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"Mining contribution to national economies"

International Council of Metal and Mining has published its second edition of 'Role of mining in national economies' in cooperation with Oxford Policy Management and Raw Materials Group. We are delivering the briefing of this report through this article.

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The International Council on Mining and Metals (ICMM) was founded in 2001 to improve sustainable development performance in the mining and metals industry. ICMM brings together 21 of the world's leading mining and metals companies as well as 35 national and regional mining associations and global commodity associations to address the ore sustainable development challenges faced by the industry. Through 35 members associations, they are connected to another 1,500 companies in the sector.

ICMM now serves as an agent for change and continual improvement on issues relating to mining and sustainable development; therefore their publications voices are becoming increasingly important.

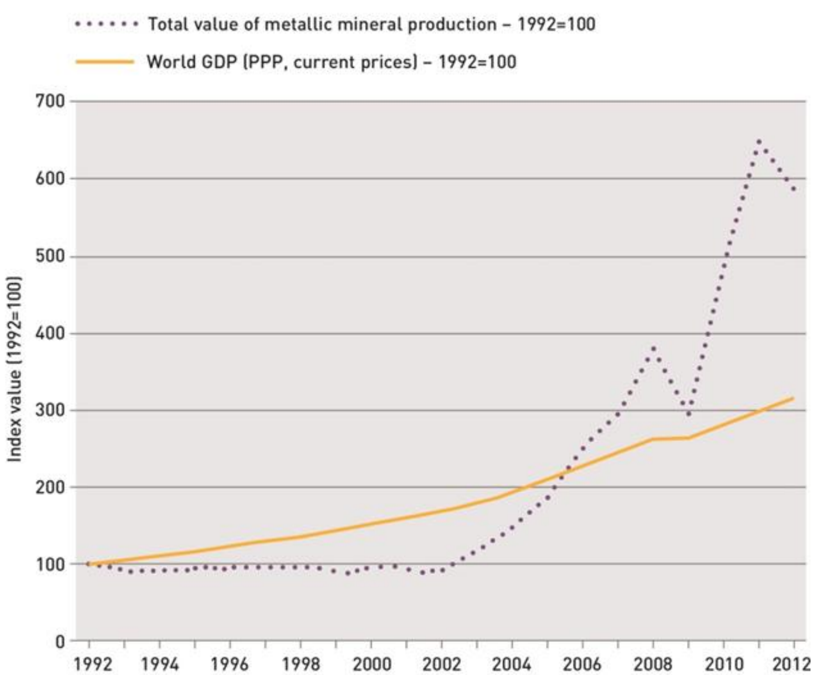
ICMM noted in the report that the latest edition included all 2014 national economies around the world, and the well-known role of mining as economic catalyst is re-affirmed, particularly in terms of national revenues and jobs. The data in the previous report covered 2000–2010, when commodity prices were generally strong. Last update extends the analysis to 2012, a period when commodity prices were softening.

Global context of mining's contribution

Over the last decade the role of mining in the global economy has grown rapidly. The global value of mineral production has grown enormously over the last decade. In 2012, it was over six times higher than in 2000 and 60 per cent higher than at its 2008 peak. Even though production values fell by 11 per cent in 2012, they remain historically high.

Figure 1 shows that the growth in mineral production value significantly outstripped growth in world gross domestic product (GDP) during this period, signalling the growing relative importance of mining in the global economy. This boom has largely been driven by the unprecedented growth in demand for minerals and metals in China, India and other emerging economies. This growth in production value reflects a combination of increased prices and increased production volumes.

Figure 1. World GDP and mineral production – 1992 to 2012



World Bank and Raw Materials Data (2014).

Activity in the mining sector matters hugely to many countries in the world economy. Table 1 presents a summary of mining production values (excluding coal) in the 20 largest producing countries, as well as their share of global production values in 2012. The top of the table remains dominated by the major developed country producers and by large emerging market producers including the five BRICS (Brazil, Russia, India, China, and South Africa) as well as other important emerging economies (eg Chile, Indonesia and Mexico). In the bottom half of the table – at the lower end of production values – there has been more change over the last two years, with countries like Turkey and Uzbekistan making notable advances in the rankings.

Table 1: Top 20 countries in terms of production value

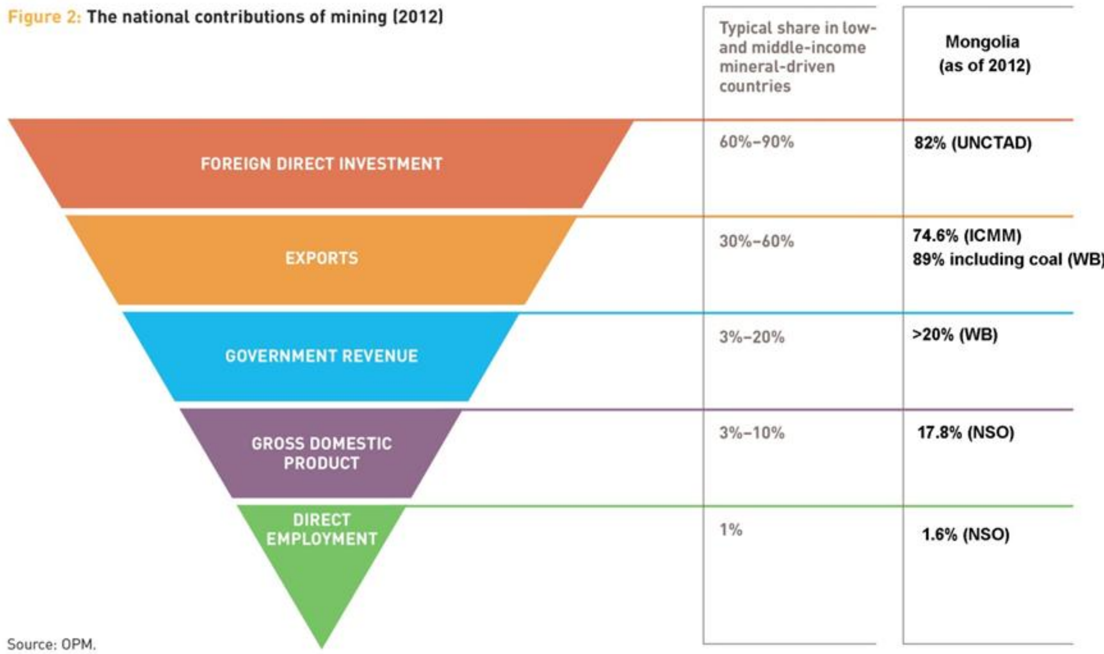
Rank based on 2012 data	2000 production value (US$bn) [1]	2000 production value (of world total) [2]	Production value as % of 2000 GDP (current US$) [3]	2010 production value, revised (US$bn) [4]	2010 production value (of world total) [5]	Production value as % of 2010 GDP (current US$) [6]	2012 production value (US$bn) [7]	2012 production value (of world total) [8]	Production value as % of 2012 GDP (current US$) [9]	Rank based on 2010 data (revised) [10]	Change in ranking [11]
1 China	10.6	8.2%	0.9%	109.2	16.6%	1.8%	123.1	15.8%	1.5%	1	0
2 Australia	16.4	12.8%	3.9%	87.3	13.3%	7.6%	108.5	14.0%	7.1%	2	0
3 Brazil	7.8	6.0%	1.2%	62.4	9.5%	2.9%	65.9	8.5%	2.9%	3	0
4 Russian Federation	10.8	8.4%	4.1%	43.2	6.6%	2.8%	53.0	6.8%	2.6%	4	0
5 Chile	10.5	8.2%	13.9%	36.3	5.5%	16.7%	42.1	5.4%	15.8%	5	0
6 United States	11.3	8.8%	0.1%	33.2	5.0%	0.2%	41.8	5.4%	0.3%	8	2
7 South Africa	12.7	9.9%	9.6%	33.6	5.1%	9.2%	38.5	5.0%	10.1%	7	0
8 Canada	7.9	6.1%	1.1%	25.5	3.9%	1.6%	32.7	4.2%	1.8%	9	1
9 India	2.9	2.3%	0.6%	35.4	5.4%	2.1%	26.8	3.4%	1.4%	6	-3
10 Peru	4.7	3.7%	8.8%	21.1	3.2%	14.2%	25.1	3.2%	13.0%	10	0
11 Mexico	2.4	1.9%	0.4%	11.0	1.7%	1.0%	17.7	2.3%	1.5%	13	2
12 Indonesia	4.9	3.9%	3.0%	14.7	2.2%	2.1%	14.9	1.9%	1.7%	11	-1
13 Kazakhstan	2.4	1.9%	13.1%	9.7	1.5%	6.6%	12.5	1.6%	6.2%	14	1
14 Ukraine	1.8	1.4%	5.8%	11.8	1.8%	8.7%	12.2	1.6%	6.9%	12	-2
15 Iran, Islamic Rep.	0.8	0.6%	0.8%	6.9	1.0%	1.6%	8.2	1.1%	1.6%	15	0
16 Turkey	0.4	0.3%	0.2%	4.0	0.6%	0.6%	6.3	0.8%	0.8%	20	4
17 Uzbekistan	1.2	0.9%	8.8%	3.3	0.5%	8.5%	5.7	0.7%	11.1%	25	8
18 Zambia	0.6	0.5%	19.0%	5.0	0.8%	31.2%	5.4	0.7%	26.4%	16	-2
19 Philippines	0.4	0.3%	0.5%	4.5	0.7%	2.2%	5.4	0.7%	2.2%	18	-1
20 Argentina	0.7	0.5%	0.2%	4.1	0.6%	0.9%	5.4	0.7%	0.9%	19	-1

Source: World Bank, Raw Materials Data (2014). Please see Annex B for definitions and sources.
Note that 2010 production value figures differ from those in ICMM (2012) due to revisions by Raw Materials Data.

Mining contribution to national economies

Figure 2 represents the macro-level contributions of mining in the shape of an inverted pyramid. The percentages are not additive but indicate the range of stand-alone contributions in each area.

Figure 2: The national contributions of mining (2012)



Source: OPM.

<u>FDI.</u> In almost all country case studies, the share of mining in total FDI has been large (60–90 per cent), but this is particularly evident in low-income countries. Countries are often able to attract mining investment even when FDI into other sectors appears unattractive. At the same time, mining FDI is highly sensitive to changes in the institutional and economic environment. In the case of Mongolia, share of mining in the FDI has been around 67% of annual FDI in average up until 2010, and it reached during 2010-2012 to 82% in average.

<u>Mineral exports.</u> Mined minerals represent a large share of exports in many countries. In 2012, 38 countries relied on mined minerals for over 25 per cent of their merchandise exports (referred to here as mineral reliant). Some three quarters of these countries are low and middle-income countries. This number has risen over time: in 1996 there were only 29 mineral reliant economies, as recently as 2005 there were 33. As for Mongolia, mineral export is a single major exporting industry for the country, and it represents around 90% of the total exports.

<u>Government revenue.</u> The available evidence suggests that mining's contribution to government revenues varies significantly across countries. The payment of royalties and taxes to government represents one of the most important contributions by the mining industry – it is certainly the most actively debated. ICMM calculated that the Mongolian mining industry contribution to the government revenue was 18.3% in 2012. According to the World Bank economic update 2013, this share was more than 20%. Although the there is a discrepancies in the number, it is evident that the mining industry of Mongolia has an important role for the government revenue.

GDP contributions. The GDP contribution of mining is defined as the total net incomes produced by the mining sector. In addition, mining generates indirect contributions through the value generated by providers of mining sector inputs (i.e. procurement of goods and services). Based on case studies undertaken by ICMM, mining typically provides only a modest direct contribution to a country's GDP (typically around 3–10 per cent of national totals), even in countries with large mining sectors. ICMM has calculated mining industry contribution to the GDP as 52.9%, which includes incomes directly produced by mining comprise labour incomes (wages and salaries), interest and financing costs (payable to lenders) and profits (operational surplus before tax and depreciation charges). According to the National Statistics Office of Mongolia, share of mining GDP in the total GDP was 17.8% in 2012.

Direct employment. Modern-day mining in almost all countries is highly capital intensive, and hence the contribution of mining to direct job creation at the national level is often relatively small – rarely more than 1–2 per cent of total national employment. At the same time new jobs created by large mining companies are normally well-remunerated compared to prevailing national wage rates. ICMM also noted that one direct mining company employee may correspond to 3–5 employees elsewhere in the economy. In poorer and more rural regions with a lack of alternative economic activities, the indirect and induced employment effects can be especially important. According to the NSO of Mongolia, direct employment of mining industry in 2012 was 19217, which accounts for 1.6% of total workforce.

An updated Mining contribution index (MCI)

The objectives of the MCI were – and still are – to capture important aspects of the contribution from mining sectors to national economies and to stimulate debate around the data challenges involved in measuring these contributions. The MCI is a composite index comprised of three indicators, each capturing different aspects of mining's contribution to national economies:

- Mineral and metal export contribution 2012. Provides a measure for the scale of mining in relation to other productive activities, in particular for small, open and low- to middle-income countries.
- Increase/decrease in mineral and metal export contribution 2007–2012. Adds a dynamic component to the index by providing an indication of whether the importance of mining as an economic activity is growing or falling over time.
- Mineral production value expressed as a percentage of GDP in 2012. Provides a sense of scale of the value of production relative to the size of the economy. Note that it does not represent the contribution of mining to GDP – on average perhaps a third of production value represents value addition to the national economy.

Mongolia has been listed at 14, out of 214 countries, among the highest score of MCI.

Mining Contribution Index score

Above 80 | Above 60, less than 80 | Above 40, less than 60 | Above 20, less than 40 | Zero to 20

Data table by country

COUNTRY		EXPORTS			PRODUCTION			EXPLORATION	COUNTRY DATA		ASSESSMENT	
(* indicates non-UN country) (1)		2012 export contribution (2)	Change in export contribution 2007–2012 (3)	Total export contribution 2012 (4)	2012 production value (% of GDP) (5)	Change in production value 2007–2012 (6)	2012 production value (US$bn) (7)	Exploration spend relative to production value (8)	Population growth 2000–2012 (9)	Human Development Index (Latest year available) (10)	2014 MCI score (11)	MCI 2014 quintile (Change in quintile since MCI 2012) (12)
1	Mauritania	62.9%	10.9 pp	71.8%	57.5%	34.0 pp	2.28	2.1x	40%	0.49	96.82	1 (0)
2	Eritrea	60.5%	58.6 pp	60.5%	16.8%	16.8 pp	0.52	3.9x	56%	0.38	96.38	1 (3)
3	Guyana	58.8%	21.0 pp	58.8%	22.1%	7.2 pp	0.63	5.7x	7%	0.64	95.92	1 (0)
4	Congo, Dem. Rep.	81.5%	12.4 pp	92.4%	18.0%	7.0 pp	4.94	–	40%	0.34	95.88	1 (0)
5	Korea, Dem. Rep.	54.4%	31.7 pp	55.8%	–	–	0.97	–	8%	–	95.76	1 (3)
6	Suriname	75.7%	18.9 pp	85.2%	15.8%	5.1 pp	0.79	–	15%	0.70	95.67	1 (0)
7	Guinea	60.1%	9.1 pp	87.4%	34.7%	15.9 pp	1.96	1.6x	31%	0.39	94.79	1 (1)
8	Burkina Faso	46.3%	44.8 pp	46.3%	16.0%	15.3 pp	1.72	9.7x	42%	0.39	94.21	1 (0)
9	Botswana	91.7%	5.7 pp	92.4%	29.4%	-4.5 pp	4.28	1.2x	14%	0.68	93.74	1 (1)
10	Lesotho	44.5%	38.4 pp	44.5%	15.0%	5.2 pp	0.35	0.8x	11%	0.49	92.67	1 (2)
11	Liberia	24.0%	21.0 pp	41.4%	29.1%	27.5 pp	0.51	3.3x	45%	0.41	91.98	1 (0)
12	Togo	28.3%	15.7 pp	43.0%	15.9%	5.8 pp	0.62	0.0x	37%	0.47	89.87	1 (0)
13	Australia	57.3%	8.9 pp	69.0%	10.0%	2.3 pp	153.23	0.6x	19%	0.93	89.36	1 (0)
14	Mongolia	83.1%	1.8 pp	86.4%	52.9%	3.5 pp	5.46	5.5x	17%	0.70	88.55	1 (0)
15	Papua New Guinea	51.3%	4.1 pp	68.5%	26.1%	-8.5 pp	4.08	3.6x	33%	0.49	88.54	1 (0)
16	Myanmar	19.1%	13.4 pp	57.6%	–	–	0.38	–	9%	0.52	86.28	1 (1)
17	Mozambique	47.5%	6.8 pp	71.7%	4.7%	4.3 pp	0.68	17.6x	38%	0.39	84.89	1 (2)
18	Central African Republic	44.4%	10.8 pp	44.5%	3.2%	-0.2 pp	0.07	–	24%	0.34	84.84	1 (2)
19	Armenia	44.5%	6.5 pp	49.9%	5.7%	2.1 pp	0.57	1.4x	-3%	0.73	84.77	1 (0)
20	Solomon Islands	15.5%	15.1 pp	15.6%	10.1%	10.1 pp	0.10	15.8x	33%	0.49	83.93	1 (4)

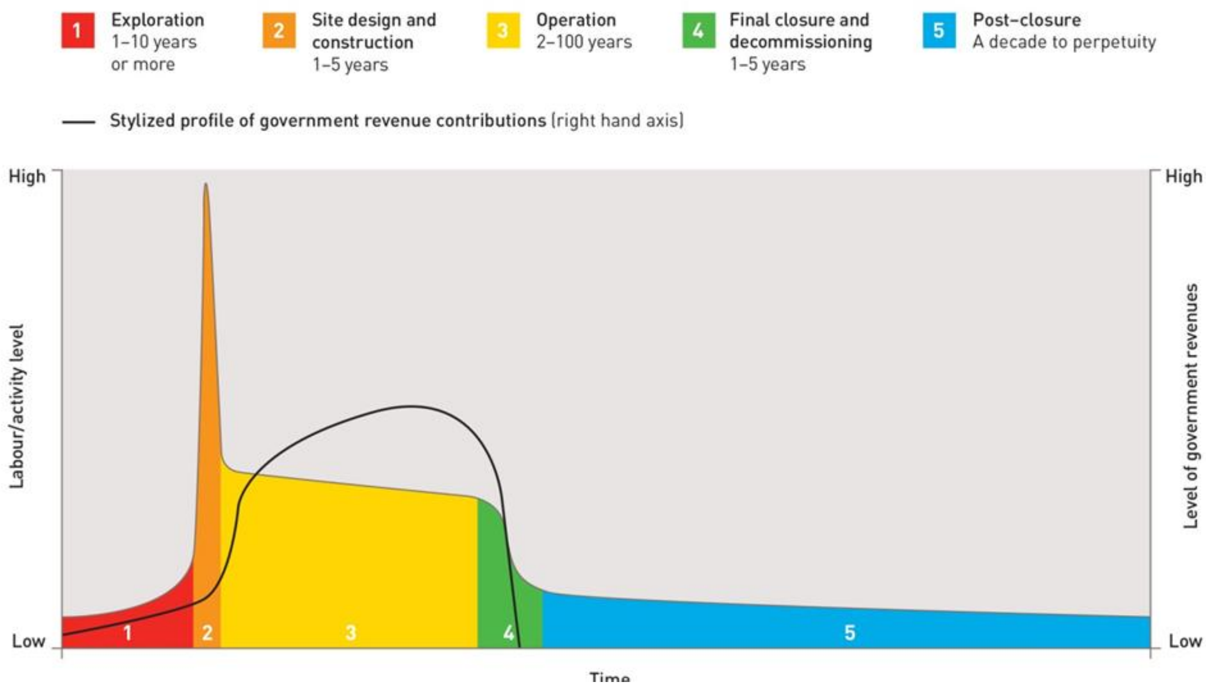
Summary

As ICMM noted that one dollar of economic activity in the mining sector can generate three dollars or more of economic activities elsewhere. That is why the Mongolian mining industry contribution to the GDP has been calculated as 52% in the MCI score, although mining GDP was only 17.8% in 2012. Also the mining industry can contribute towards industrialization through development of supply chains, but this will have to be supported in a number of ways. ICMM also suggested that at the macroeconomic level, fiscal and monetary policy should avoid exchange rate overvaluation to guard against "Dutch Disease" effects, which could reduce the competitiveness of non-mining sectors of the economy.

The capacity of local suppliers can be built by actions taken by both mining companies and government. While some mines have supplier development programs and put resources towards nurturing local supplier capabilities, there is a limit to what mines can do in the absence of a supportive business environment for private investment. Local suppliers are faced with significant barriers to growth and a difficult investment climate – including high costs for finance, electricity, land and labour. Government efforts to address these barriers could significantly improve the chances of success of supplier development programs.

Oyu Tolgoi was only one world class mining project in Mongolia, which basically driven FDI up in the 2010s. Majority of the ramp up of FDI has been directed OT mine.

Figure 1: The mine project life cycle



This figure shows that employment and activity level is the highest during the construction phase, which was during the period of 2010- 2013 for OT project. During the operation phase, contribution to the government revenues stays the highest.

Therefore, it can be expected that government revenue from open pit mine in OT should be stabilized for coming years, if OT continue its operation normally.

We should also remind that, Mongolia and its financial and business industry should be prepared and have enough room to place the OT investment in underground project or the investment in Tavan tolgoi coal deposit if these projects resolved positively. We hope that the government learnt lesson that the FDI and operation of the foreign invested companies are extremely sensitive to the change in the political and legal environment, and providing stable business environment for local and foreign producers is equally important.

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