Interface between Mining and Minerals

Thursday 22 August 2013

Hosted by:
United Nations Economic Commission for Africa (UNECA)
Industrial Development Corporation (IDC)
Institute for African Alternatives (IFAA)

Supported the Department of Trade and Industry, BHP Billiton, and the Engineering Council of South Africa

INTRODUCTION

On Thursday 22 August 2013 the Industrial Development Corporation (IDC), the United Nations Economic Commission for Africa (UNECA) and the Institute for African Alternatives (IFAA) hosted a meeting "The Interface between Mining and Manufacturing" at the IDC in Johannesburg. The meeting had the following objectives: To exchange experiences through case studies from different sectors, focusing on obstacles and solutions; and to debate the practical implementation of government policies in respect of beneficiation.

This meeting is a follow up to the Experts Consultation on Beneficiation that took place in October 2012. That meeting established a valuable platform for further consideration of this much underrated issue and received substantial coverage in the specialised media, which added to the momentum.

This meeting brought together experts in the fields of Mining, Manufacturing, Business, Government, Academia and Labour to explore the interface, share experiences and develop a common perspective. Please see appendix 1 for the participants list.

The meeting was made possible through the sponsorship of the Department of Trade and Industry (DTI), BHP Billiton and the Engineering Council of South Africa.

THE PRESENTATIONS

1. "The Interface between mining and manufacturing – the context" by Dr Jorge Maia, Head of Research and Information, IDC

Mr Maia began by focusing on the interface between mining and manufacturing from a macro-economic perspective and the linkages between these two sectors, and between mining and other sectors of the economy. The composition of the South African economy has been changing quite substantially over time. Since 1994, the combined contribution of mining and manufacturing shows a decline from 28.2% in 1994 to 21.7% in 2012. The two sectors being addressed in this meeting account for a lower share in nominal terms of GDP. However, this story hides the fact that it is entirely due to what has been happening in manufacturing. In nominal terms it is the contraction in manufacturing from 20.9 in 1994 to 12.4 in 2012 that is really to blame for this contraction, because mining, in nominal terms, has risen from 7.3 to 9.3 in 2012. If one compares the contribution of manufacturing to GDP from 1970 to 2010 with other middle income countries and the East Asian and Pacific region, then one can see that the manufacturing sector in South Africa has seen its share not only decline sharply, but also substantially lower in the middle-income country average, even more so substantially over the developing East-Asia and Pacific region. If one combines mining, manufacturing, construction, electricity, water and gas industries' contribution to GDP, it shows a substantial decline in the South African trend. South Africa is below the equivalent ratio for middle income countries and a slightly higher than the world average, but substantially below the East Asia and Pacific region, the developing parts of it. If looking at services which are currently the biggest component of the economy at this point in time, South African performance of the services sector to GDP is in line with the world average, it is substantially higher than the middle income countries' average and substantially higher than the East Asia and Pacific region. This shows that the South African services sector has really been the pillar of growth in the economy since the early 1990s. It talks to the increased financialisation of the economy and the proliferation of many other services including business services.

Mining is a vital component of South Africa's export basket with 60% dominated by gold mining, PGMs, platinum group metals, iron ore mining, coal mining, motor vehicles, basic iron and steel and mining of non-ferrous metals This indicates the incredible concentration on mining, on mining exports and much of it on in beneficiated form. The manufacturing export basket is highly concentrated dominated by motor vehicles and basic iron and steel. The top 20 manufacturing out of a total of 120 sub-sectors accounted for 77% of the manufactured export basket indicating a need for diversification of the basket. The worldwide export basket consists of 44% mining products, 52% manufacturing products, and 4.2% agricultural products. The export basket for the European Union, China and the rest of Africa is as follows"

- China: Mining products are about 98% of the overall export basket, iron ore 47% of the total; non-ferrous metal ore are excluding gold and PGMs are 17%; coal is 11%; and platinum is 2.1%.
- European Union: The basket is more diverse, the top export being motor vehicle parts and accessories, including catalytic converters, so the share is 21%; platinum is second. Basic iron and steel is third followed by agriculture and coal; then one finds the mining products. Included in the basket are industrial chemicals, beverages, processed food and so on.
- Africa: The top export category is non-electrical machinery and the biggest segment here is mining equipment. This is an area where South Africa, could leverage the growth of the mining sector even further. The second largest category for Africa is motor vehicles parts and accessories. The basket on the whole is very diverse almost completely dominated by manufacturing products and some agriculture as well.

When comparing mining sector to 1980 and that of 1994, one can that gold's contribution to mining GDP today has diminished dramatically from 67% of the total in 1980 to 21% last year. Coal, PGMs and iron-ore are increasingly dominant compared to they were some 30 years ago. Mining sector activities are reasonably well spread throughout South Africa's provinces with the North West province dominating, followed by Limpopo, Mpumalanga, Gauteng Free State, Northern Cape, and The Eastern Cape and the Western Cape have very small shares. The mining sector is really still of vital importance to the South African economy as it generates a total income of R497 billion to the South African economy. The value added by this sector is R267 billion. The remuneration of its workers is over R100 billion and it employs 524 000 people in the sector. Input costs, what the sector buys, not only from the domestic economy, but also from imports, accounts for R235 billion last year. Exports account for R308 billion. Fixed investments are R75 billion last year and it was not a good year from an investment perspective. The capital stock, this is in real terms (2005 prices) was R333 billion that is the asset base. It paid R21 billion in corporate taxes and it paid R12 billion in dividends. In terms of the sector's contribution to the South African economy in 2012 percentage contributions, employment is relatively small, about 5% of the total this year but exports are 44% and the relative contribution in terms of corporate tax is about 16% of the total.

When examining the interface, it is important to note that more than 80% of the overall spending of the mining sector on its input requirements is sourced from domestic suppliers and 20% is from imports. The spending in the local economy is focused on the sectors that supply goods and services such as machinery and equipment, transport equipment, wood products, fabricated metal products, non-metallic minerals, chemical and petroleum products, electricity, water, transport services, construction and civil engineering, finance and business services. Domestic consumers of mineral products, the forward linkages, source the basic metals , iron and steel sector consuming iron-ore; motor vehicle and components; chemicals; the fertilizer industry (phosphates); petroleum refineries (coal to liquids); electricity (coal for electricity generation); construction and civil engineering (the building materials); other industries including jewellery (gold, PGMs, platinum) for jewellery manufacturing.

From a macro-economic perspective, in 2012 the mining sector had a GDP of R267 billion, employing 524 000 people. Its consumption of goods and services in the domestic economy totals an additional R71 billion in GDP and this value add sustains an employment of 206 000 people in those industries, directly linked to that procurement from the mining sector. The indirect impact of the suppliers of goods and services is another R43 billion in GDP and this sustains 127 000 jobs which generates a further R156 billion in value add and 487 000 jobs. When added up, the economy wide impact across all sectors of the economy, the GDP equals R536 billion originating from this R267 billion and it sustains an employment base of R1.35 million. In attempting to ascertain the extent to which the various sectors are linked to the mining sector, in the case of the financial and business services sector, about 10% of the value added of this sector is linked to the mining sector's activities. Similar ratios in terms of employment, about 181 000 people in the financial and business services sector are in activities related directly to the demand from the mining sector. All of this indicated that the mining sector is an important client and an important sustainer of some employment opportunities in these sectors.

South Africa has a diversified manufacturing base, however, when comparing 1994 to 2012, there are still three sectors that dominate: chemicals whose share has gone from 18.6% of manufacturing GDP to 23% of manufacturing GDP; metals and machinery which has lost a minute share from 20.6% to 20.3% of manufacturing GDP; and food and beverages which have grown quite substantially from just under 17% to 22% of the total. The sector's contribution to GDP and employment has declined over time with the 2012 ratios substantially lower than in the 1980s. This this does not mean that it is a contracting manufacturing sector. When examining the output of the sector, the overall output in real terms, is not contracting. There are many sectors in the manufacturing sector contracting indeed. For example, the current foundry industry is a minute version of what it was previously; clothing and textiles similarly. There are sub-sectors who are contracting but overall manufacturing output in real terms, after inflation has been taken out then; it has been going up, however this decline in its share of GDP simply means that other sectors of the economy are growing at a much faster pace. Services, it has been growing at a substantially higher rate versus an average of 2.8% per annum since 1994 which is a very modest rate of growth.

In the interface between mining and manufacturing, mining is spending in intermediate inputs for its own activities, whether its goods or services, both domestic and foreign procurement. Its spending is with no inflation taken out of here is R15.3 billion in 1992, growing all the way to R167 billion in 2012. If inflation is removed, the total value of the expenditure in 2012 prices is now from R129 billion in 1992 to R168.8 billion in 2012. Now out of these values for all of these years, this is a sourcing ratio, domestic versus foreign. 85% was sourced domestically in 1992, with just over 81% in 2012. The manufacturing sectors in 2012 benefitted from approximately 31% of that input demand from the mining sector compared to the share in 1992 which was about 50%.

When examining jobs in these supplier industries, the manufacturing sub-sector industries employed some 40 000 direct jobs and 145 000 jobs economy wide through demand for their output from the mining sector. Employment multipliers, for example the basic chemicals sub-sector has a multiplier of 11.2% which means that for every direct job in basic chemicals a total of 11.2 jobs are being supported economy wide. This picture talks to the Industrial Policy Action Plan (IPAP) and the New Growth Path (NGP) when they say labour intensive and sectors that have strong employment creation ramifications throughout the economy as these high employment multipliers are very important from a job creative perspective.

When examining what the mining sector sold domestically, there was an increase from R120 billion in 1992 to R319 billion in 2012. These products went into the domestic sector economy for further processing and beneficiation. Regarding manufacturing, 77% of the total supplies of the mining sector are consumed by manufacturing in the domestic economy, compared to 81% in 1992.

This discussion in this meeting revolves around getting the mining sector to supply more of its products locally for further processing and beneficiation. The biggest manufacturing sectors in terms of getting those supplies from the mining sector are chemicals, for example, basic iron and steel and other manufacturing. It is about stimulating that demand for mining sector products. It is about raising that R319 billion figure and making sure that that manufacturing share also is sustained or goes up.

In conclusion, Mr Maia highlighted the potential spin off of enhanced interface between mining and manufacturing:

- The expansion and the diversification of the production base of South Africa's manufacturing sector as well as related services sectors. By enhancing that interface, the production base of these manufacturing sectors can be expanded.
- Increased value addition in the domestic economy is about not exporting the value addition for other countries to add value to our natural resources, but rather creating that value in South Africa and the related employment.
- Increased demand for mining sector products from expanding domestic manufacturing sub-sectors. This also reduces the vulnerability of the mining sector to what is happening in export markets.
- Economies of larger scale production leading to improved manufacturing sub-sector competitiveness, impacting positively on domestic procurement (including mining sector) and potentially increasing export propensity of manufacturing.
- Domestic manufacturing competitiveness enhanced if benefitting from more competitively priced inputs (including mining sector inputs for manufacturing as intermediate demand).
- Lower commodity concentration of export basket, contributing to mitigating vulnerability of current account to commodity price fluctuations, potentially reducing exchange rate volatility.
- Reduced import penetration.
- Greater collaboration in research and development efforts pertaining to mining technology, innovative applications of mining and/or beneficiated products, with positive spin-offs for sectoral competitiveness and demand for mining and manufacturing output.
- Infrastructure sharing potential, improved logistics co-ordination, potentially positive repercussions on associated costs.
- Employment creation and skills development, improved welfare and socio-economic stability.
- Positive implications for domestic operating environment (including cost structures), increasing attractiveness of SA economy from an investor perspective (local and foreign).

2. "The African continental perspective" by Dr Adam Elharaika, Chief, Forecasting Section, Microeconomic Policy Division, UNECA

Dr Elhiraika began by introducing the United Nations Economic Commission for Africa is an institution that works on economic development and regional development issues in Africa; focusing mainly on regional integration and socio economic development.

UNECA has just released their Economic Report on Africa 2013 that is a joint mission with the African Union Commission, and it looks at the state of value addition in a sample 10 African countries.

Beneficiation is critical for Africa to promote high level sustainable growth and achieve economic transformation. Africa depends heavily on primary commodity exports; they are one third (gross) of Africa's exports which is huge. But the opportunity costs is very high, many African countries have not been able to promote employment and inclusive development because of this high dependence on primary exports. There are some key messages, namely:

- African countries are growing with an average rate of 5.5% but have been unable to fulfil their industrial potential.
- Massive industrialisation based on commodities is an imperative that is possible and beneficial.
- Evidence of value addition and linkage development exists in Africa but the experience is mixed
- Success requires firms to have a good understanding of the critical factors that influence linkage development.
- Effective industrial policies and development plans are critical for Africa to address constraints and industrialize.
- Trade agreements and intra-Africa trade and regional integration must be used to foster Africa's industrialization.
- It is important to note that economic growth is strengthened as political tensions are eased across the continent.

Production and exports are still heavily concentrated and export diversification remains very weak in Africa. The high diversification index shows that exports are dominated by one or two commodities. But a lower index means that exports are more diversified, so Africa is very low on export diversification. The same is true for the concentration of aggregate GDP. High commodity prices over the last year or so led to increased commodity dependence in Africa. In the case of South Africa, it is not necessarily that manufacturing and other sectors are declining, but overall, production and exports of commodities are becoming highly concentrated.
Commodity based industrialisation and moving up the value chain has dynamic benefits including: employment effect; income effect; price benefits and price stability; diversification of local technological and industrial capabilities; lateral migration into other sectors; and efficiency gains of cluster development and positive spill-over effects in terms of knowledge and information.

Research in the Economic Report on Africa 2013 focused on challenges to linkage development, the opportunities and the policies needed for African countries to increase linkage development and value addition. The research looked at the depth and breadths of local linkage development of beneficiation, starting with the technical features of the value chain, industry structures, lead firm strategies and critical success factors, location and infrastructure, industrial policy, trade restrictions, standards and other constraints.

The coffee, tea and agro-processed value chains in Ethiopia (coffee), Kenya (tea and fresh vegetables) provide an example that shows that there are opportunities for upgrading. Raw commodity producers sometimes find it more profitable to export raw commodities instead of selling finished products locally because of market linkages, finance and so on. The critical success factors which restrain market linkages in Ethiopia relate to price, quality, trust, lead time and also access to inputs and skills has been defined as one of the major constraints.

But most importantly in Ethiopia there is no specific policy on forward linkage development and inserting local firms into global and regional value chains. To some extent the same is true in Kenya where policies on forwards linkage development are also lacking.

Another example of the factors affecting linkage development is Egypt's textile industry that survived the stiff competition over the last ten years from China. The industry in faces a lot of challenges including: security corruption, access to finance, general policy environment, labour costs, skills availability, access to internal markets, road transport networks. Poor infrastructures, including power, import tariffs on imported goods, availability of inputs and the cost environment.
Now we move to linkage development in the mineral sector which relates a great deal to the interface between mining and manufacturing. When looking at the oil sector in Nigeria despite the limitations, one of which is that that Nigeria does not refine enough oil for domestic consumption still, however there is some linkage development taking place in the Nigerian oil sector, because of local content policy that government is trying to enforce and I think government should continue to do this in order to increase the oil refining and processing in the country. But other areas that require government intervention include: infrastructure, safety and corruption. There are examples of investors who try to refine oil in Nigeria but are frustrated because companies that export raw oil, crude oil do not want them to refine oil domestically so a strong local content policy in this area can make a difference. The copper industry in Zambia is a huge industry but linkage development in this sector is very limited. In terms of Ghana and gold, there is growing linkage but from a very low basis and new local content policy being introduced in the country recently, can help this sector grow. The key issues encountered by different countries in different sectors related to linkage development are: government policy, effective industrial policy is critical; infrastructure; and skill development across commodity sectors.

The critical success factors identified by firms in the report include: price competitiveness; good quality; flexible production, le system; lead times, ability to supply products in time; learning/innovation; and trust. The factors that drive linkage factors in Africa include a focus on country specific drivers to foster linkage development. If you want country specific interventions to be effective then you need more research to identify country specific drivers, and research is limited in these areas. Nationality of lead firms is important, and access to end markets. Firm capabilities and supplier development programs are critical, infrastructure, both hard and soft, and government capabilities, the ability to design policies and ability to overcome policy misalignment or lack of coordination across various departments and ministries. Finally, appropriate, evidence-based, prioritised, monitored and incentivised policies are necessary for successful value addition.

The report is concluded with a nine point policy framework for promoting linage development across Africa:

- Adopting a coherent policy framework.
- Creating institutional industrial policy mechanisms.
- Developing local content policy.
- Raising lead-firm procurement, sourcing and processing.
- Running supply chain development among major commodity firms.
- Boosting local skills and technologies.
- Addressing infrastructure bottlenecks.
- Coordinating ministries to improve policy implementation.
- Negotiating regional trade arrangements and fostering intra-African trade.

3. Panel Discussion: How Manufacturing operates in the interface: Supply chain and fabrication

➢ **Mr Henk Duys, President Steel and Engineering Industry Federation of South Africa (SEIFSA)**

Mr Duys stated that the aim of the presentation was to provide some perspective engineering industries' contribution to the economy and the challenge of beneficiation for the metal industry. As of 2012, there are 11 083 companies are employing 421,456 workers, of these, 8,093 (73%) employ only 4,208 workers (11%). So 8 000 companies have an average of only six workers per company as a large section of the engineering companies are small businesses. Nearly 3 000 companies employ some 370 000 employees with the average of 125 workers per company. By implication, 5% of 140 companies employ 270 000 people in the industry. The industry is very skewed, complex, and diverse in activity and location. It has R92 billion invested in its benefit funds and it has a skills overlap across many different industries. Many of the industry's workers and skills are employed in other industries; therefore, it is difficult to establish what the existing stock of skills and what is needed and this lack of clarity is one of the problems faced by the industry. SEIFSA has a long history with the bulk of the large companies belonging to the federation. These members employ about 50% of the workforce being about 240 000 workers.

Regarding the value added chain; the industry has inputs and then adds value to them and get the outputs. On the input side, domestic supply and imports combined to give outputs and the domestic product, combined with imported product which is all the local expenditure and then export. There are several intervention points to look at:

- There is a need to secure domestic supply of input products. How should this be done? Production should be incentive; exports of scrap should be stopped and exports should be taxed.
- Regarding imports, there is a need to secure import supply of import products and protect against exports through tariff, quotas, import parity and pricing subsidies.
- On the value added side, there is a need to build capacity through incentives, investment, competition and so forth.
- There is a need to prevent and/or enhance exports to build our competitiveness. Domestic production needs to be built through competitive intervention.
- Import supply of input products need to be secured and there is a need to protect against imports. This could be done tariffs, quotas, import parity pricing and pricing subsidies.
- Infrastructures – there is a need to talk about the intellectual properties, education, training, physical infrastructure and everything else that supports the industries.
- What is needed? There is a need of an agreed stakeholder roadmap. There must be agreement with all the stakeholders as to what should be done and where to go. Once this is done, it will take both short term and medium term sacrifices and cost. There is a need for a coordinated industrial policy. There is a need for a business-friendly government as government cannot grow this economy without business. Currently government is more labour friendly than it is business friendly. There is a need to decide on the interventions and implement with vigour; what should be done. It should be done quickly, actively and with boldness.
- There is a need for leadership, because success is predicated on world class quality, there must be a global competitive cost, there must be stable production and the industry must continuously improve.

- **Mr Guy Harris, Bell Engineering**

Mr Harris began by explaining that Bell Equipment is a South African home-grown company that started in Empangeni about 60 years ago. Bell was the first to develop and market the largest articulated dump truck in the world, their core product for about 25 years. This was developed out of the sugar and timber industries. Bell has grown from being a provincial to a global supplier and manufacturer. There have been huge spinoffs for their approximately 440 local suppliers; for example the Nissan Sani operation in Pietermaritzburg that closed down and was reopened when Bell moved to a composite cab manufacturer. The company also exports to about 80 countries globally and has about 50 000 units in the field.

Bell is the 41st largest yellow metal company in terms of dollar sales; they are only 0.3% of the world and 2.9% of Africa's mining and construction equipment. The group turnover is just under R6 billion for the last calendar year. Bell is very working capital intensive and so the growth of the company has been limited by the financial resources, originally the company was funded by friends and family and then the banks and then private equity; the company listed in 1998. Deo made a substantial investment providing working capital and the IDC was very supportive in terms of the global downturn in 2008. Bell is very labour intensive, their factories have some automation in some of the areas but it is generally very labour intensive. Direct employment is 3 500 and indirect employment is about 35 000

Steel is about 8% of their input cost so they are very high value add, Bell takes steel at R12 000 a ton and then turn it into a R120 000 a ton; this is a tremendous amount of value add and a good example of the kind of value add that is good for South Africa because it is value add that is also labour intensive, mainly using local designs and harnessing global technology. Bell is globally competitive; their products are either branded or done in cooperative with companies such as Deere and others. Their markets are mainly United States and Europe with the BRICS market being relatively small.

Bell works very closely with IDC and DTI in terms of localisation on products such as tyres, wheels and rims and so forth. In order to remain globally competitive, they have to look at global sourcing on higher technology items where reliability and performance are important. Mr Harris stated that Bell is very appreciative of both the DTI and IDC's support but there are a several areas that are not working well. For example, there is a major global exhibition called Bauma Africa taking place in Germany in the next couple of months. Bell estimates that it will spend about R10 million participating in but will only be able to claim R40 000 back from the DTI.

Bell is very committed to the National Development Plan, the economic growth, the jobs located in a relatively rural area that are obviously high in unemployment, poverty and inequality. If one looks at other BRICS countries, the countries have embarked on several measures to deal with these issues. There is a great deal that South Africa can learn from these actions. The buy locally campaign in terms of 'Proudly South Africa' still needs teeth and focus and a very clear value proposition. Regulations, clause 9(3) that allows tendering authorities to require a local content. Mr Harris suggested that this may not be working as well as it could be as very often their equipment is supplied to a person who supplies to government. So the challenge is how to get that local procurement preference taken to the second tier. If Bell supplies a construction company who wins a tender, there is no requirement that they source equipment locally rather than imported equipment. Mr Harris concluded by stating that Bell is optimistic about the country, about mining, about the role that they can play in mineral beneficiation, as well as the initiative of this meeting.

- **Mr Stewart Jennings, PG Group**

Mr Jennings began by expressing his real sadness to see South Africa's manufacturing percentage of GDP dropping from 22% to now 12%. He acknowledged the growth of 2%, but with the economy growing to around about 2.5% means that it is going backwards. He also raised the concern that the financial sector seems to believe that South Africa can do without the manufacturing sector. He stated that no successful economy in the world can exist without manufacturing as it is the basis of everything. It was this belief that lead to the establishment of the Manufacturing Circle as the sector was beleaguered given despite having been so prominent during the 1960s when manufacturing and mining were top of the tree. He then focused on the issue of unemployment; this is something that everyone in South African is talking about addressing but no one is really doing it. Why is that? There are a number of reasons not least of which is the margin squeeze. He stated that the biggest problem being faced today is inflation and the margin squeeze; these have been brought upon the currency movements and the Chinese exporting unemployment.

He stated that these are the two elephants in the room and unfortunately South Africa is just too small to fight them. One of the ways to address this is to look at the issue of alignment. There is an element of self-interest in the various sectors in South Africa with every sector looking after itself. The financial sector wants a strong rand, the manufacturing and mining sectors wants a competitive currency. Everybody wants to import, wants a cheaper product and everybody forgets employment. There needs to be a rallying call around this issue of unemployment. Political leadership should stand up and follow the example of Brazil in stating that they will protect and nurture industry and get their people back to work. The average GDP of Africa's 5%; if South Africa is excluded, it is raised to 8%. South Africa is the powerhouse of Africa it is struggling to reach a GDP of 2%. This is due to the lack of alignment in the economy. There is also the issue of competitiveness – it is very difficult to manufacture in South Africa as a large manufacturer because of economies of scale. The sector is facing increasing costs. It was not competitive to reinvest and to create employment. These are big issues which South Africa has to face. Some tough decisions need to be made and there needs to be increased alignment.

Mr Jennings stated that there are success stories such as the motor industry that has been an incredible success. It is an example of government, the private sector and international investment getting together and succeeding. If one was to visit Toyota, Mercedes, BMW or any of the OEMs and compare them to 10-12 years ago, it is just incredible to see what they have done. The reason for this is firstly the investment and secondly they brought skilled people from Japan, Germany, and France to transfer skills to the local workforce. The manufacturing sector has long been lobbying for greater immigration of skilled people to transfer skills, enhance black development and nurture more business. He further stated that South Africa is very keen on encouraging new investment into this country which is a big tick but at the same time economies of scale is the challenge. He stated that the focus should be on encouraging international companies to invest in existing South African companies and grow them; not looking at competing.

In conclusion, Mr Jennings stated that people talk about small business and agree that small business cannot exist without large business. Small business feeds on large business and the less big companies are nurtured and encourage, small business will not be enhanced.

4. Panel Discussion: Minerals and mining: Processing and beneficiation

- **Mr Andre van der Bergh, BHP Billiton**

Mr van der Bergh[1] began by explaining that BHP Billiton has 100 000 employees and contractors across the globe, with essentially six mega-business units, operating in 25 different countries across the globe. Their key income is from petroleum and copper.

At the Hotazel Manganese Mine in the Northern Cape, an open cast underground that exports about 70% of the ore and the remaining 30% is sent to the Metalloys Smelter in Meyerton which is probably one of the largest beneficiating plants for manganese globally. The workforce is approximately 534 employees with about 200 contractors and has been operating there since about 1951. The operation has four similar furnaces, with the M14 furnace being the latest addition. The key challenge for South Africa is how to grow the market share? The reality regarding manganese is that South Africa is sitting as a country on 80% of the world's top notch ore as a country, but own 21% of the world's market, the question is why – and what do we need to do as a country to take up that heritage and increase our global market share? If one compares an Australian mine with a South African one, it is clear that South Africa is mining manganese ore much more efficiently and cost effectively for an equivalent unit per manganese. Why? South Africa has a much better ore body that is shallower and the quality content of the ore body is second to none in the world. However the product needs to go market and this is one of the key challenges. In Australia most of their mines are quite close to the ports but in South Africa it is in the middle of the Kalahari, 1000 km away from the coast and non-effective infrastructure and capacity. So if this is added as a costs component to South African mining as well as shipping costs to that, it is a major challenge for the country. There is a need to address all of those issues; there is a need for more effective rail and export capacity, as well as more effective shipping.

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[1] **Forward looking statements**

This presentation contains forward looking statements, including statements regarding: trends in commodity prices and currency exchange rates; demand for commodities; plans, strategies and objectives of management; closure or divestment of certain operations or facilities (including associated costs); anticipated production or construction commencement dates; capital costs and scheduling; operating costs and shortages of materials and skilled employees; anticipated productive lives of projects, mines and facilities; provisions and contingent liabilities; tax and regulatory developments.

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Other factors that may affect the actual construction or production commencement dates, costs or production output and anticipated lives of operations, mines or facilities include our ability to profitably produce and transport the minerals, petroleum and/or metals extracted to applicable markets; the impact of foreign currency exchange rates on the market prices of the minerals, petroleum or metals we produce; activities of government authorities in some of the countries where we are exploring or developing these projects, facilities or mines, including increases in taxes, changes in environmental and other regulations and political uncertainty; labour unrest; and other factors identified in the risk factors discussed in BHP Billiton's filings with the U.S. Securities and Exchange Commission (the "SEC") (including in Annual Reports on Form 20-F) which are available on the SEC's website at www.sec.gov.

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Mr van der Bergh then focused on beneficiation at Metalloys where they have been since the 1950s and there is a significant investment in their communities is there, so there is an appropriate skill base to source from. BHP Billiton also believes that given the fact that they provide cost effective product to that smelter, their input costs is much lower than the rest of the smelters in the rest of the world. The energy cost which is a key issue and here they saw the need for a different paradigm and mind set. Some of their products in the off gas and CRO gas, and according to the production report, about 25% of the electricity utilised for that smelter is actually cogenerated by a cogeneration plant because they take of the off gas and translate that into electricity going forward. In terms of regulatory environment, they are very positive, and this is in line with beneficiation policy of government so there is great alignment and this synergy will actually work.

He returned to the question of how to make beneficiation sustainable in our mining sector, proposals include:

- South Africa Manganese strategy preserving our heritage and supporting sustainable development (infrastructure, mining and beneficiation)
- Policies supporting the unlocking of Manganese ore or alloys focusing on the Port regulator, NERSA and the rail sector. The industry lobbied around the high cost at the port and the Port regulator stepping and took on Transnet and TMPA in terms of the cost indexes going forward. Unfortunately there is no such economic rail regulator to deal with the rail issues.
- Incentives to support beneficiation such as export capacity allocation to consider beneficiation, the cost of logistics with differential pricing for value adding projects, and tax rebates
- Long term surety – energy, rail, water cost and availability
- Support export capacity to secure ore input costs for smelting
- Infrastructure Access closer to the mines to minimise smelter input costs

The industry needs to move away from situations where companies come and purely export the product; here lessons can be learnt from the motor industry, with the provision of an upstream side in terms of better export, price, volumes and so forth. An example can be seen in Tasmania where the government has provided rebates and incentives to actually drive and support beneficiation. BHP Billiton has a massive smelter in Tasmania that was not able to complete with other smelters in Malaysia due to the cost of power. Leadership was shown by the mining sector, the manufacturing sector and the Australian government to find win-win solutions when looking at the entire supply in the value chain, they came back with much better pricing going forward that enabled the plant going to move forward and enabled BHP Billiton to downstream activities. A South African example is the motor industry in Uitenhage where the industry was so successful is it was once again the commitment to put South Africa first by making a commitment to drive a climate to support the investment and trade the incentives. In conclusion, South Africa has several positive case studies to learn from and replicate also to the manufacturing and mining sector.

- **Dr Karl-Rudolf Gassen, Lanxess**

Dr Gassen began by introducing Lanxess as a leading chemical company operating worldwide, in all of the stable and developing markets in the world. It was formed out of Bayer in 2004 and now fully independent. They have 50 production sites in the world with four sites in South Africa. They have about 1 100 direct employees, 500 service providers, and about 10 times output jobs that they know of that has been created here. The value chain begins with the mining of chrome ore in Rustenburg. The ore turned into foundry sand and chemicals which feed into Lanxess's core competence as a chemical company. At the Newcastle plant chemical ore is converted into sodium dichromate which is an intermediate that is sold to all markets in the world for different kinds of NQs there. The plant also makes the conversion to chromic acid, used in the chrome plating industry.

Lanxess is number one in the world for this. Lanxess also sends chrome pigments to market, one of which the biggest plant in the world in Germany. It is also shipped to Merebank for the third beneficiation step on the chemical side here in South Africa for the production of chrome which is vital for the tanning for all leather. The company is very proud the all the beneficiation takes place in South Africa and that they are the only company worldwide which has this integration of all steps to the final products.

Lanxess sees investment as vital, without which the business will die. They have created a new generation of foundry sands which is made in Rustenburg. They have also found also a UG 2 ore of chrome which is already mined and sitting on the surface and looking for being used. Two years ago, the company identified the need for capital investment, so their Board was approached and R400 million has been invested in a Newcastle CO_2 plant which is a state of the art plant, which captures CO_2 in the atmosphere and used it in their chemical processes. Lanxess also invests in people illustrated by the fact that when took over the mine, they took 350 people from the labour contractors into their payroll. This has seen the productivity of workers being much higher than those workers employed by labour brokers as Lanxess workers have been trained and advise on how to run the processes.

Dr Gassen further explained that the key success factors for them are the same as others in the industry; these being transport, energy, skilled personnel and access to export markets. From the Lanxess point of view, the situation with export markets is good, so far. Regarding skilled personnel; it is seen as the company's responsibility. Lanxess have training programmes for all the skills needed in the company.

They are currently attracting talent therefore this is not a challenge at present. Regarding energy, they do apply all of their competencies, and are running efficiency programmes throughout all of the plants. So from that point of view, they can up to now guarantee a competitive price for products. But the speed/velocity of the price increases here in South Africa of energy is a lot higher than in other parts of the world and given that the American economy's competitiveness is based on low energy prices, and readily available cheap energy, not productivity or development in their industry, this can become a challenge. On the transport issue, the ineffectiveness of Transnet's service level is not acceptable. It is not on an international level here and the company is engaging with Transnet to overcome the obstacles and get the solutions. Transnet is very willing and make an effort in this regards but eventually a huge investment on the Transnet side, is necessary. This sector cannot grow without having the possibility to transport produced materials to the harbours and from the harbour to the markets, as well as import the materials needed for their product.

- **Mr Roger Baxter, Chamber of Mines**

Mr Baxter began by focusing on some key issues; firstly this mining sector South Africa has by far the most industrialised economy in South Africa. Manufacturing sector counts for about 5% of Africa's GDP. It is important not to underestimate that there is a substantial manufacturing sector even if it is just 15% of South Africa's economy, but that is just because South Africa's economy is in a different stage of its growth path compared to the other emerging growth economies. Presently South Africa is sitting with about a GDP as a whole created ultimately by the mining sector with backwards and forwards linkages and the induced spending multipliers in mining. The mining sector is a very important sector, it is estimated a substantial part of it is in the intensive care unit. More than half of the sales value and more than two thirds of the employment in the mining sector are in two components which are in aggregate loss making and facing significant international and domestic head winds, in particular the gold and platinum sectors.

Therefore it is not sensible for the mining industry to oppose to beneficiation. There is a firm mandate from the council which is made up of the chief executives of the mining companies, representing 90% of South Africa's mining industry that encouraging greater upstream linkages, that is encouraging greater localisation of products in the upstream, and also encouraging greater beneficiation of the downstream over above what is already being achieved in the South Africa.

These are all really meritorious ideas, the issue is the how? In the last two years up until 2012, the manufacturing sectors' manufacturing value added growth was 2.9% per annum compared to Australia's manufacturing sector of 3%. Australia's manufacturing sector has faster growing productivity than that of South Africa yet we like to criticise Australia as a country being too mineral dependent. In China NVA growth was 8.1% for the last three years, for the last decade it was over 10%. South Africa's total over the last ten years it was about 3.2% over the entire period. The reason these numbers are useful as they indicated that unless there is a massive improvement in the competitiveness measured in manufacturing added growth, the manufacturing sector will continue to shrink. So the critical question is what are the specific issues that are going to help the manufacturing sector to be more competitive? A weak exchange rate will not change this situation; South African needs a stable and predictable currency.

Another proposal is that mining companies sell product to the domestic market at a subsidised price, the view is that mining subsidising the downstream industry will make the manufacturing sector more competitive. International experience has shown that most of the countries that have been really successful in the manufacturing sector, it is on the basis of a whole set of other issues, not developmental pricing of the minerals concerned. It is far more important to focus on the funding of the inventory pipeline and having suitable funding lines in place rather than accessing the mineral at a cheaper price than on the international market.

If one examines some of the traditional measures: cost competitive production, rising productivity, then companies looking for investments, will want to invest in countries that have growing productivity levels. The focus should be on Smart tape, not red tape, regulations with smart tape. This is not about the mining sector but the issues that affect the competitiveness of the downstream manufacturing sector such as effective incentives systems, duty free access to key international markets, effective domestic competition policy - those are some of the basic issues.

He then went on to discuss the special economic zones (SEZ) established in India and China. When looking at investment in China, 80% of the investment in the industrial sector in China went into coastal cities that just happened to be special economic zones. When looking at economic zones, the key issue is tailor made facilities with many of these facilities made by government and literally handed over. Regarding duty free zones, in 2012 South Africa last year imported R1 billion worth of diamonds, and yet the diamond producers have to carry a 40% VAT cost on that, they have to wait for three months to four months depending on what SARS says, that is an incredible competitive disadvantage if you want cutting and polishing done domestically as an example. Customs, and expedited customs procedures, strong government and business interface, and key knowledge linkages, these key linkages need to be considered together and access to the right distribution and knowledge networks, cost effective logistics.

There are some examples in South Africa where government have tried to put some certain policies, like in the diamond sector, they have not worked. In this sector they have gone from some 3000 people in 2005, to the current situation where there are only about 500 people actually participating in the diamond cutting sector today. There is also an argument the South Africa could probably use its ability limit the supply of platinum and challenge global markets. The counter to this is that South Africa does have 80% the world's platinum resources, but only accounts for 41% of the global supply.

From the Chamber and industry perspective, an improved relationship with government could and also encourage greater product development, and greater adoption of new technologies. This is something that the Chamber is focusing on, examining technologies really work which can help extract greater benefits from mining right through to the manufacturing side.

Mr Baxter concluded by highlighting the need to be very careful about nurturing the mining industry to get it out of the intensive care it currently finds itself in. The sector has seen a set of issues have affected it, most of the issues are actually domestic, around productivity, falling rates, logistical infrastructure constraints, and so forth. If one looks at the beneficiation space, on the downstream side, it is very important to consider the Chamber slogan "Putting South Africa First" which has replaced "Serving the mining industry since 1889" which was a bit dated. When looking at the issues and the value chain in each of the industries, a great deal more talking that needs to happen because people have been talking past each other, and there is a need to focus on the critical things that affect the competitiveness and specifically of the manufacturing sector and that is where everyone has a role to play by being part of a cooperative, collaborative, problems solving partnership.

5. Panel Discussion: Legislation and practice: Policy and implementation

- **Mr Garth Strachan, Acting Deputy Director General, Department of Trade and Industry (DTI)**

Mr Strachan began by making the point that the National Industrial Policy Framework was only adopted in 2007 and the five iterations of the Industrial Policy Action Plan (IPAP) which have followed is actually very recent so we are in the middle of the fifth year and the DTI is probably the only government department which puts into the public space, an action plan which has an economic rationale for each and every one of the interventions that are set out key action plans for those interventions with the lead and supporting department and government agency for each as well as when they would be done by. This is an important instrument for management and oversight. It allows the government to state what it is going to do and by when. Significant progress has been made across a range of sectors, bearing in mind that there are 18 sectors with specific sets of plans; some stronger, others not so strong and of course there are five transversal interventions.

The industrial policy should not be seen as a single intervention, but rather as a policy with a set of interlocking, mutually reinforcing instruments. The IPAP tries to marry industrial policy in this way through a range of processes such as competition policy, incentives, tariffs, trade measures, industrial financing, research and development and so forth. The DTI's understanding is that where there has been successful manufacturing led-growth sustained, above 7% for longer than 10 years and sometimes even longer, there isn't an example anywhere in the world where growth has not been manufacturing led. The employment and the economic multipliers are strongest. But central to the successful examples of that happening is a very close working relationship between government and business.

Mr Strachan then moved on to focus on the space which is the interface between mining and manufacturing and the principle instrument which the state has deployed to support the manufacturing that being procurement. An important issue to note is that they cannot pass legislation or regulations which make it mandatory for the private sector including the mining sector to procure locally as this would result in being in breach of the WTO. The question is what has the government done in the public sector space? In the past 18 months, the department has amended the regulations of the Preferential Public Procurement Finance Act which allows the designation of 12 sectors with a focus on big industrial sectors.

Feedback from the manufacturing sector, especially in capital equipment, metals and those sectors, is that the act is having an immediate and very significant impact. Mr Strachan stated that he has seen a change in relation to procurement in big public sector procurement agencies, Eskom and Transnet included. There is an improvement in understanding the impact of that instrument and across a range of economic indicators.

The second instrument that has been deployed is the competitive supplier development programme. He stated that there has been very significant progress with respect to supplier development in the Transnet and Eskom build programmes with limitations. The most important lesson that comes is that the procuring entity has to build sufficient capacity in order to manage a competitive supplier development programme in very close coordination with suppliers in each one of those sectors. The DTI has deployed local content in the renewable energy independent power producers with mixed blessings. There has been a R6 billion investments into that sector across a range of wind and solar power components, but business being what it is and other government departments being what they are, sometimes there is a situation where local content is seen as building the car park and the concrete foundations when in fact what local content and supplier development has to be is going up the value chain so that one can compete in global value chains up the value chain. The National Industrial Participation Programme provides for offset investment in industry where government purchases beyond US$10 million. The Minister is in the process of publishing new stronger regulations. So if the state procures white bodied aircraft, then one can see the offset in directly into the aerospace industry, direct nip, up the value chain happening. The procurement accord has not been very successful. Government has come to the table as explained above but the private sector has not come to the table. Potentially the procurement accord is the wrong instrument to be using which essentially was an agreement on paper – government would do x, y and z in relation to localisation; the private sector should do a, b and c and in fact that has not happened. There is a pressing need to interrogate this accord; there is a need to look at where private sector local procurement is being really successful and why. There are very good examples in the clothing sector, where retailers are now beginning to support local manufacture in clusters, with support from the department. There are commercial reasons for this success including those very specific to that sector; fast turnaround times; niche fashions and so on.

Beneficiation has to be central to the issue of the interface between mining and manufacturing. Beneficiation can be seen in two ways, adding value to primary commodities for domestic and export markets. The department is currently involved in a very large study into five value chains and working closely with the IDC. It is planned that there will be close engagement with the private sector in relation to the opportunities and the policy interventions that are important to drive that forward. There is a need to ensure that South Africa's mineral endowment becomes a competitive advantage to us as a country, to deepen industrialisation as a driver of foreign direct investment because competitive perhaps discounted prices for strategic minerals passed on as competitive prices through the value chain to the manufacturing sector is perhaps the last and most important competitive advantage that this economy may enjoy.

Mr Strachan then asked for feedback on the following questions: Has the Industrial Policy Action Plan been successful, if not where has it not been successful? If there are areas that have not been successful, the department would be open to taking them out of the Industrial Policy Action Plan. The department is interested in concrete rather than vested interest policy proposals as to how the Plan can be ramped up across the sectors and the transversal interventions. In conclusion, Mr Strachan stated that there is an urgent need for policy coherence and a strong alignment between what governments wants to do and what the private sector needs in terms of government steering but not rowing, there's a very significant problem that we have to overcome.

- **Mr Kugan Thaver, Head of Localisation, Industrial Development Corporation (IDC)**

Mr Thaver began by stating that in 2011, the IDC was restructured in line with the New Growth Path (NGP) and the Industrial Policy Action Plan (IPAP). The IDC focuses on the full value chain and looks at providing holistic support in one package. Its role is to look at the development of new sectors and support the expansion of the existing companies in the sector. Given that there is a very robust financial services market in South Africa, these institutions can get involved financing mining houses or big state owned enterprises, reducing the need for IDC. The IDC can then focus on supporting the initiatives that are more risky.

Regarding the market, in terms of the mining and manufacturing sectors, these can be split into two areas, mining equipment and supplies and the value add of the commodities. South Africa is ideally positioned to supply that equipment on the back of the existing industry. In terms of the value adds, or example platinum and titanium. There is a need to start at the markets first and work backwards because one is actually completing in a global supply chain. So one starts with examining who is using that end product, the value added product and work back to see how to be competitive to supply or provide the commodity value added into the global supply chain where South Africa is competing with the Americans, the Europeans, the Asians and so forth. There are different types of marketing strategies needed to have to actually implement a manufacturing base or supply into the global supply chain.

The Presidential Infrastructure Coordinating Commission (PICC) was formed out of the New Growth Path (NGP). Its role is to coordinate government activities as there are three tiers of government, as well as SOEs and all are making orders. The question is how can there be consolidation of the ordering process? The process is now to act as one company as a country. The PICC aims to consolidate this ordering process and by doing so influence skills development, localisation, local content. The PICC is broken down into 17 Strategic Infrastructure Projects (SIPs). There is a big council of Ministers that sits and monitor. As part of the IDC's Localisation Unit, the job is to look across the board all the SIPs, there are three SIPs involving mining sector, it is SIP 1, the Waterberg coal line, SIP 3 the manganese line from Hotazel to Coega and SIP 5 which is the Northern Cape-Saldana line, the iron ore line.

The Localisation Unit focuses on all these SIPs, look at what the purchasing power of the mines, the private sector and the Transnet and ESKOM and say what are they purchasing, what are they buying, what are the commodities? Are they localising? The unit identifies and then reports. The Unit also work with Eskom and Transnet specifically, as IDC, to assist them on their supply development. The whole idea is that government talk as one voice, it enables the municipal issues because a lot of the issues around manufacturing are municipality, a lot of the issues around supply of power. There is a tendency for the country to operate in silos, focusing only on one's own municipality or province. The PICC aims to bring people together and focus on dealing with any bottlenecks that occur to prevent projects from being stalled.

In terms of financing and expansion, the market is one thing but financing is needed. Multinational institutions normally come with their own financing. If it is a local company that has existing infrastructure, there is a need for three things: concessionary financing which the IDC does; incentives, which the DTI and EDD provide on the manufacturing side; and finally they require the order. The orders are tricky as the question is whether or not these sustainable orders or once off orders? There is a need to ensure that South Africa is fitting into the ordering company's global supply chain. Companies should endeavour to make sure that they become a permanent fixture in their global supply chain. There is also a need to engage with other African countries because the market is with them. There is a need to ensure that non-African countries are not able to divide and conquer.

South African must to talk with fellow African countries, Sub-Saharan first, and examine the possibilities for working jointly and sharing the manufacturing output. South Africa obviously has an edge with a big competitive advantage in existing good infrastructure and far better manufacturing ability. That is part of the implementation process that must be undertaken.

Aspiring entrepreneurs cannot only focus on making a profit but also need to take into account communities in which they will work; and municipalities as they provide services. For example with mining, it is important to encourage manufacturing facilities to be established in the mining areas. Here the special economic zones (SEZs) are an important in this process. Manufacturing should not only be based in the major urban areas but also be based in the smaller mining towns. This will also assist in encouraging rural development as well. In terms of skills, it is vital that both the private sector and state collectively train people. The IDC is looking at skills creation and the social impact to ensure that sustainable businesses are developed that are inclusive of communicates and appropriate skills are developed.

In conclusion, he stated that in relation to the question of whether to focus on being labour intensive or capital intensive, it is important to be labour intensive as South Africa has a number of youth who have skills and need to be employed and manufacturing and mining are key to labour intensity.

➢ **Ms Sybil Rhomberg, Managing Director, South Africa Capital Equipment Export Council**

Ms Rhomberg began by stressing the need for nurturing entrepreneurs and the importance of working with the private firms, those companies less than R1 million. Small companies create jobs and create the sustainability and the stability in the economy. It is also important to engage with major commodity firms such as mining houses to voluntarily facilitate local sourcing, as well as use regulation to compel the companies to increase the breadth and the depth of the linkages.

Ms Rhomberg is currently involved with the SACEEC and is working with 18 clusters with four waiting to get involved. A cluster is a geographically bound concentration of similar or complementary businesses related via the value chain. It needs active channels for business transactions, communication and dialogue that share specialised infrastructure labour, markets and services, it faces common opportunities and threats.

There are various types of clustering; both active clustering and passive which is the naturally occurring clustering where firms take advantage of potential opportunities that are enhanced by undertaking further deliberate action. In active clustering the firms realise the potential benefits of active cooperation, enter into closer relationships and set up mechanisms for collaborating in order to reduce costs, develop new or upgrade products or product ranges, develop flexibility and building a "common purpose". Clustering involves people to people contact, informal more than formal. It involves local stakeholders rather than outsiders. It involves collaboration at multiple levels and requires a huge amount of social capital. It is important to remember that it is a continuous process with a six step process:

- Form a leadership group;
- Undertake a rough competitor analysis;
- Form sub-cluster working groups as required;
- Develop action initiatives, initially short term actions, to achieve runs-on-the-board;
- Over time tackle longer term initiatives; and
- Continually encourage communication and outreach by all participants.

Formation and success of a cluster depends upon the following:

- industrial/technological development of the region;
- the continuous catalytic involvement and intensity of vertical and horizontal linkages including between firms, buyers and the state;
- the efficacy of support institutions;
- the technological complexity of activities;
- the dynamism of the leaders and participants of the cluster also have a huge bearing of it; and
- finding new markets. Innovation is a key component here.

One of the biggest problems facing the country is that of the silo mentality amongst the ministries and they are the only one in the strong enough position to try and force them together. Besides the role of that state in developing policies aimed at stimulating economic growth, developing attractive market environment for investors and working to encouraging fair competition between companies, other issues include further industrialisation, increased localisation and the growth of export markets.

6. Panel Discussion: The Interface: Finding common ground

- **Dr Alistair Ruiters, CEO, Ruukki SA**

Dr Ruiters began by providing a historical perspective and stating that the one thing that persists from that time regarding the relationship between government and business is that they are still talking past each other and that the issue of trust has no yet been full resolved. He stated that many of the issue raised in this meeting are the same issues that were raised 20 years ago. Several different platforms have been tried, some of them have worked. There is a long history of absolute success stories in the economic sphere where there have been legislative packages, financial packages, incentive programmes that have been collaborative with government, business and labour. There was a programme named The Fund for Research in Industrial Development, Growth and Equity (FRIDGE), Nedlac was started in 1997/8 and in fact that was a collaborative effort between government, labour and business to put together a particular intervention that will address some of the concerns raised by business at the time when the general export incentive scheme was being phased out. There are numerous success stories but those seemed to be once-off moments as there was not enough traction to deal with the particular dilemma of declining competitiveness in the manufacturing sector and a mining industry, at the moment is confronted with a whole host of challenges.

In response to the question “Is there common ground and can we achieve common ground?” Dr Ruiters stated that the answer is yes, it has been done before and there is no reason why it cannot be repeated. The question is what are the ingredients that are required at this particular point in time to achieve that common ground to try and get business and government to talk? Reflecting again on history, the motor industry development plan started about 1993, and got its traction in 1994/5 and today the results are visible. The fundamental issue was that of leadership. There was a Minister leading a programme together with CEOs of all the motor companies in South Africa. That was about getting the right people in the room and the right people who mattered at that particular point in time. If another process is going to succeed, it requires leadership.
The second element is getting the right people in the room, the correct stakeholders need to be involved in the process.

The mining industry is far more complicated than just pulling ore out of the ground and putting it into a furnace and sending it to China or get a higher price and break into the European and/or American market with processed or beneficiated product. The debate should not focus on South Africa's dealing with China in the face of ore exports to China doubling in some commodities and in some cases expand by 20-30% in the past few years. The real debate is about how to regulate the mining industry, because if mining is seen as purely a revenue stream then one will get the results that we have today. On the other hand, mining is seen as a developmental tool and a basis for a partnership, and then we are beginning to ask the right questions about why one sees those spikes in ore exports. The mining industry has opened because there was an imperative for greater and more inclusive mining sector. But at the same time we undermined some of the competitiveness factors; some of the costs drivers in mining have changed fundamentally. This is not just because of Eskom, not because of labour as it is incorrect to say the problems facing the industry are of labour.

Dr Ruiters reflected that on his visits to mines and see the conditions in which people live and work, they are not the problem. The problem lies with the fact that we have not created an inclusive society or inclusive workplaces. The racial dynamics in mines have not changed fundamentally as the underlying issues are still the same. White miners go home to a certain area and black miners go home to another area. Black management now live in the same areas with the white managers but the majority of workers still go home to a make-shift rented accommodation, because their other accommodations are in the rural area. So what has changed in mining that will make anyone who works in the mining industry feel more compassionate about the profits or whatever else is happening in the growth strategy? It's fundamentally still a sector has less migrant labour but fundamentally it is still an exploitative process and a process where people still labour under very different conditions. Discussions need to take place within the mining industry in itself and there needs to be introspection about the way in which change has started. Unless the industry starts having that discussion, in an open and frank manner, it is highly unlikely that the government and anyone else is probably going to want to take us seriously when the industry comes looking for concessionary finance and protective measures. This issue goes back again to trust. Have we created the conditions for a relationship in which trust can be nurtured and strengthened and we can actually have open and honest discussions about mining?

Many of the issues addressed in this presentation are human issues. For most of the businesses out there, they get anxious about policy, but they get really irritated when they contact a government department and they are not able to get through or access support mechanisms they are looking for. It assumes that policy always translates into something that is tangible and the reality is that policy and the tangible benefit is not something that is continuous.

There is a big divide between what people experience at a policy level and many of those who sit in the policy discussions and what actual enterprises experience at a day-to-day level when they try and access resources. This does not only apply to national departments. He provided the example of one of his furnaces located in Gauteng, the municipality constantly tries to persuade him to source power from them rather than from Eskom. When he attempted to engage them in discussion, they are more interested in generating more revenue and are less concerned about competitiveness.

In conclusion, it is important to acknowledge that there is a problem on both sides; to understanding of how to build trust; all have a bit more introspection, both on government side and business side; and have leaders stand up and speak out and not be afraid of retribution. If this cannot be achieved then we are on a slippery slip; where we all shut-up and just accept the lowest common denominator and that is certainly not going to create an inclusive economy; it's not going to create a growing economy.

- **Dr Paul Jourdan, Consultant**

Dr Jourdan began by stating that the South African policy environment had a century of stability around mining and manufacturing which was basically import substitution industrialisation, the final form of which was Volkskapitalisme, which was a form of developmental state, but for one group. The Uruguay Round of multilateral trade negotiations changed this as South Africa decided to do away with barriers and become competitive. The African National Congress (ANC) had a consistency of policy; 'Ready to Govern' was clear on the interface and how mining could be used to develop the upstream capital goods and downstream beneficiation. The Reconstruction and Development Programme (RDP) went into greater detail on this issue. Then the 1995 ANC Minerals and Energy policy went into reverse gear and adopted the Washington Consensus. Where the apartheid government had never let the companies leave the country, the ANC government lifted this restriction and companies exited. What has followed is a more fluid policy environment with policies being introduced that changed the focus The 2007 ANC National Conference in Polokwane focused on using the comparative advantage embedded in the minerals to develop these linkage sectors. The New Growth Path builds even further on this. The ANC's 2021 National Conference adopts the National Development Plan which reintroduces the Growth, Employment and Redistribution (GEAR). This all leaves one somewhat confused.

Beneficiation is the total value addition, it's upstream and downstream. Politicians often think it is mainly downstream, but upstream is possibly even more important than downstream and this is the focus here. Manufacturing supplies the inputs and downstream beneficiation is by definition into manufacturing. This also fits into the Justin Lin[2] type of argument that we can use our static comparative advantage but to do that we need to get the fiscal linkages right particularly the resource rents and reinvest those into a competitive advantage; our physical and human infrastructure to underpin manufacturing. The key beneficiation linkages include:

- The fiscal linkage – capture and investment of resource rents (RRT) in long term economic physical and human infrastructure.
- Spatial linkage – puts in critical infrastructure to realise other economic potential and could stimulate local economic development
- Backward linkages - capital goods, consumables, services.
- Knowledge linkages – the "nursery" for new technology clusters
- Forward linkage – value addition (beneficiation), export of resource based articles.

The State Intervention in the Minerals Sector (SIMS) Report highlighted that the most critical linkage is knowledge because one does not get these linkages right, then the backward linkages which are engineer intensive, that is capital goods, equipment, plant, rigs and so on, will not happen. If one looks at it as a cluster, then that all of these linkages are intricately interlinked; if one does not capture the fiscal linkages, one cannot invest in the knowledge and infrastructure linkages and then there are no backward linkages. One needs to tackle all of these linkages to get manufacturing sector that is going to be benefitting from our resource endowment.

Two examples of different strategies are Finland and Chile. Chile also adopted a GEAR strategy and going from the manufacturing curve onto the primary commodities curve although the economy has grown, it has grown with more bananas; salmon bananas; forestry bananas; mineral bananas. While Finland did the opposite, they were on the primary commodity curve, and they moved on the manufacturing curve. What was the difference? Finland went for the very interface that we are talking about.

[2] Justin Lin argues that "a developing country can change its industrial and economic structure by changing its endowment structure".

They used their natural resources, particularly wood to go to raw exports and value add and get into wood machinery and capital goods and that's basically what industrialised them. They worked off their comparative advantage in forestry and mining to industrialise. We have a similar one in our PGMs and there we get about one job directly for every mining job and Finland gets six, because they've got very low leakages. They import very little. They make nearly everything that goes into the industry. Norway had exactly the same strategy, they realised there was a deplete in resource so they developed the Oil & Gas 21st century strategy and they looked at greater technology; greater gas value addition, greater investment in technology for more resources, greater recovery and they will go up instead of down and all of that is underpinned by knowledge linkages. Their state companies Statoil has trained over 75 000 people since the 1970s. They prying the system with the most important commodities – skills - mainly technical skills/STEM skills/science technology and engineering mathematics. Technological development was critical in Finland with enormous support from the state, they are the highest spender of research and development in the world, 4% of GDP – that is double that of the United States and more than four times more than South Africa. South Africa needs to develop technologies for local conditions, this was something that used to happen but industry decided rather than develop technology, it would rather buy technology and that is a critical linkage, the IP.

Dr Jourdan then focused on the putative policies needed to grow the interface:

- There must be discipline the inputs price, the IPP abusers; SASOL/AMSA/MITTAL are the biggest. If South African steel is up to 50% more expensive than Bell Steel and Shanghai, we not even in the starting blocks. The Mineral and Petroleum Resources Development Act (MPRDA) should be changed to include competitive or export parity pricing. One proposal is a compensation fund to compensate our manufacturing sector for that difference that would then force AMSA and SASOL to drop their prices.
- Another area is that of resource rent taxes, manufacturing does not have resource rent taxes, but mining can have enormous ones; in the hundreds of percent for some of them such as iron-ore or mining. The introduction of a resource-rent tax which is the lease distortionary of taxes because it only triggers in after you have made a normal return. That means it does not impact on any marginal mine or any marginal deposit. They will never pay it and then deploy that to develop STEM skills, technology development and geo-survey. The MPRDA should be amended to include linkages with milestones in mining concessions.
- Make local content commitments a bid variable for bidding on new deposit.
- Re-establish a national mining tech R&D capacity, try and rebuild a COMRO as a partnership between the state and the private sector.
- It is critical to establish a mining inputs cluster, this is a sub little cluster and it is not part of the larger capital goods. It is a particular cluster that we need to develop with the state, the knowledge providers and the private sector to jointly develop comprehensive industrial sub-sectoral strategies with instruments such as tariffs.
- Task the nascent SMC and IDC, like with Statoil and many examples in other countries, with developing that interface. Statoil was critical in developing that interface.
- Establish "beneficiation SEZs" such as the mooted "PGM SEZ".
- Develop regional trade strategies for growing mining inputs markets.

In terms of the way forward for the development of a mining inputs sub-cluster (MIC); there should be a combination of the knowledge, government, inputs, feed stocks and industry association to try and build a platform for this cluster around both physical and human infrastructure, around the incentives, around trade (both defensive and strategies) against imports and defensive strategies around exports and trade access and the feedstock. MIC would then develop strategies, because government would be part of that, to make sure that the government policies are then adapted and changed, that the laws are amended and changed to fit in, that the regulations are then flown out and then finally become the cluster instruments.

7. Wrap up and way forward by Prof. Ben Turok, MP, Chairperson, IFAA

In summation, Prof Turok made the following points:

- When he first became involved in beneficiation, the first thing he encountered were objections; experienced economists of the opinion that just because South Africa has large number of minerals, this is no advantage. The argument is that proximity is no advantage. The information shared in this meeting shows that proximity is a huge advantage.

- It was argued that the real value was argued lies not in the resources but in the capability so the argument is not to be concerned about real resources but increase capabilities. This meeting has shown that the real resources are a huge asset to which capabilities are applied; do not delay the exploitation of the real resources until the capabilities are in place; rather do the two together.

- South Africa lacks the capabilities to exploit minerals through beneficiation so should rather export minerals because other countries have better capabilities that we do. This meeting has also shown that this is wrong.

- South Africa has too small a market for beneficiation, this also shown to be wrong. It is small but several people have managed to exploit this market.

- There is not enough capital for beneficiation; it has been shown that there is quite substantial capital in South Africa.

- Inadequate workforce, the presentation from Lanxess has shown that this issue can be addressed through a real commitment to training. There are good examples of companies who have trained their workforce to the scale where they are internationally competitive. We are too defeatist about our workforce.

- Finally, South African is not competitive. Presenter after presenter has stated that companies can be competitive as long as certain elements are in place. So this generalisation seems to be defeated in this meeting.

There are a number of positive elements arising from this meeting, these include:

- A great number of the inputs into the mining industry are locally sourced; domestically produced so mining industry does gain a great deal from domestic input. Things are not all imported input as sometimes said in literature.
- Multipliers – have potential and real multipliers that are substantial and positive aspects.

- Manufacturing is not contracting but is holding its own in real terms, despite the statistics from the Treasury and Reserve Bank. We need to be discriminating about how we listen to pessimistic assessments of capabilities.

But there are problems, which include:

- The interface between government and private: on the government side, there is a perception that it is improving but business does not share this view. There seems to be a great deal of dissatisfaction in the interface between government and business. Part of the responsibility lies with business itself, there are several business organisations but they also appear to be working in silos, all focused on own area with very little collaboration between them. Where there are deficiencies in government in talking to business, somehow it does not get resolved. People moan about lack of contact but all active citizens so go into the public arena and say their piece.

- There is a general consensus in the country that government is far too indecisive; there are five ministers for the economy with different policies and different road maps, different documents. It is then up to meetings like this one to define what the priority is. There are five priorities in totally diverse areas. A meeting like this shows that unless there is decisiveness and identification of the key to opening up the economy, then not much will happen. Beneficiation and the issues discussed this this meeting are a major element.

- Importation of skills, the Department of Home Affairs is not very keen on this. Prof Turok stated that he was persuaded by the argument that the importation of high skills as a temporary measure to build local skills a temporary transitional measure is a good idea with the rider that there is a time frame on it.

- Protectionism vs. competitiveness, both are necessary. Building a competitive economy can only be done on the basis of infant industries which require protection. International experience shows that that it is important that there is protection for industries in their infancy for a limit period through state support and incentives. There is a need to combine the idea of building a competitive industry with the notion of protectionism as a limited strategy for period.

- Procurement and tenders, this should be a simple matter where everyone is encouraged to procure locally as well as ensure that tenders cover local procurement.

- Exchange rate issue is very difficult. One of the reasons that the issue is not solved is that it is discussed in isolation, one cannot discuss the exchange rate with the Reserve Bank saying what needs to be done. It must be part of a whole strategic analysis.

- Subsidisation is an important ideological issue. Should the state subsidise energy? Is the state does not ensure that industry has cheap energy, there will be no industry. In a competitive world where other countries subsidies industry energy and receive subsidies, South Africa shoots itself in the foot. It is vital that the state plays an important developmental role in this issue.

- Transport: something must be done about the ports and Transnet, this requires state intervention. The state has a major responsibility to provide decent transport and this requires investment. There need to be greater clarity about the proposed R800 billion infrastructure fund and where the money will be sources.

- The issue of red tape, it is quite true many government department have red tape things are slow, often there is obstruction, difficulties in management, something which is part maybe of our transformation, part of historical legacy. But this is not to be simply accepted, the public must raise their voices about this issue.