

United Nations Conference on Trade and Development

8th GLOBAL COMMODITIES FORUM

23-24 April 2018, Geneva

**Skills development in the mining sector:
Making more strategic use of local content strategies**

By

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INTERGOVERNMENTAL FORUM
on Mining, Minerals, Metals and
Sustainable Development



**Skills development in the mining sector:
*Making more strategic use of local content strategies***

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Presentation Outline

1. Introduction: Local content policies and skills development
2. How local content can support skills development?
 - ❑ Local content skills strategies for employment
 - ❑ Local content skills strategies for supply chains
 - ❑ **Skills strategies for future jobs**
3. Conclusions

Local content and skills development



- ❑ LCPs: a set of instruments requiring firms to use domestic inputs (labour, capital, local goods & services, ownership, technology) as a condition to operate in an economy.
- ❑ **Objective:** Create more and better-paid jobs, promote domestic industries (upstream and downstream); transfer of skills, knowledge and technologies etc.
 - *Short term:* **strategic political, economic and social considerations**
 - *Longer-term:* **deeply transform and diversify economic structures** to achieve higher living standards, reduce poverty and leave a decent legacy for future generations.
- ❑ In the mining sector, this has to be done on the back of finite (and potentially substitutable) resources.
- ❑ While some LCPs focus essentially on jobs, skills development is an **important enabler** to equip labour with the right competencies needed by the industry.
- ❑ Even more important with the trend we see with rapid technological change. Enabler of transition, which can help reduce social costs.
- ❑ **Question:** Are LCPs sufficiently equipped to tackle skills challenges in the mining sector?

1. Local content skills strategies for direct employment



- Although mining exploration is k-intensive, use of 'local' labour remains a key objective: 'local' can refer to people in mining communities only; or to jobs for any citizen at the national level
- One key pre-requisite is the availability of the right skills

Current strategies:

- Typical LCPs focus on **employment** objectives (targets to recruit local staff; localization and succession plans to replace foreign labour; visa restrictions.)
- On the **skills development** side, in some cases, LCPs explicitly require firms to :
 - Train local staff
 - Set up or support to training facilities
 - Invest a % of annual payroll in skills development
 - Pay a levy to national training funds

In some cases, *fiscal incentives* may be provided to firms who provide training



Spotlight: Skills development in South Africa



Legal framework:

Skills Development Act 1998; and Health and Safety Act: Requirement to submit skills development plans and annual training reports

Mining Charter: Requirement to invest 5% of annual leviable payrolls in skills development; and 1% as skills development levy (reports must be submitted)

Table shows breakdown of major training programmes in 2015

Type of training programme	Number completed in the sector
Short courses	279,225
Induction training	243,443
Refresher/after leave training	163,479
Operator licence/renewal	125,933
Job specific development programme	104,207
Other (unspecified)	43,679
Skills programme	32,212
Work placement	24,603
Certificate	15,675
MQA learnership	5,868
Learnership	1,295
Bachelor's degree	1,149
National diploma	463
Recognition of prior learning	437
Internship	408

Source: Skills Development Factsheet 2017, South Africa Chamber of Mines

Key focus:

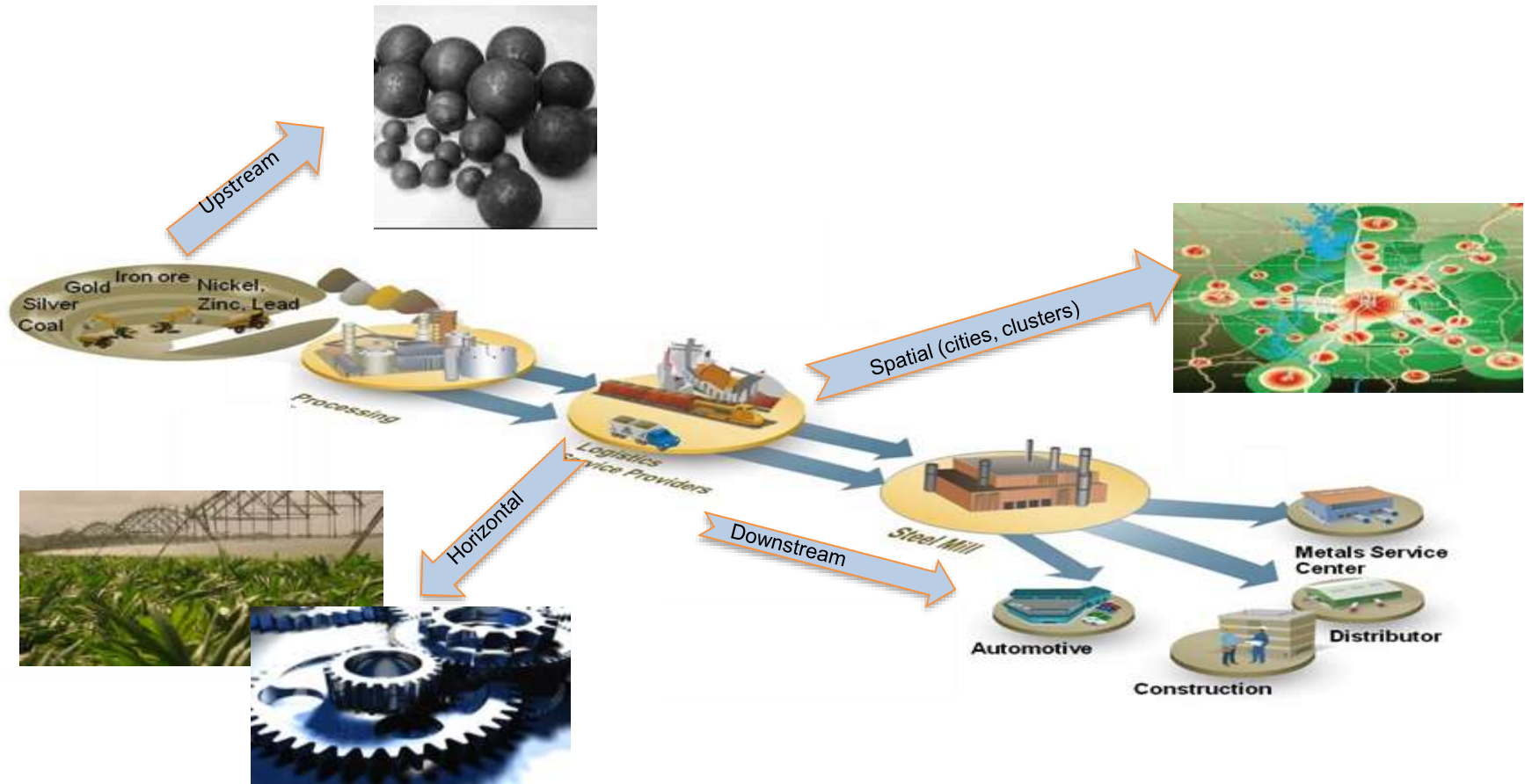
- ❑ High-end skills seen as critical: Support include infrastructure development; scholarships and internships: Estimate: 12,500 scholarship between 2010-15
- ❑ Adult training in local communities another key area
- ❑ Technical skills and artisan training: about 10,600 people trained between 2011-2015 as diesel mechanics, fitters and turners, welders, engineering maintenance, electricians, goldsmiths etc.

While key for the vital success of the mine, LCPs mostly supports training and skills development in the mining communities in which mines operate. Not always in sync with country's national skill development agenda.

2. Local content strategies for suppliers' jobs



Potential for job creation is significantly higher along the value chain



Skills requirements in LCPs rarely focus on indirect jobs: But they should!



- In general, this agenda is driven by industries NOT by government (therefore rarely part of regulatory frameworks to foster local content)
- But scaling up potential of suppliers is critical for strong supply chains
- BUT local content can be driven by industries. Good practices (Chile, Australia, Brazil) focus on improving suppliers' capabilities and productivity. These are forward looking and integrate skills and innovation for the needs of the industry.
- Successes have focused on initiatives to improve capabilities of suppliers to respond to mine-specific technical challenges; innovation and entrepreneurship
- Main challenge: Initiatives not necessarily aligned to the national skills strategy
- Governments should therefore consider:
 - Providing incentives to industries to support supply chains;
 - Providing the environment to develop ideas, access knowledge
 - Providing suppliers with access to state-of the art technology
 - Partner with industries so they can adjust the national skills policies accordingly

3. Local content strategies for the future of jobs



- Disruptive technologies will have fundamental impacts on nature of tasks, on number of jobs and on the demand for skills
- Currently a big disconnect between mining industry's thinking regarding their future operations and the way governments are designing LCPs.
- Skills development is critical for transition, including to reduce social costs

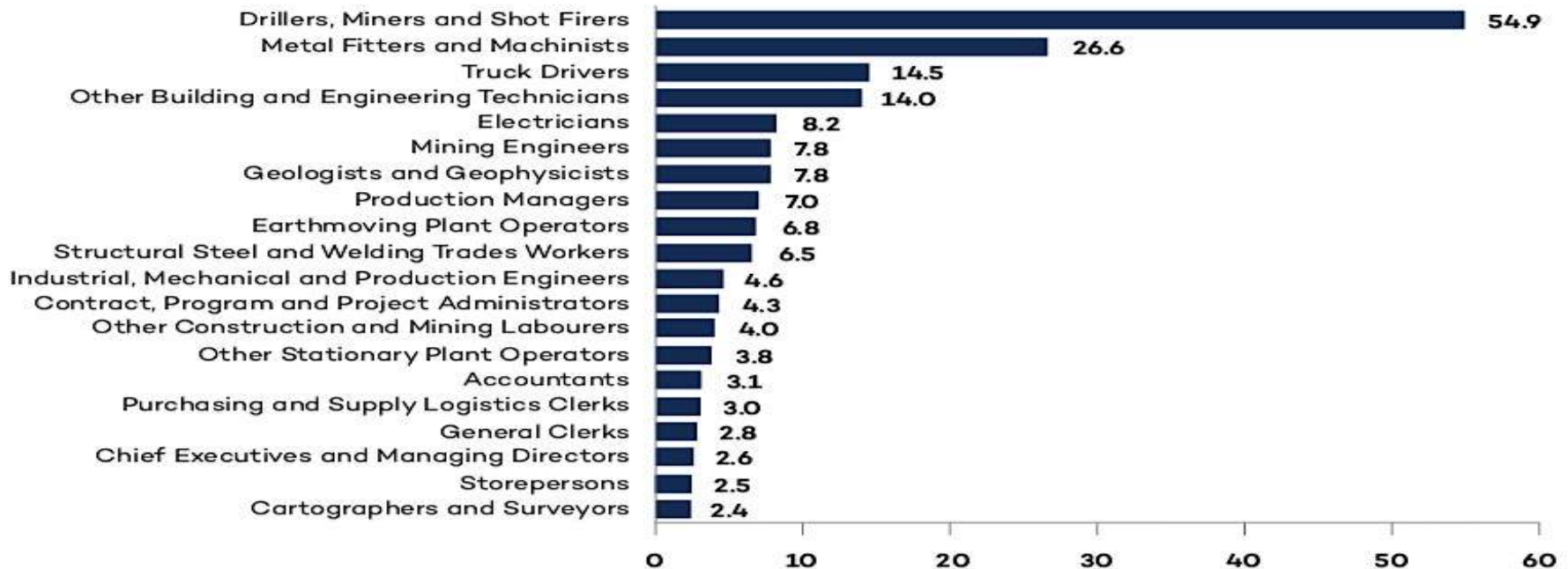
Likely challenges facing jobs and skills with the advent of technological advances



1. More automation and new technologies will affect labour market in 3 ways:

- ❑ Alter the nature of tasks performed by workers
- ❑ Reduce no. of jobs, in particular physical jobs in highly structured and predictable environment. Operational jobs in areas such as drilling, blasting, train/ truck drivers likely to be mostly affected. Estimates rank between 30 – 40% of job losses (up to 75% for operators of mining equipment like truck drivers)

Main employing occupation in the mining sector





- ❑ New roles will be created, requiring new sets of skills and capabilities. Some of those probably do not exist yet

Expected impacts

Impact will be felt differently between developed and developing countries:

- ❑ Workforce could be threatened in developed countries, due to higher cost of labour; need to replace aging population; etc. But overall impact less significant, as economies are more diversified.
- ❑ In developing countries, skills shortages might motivate mines to opt for technological solutions. Impact on GDP and employment like to be relatively more significant, particularly for developing countries more dependent on the extractive sector.



What does that mean for skills development?

The key drivers for the future of work in the mining sector will likely be:

- ❑ **Technological shift:** Skills development programmes will require at two-fold adjustments :
 1. Systems will have to deliver the foundational skills that allow people to embrace new technological opportunities (key to avoid redundancy for e.g)
 2. They will need to facilitate dynamic learning over the life-cycle to ensure that people keep pace with technological progress and other factors of change

- ❑ **Generation shift:** skills development programmes will need to educate existing workforce to the new world of work, through innovative training; re-training/ re-skilling important for smooth transition for new types of tasks.

- ❑ **Career shift:** the very nature of careers are changing, with job and career-hopping as the 'new normal'. Continuous training for 'frontline' employees in transferable skills is critical so the latter can also shift, if or when their jobs are at risk.



Spotlight: Australia and India go digital

Rio Tinto invest AUD 2 million to train workers for the digital future

- ❑ Rio Tinto launched the Mine of the Future initiative in 2008. In Australia, one of the pioneering countries using automated technology, it invested in technical and vocational training to equip workers with skills required to face the digital revolution in the mine.
- ❑ The company is now working in partnership with training institutions and state government to prepare future workers for future jobs

India: mining industry and government partner to train workers in technology

- ❑ Several companies signed MOU with government to digitally enable 30,000 MSMEs
- ❑ Siemens engaged Ministry of Industries and Mines, Gvt of Gujarat and Steel Authority to train employees to work in its digital factories
- ❑ Vedanta launched a pilot project to promote digital education in schools

Conclusion: what relevance for local content policies?



- ❑ Here is the **dilemma**: The way LCPs are framed in most developing countries, (i.e. around mandatory targets/ quotas/ percentage) is not necessarily fit for the future of work in mining. With possibly fewer and more complex jobs, **current approach does address fundamental challenges of labour market**. Expectations will rise, industry won't be able to respond and policies will fail.
- ❑ For business, performance benefits of technological change is rather clear. But issues are **more complicated** for policy makers. While they generally recognise the need to embrace opportunities for their economies, at the same time, **they will have to innovate policies to help workers and institutions adapt to likely impact**.
- ❑ In rethinking how LCPs can be re-engineered to adapt to those new challenges, mining companies and governments alike would need **to work closely together** to, on the one hand, support the industry in embracing change, and maintain development objective on the other. **LCPs would have to be less focused on 'sticks' but more on 'carrots' and partnerships**.



- ❑ Currently, LCPs **focus more on ‘jobs’**. But a **whole new approach** is required:
 - ✓ to build bridges between the mining world of work and training providers;
 - ✓ to better match education and employable skills to evolving demands; and
 - ✓ to facilitate resilience to change and adaptive capacity of labour force.

- ❑ Today, technical progress is accelerating changes in the job market at a **pace not matched** with policy debates and the national level.

- ❑ **Fundamental structural challenges** remain, affecting effectiveness of LCPs on skills development:
 - a) Policy makers rarely have a comprehensive understanding of :
 - I. The (evolving) needs of the industry and the latter’s future plans
 - II. The mismatches and gaps in the skills set of the labour force
 - b) There must be more coherence between national skills initiatives and the initiatives at industry level
 - c) Education pathways are not always in sync with industries’ needs in terms of competencies and future skills needs.
 - d) Important gaps in technical and science-based skills (STEM) and ‘soft skills’



- ❑ LCPs in the form of **incentives** for companies to design innovative tools to support skills development, but with a particular focus on **‘transferable’ skills** to have ‘protean’ workers with flexible skills, able to adapt to change or make a career shift.

- ❑ In addition to LCPs, governments should **partner** with:
 - ❑ Industry and training institutions to stimulate innovation and entrepreneurship: workers can be part of the solution if they are able to solve problems;
 - ❑ Training centres to provide programmes for the re-skilling and re-training of labour, in an effort to smoothen transition between economic activities.



5 key messages to policy makers

1. There is no time for complacency: you need to act now because is happening and pace is accelerating
2. Future is still uncertain, therefore, important to have a Plan B!
3. Don't lock yourself in your current policy tool box: they might have served their purpose but you must be ready to embrace a complete rethink of the way you want to engage the industry. Partnerships is probably an important instrument to leverage
 1. Own the technology debate: don't leave it to the private sector alone
 2. Finally, remember this is first of all about people, not only about jobs: promote and support flexibility, resilience, agility and employability.

A welder wearing a bright orange protective suit with reflective white stripes is crouching and working on a metal structure. Sparks are flying from the welding point. The background is dark and industrial.

Thank you!

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