Indigenous Rights
- **Society:** Local Communities

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The reporting organization shall report the following information:

- a. Percentage of recycled input materials used to manufacture the organization's primary products and services.

use the total weight or volume of materials used as specified in Disclosure 301-1;
calculate the percentage of recycled input materials used by applying the following formula

$$\text{Percentage of recycled input materials used} = \frac{\text{Total recycled input materials used}}{\text{Total input materials used}} \times 100$$

Global Reporting Initiative



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The reporting organization shall report the following information:

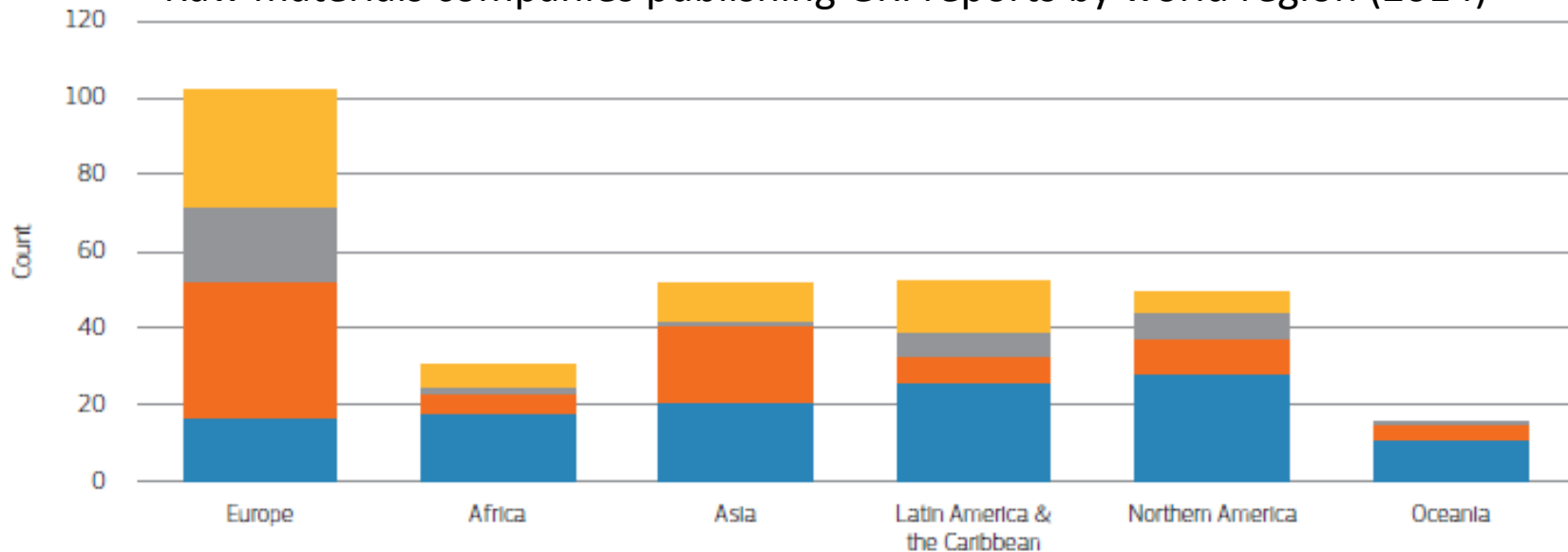
- a. Total number of identified incidents of violations involving the rights of indigenous peoples during the reporting period.
- b. Status of the incidents and actions taken with reference to the following:
 - i. Incident reviewed by the organization;
 - ii. Remediation plans being implemented;
 - iii. Remediation plans that have been implemented, with results reviewed through routine internal management review processes;
 - iv. Incident no longer subject to action.

Number of companies that have joined the Global Reporting Initiative, by world region



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Raw materials companies publishing GRI reports by world region (2014)

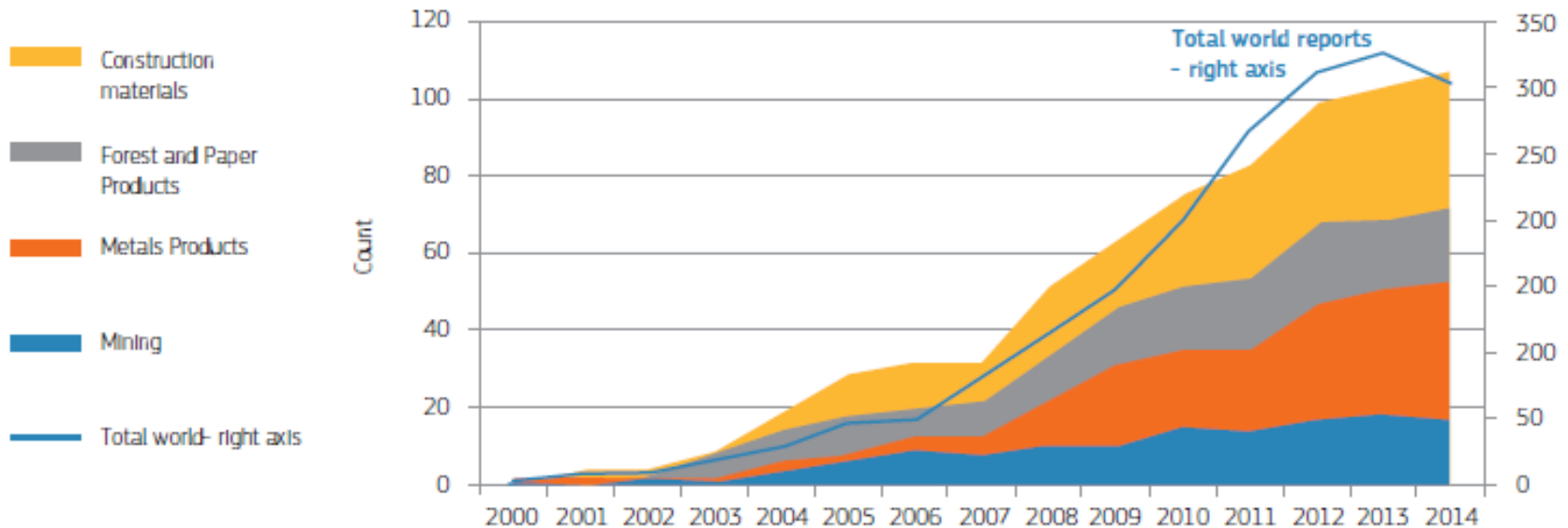


Number of companies that have joined the Global Reporting Initiative for Europe



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Raw materials companies publishing GRI reports in Europe and total world
(trend 2000-2014)



Extractive Industry Transparency Initiative EITI



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Founding actors

- civil society actors and public authorities

EITI Membership

- civil society actors, private businesses and public authorities

Extractive Industry Transparency Initiative EITI



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EITI global standard

- procedures (production/process management)

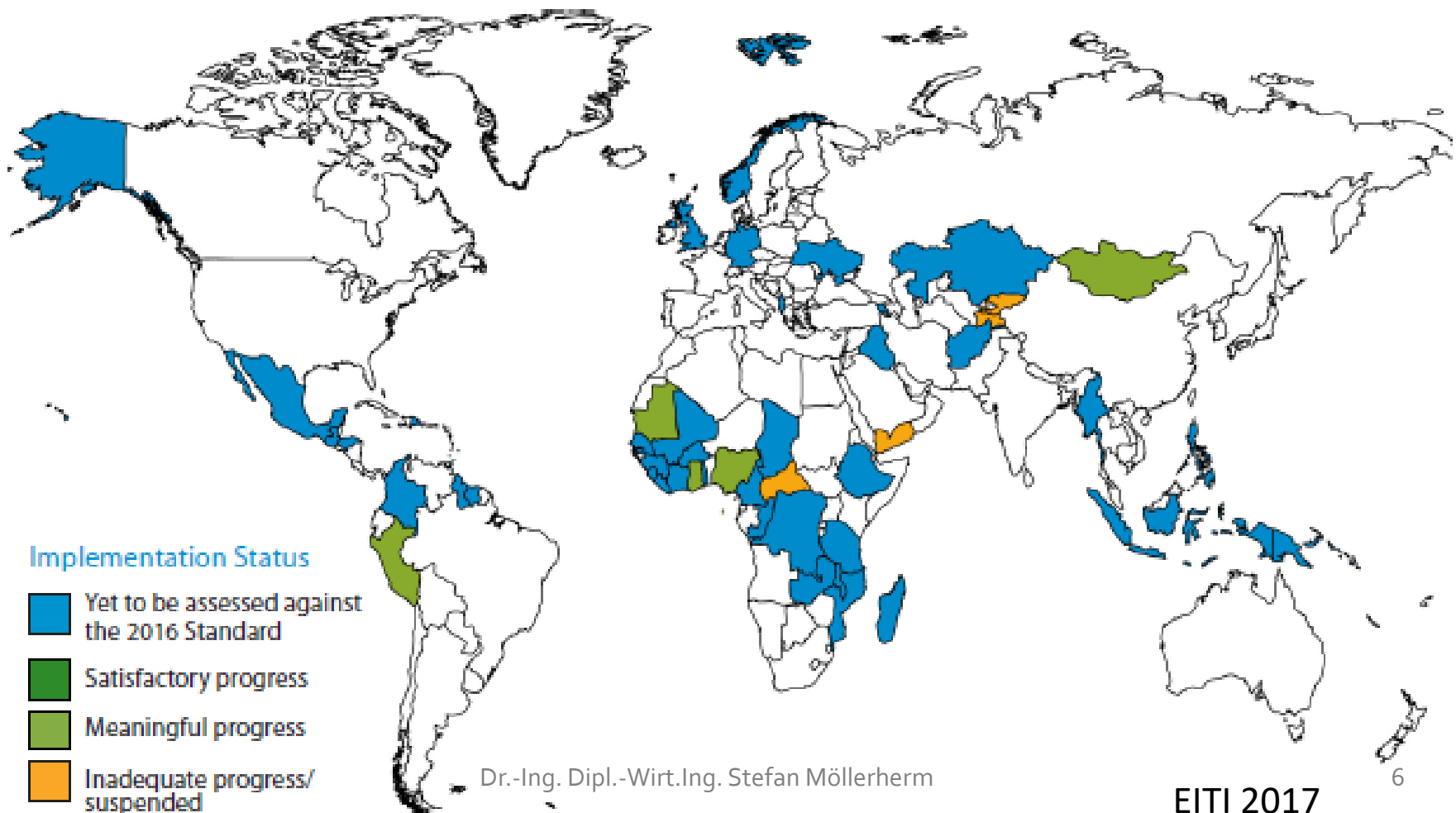
Chain of custody certification

- business to business certificate not visible to end consumer

Extractive Industry Transparency Initiative EITI



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Extractive Industry Transparency Initiative EITI



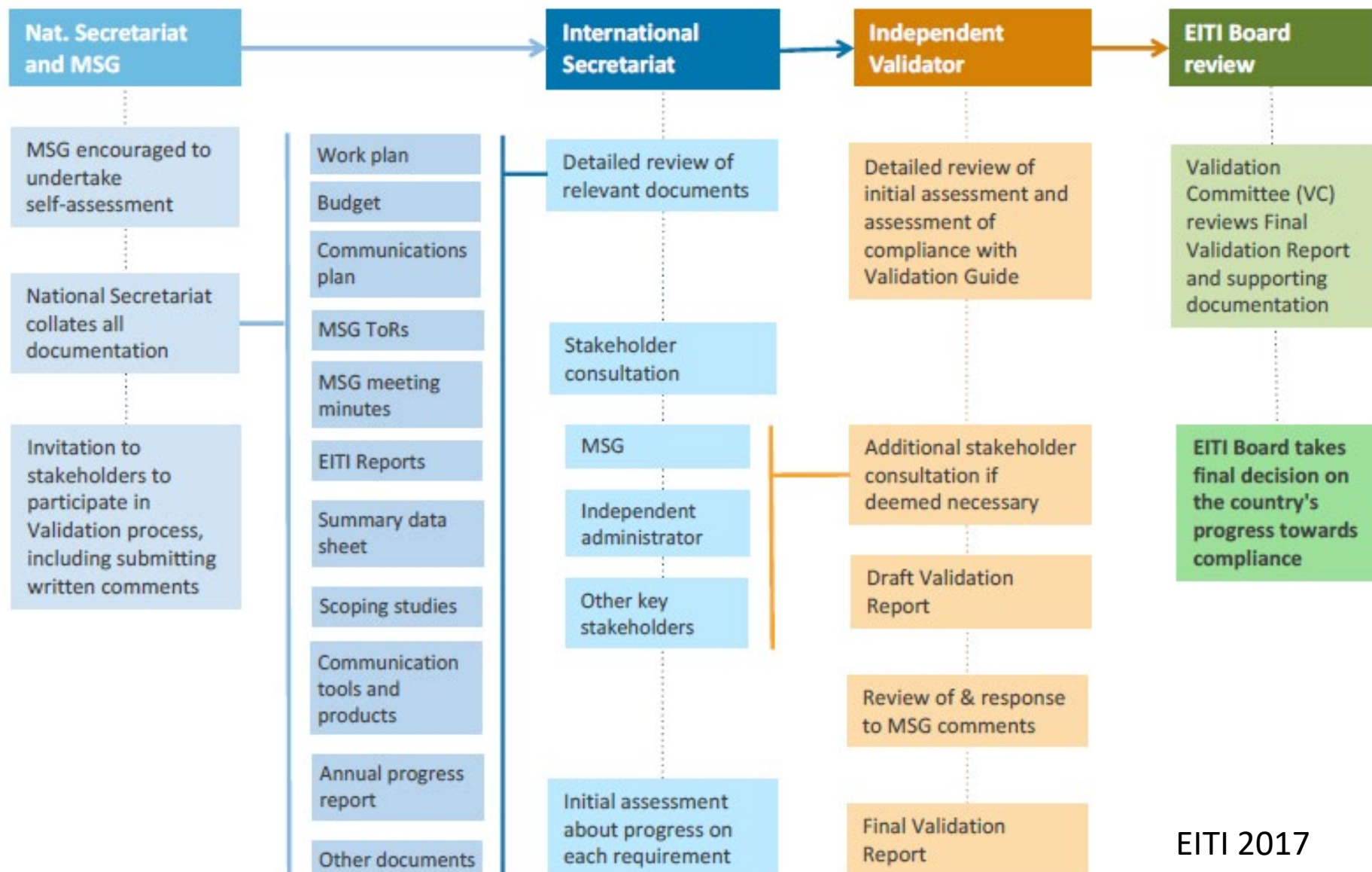
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1. Effective oversight by the multistakeholder group
2. Timely publication of EITI reports
3. EITI reports that include contextual information about the extractive industries
4. The production of comprehensive EITI reports that include full government disclosure of extractive industry revenues and disclosure of all material payments to government by oil, gas, and mining companies
5. A credible assurance process applying international standards
6. EITI reports that are comprehensible, actively promoted, publicly accessible, and contribute to public debate
7. A multistakeholder group that takes steps to act on lessons learned and reviews the outcomes and impact of EITI implementation

EITI validation process



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International Council on Mining and Metals (ICMM)



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- CEO-led organization of 23 global mining and metals companies and 34 associations
- Aim: strengthen the industry's "social license to operate" through commitment to and reporting on sustainable development issues
- Industry-led Global Mining Initiative (GMI), formed in 1999, initiated the foundation of ICMM
- "Mining, Minerals and Sustainable Development (MMSD)"

International Council on Mining and Metals (ICMM)



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- Sustainable Development Framework (SDF) demands the company members to commit to the ICMM 10 Principles and six Position Statements
- ICMM members committed to GRI reporting
- Sustainable Development Report: report on the process and result of identifying material, sustainability risks and opportunities, the systems in place to manage these and finally the achieved performance.
- The Sustainability Report together with the GRI Report serve as a means of performance measurement

Bettercoal Initiative



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Bettercoal's vision is a coal supply chain that respects the rights of people and the environment and contributes positively to the social and economic livelihoods of workers, producers and communities.

Bettercoal's mission is to advance the continuous improvement of corporate responsibility in the coal supply chain by improving business practices through engagement with stakeholders and based on a shared set of standards

Bettercoal Initiative



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Four key principles:
Risk-Based Approach,
Transparency,
Continuous Improvement,
Stakeholder Engagement



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The Bettercoal Code covers ethical, social and environmental principles and provisions that are relevant to coal mining companies and it is grouped into four areas:

- General Implementation Expectations: Legal Compliance, Policies and Systems;
- Business Ethics: Disclosure, Bribery and Facilitations Payments;
- Human Rights and Social Performance: Human Rights, Workers' Rights, Community Engagement;
- Environment: Environment, Pollution Prevention, Biodiversity

Fair Stone



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Fair Stone is the international Social Standard for natural stone imports from developing and emerging markets. Natural stone importers - the Fair Stone Partners - implement certain criteria within their supply chain and therefore actively improve the working conditions in stone processing factories and quarries.



Fair Stone



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The Fair Stone Standard

- Occupational Safety and Health,
- Human and Labour rights,
- Environment
- Management System



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CONCLUSION

KEY MESSAGES



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The main challenge is to meet the needs of all people within the means of our planet. Realizing this ambitious but critical vision calls on governments, business, civil society and people to reshape what we understand by progress and innovate to change people's choices, lifestyles and behaviors.

KEY MESSAGES



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1. The use of natural resources has more than tripled from 1970 and continues to grow.
2. Historical and current patterns of natural resource use are resulting in increasingly negative impacts on the environment and human health.
3. The use of natural resources and the related benefits and environmental impacts are unevenly distributed across countries and regions.
4. In the absence of urgent and concerted action, rapid growth and inefficient use of natural resources will continue to create unsustainable pressures on the environment.

KEY MESSAGES



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5. The decoupling of natural resource use and environmental impacts from economic activity and human well-being is an essential element in the transition to a sustainable future.
6. Achieving decoupling is possible and can deliver substantial social and environmental benefits, including repair of past environmental damage, while also supporting economic growth and human well-being.
7. Policymakers and decision makers have tools at their disposal to advance worthwhile change, including transformational change at local, national and global scales.
8. International exchanges and cooperation can make important contributions to achieving systemic change.



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THANK YOU FOR ATTENTION!

Sources



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