ICMM
International Council on Mining & Metals

SHARE

Social progress in mining-dependent countries

The question of whether an abundance of mineral resources hinders rather than enhances the economic progress of countries is complex and the subject of extensive study and debate. These studies have tended to focus on economic or governance metrics and overlooked social indicators meaning there is very limited research in this area. We know little about whether or how social development has progressed in resource-rich countries on metrics such as access to food, life expectancy, health, education, or water and sanitation.

To close this research gap, we examine trends across a broad set of socio-economic indicators in countries with a sustained history of mineral dependence over the past 20 years. The timeframe for this trend analysis is the two decades in the lead-up to the launch of the UN Sustainable Development Goals (SDGs). Launched in 2015, the SDGs are an ambitious set of 17 Global Goals that represent a universal call to action by UN member states to end poverty, protect the planet and ensure peace and prosperity for all by 2030.

Resource dependent countries – and why they matter

Not all resource-rich countries are resource-dependent. The definition of whether a country is resource-dependent relates to the relative economic importance of natural resources in the economic life of that country. We define a country as resource-

dependent if:

- Resources account for more than 20 per cent of export earnings; or
- Resource rents are more than 10 per cent of gross domestic product.

Applying these criteria to identify countries where the mineral and/or oil and gas sectors dominate the economy allows for an inclusive analysis of resource dependence. The most comprehensive data on export earnings and resource rents goes back to 1995, and the latest available data is 2015.

At the national level, 53 countries meet our criteria for being resource dependent for the 20-year period our research covers (Figure E1), and these can be categorised as follows:

- 28 countries are hydrocarbon-dependent countries (HDCs), as they generate more than 75 per cent of their resources export revenue with hydrocarbons, such as oil, gas and coal.
- 20 countries are mining-dependent countries (MDCs), as they generate more than 75 per cent of their resources export revenue with minerals and metals.

A further five countries are dependent on both minerals and hydrocarbons as their resources export revenue is derived from a mix of minerals, metals, and hydrocarbons. For the benefit of our analysis, countries labelled 'both' are grouped together with MDCs as we want to examine social progress in countries that are significantly dependent on mining.

To better understand if or how resource dependence influences social progress at a regional level, we also examine four countries that are resource dependent for a deeper, sub-national analysis – these are Chile, Ghana, Indonesia, and Peru. These countries comprise multiple regions with a range of resource dependencies.

While 53 countries have been resource dependent for the 20 years leading up to 2015, a total of 81 countries met the criteria for resource dependence in 2015. They include some of the world's poorest nations, are home to almost 30 per cent of the global population with 230 million people living in extreme poverty on less than $1.90 a day. So understanding the relative performance of countries that are resource-dependent

on a range of social metrics over the past two decades is profoundly important.

Figure E1: Countries that were 'resource-dependent' over the entire period from 1995–2015

	Hydrocarbons		Metal & minerals		Both
Sub-Saharan Africa	• Angola • Cameroon • Nigeria • Equatorial Guinea	• Congo • Gabon • Libya	• Botswana • Central African Republic • Niger • Mauritania • Ghana	• Guinea • Togo • Zambia • Congo, Dem. Rep • Namibia • South Africa	
Asia	• Brunei Darussalam • Indonesia • Turkmenistan		• Mongolia		• Australia • Papua New Guinea • Uzbekistan • Kazakhstan
Latin America*	• Colombia • Ecuador • Trinidad & Tobago	• Venezuela	• Bolivia • Chile • Guyana	• Jamaica • Peru • Suriname	
Middle East and North Africa & others**	• Algeria • Azerbaijan • Egypt • Iran • Iraq • Kuwait • Norway	• Oman • Qatar • Russia • Saudi Arabia • Syrian Arab Rep • UAE • Yemen	• Armenia • Georgia		• Bahrain

* Includes Caribbean countries
** Others include Europe

Metrics of social progress – and links to the SDGs

Central to our work is the identification and analysis of more than 30 established and widely accepted social progress metrics (Figure E2), that are strongly linked to 11 of the SDGs, namely: SDG1: No poverty; SDG2: Zero hunger; SDG3: Good health & well-being; SDG4: Quality education; SDG5: Gender equality; SDG6: Clean water & sanitation; SDG7: Affordable & clean energy; SDG8: Decent work & economic growth; SDG9: Industry, innovation, & infrastructure; SDG10: Reduced inequalities; and SDG16:Peace, justice, & strong institutions.

These social metrics provide robust and outcome-focused measures that can be used to evaluate social progress in resource dependent countries between 1995 and

2015. While these are not necessarily the same metrics countries will use to measure progress towards the achievement of the SDGs between now and 2030, we believe they provide relevant, and important insights into the relative performance of resource-dependent countries (MDCs and HDCs) in the period leading up to the launch of the SDGs.

Figure E2: National-level metrics

■ 80–100% of countries covered ■ 65–80% of countries covered ■ 50–65% of countries covered

Relevant SDGs	Metrics used	Time frame
No Poverty	• Headcount: $1.9(2011 PPP) daily	■ 1995-2015[a]
Zero Hunger	• Prevalence undernourished • Depth of food deficit	■ 1995-2015[b] ■ 1995-2015[b]
Good Health and Well-Being	• Neo-natal mortality • Under-5 mortality • Maternal mortality • NCD mortality	■ 1995-2015[c] ■ 1995-2015[c] ■ 1995-2015[c] ■ 2000, 2005, 2010, 2015[d]
Quality Education	• % of children out of school • Net enrolment rate, primary • Mean years of schooling • Population with secondary level	■ 1995-2015[e] ■ 1995-2015[e] ■ 1995 (every 5 years)[c] ■ 1995 (every 5 years)[c]
Gender Equality	• Labour participation rates • Enrolment rate, primary • Adult literacy • Mean years of schooling • Share of women in parliament	■ 1995-2015[f] ■ 1995-2015[e] ■ 2000-2015[e] ■ 1995 (every 5 years)[c] ■ 1995 (every 5 years)[c]
Clean Water and Sanitation	• Improved water source (% with access) • Improved sanitation facilities (% with access)	■ 1995-2015[d] ■ 1995-2015[d]
Affordable and Clean Energy	• Access to electricity • Access to clean fuel for cooking	■ 1995-2015[g] ■ 2000-2014[d]
Decent Work and Economic Growth	• Labour force participation • Youth employment rate • GDP per employed (PPP terms)	■ 1995-2015[f] ■ 1995 (every 5 years)[c] ■ 1995-2015[f]

	• Employment rate	■ 1995-2015[f]
Industry, Innovation and Infrastructure	• Internet users (% population) • Account at financial institution (% population) • Mobile phone penetration	■ 1995 (every 5 years)[c] ■ 2011, 2014[a] ■ 1995-2015[h]
Reduced Inequalities	• Income quintile ratio • Final household consumption per capita	■ 1995-2014[a] ■ 1995-2015[a,i]
Peace, Justice and Strong Institutions	• WGI: Control of Corruption Index • WGI: Political stability and absence of violence/terrorism • Freedom in the World Index: average of Civil Liberty and Political Rights scores	■ 1995-2015[a] ■ 1996-2015[a] ■ 1995-2015[j]

a. World Bank
b. FAO
c. UNDP
d. WHO
e. UNESCO
f. ILO
g. IEA
h. ITU
i. OECD
j. Freedom House

Two important caveats apply

This research provides an approach to quantify, contextualise, and compare socio-economic progress across and within countries. While the economic impact of mining activity and the social policies of mining companies are likely to contribute to social progress (through employment, income, and social programmes), this research does not claim to attribute causality between mining and social progress.

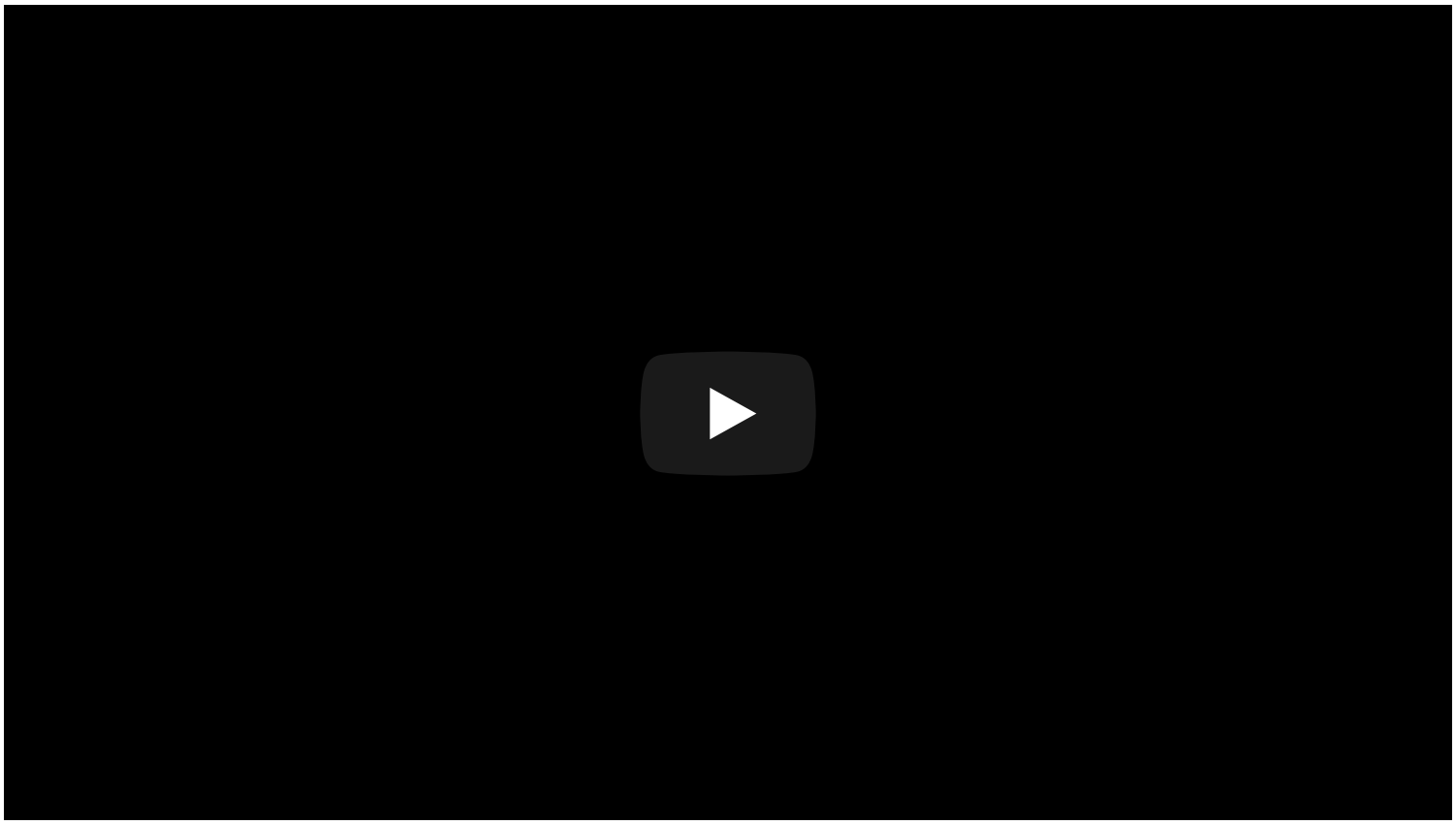
There are other factors in play – including government policies and capacity, the quality of governance, economic activity in other sectors, and the social programmes of non-governmental organisations and companies in non-resource sectors.

Secondly, the purpose of this work is not to make country-specific policy recommendations, especially given the global focus of the report. Instead it reaffirms the need for governments and mining companies to broaden and deepen cooperation in order for social progress to be sustained.

Key findings

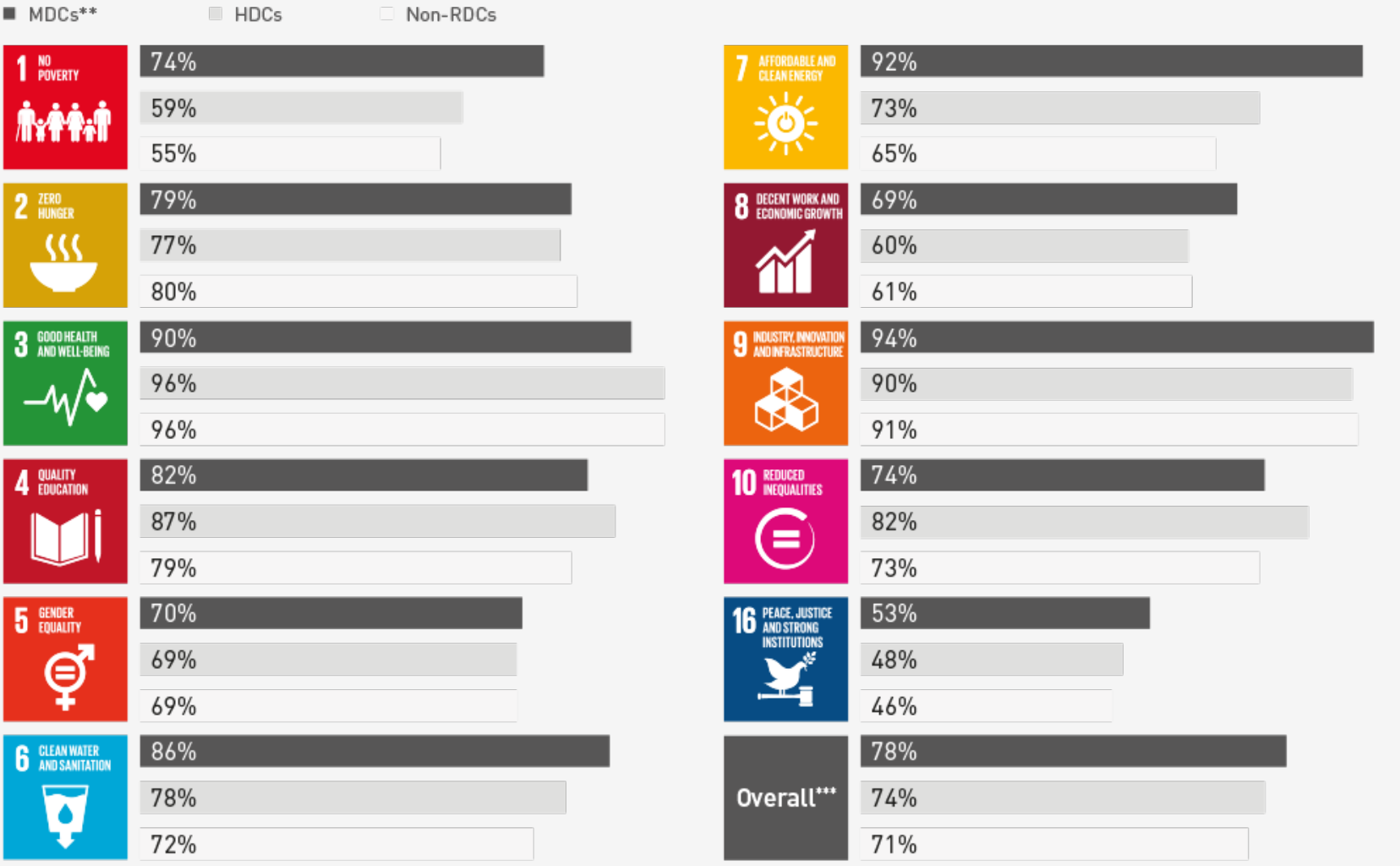
1. MDCs have improved their social performance between 1995 and 2015

Life for people in countries that are ‘mining-dependent’ is improving. Various metrics indicate that MDCs have made substantial social progress over the past two decades. Today, people in these countries are generally healthier, wealthier, and better educated.



Our research shows that social progress in MDCs improved, in absolute terms between 1995 and 2015 (Figure E3), with greatest progress seen in providing people with improved access to infrastructure (SDG9, specifically ICT infrastructure and access to finance), more affordable and clean energy (SDG7), and in promoting good health and well-being (SDG3) between 1995 and 2015. For each of these areas, over 90 per cent of the metrics across all countries improved.

Figure E3: Percentage of metrics that improved since 1995* by SDG dimension and country groups



* Share of all available metrics under each dimension that improved on absolute terms (For example, there are 4 metrics under health and well-being for each of the 25 MDCs, the number of available metrics under consideration is 4*25=100).
** Considers 25 mining-dependent countries from 1995-2015. Includes countries that are both mining and hydrocarbon dependent.
*** Based on a simple average of the SDG areas.

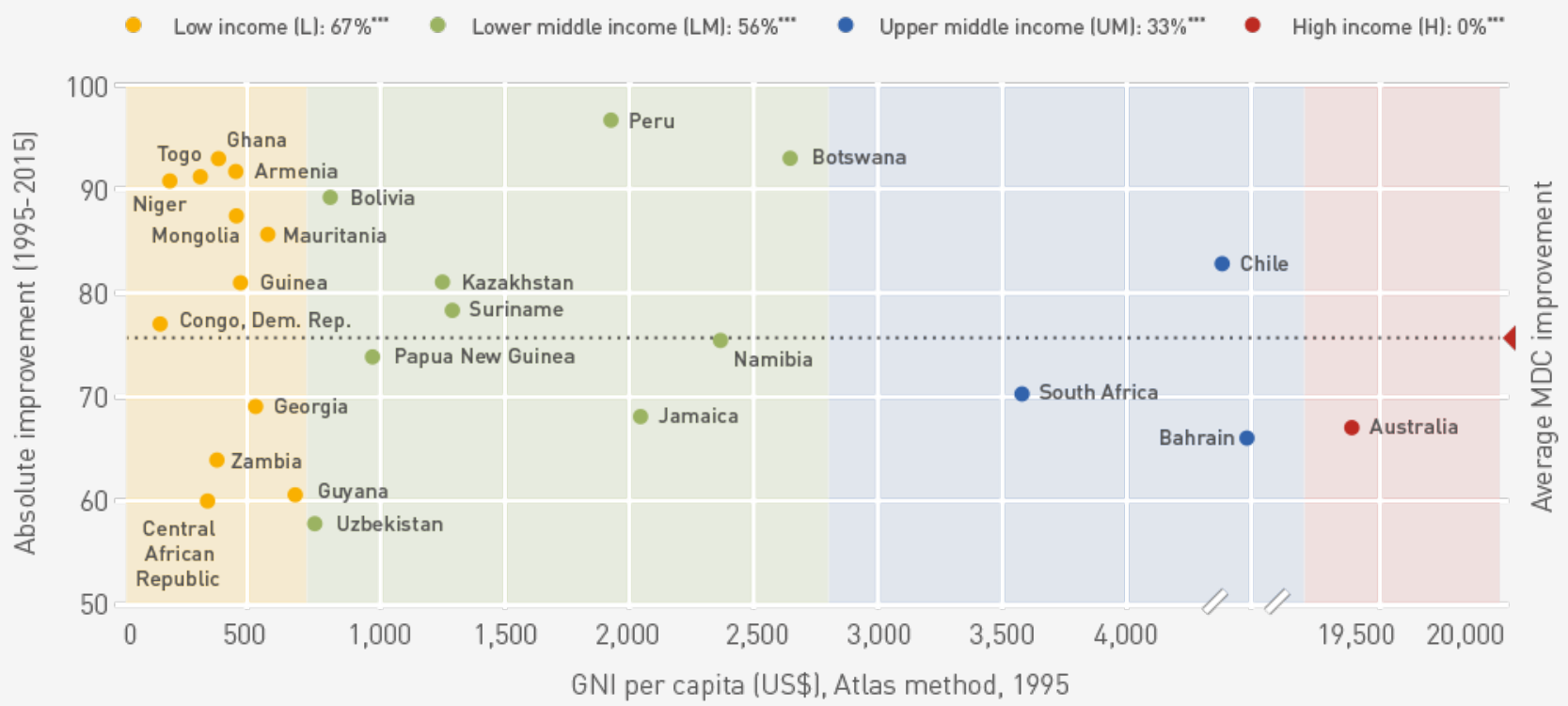
Progress was weakest across various governance (SDG16: Peace, justice, & strong institutions), gender equality (SDG5: Gender equality), and creating better employment opportunities (SDG8: Decent work and economic growth) metrics. However, even across these areas between 53 and 70 per cent of metrics improved between 1995 and 2015.

Income status also appears to have a bearing on the results. Overall poorer countries achieved stronger social progress across a greater number of metrics relative to wealthier ones. Between 1995 and 2015 most broad-based improvements occurred in MDCs where the average incomes are between US$766–3,035 per year (lower middle-income countries) or below US$766 per year (low-income countries) (Figure E4). The one notable exception was Chile, which despite being an upper-middle income country also experienced strong gains in social progress since 1995.

The research also appears to confirm that governance clearly matters in terms of socio-economic performance. For the most part, better governed MDCs fare better overall in terms of improvements in socio-economic performance over the past 20

years. That effect was most marked in poorer countries that were below the global average in terms of socio-economic performance in 1995.

Figure E4: Absolute performance of countries by income levels* (mining-dependent countries only**)



* Average improvement across 11 SDG dimensions based on share of metrics under respective dimensions which improved in absolute terms. Income classifications are based on World Bank data.
** Considers 25 mining-dependent countries from 1995-2015. Includes countries that are both mining and hydrocarbon dependent.
*** Percentage of countries that beat the average improvement in absolute terms at the particular income level.

2. The performance of MDCs compares favourably to the performance of other countries

Observed socio-economic progress across MDCs is strong, even when compared with the progress of other countries around the world. For example, MDCs managed to improve across a larger number of socio-economic metrics than HDCs and countries with no resource reliance between 1995 and 2015 (see Figure E3). Overall, MDCs improved on 78 per cent of social metrics, compared to an improvement on 74 per cent of metrics in HDCs and 71 per cent in non-resource-dependent countries (non-RDCs).

This outperformance is most notable across metrics that reflect progress in providing clean and affordable energy to people (SDG7). The average MDC improved

across 92 per cent of the metrics in this area, while the average non-RDC improved across only 65 per cent of these same metrics.

Other areas where MDCs outperform either HDC or non-RDCs include poverty reduction (SDG1), access to clean water and sanitation (SDG6), provision of decent jobs (SDG8), access to ICT and financial infrastructure (SDG9), governance (SDG16) and gender equality (SDG5).

MDCs do however lag the absolute progress of HDCs and non-RDCs when it comes to improving the overall health of a population (SDG3). This lag should not be over-stated as MDCs saw an improvement of 90 per cent across the four health metrics. In other areas such as education (SDG4) and reducing inequality (SDG11), MDC's lagged behind HDCs but improved across a larger number of socio-economic metrics than non-RDCs.

3. MDCs continue to lag behind best performing countries – but are closing the gap

To understand and measure differences between the social progress of RDCs and the progress of the most socially advanced countries, we developed a purpose-built socio-economic index, using a 'distance-to-frontier' approach.

'Distance-to-frontier' is a relative measure of the socio-economic performance of a country (on a scale of 0 - 1), relative to the most socially advanced country globally (ie the one with the highest average score for individual metrics, a group of social metrics under a single SDG, or across all social metrics).

The best and worst performing country on a metric is assigned a score of 1 and 0 respectively. The performance of all other countries is then measured relative to these two countries. By design therefore, almost all countries fall short of the global best performers.

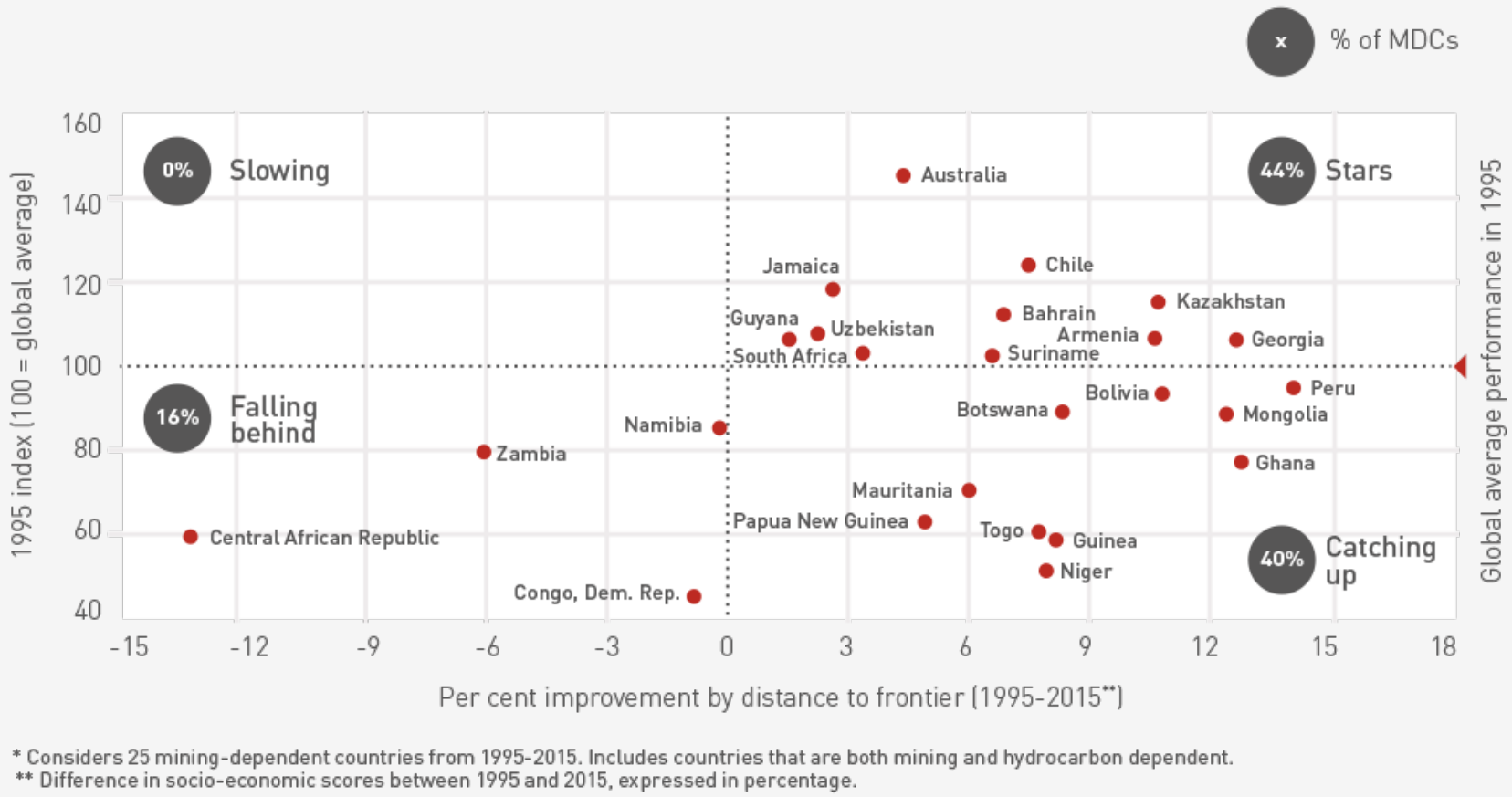
In 2015, MDCs lag non-RDCs across all SDG areas by about 7 per cent. However, when comparing countries of similar income levels, differences in socio-economic performance are less evident. When only low and lower-middle income countries are compared the gap is much smaller, and MDCs lag non-RDCs by a score of just 2 per cent.

We estimate that income differences between MDCs and non-RDCs account for

approximately 80 per cent of the gap in social progress, as incomes play a large role in shaping a country's socioeconomic performance.

The continuing socio-economic gap however, has not prevented MDCs from catching up with the global best performing countries over time. The socio-economic index illustrates this (Figure E5). In 1995, 56 per cent of all MDCs had overall socio-economic performances that were below the global average, but 84 per cent of them have been able to close the gap in over the next two decades. In comparison, only 69 per cent of non-RDCs have been able to close the gap over the same period.

Figure E5: 1995 socio-economic score (normalised to global average) vs relative progress in percentage (mining-dependent countries only*)



* Considers 25 mining-dependent countries from 1995-2015. Includes countries that are both mining and hydrocarbon dependent.
** Difference in socio-economic scores between 1995 and 2015, expressed in percentage.

MDCs achieving the biggest relative improvements include Bolivia, Ghana, Mongolia, and Peru. These countries are rapidly catching up to the best socio-economic performers globally. Only four MDCs – the Central African Republic, Zambia, Namibia, and the Democratic Republic of the Congo – have fallen further behind. These four countries have nonetheless improved across the majority of socio-economic metrics in absolute terms.

4. Countries where positive social progress is apparent, also see progress at the subnational level

More in-depth analysis in four focus countries – Chile, Ghana, Indonesia, and Peru – reveals that social progress in MDCs is filtering down to the regional level. Looking at the progress of mining-dependent regions (MDRs) in these four countries we see that they have advanced on at least three-quarters of the socio-economic metrics analysed in this report.

The greatest socio-economic progress occurred in the MDRs of Ghana and Indonesia, where 83 per cent of social progress metrics improved over the two decades examined. In Peru, progress is being seen across 80 per cent of metrics, and in Chile 75 per cent. This appears to confirm that social progress in MDCs is not confined to the national level.

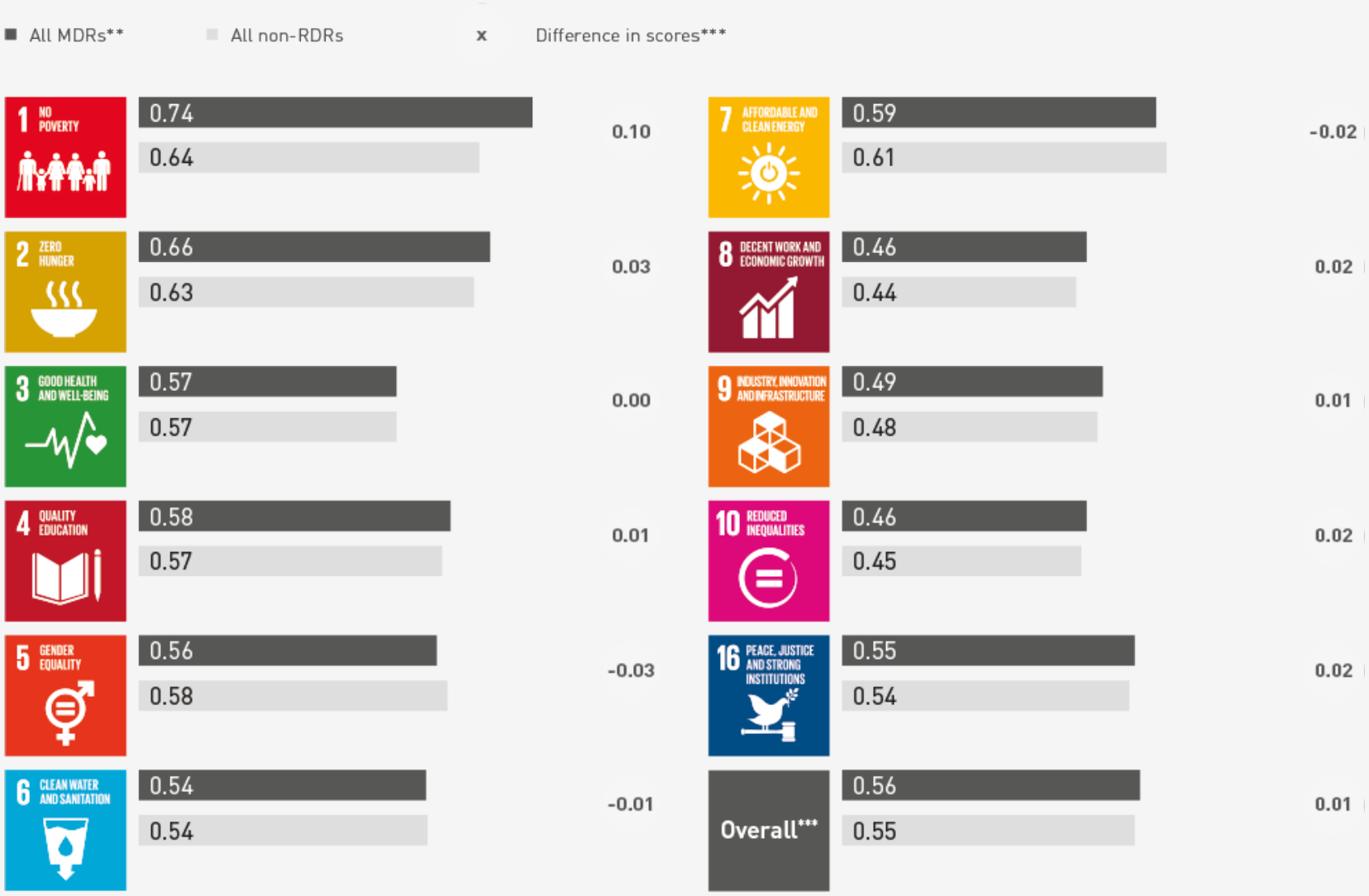
Improvements at the subnational level are particularly strong in terms of SDG1: No poverty; SDG2: Zero hunger; SDG4: Quality education; and SDG10: Reduced inequalities, which noticeably outperform the average for MDCs. These findings suggest that in the four countries analysed, a dependency on mining correlates with positive social progress for host populations across metrics.

Similar to the analysis at a national level, the relative performance of MDRs was also measured against the most socially advanced regions in each country using the same 'distance-to-frontier' approach.

Overall, MDRs score better than non-resource-dependent regions, outperforming across all SDG dimensions except SDG5: Gender equality, SDG6: Clean water and sanitation and SDG7: Affordable and clean energy (Figure E6). This is contrary to the national-level analysis where MDCs on average (without accounting for income) lagged non-RDCs on socio-economic development. The distance between regions is also narrowing, with more than 80 per cent of MDRs closing the gap on the most socially advanced region in their country. In Ghana and Peru, 93 per cent of MDRs managed to close the gap. In Indonesia and Chile, 80 per cent and 60 per cent of MDRs closed the gap respectively.

Figure E6: Average regional score across the socio-economic performance index

components (index 0–1; 2015)



* Metrics in each SDG area are given equal weighting. Indicators are normalised to 1 where 1 represents the best performing region on a given metric.
** MDRs also include countries in the 'both' category (those dependent on both mining and hydrocarbons).
*** Difference in average index scores between MDRs and non-RDRs. Positive numbers indicate higher average performance by MDRs. Numbers may not sum due to rounding.
**** Based on a simple average of the SDG areas across the four countries for each regional grouping.

Conclusion

This research looks beyond economic performance to understand social progress and the findings are encouraging. Most MDCs have improved their performance significantly across various socio-economic indicators since 1995, and more than 80 per cent of MDCs have also managed to close the socio-economic gap on global best performers. Overall, better governed MDCs fare better overall in terms of improvements in socio-economic performance since 1995 which suggests that governance clearly matters.

This encouraging trend is echoed at the subnational level. MDRs in the four sample countries of Chile, Ghana, Peru and Indonesia managed to advance on at least three-quarters of the socio-economic progress indicators in recent years, although the improvement relative to non-RDRs varies by country.

In line with national-level findings, more than 80 per cent of MDRs also managed to close the gap to the best regional performers in each country, although the drivers of overall progress differ at subnational and national levels.

The findings have a number of potential implications for governments and resource companies globally. From a public-sector perspective, this research offers an alternative to the widely-held perception that extractive industries are likely to impede economic progress (and by extension, the well-being of host populations), both at the national and regional levels.

Using a data-driven approach, the research shows that the overall socio-economic development and progress of MDCs and MDRs are comparable – and in some cases better – than the progress in those that are not reliant on mining. At the same time, it is obvious that mining countries improve their socio-economic situation at varying rates.

While further research is required governments need not await the outcomes to sharpen their policies to promote socio-economic well-being. A useful starting point may be to focus on areas where progress to turn the SDGs into practice has so far been weak. Overall, for MDCs this has been in SDG16: Peace, justice, & strong institutions; SDG5: Gender equality; and SDG8: Decent work & economic growth.

From a resource company perspective, this research should reaffirm the potentially positive role that mining can play to shape socio-economic development. The observed gaps in the socio-economic performance of MDCs could help mining companies identify priorities for engaging and supporting host governments, communities, and civil society.



Download

The executive summary can be downloaded here.

Related content



Making a positive contribution to the SDGs

›



Role of mining in national economies: third edition

›

PUBLICATION



Community Development Toolkit

›

PUBLICATION

© Copyright ICMM 2018