SFU BEEDIE SCHOOL OF BUSINESS

Summary of the Quantitative Analysis of ICMM Database

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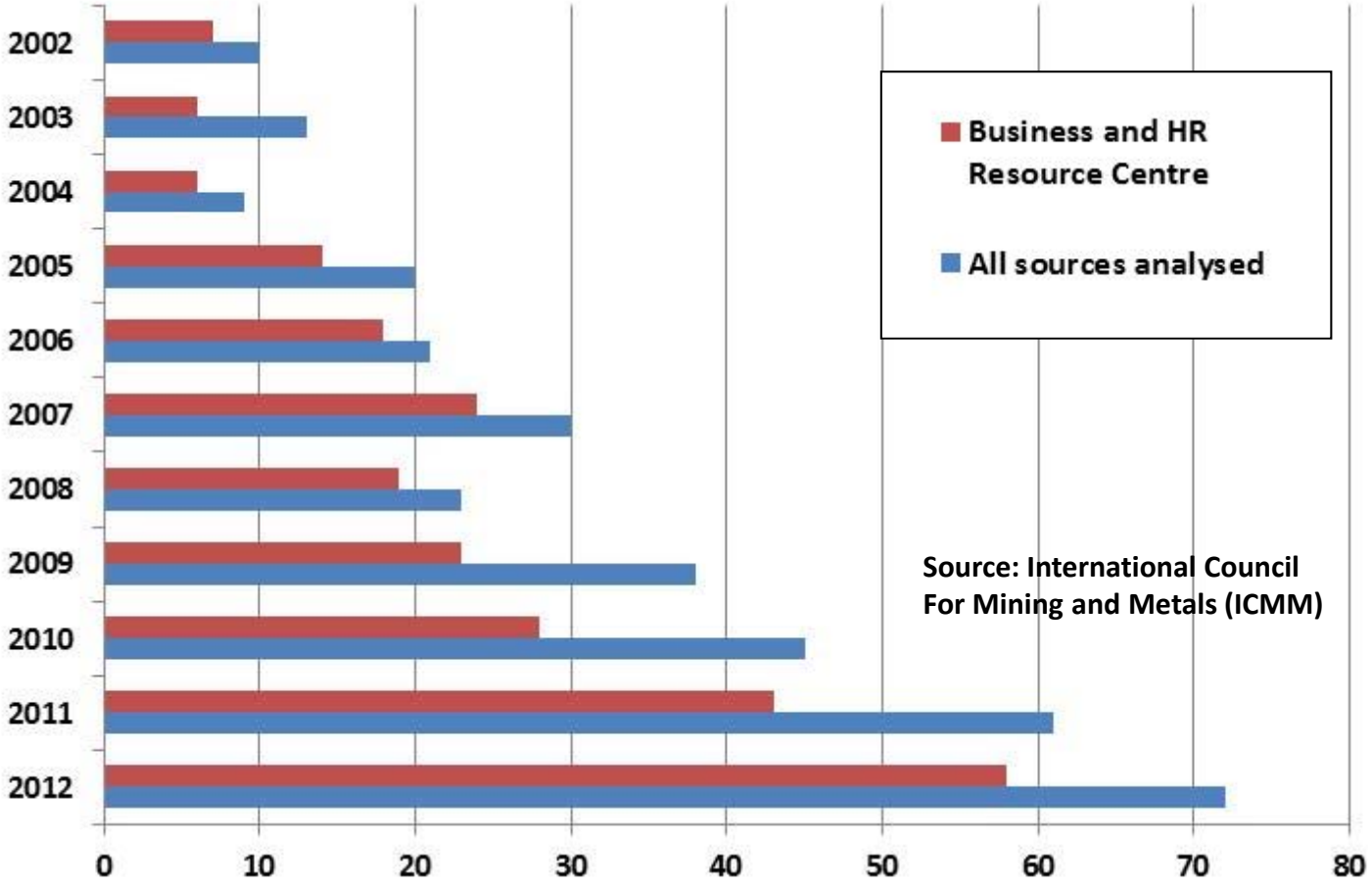
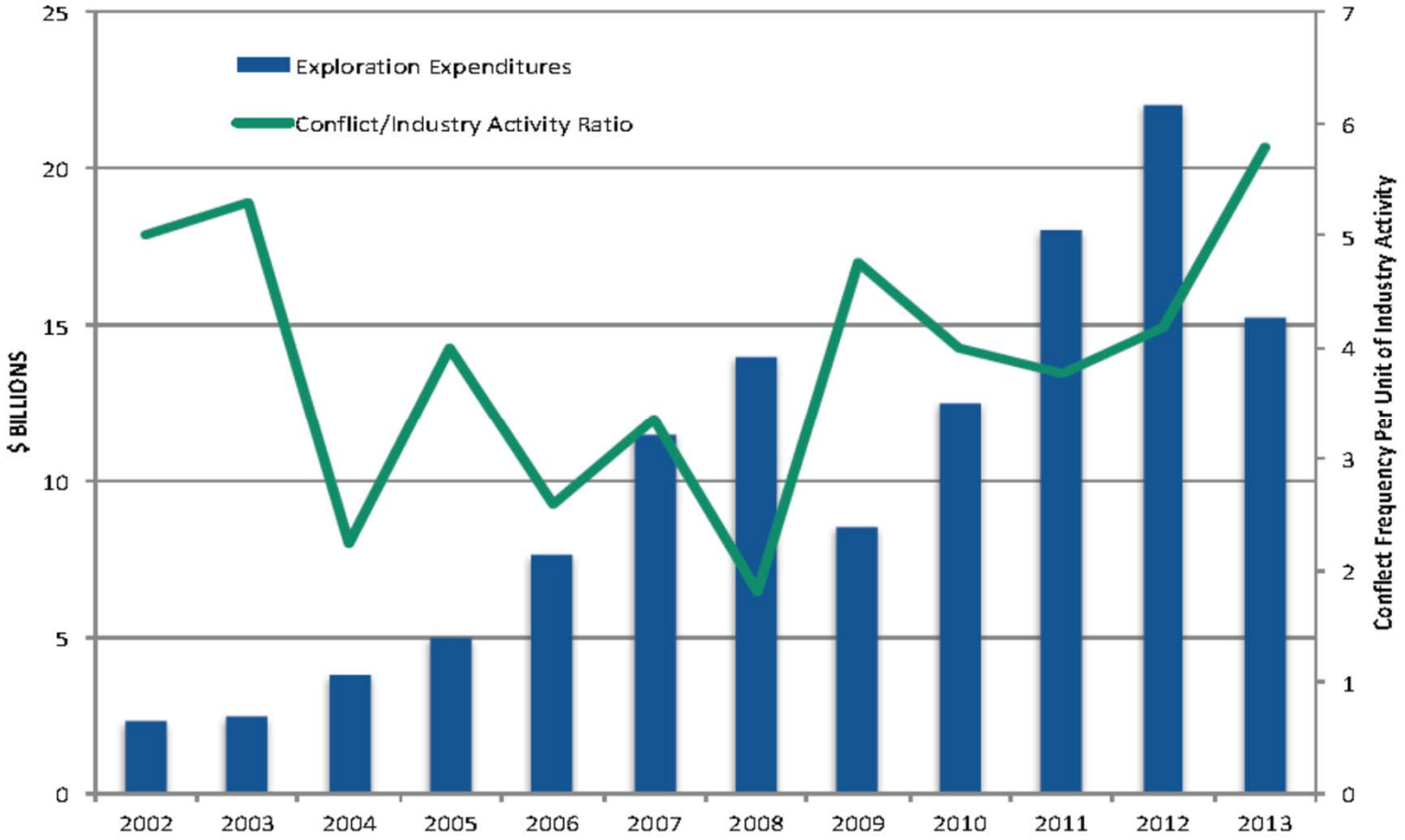
Quantitative Studies in mining conflicts

- Previous few studies have focused on Latin American countries.
  - Argentina, Brazil, Chile, and Peru
    - Haslam and Tanimoune (2016)
  - Peru
    - Arce (2014), Arellano-Yanguas (2012), Ponce & McClintock (2014)
- Global study
  - 59 physically violent events
    - Bond and Kirsch (2015)

Incidents of Conflict Between Mining Companies and Communities (2002 – 2012)



Ratio of Conflict Frequency to Exploration Expenditure



Information sources

- Business and Human Rights Resource Centre (BHRRC)
- Access
- Compliance Advisor Ombudsman (CAO) for IFC
- Global Policy
- Indigenous Peoples Issues and Resources
- Mines and Communities
- Mining Watch Canada
- National Confederation of Peruvian Communities Affected by Mining
- Observatorio de Conflictos Mineros en América Latina
- OECD Watch
- Office of the Extractive Sector Counselor of Canada

➔ 163 unique mining conflicts in 2012-2013

By Region and By Mineral Class

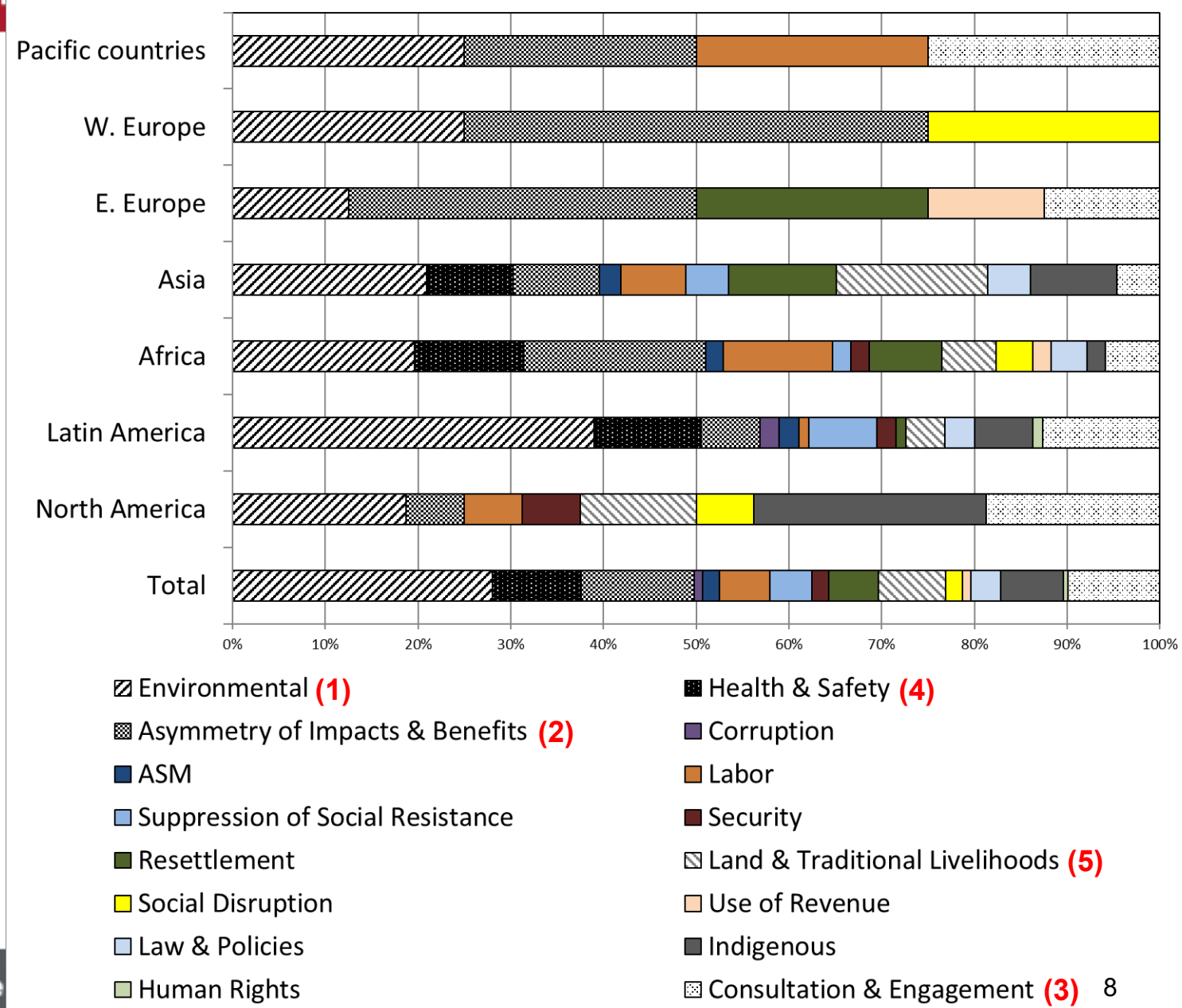
Supra-Region	Total incidents (%)	Precious metals (%)	Non-ferrous base metals (%)	Ferrous metals (%)	Industrial metals (%)	Gem-stones (%)	Energy minerals (%)	Specialty metals (%)
North America	6.7	10.0	10.0	10.0	0.0	10.0	50.0	10.0
Latin America	46.0	55.7	29.9	5.2	4.1	0.0	1.0	4.1
Africa	23.9	46.3	14.6	4.9	4.9	2.4	14.6	12.2
Asia	17.2	39.4	39.4	3.0	0.0	3.0	12.1	3.0
E. Europe	3.1	100.0	0.0	0.0	0.0	0.0	0.0	0.0
W. Europe	1.2	33.3	33.3	33.3	0.0	0.0	0.0	0.0
Pacific Islands	1.8	40.0	20.0	20.0	0.0	0.0	20.0	0.0
Total (%)	100	49.0	26.3	5.7	3.1	1.5	8.8	5.7

Contextual Factors and Conflict Triggers

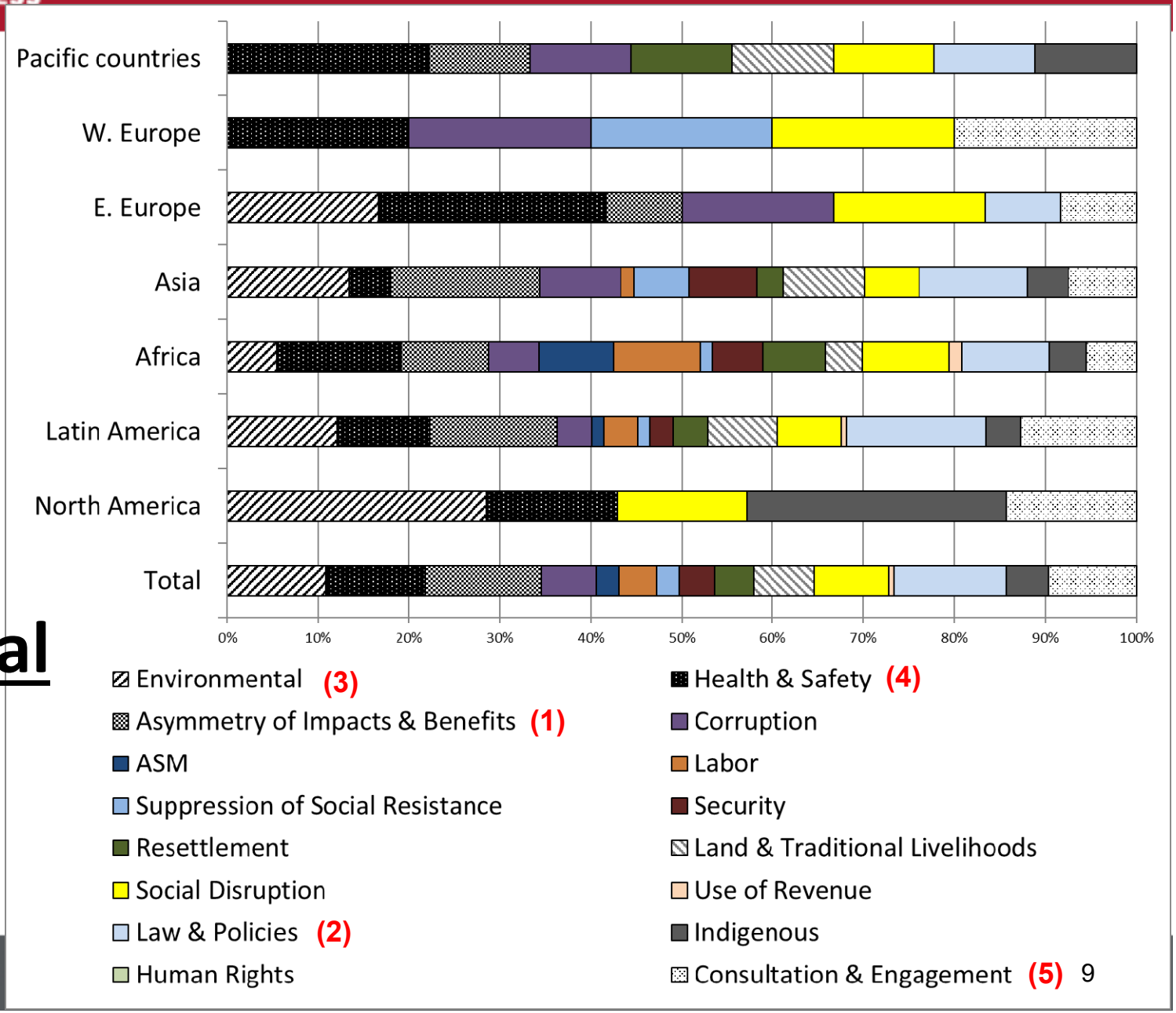
- **Structural & Contextual Factors**
  - Fuel disputes between companies and communities
  - Underlying causes (ICMM)

- **Conflict Drivers & Triggers**
  - Trigger either a protest or the use of force
  - Primary causes (ICMM)

Conflict Drivers



Contextual Factors



Conflict Intensity By Region

	None (%)	Latent (%)	Low (%)	Medium (%)	High (%)
North America	0.0	18.2	54.5	18.2	9.1
Latin America	1.4	2.7	13.7	37.0	45.2
Africa	0.0	5.1	15.4	25.6	53.8
Asia	0.0	7.1	25.0	10.7	57.1
E. Europe	0.0	0.0	20.0	40.0	40.0
W. Europe	0.0	0.0	0.0	50.0	50.0
Pacific Islands	33.3	0.0	33.3	0.0	33.3
Total	1.2	5.0	19.3	28.0	46.6

Conflict Intensity By Mineral Class

	None (%)	Latent (%)	Low (%)	Medium (%)	High (%)
Precious metals	1.1	4.3	10.6	29.8	54.3
Non-ferrous base metals	2.0	2.0	15.7	31.4	49.0
Ferrous metals	9.1	9.1	9.1	36.4	36.4
Industrial minerals	0.0	0.0	16.7	50.0	33.3
Gemstones	0.0	0.0	66.7	0.0	33.3
Energy minerals	0.0	17.6	35.3	11.8	35.3
Specialty metals	0.0	0.0	27.3	36.4	36.4
Total	1.9	5.6	19.3	35.4	57.8

Impacts of Mining Operations By Region

Supra-Region	Environmental	Health & Safety	Socio-economic	Total impact score
North America	1.00	0.64	1.55	3.18
Latin America	1.39	1.10	1.78	4.28
Africa	0.83	1.14	1.69	3.67
Asia	1.39	0.89	1.71	4.00
E. Europe	0.75	0.50	1.25	2.50
W. Europe	1.00	0.50	1.50	3.00
Pacific Islands	1.00	0.67	1.33	3.00
Total	1.20	1.01	1.71	3.92

Impacts of Mining Operations By Mineral Class

Mineral Class	Environmental	Health & Safety	Socio-economic	Total impact score
Precious metals	1.09	0.94	1.59	3.62
Non-ferrous base metals	1.22	1.04	1.69	3.94
Ferrous metals	0.91	0.73	1.64	3.27
Industrial minerals	1.50	1.33	1.50	4.33
Gemstones	1.00	0.67	1.00	2.67
Energy minerals	1.18	0.82	1.59	3.59
Specialty metals	1.00	0.91	1.73	3.64
Total	1.13	0.95	1.61	3.69

Impacts of Mining Operations By Conflict Drivers

Conflict Drivers	Environmental	Health & safety	Socio-economic	Total impact score
Environmental	1.58	1.13	1.69	4.40
Health & Safety	1.38	1.67	1.52	4.57
Impacts & Benefits	0.89	0.96	1.70	3.56
Labour issues	0.33	0.83	1.25	2.42
Use of force	0.90	1.10	1.70	3.70
Resettlement	1.17	0.83	1.83	3.83
Land issues	1.25	0.75	1.56	3.56
Corporate power	1.43	1.14	1.71	4.29
Indigenous	1.40	1.07	1.80	4.27
Consultation	1.18	1.00	1.41	3.59
Total	1.25	1.08	1.63	3.96

Impacts of Mining Operations By Contextual Factors

Contextual Factor	Environmental	Health & safety	Socioeconomic	Total impact score
Environmental	1.44	1.14	1.56	4.14
Health & Safety	1.19	1.19	1.53	3.92
Impact & Benefits	1.50	1.14	1.67	4.31
Corruption	1.30	1.20	1.70	4.20
Labour issues	0.57	0.93	1.79	3.29
Land issues	1.41	0.95	1.59	3.95
Social Disruption	1.15	1.04	1.59	3.78
Law & Policies	1.32	1.10	1.80	4.22
Indigenous issues	1.27	0.87	1.53	3.67
Consultation	1.09	0.91	1.63	3.63
Total	1.27	1.07	1.64	3.98

Impacts of Mining Operations By Ownership

Company Type	Environmental	Health and safety	Socioeconomic	Total impact score
Domestic	1.11	0.98	1.55	3.65
Foreign	1.14	0.95	1.65	3.74
Total	1.13	0.96	1.61	3.70
Public	1.12	0.94	1.59	3.65
Private	1.15	1.03	1.67	3.85
Total	1.13	0.96	1.61	3.70
State-owned	1.20	1.20	1.60	4.00
Non state-owned	1.12	0.95	1.61	3.68
Total	1.13	0.96	1.61	3.70

Conflict Intensity By Ownership

Company Type	None (%)	Latent (%)	Low (%)	Medium (%)	High (%)
Domestic	1.5	7.6	24.2	30.3	36.4
Foreign	1.1	3.3	15.6	27.8	52.2
Total	1.3	5.1	19.2	28.8	45.5
Public	0.8	4.2	21.2	25.4	48.3
Private	2.6	7.9	13.2	39.5	36.8
Total	1.3	5.1	19.2	28.8	45.5
State-ownership	0.0	0.0	10.0	50.0	40.0
Non state-ownership	1.4	5.5	19.9	27.4	45.9
Total	1.3	5.1	19.2	28.8	45.5

Implications and Conclusions

- Increasing mining related conflicts over time.
  - But not as much as increasing mining activities.

- Mining conflicts
  - Concentrated in Latin America, Africa, and Asian countries
    - Mexico, Peru, Chile and Guatemala (42%)
    - Canada is an outlier among developed countries.
  - Precious metals (49%)
    - Frequency (not intensity)
  - Socio-economic impacts > Environmental > Health & Safety
  - Intensity: Public, Foreign, and State-owned mining companies

- Complex contextual and structural factors, while one or two triggers.

Q & A