“The potential impact of the European Union’s draft legislation, REACH, on the social and economic development of Sub-Saharan Africa”

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EXECUTIVE SUMMARY

The EU is considering a draft policy framework called the Registration, Evaluation and Authorisation of Chemicals (REACH). The policy is aimed at protecting human health and the environment from hazardous chemicals whilst also strengthening the competitiveness of the EU chemicals industry. The purpose of this document is to highlight the potential far-reaching negative of the draft REACH legislation on the social and economic development of Sub-Saharan Africa. In particular, the inclusion of mineral ores and concentrates in the current draft REACH could have significant negative ramifications for the mining industry of Sub-Saharan Africa, which will undermine the developmental role of the industry.

Considering that most mineral ores and concentrates contain trace quantities of substances that the EU would classify as hazardous and because most ores and concentrates are imported into the EU in large quantities, these ores and concentrates would be subject to REACH. It is clear that the policy, which was conceived mainly for synthetic and organic chemicals, may have serious, possibly unintended, consequences for minerals, in particular ores and concentrates. These include substantial direct costs as well as indirect costs and job losses resulting from market degradation and price erosion.

The specific concerns related to the impact of REACH on the mining sector are:

- The workability of the REACH policy given the complex composition and large volumes associated with mineral ores and concentrates and the fact that the risks associated with these materials are already covered by existing legislation.
- The fairness of the REACH policy that, without any scientific basis, excludes the primary materials from the organic sector from certain requirements whilst including the primary materials from the inorganic sector.
- The direct costs of REACH, particularly for Small- and Medium-size Enterprises (SMEs) that may mine ore bodies that may differ in composition from one area to another.
- The potential impact on Africa's development due to indirect costs.

Due to the importance of the latter concern and the difficulties to quantify the impact, a study was conducted to indicate the potential seriousness of this concern for Africa. The remainder of this summary will elaborate on the key points identified during the study.

Sub-Saharan Africa is one of the most underdeveloped and poor regions of the world. It rates poorest on most human development indices such as the UNDP Human Development Index 2003. The sub-continent is just emerging from the ashes of its colonial, cold-war and apartheid past and is sowing the seeds of good governance, economic growth and development. African leaders have established the African Union and the New Partnership for Africa's Development (NEPAD) and are focused on bringing about meaningful growth and development in Africa. Progress is being made. For instance, GDP per capita in Sub-Saharan Africa has during the period 2001-2003 grown positively for the first time since the 1980's.

The mining sector, as has been the case in the industrialisation of many advanced economies (the USA, UK, Canada, Australia, Germany, Sweden, Norway, etc.), is just starting to play a key role as a ***foundation*** for industrialisation for many countries in Sub-Saharan Africa. The critical point here is that ***mining*** has the ***critical-mass*** to act as a foundation industry, given

the right governance conditions, which crowds in the development of critical infrastructure (power station, water reticulations, roads, railways, telecommunication, etc.), the development of the manufacturing sector, the financial services sector, the skills development and education sectors and so on. The mining sector also generates significant foreign exchange receipts (which allow the importation of capital and intermediate equipment), domestic consumption incomes (in the hands of employees), and large scale gross capital formation. In essence very few other sectors have the critical mass to do this. Many Sub-Saharan countries are fortunate to have mineral resources to achieve these benefits. In terms of production, these countries contribute more than 20% of global production in approximately 15 different minerals and also holds the majority of global resources in approximately 10 minerals. The economic importance of such resources is underlined by the fact that the GDP per capita in Sub-Saharan countries with strong developed mining sectors is eight times higher than in countries where such sectors are poorly developed. The significance of this contribution is further emphasised by the specific example of South Africa, where it is estimated that the total contribution from mining amounts to approximately 16% of GDP (including 6.2% direct contribution, 2.3% from backward linkages, 1.7% from forward linkages and 6% through the induced effects achieved through e.g. mining salaries) and 1.3 million jobs (27% of total non-agricultural employment).

Over half of Sub-Saharan Africa's mineral exports, estimated at US$12 billion, are destined for the EU market. With the exception of South Africa, most minerals are exported in the form of primary ores or concentrates. Given the natural occurrence of trace amounts of naturally occurring hazardous substances in these ores and concentrates – it is likely that they will be subject to authorisation – the most onerous process of REACH. The potential direct and indirect costs of REACH are explored in this document. While the direct costs of complying with REACH are large, particularly for smaller mining companies, it is the indirect costs of REACH, which are the most significant. A simplistic linear model with various static assumptions was used to try and gauge the potential indirect revenue effect of REACH on Sub-Saharan Africa. This model is indicative of the potential impact. Based on the assumption that Sub-Saharan Africa's mineral exports to the EU may not grow as a result of REACH, despite global growth in demand for minerals, then the potential cost of revenues forfeited could be about US$2.5 billion annually by the tenth year of phasing in REACH. The forfeiting of this revenue pales into insignificance when the opportunity cost of the lost investment in mining, and the commensurate lost foundation role that mining can play, is taken into account. The simple message is that "**MINING AND MINERALS MATTER FOR SUB-SAHARAN AFRICA.**"

Constraining the mining sector via REACH is tantamount to constraining Africa's developmental and growth prospects.

INTRODUCTION

The EU is considering new policy proposals called the Registration, Evaluation and Authorisation of Chemicals (REACH). The policy is aimed at protecting human health and the environment from chemicals whilst also strengthening the competitiveness of the EU chemicals industry. The policy is viewed as one of the most far-reaching regulatory programmes that the EU has ever launched. The proposed new regulatory regime will provide a harmonised approach to chemicals regulation throughout all EU member states. The policy applies to chemicals produced and exported to the EU. The proposed regulatory regime shifts the burden of providing information on risk assessments for chemicals from the regulators to the producers and users of chemicals. The proposal extends the scope of application of REACH to include minerals in the form of ores or concentrates.

The purpose of this document is to highlight the potential large negative impact that the EU proposed REACH system might have on the economic development of Sub-Saharan Africa. In particular, the inclusion of minerals (ores and concentrates) in REACH could have significant negative ramifications for the mining industry of Sub-Saharan Africa. Given the large contribution that mining can make towards achieving the objectives of the New Programme for Africa's Development (NEPAD) and the African Renaissance, the REACH proposals could be substantially negative for the sub-continent. Sub-Saharan Africa has experienced some two centuries of turbulence and conflict. First it was the effects of the Colonial dash for Africa. In the post-Colonial period it was the large impact of the Cold War being played out on the continent of Africa and the impact of the Apartheid regime on the sub-continent. Some of the results of Colonialism and the poor economic policy making during the Cold War period were significant under-development, poverty and conflict.

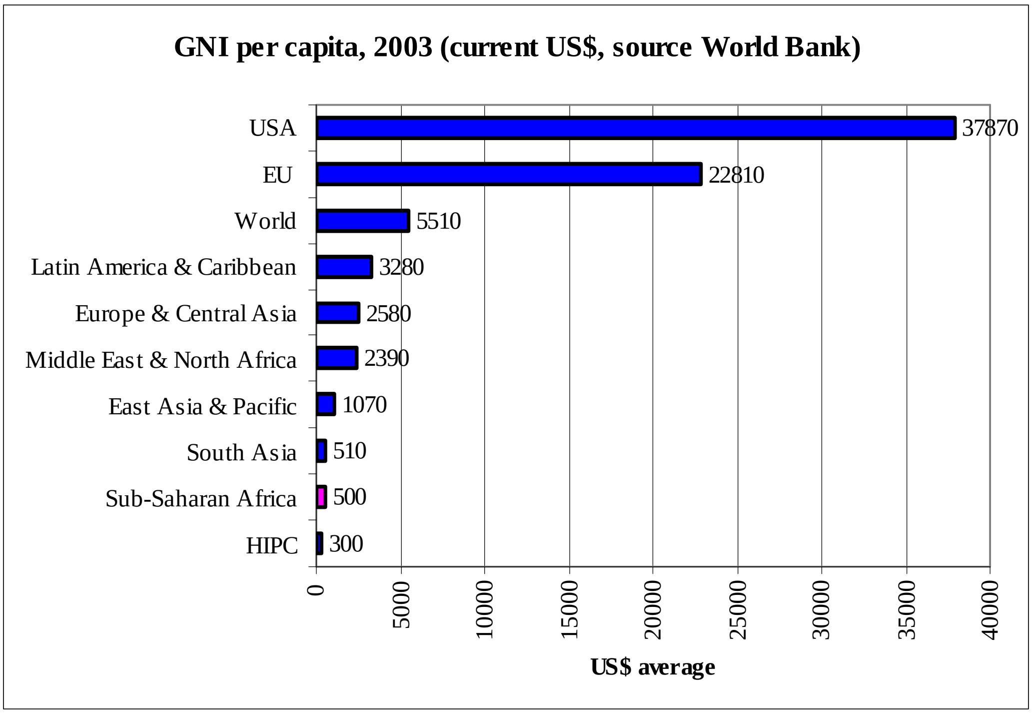
Africa is acutely aware of its poverty, and the consequences of poverty for its people. Equally, it is aware of the benefits associated with the successful exploitation of mineral resources. These two realisations are implicit in the following quotations from a speech delivered by President Mbeki, at the United Nations Economic Commission for Africa Conference, in Durban in 1997.

> *"For Africa to catch up with the rest of the world it is not enough to look for its renewal simply within the generalised context of the New World order. Africa needs its specialised dose of remedies if we hope to catapult it into the forefront of human progress. --- If Africa's mineral resources and energy have been so central in the ordering of human affairs in such a large part of the world for so long, in what way should Africa's people develop and utilise these very resources, now under their exclusive political control. --- In what way should these resources help put the continent on the road to renewal, prosperity and peace?"*

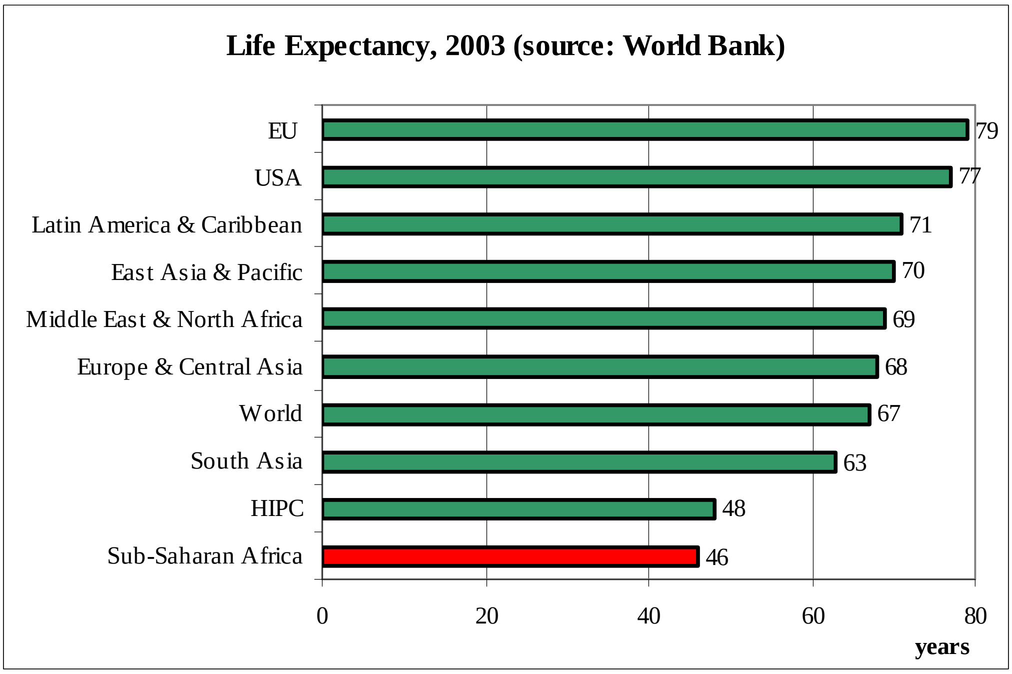
Words such as these are indicative of the deep seated desire in Africa to break the terrible cycle which entrenches poverty, and to replace it with an upward development spiral based on the utilisation of mineral and energy resources. Nobody should doubt the importance or urgency of the need to bring about this change. In this context, the realities of Africa represent a very strong motivation to identify the "special dose of remedies" that is required for successful mining in Africa – so that the mining sector can kick-start the industrialisation process.

SUB-SAHARAN AFRICA HAS MANY DEVELOPMENT CHALLENGES

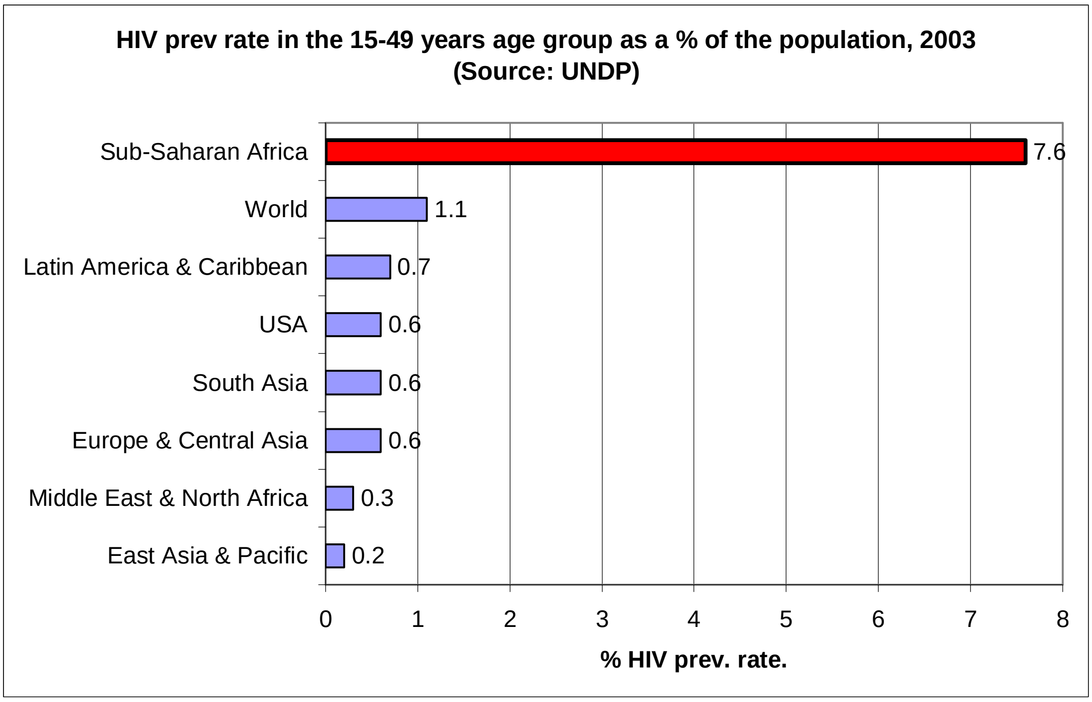
Sub-Saharan Africa has the lowest Gross National Income per capita in the world, indicating the extreme underdevelopment and endemic poverty of the region.



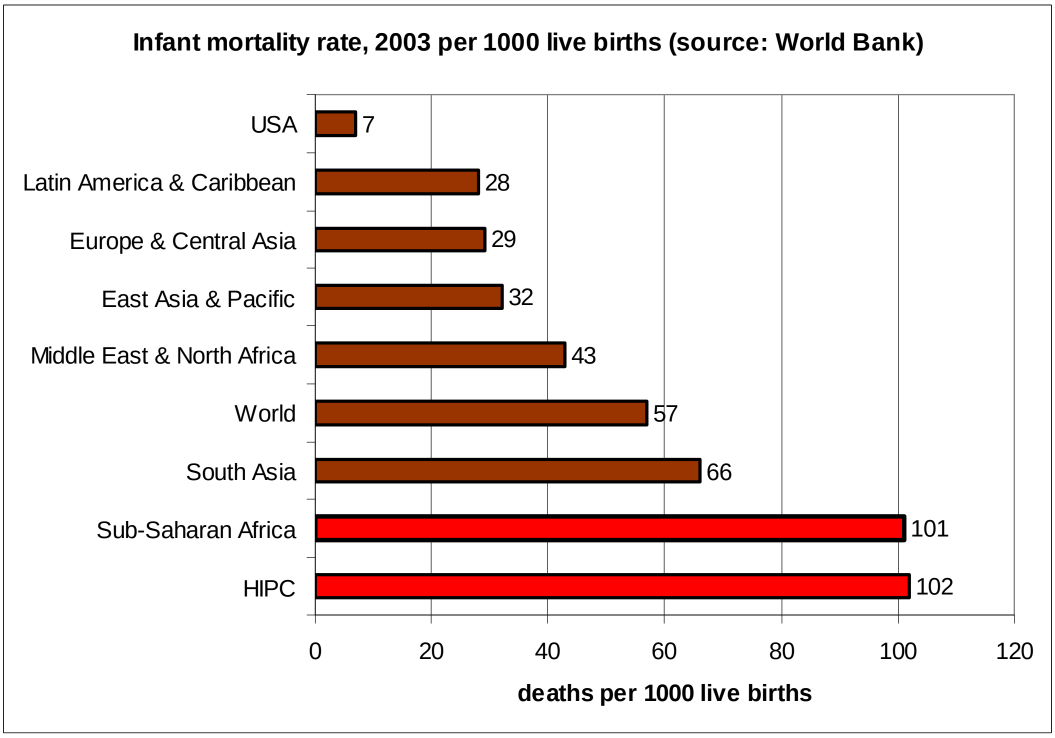
Life expectancy at birth in Sub-Saharan Africa, at 46 years, is 21 years lower than the world average and is expected to decline further as a consequence of HIV/AIDS.



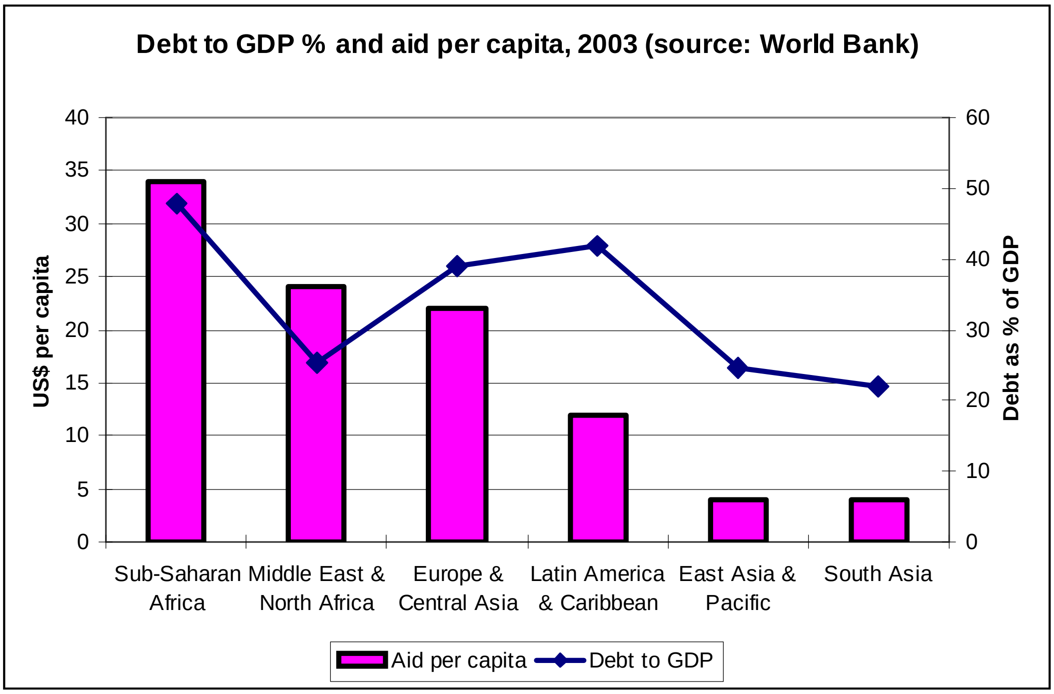
Of all people living with HIV/AIDS world-wide, Sub-Saharan Africa bears by far the largest proportion of people who have the disease.



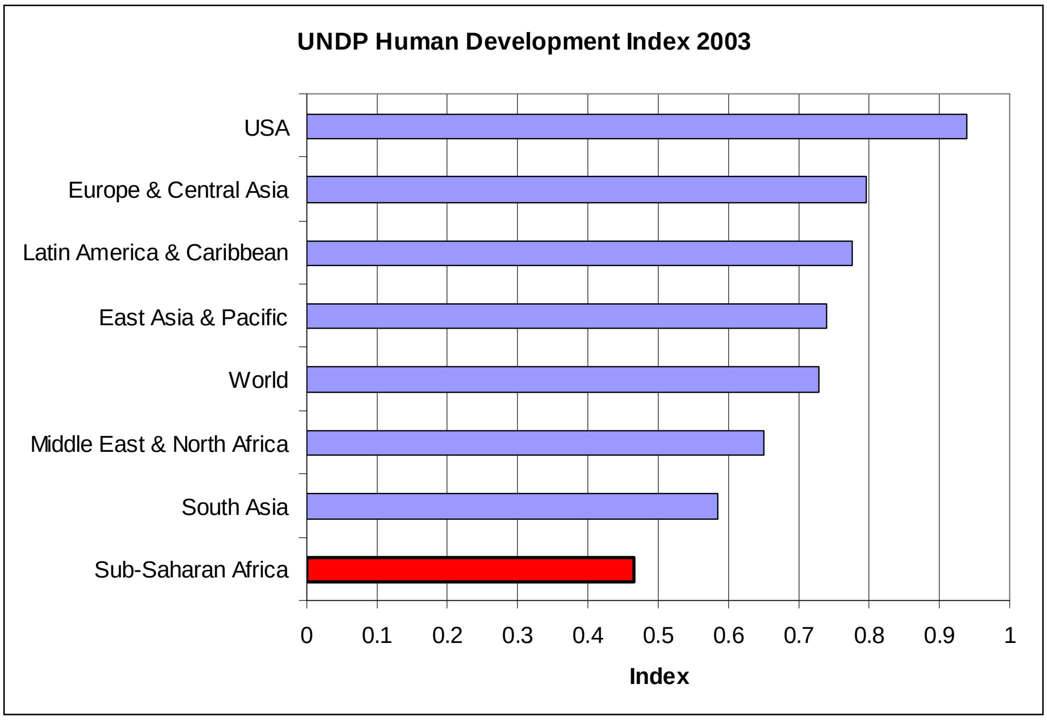
Sub-Saharan Africa still bears the burden of inadequate health care systems with just over 10 percent of infants dying at birth.



Sub-Saharan Africa remains dependent on overseas development assistance financing and has the highest net per capita Overseas Development Assistance flow of any region. In keeping with this, and in comparison with other regions, Sub-Saharan African countries also have the highest external debt levels as a percentage of GDP.



The impact of poor education and healthcare systems combined with the impact of HIV and AIDs has resulted in Sub-Saharan Africa being the only region in the world where the UNDP human development index has actually fallen.



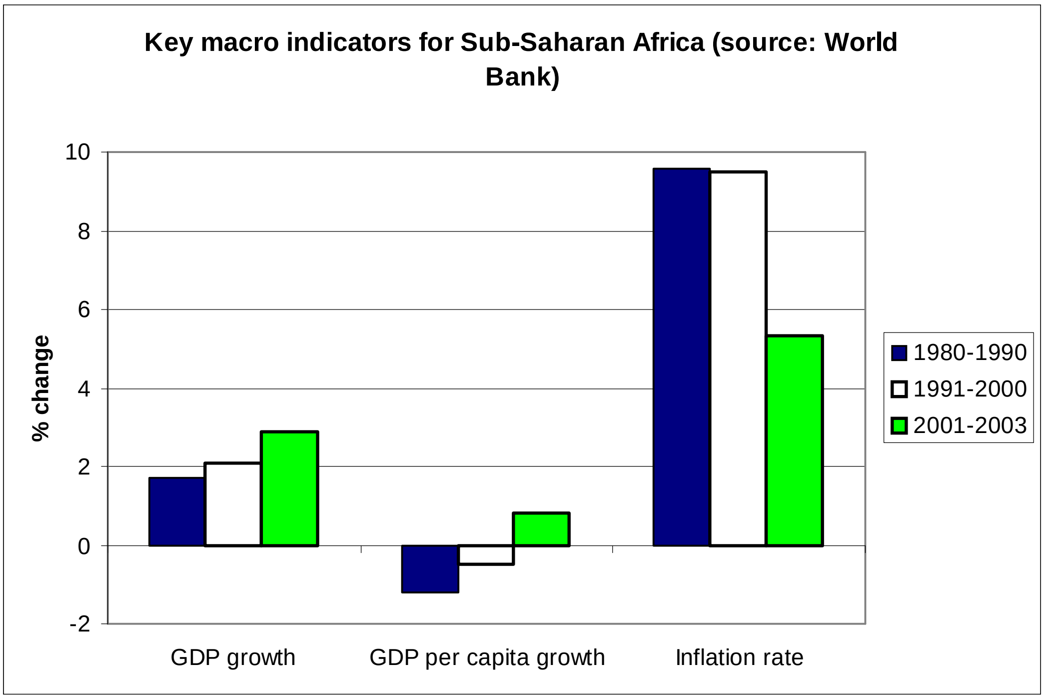
These six indicators, together with their supporting graphic detail, help provide greater meaning to the known fact that Sub-Saharan Africa is the least developed and most poverty stricken region of the world. Even then, the details provided do not adequately convey the hardship and misery experienced by the countries and people which they represent.

BUT SUB-SAHARAN AFRICA IS CHANGING FOR THE BETTER

But Africa is changing for the better. The ending of Apartheid in South Africa and the collapse of communism in the East in the late 1980's and early 1990's and the increasingly globalised world has provided a fresh wind of change which has blown through the African continent. African leaders have increasingly engaged on how to get Africans to help sort out Africa's problems. Improved governance and laws, efforts to reduce conflict, better economic policies and the like increasingly became the norm.

The African Union was established in July 2002 and has at its mandate the objective of reducing conflict, promoting democracy and growing the economy of the continent. The New Partnership for Africa's development (NEPAD) was established in 2001. In terms of NEPAD African leaders made a pledge, based on a common vision and a firm and shared conviction that they have a pressing duty to eradicate poverty and to place their countries, both individually and collectively on a path of sustainable growth and development, and at the same time participate actively in the world economy body politic. The primary goal of NEPAD is to reduce poverty in Africa by 50% by the year 2015 and to transform African Societies in order to place them both individually and collectively on a path of sustainable growth and development.

So what have been the results of the last 15-years of change in Sub-Saharan Africa? The number of countries in Sub-Saharan Africa involved in armed conflict declined from some 25 in 1990 to less than 5 in 2004. For the first time in two decades Sub-Saharan Africa's GDP per capita grew in the early 2000's. Inflation has fallen, foreign direct investment has doubled and the region is now experiencing a GDP growth rate of about 5.1%[1].



Yes problem areas remain, but the corner has been turned. Africans are increasingly working together to build their collective futures. The mining sector has been a critically important

[1] Source: IMF World Economic Outlook, April 2005.

sector in the turnaround in Africa's fortunes. Mali, Ghana, Tanzania and Namibia are examples of the foundation role that mining can play in driving this African Renaissance.

The world is also increasingly recognising the potential of Africa and the current shackles (such as high unserviceable debt levels) inhibiting the continent's ability to realise this potential. Through traditional debt relief measures and the enhanced Heavily Indebted Poorest Country (HIPC) Initiative, both multilateral and bilateral creditors are helping to reduce the debt burdens of eligible HIPC's. Of the 27 HIPC's that have either reached their decision point or completion point 22 are from Sub-Saharan Africa.

The Report of the Commission for Africa[2] provides further impetus to the calls for better assistance, debt relief and aid flows to help Africa to achieve the NEPAD and African union objectives. According to this report[3] "***Poverty on such a scale demands a forceful response. And Africa – at country, regional and continental levels - is creating much stronger foundations for tackling its problems. Recent years have seen improvements in economic growth and in governance. But Africa needs more of both of it if it is to make serious inroads into poverty. To do that requires a partnership between Africa and the developed world which takes full account of Africa's diversity and particular circumstances***."

Such a partnership should also allow for Sub-Saharan Africa to develop and industrialise. One of the key starting points is mining.

MINING AND SUB-SAHARAN AFRICA?

The mining and minerals sector is already playing a crucial foundation role in improved economic performance of Sub-Saharan Africa.

The mining industry has played a significant role in the industrial development of many of the world's most advanced countries including the USA, Canada, Australia, United Kingdom, France, Germany, Sweden, etc., to mention but a few. Whilst the importance of mining in those countries might have diminished over time, the industry provided the critical foundation that allowed those countries to industrialise.

While there are examples of mineral resource rich countries with stagnant growth and some with conflict (such as the DRC and Liberia), there are many examples of African countries (Botswana, Mozambique, Namibia, South Africa, Tanzania, etc.) that, when combined with good governance, have generated above average economic growth rates – but more importantly have kick-started their industrialisation processes through mining.

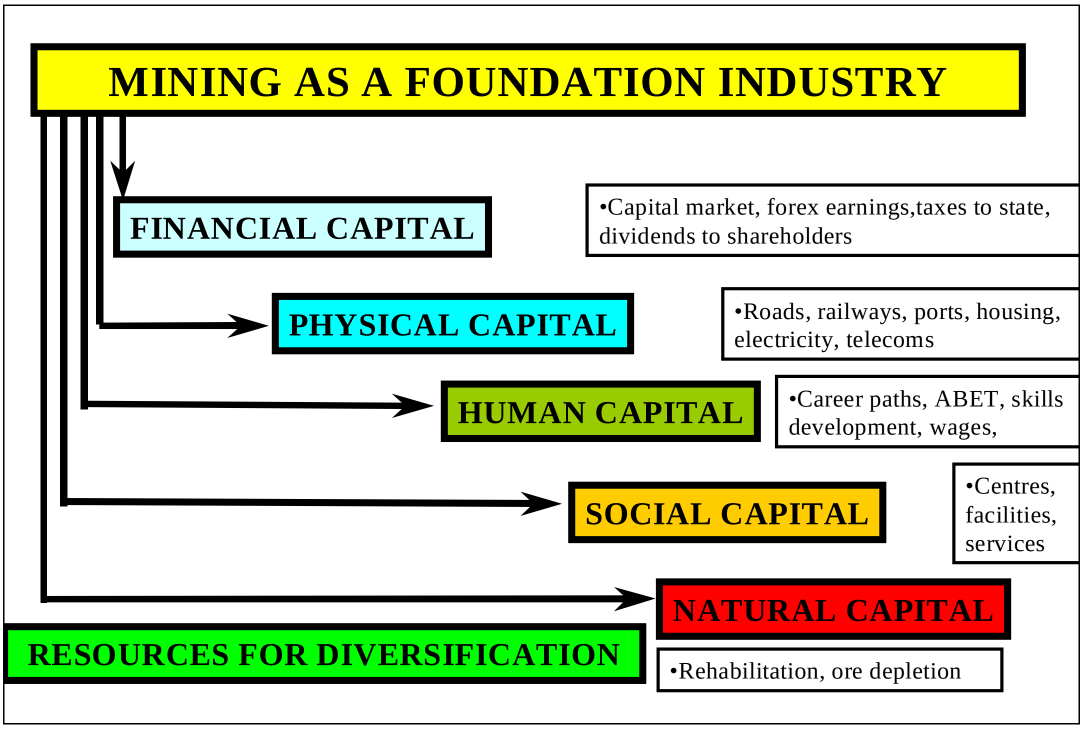
While there are examples of mineral rich countries not realising the full benefit of their minerals, much of their performance is attributable to poor governance, inappropriate economic policies and weak institutional capacity. For mining to be allowed to play this foundation role it must be provided with an economic, investment, governance and operational environment which is internationally competitive and stable over the long-term. From the adoption of appropriate macro and micro-economic policy right through to skills development, there is much that can be done to ensure the appropriate environment for mining.

[2] "Our Common Interest", Report of the Commission for Africa, March 2005.
[3] Ibid. page 11.

The crucial point here is that the mining sector, given the right governance conditions, can play a substantial and meaningful role as a **foundation industry** which provides the **critical mass** for the development of:

- Critical infrastructure (electricity, roads, railways, water, telecommunications, etc.);
- The manufacturing and supplier industries to mining (for mining inputs such as clothing, boots, trusses, steel, etc.)
- The financial services sector (banks, stock exchanges) to handle not only mine expenditures and fund raising but also for mineworker salaries and wages;
- Large scale consumption industries (the wholesale and retail trade);
- Education and skills development facilities due to the large skills requirements of the sector (electrical, mechanical, civil, mining engineering, geologists, managers, finance, personnel, administration, minerals processing, etc.); and so on.

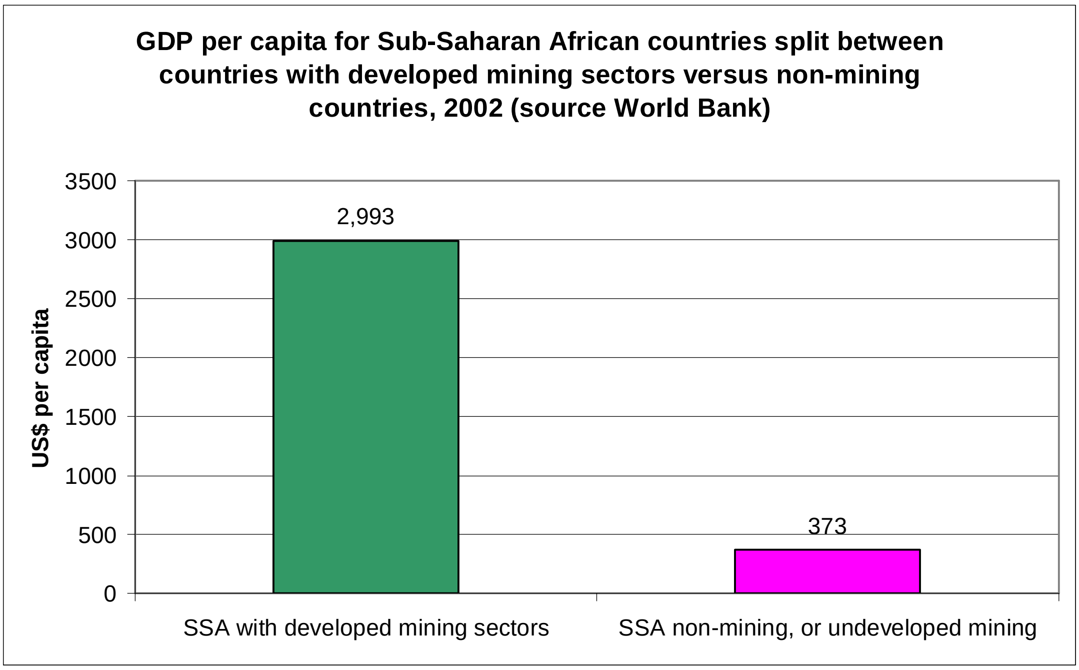
As the mining industry develops so do does the foreign currency earnings base of the economy, which provides the resources to import the necessary capital equipment that can form the base of the manufacturing sector. The tax base is considerably broadened (mining tax, indirect taxes and taxes on employees) which provide the resources for investment in education, infrastructure and so on.



Source: Chamber of Mines

This foundation role of the mining sector tends to galvanise the industrialisation process and over time provides the basis for the development of human capital, key infrastructure and so on. Once the mining sector has started playing this role the opportunities for diversification increase substantially. This process is known as a resource based industrialisation strategy. Many successful developed economies have allowed the mining industry to catalyse the industrialisation process and these include Europe (where coal fuelled the industrial revolution and where modern mining is still an important industry in Sweden, Poland, and so on), the United States, Australia and Canada.

The most developed and industrialised country in Africa, South Africa based its industrialisation on mining. Recent good examples of the potential role that mining and minerals can play is the successes of Namibia, Botswana and Mozambique, which have all grown at a faster pace than the rest of Sub-Saharan Africa on the back of progress made in mining. All these economies over the past decade have reformed their mining and investment laws and have reaped the benefits of greater investment – and the multiplier effects of the minerals sector. When comparing the average GDP per capita for the Sub-Saharan countries that have developed mining sectors (Botswana, Equatorial Guinea, Gabon, Ghana, Guinea, Namibia and South Africa) versus non-mining Sub-Saharan African countries, the difference between the two is some 702 percent as shown below:



The multiplier effects of mining include:

- Backward linkages, which arise from the purchase of goods and services by the mining industry which stimulates industrial production and the provision of services.
- Forward linkages, arising from the use of mineral products in other domestic industries, such as electricity generation, steel fabrication and so on.
- Social multipliers which arise from the role of mining in the development of human resources and social infrastructure such as schools, colleges, clinics, roads, and housing.
- The "induced effect" multiplier that arises from household expenditures of primary incomes derived from mining.
- The income terms-of-trade multiplier which arises from the positive impact that mineral export earnings have on the balance of payments, foreign reserves, monetary policy and ultimately upon the general level of business activity in the country. In particular, the large foreign currency earning capability of mining provides the resources for importing necessary capital and intermediate products, which allow the development of local manufacturing.
- The capital formation multiplier which arises from mining's influence in attracting foreign capital to the country (via the stock market or via direct investment). Attracting

long-term capital builds up foreign currency reserves, promotes greater exchange rate stability and in the longer term improves the credit ratings of the country concerned.

- The taxation multipliers. The mining industry also contributes substantially to the national treasury, to provincial and local governments-both directly and indirectly. These different spheres of government then have the resources to further develop infrastructure, investing in human capital development, and so on (but these resources must be used wisely – and not for creating a bloated bureaucracy).
- Subsistence multipliers whereby between 7-10 people rely on each mineworker for their daily survival. It is estimated that about five million people are directly dependent on mining for their daily subsistence.

WHY IS MINING SO IMPORTANT FOR SUB-SAHARAN AFRICA?

While it is accepted that, in the absence of good governance, natural resources can be more of a curse than a blessing, the opposite is true for developing countries that have laid the foundation of good governance and then allowed the minerals sector to play the foundation industrialisation role that it can.

For Sub-Saharan Africa the reason why mining is such an important sector is that there are very few other industries that have the critical mass to galvanise the development process. Consider the following issues:

- In the absence of a large-scale foundation industry, the lack of disposable incomes, and hence the lack of a substantial market, results in little incentive for the development of the manufacturing sector, the trade sector and the financial services sector. The service-based industries suffer a similar plight.
- The tourism sectors are generally too small to provide the foundation for industrialisation.
- The agricultural industry of Sub-Saharan Africa is dominated by small-scale subsistence farmers that operate in an environment without adequately defined property rights. The consequences of this include the inability to raise capital due to a lack of collateral and the inability to develop sufficient scale operations, which are commercially viable. African farmers also have to compete with the subsidised agricultural production of Europe and the USA.
- Similarly, other industries such as timber and fishing simply do not have the scale to galvanise industrial development.

That leaves the mining sector, which for most Sub-Saharan countries can, and currently is, playing this foundation role. Given the right circumstances, the mining and minerals cluster can play a prominent role in the economic development and industrialisation of Sub-Saharan Africa.

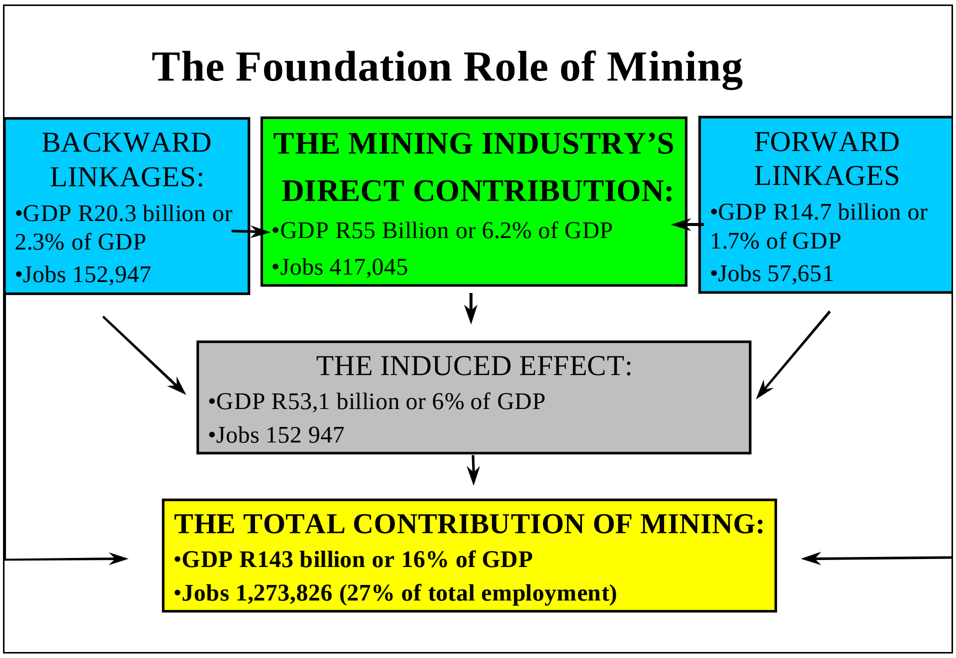
MINING CAN MAKE A MATERIAL DIFFERENCE TO SUB-SAHARAN AFRICA'S DEVELOPMENT

The mining sector, unlike many other sectors, has the size that can generate the critical mass necessary for the development of power stations, stock markets, transport infrastructure, etc. Virtually no other sector has the critical mass that can do this! Once power stations are started additional power can be wheeled to other industries which then have the potential to start (such as manufacturing). The size of mining operations also acts as a catalyst for the development of local industries for the provision of other goods and services to the mining industry. Over time the industries that use mineral products for beneficiation activities can start. In South Africa's case much of the manufacturing and services base was originally mining focused.

THE SOUTH AFRICAN MINING INDUSTRY: A FOUNDATION INDUSTRY EXAMPLE

Consider the South African mining sector, which has developed over the past 120-years and which played the key foundation role for the industrialisation and development of Africa's largest economy. The South African economy looks the way it does because of mining. Mining created the heavy engineering sector, generated the income that built South Africa's consumer industries, and financed the manufacturing sector. The needs of mining drove the development of South Africa's sophisticated capital markets and business law, and kindled an ability to handle large and technologically complex projects. Johannesburg, one of the largest centres of production in the Southern Hemisphere, would not have existed without mining.

In a study completed for the United Nations Economic Commission for Africa[4] the authors found that the mining sectors value added to the South African economy in 2000 at 16.1% of GDP was considerably higher than the simplistic direct contribution of only 6.2% to GDP (see Table 1 for detail). The 16.1% overall contribution was arrived at by adding the mining sectors indirect contributions in terms of backward and forward linkages and the induced effect of the large consumption multiplier held in the hands of employees. Consequently, the mining sector sustains one sixth of the South African economy. The following diagram illustrates the multiplier effects:



Source: UN Economic Commission for Africa

These calculations on the impact of mining on the South African economy did not include the income terms of trade multiplier, which is the impact of mineral exports on the ability of

[4] Pilot Studies of South Africa and Mozambique, Minerals Cluster Policy Pilot Study in Africa, D. Dales, M. Walker, P. Black, A. Botha and H. Mtegha, 11 May 2004, page 23.

the country to finance the necessary imports required to sustain or develop other industries. Considering that primary mineral exports plus semi-fabricated mineral exports (ferro-alloys, chemicals from coal, etc.) account for over 50% of South Africa's exports, the impact of mining and minerals processing is significant.

TABLE 1: TOTAL MINERAL INDUSTRY CONTRIBUTION (2003)				
	Value added to GDP		**Employment**	
Value Added Area	**Rand (Million)**	**%of GDP**	**No of Jobs**	**% of Jobs**
Direct	54,951	6,2	417,045	8,8
Indirect : backward linkages	20,315	2,3	152,947	3,2
Indirect : forward linkages	14,654	1,65	57,651	1,2
Induced	53,053	5,97	646,183	13,65
TOTAL	**142,973**	**16,1**	**1,273,826**	**26,9**
Source data : Chamber of Mines 1999, 2001, 2003b & Statistics South Africa, 2001a, 2001b, 2001c				

Similarly, the impact of the mining industry on employment was calculated to be some 1.3 million jobs[5] through the direct and indirect multiplier effects of the mining sector versus the sectors direct employment of 417 045 employees. The overall employment effect of mining represented some 26.9% of total non-agricultural employment in South Africa in 2000.

So the indirect and induced contribution of mining are significant for the South African economy. To demonstrate this issue further consider the following table which highlights the value added of the mining sector through its backward linkages to the economy. By far the largest backward linkage is to the transport sector, which reflects the reliance of mining on the transport system to get the products to market and to transport inputs to mines. This generates 1.4% of GDP alone. The other important backward linkages are shown in the table.

TABLE 2: VALUE ADDED OF BACKWARD LINKAGES OF MINING				
Products & Services Purchased	**Value added**		**Employment**	
Value Added Area	**Rand (Million)**	**%**	**No of Jobs**	**%**
Transport services	9,415	46,3	54,374	35,6
Professional services and training	2,407	11,8	29,718	19,4
Electricity	2,272	11,2	5,175	3,4
Retails and wholesale trade	1,449	7,1	15,691	10,3
Other business services	708	3,5	4,723	3,1
Other goods ; hardware, plastic, rubber & steel products	693	3,4	4,474	4,9
Raw materials : water, coal, cement, basic chemicals, etc	544	2,7	2,376	1,6
Chemical products : mainly explosives	505	2,5	5,950	3,9
Financial intermediation services	349	1,7	4,301	2,8
Mining machinery	349	1,7	3,795	2,5
Other services : insurance, communications, etc.	342	1,7	1,763	1,2
Wood products : mainly mining support	325	1,6	7,174	4,7
Other fabricated metal products	280	1,4	2,645	1,7
Civil engineering : construction & site preparation	276	1,4	4,016	2,6
Machinery : pumps, gears, engines, electric motors	206	1,0	2,142	1,4
Motor vehicle, parts and tires	195	1.0	1,630	1,1
Total Products and Services Purchased	20.315	100,0	152,946	100,0
Source data : Statistics South Africa, 2001a, 2001b, 2001c				

[5] Ibid. p. 23.

The reason for providing this level of detail is to ensure that the relevant authorities and interested parties fully understand the role that mining is playing, and can play, in the economic industrialisation and development of Africa going forward.

BUT MINING'S ROLE DOES NOT END THERE

Using its mining activities as a base, South Africa has nurtured strongly competitive sectors providing sophisticated inputs and services to the global mining industry. In particular, South African firms related to mining have become globally prominent in three areas:

- **Technology providers** to the global mining industry
- Providers of **knowledge-based mining services**
- **Specialist mining contractors**.

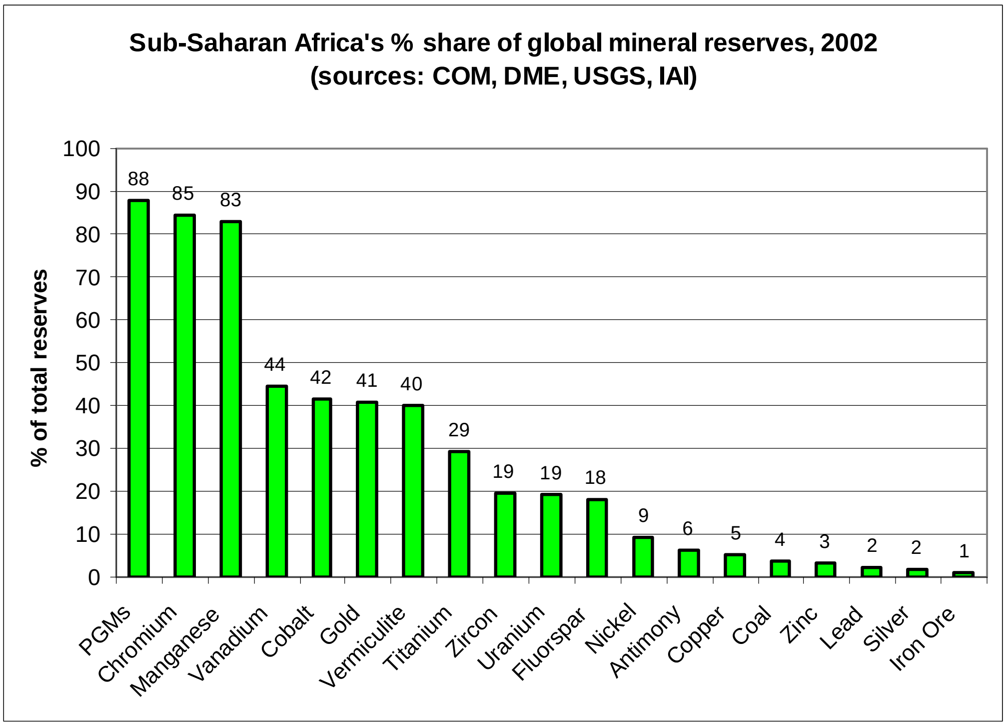
South African firms are world leaders in mining explosives, drilling equipment and abrasives, metallurgical processes and plants, and delivering intellectually based services to mines around the globe. It also has a strong regional franchise in specialist contract mining. To appreciate the opportunities in these fields, consider that, at value added of around $1 trillion, the global mining industry is ten times the size of South Africa's economy. That implies that the global mining supplies and services business is several times larger than South Africa's entire mining sector. Among other things, these activities are the basis for a South African presence in a key 21st century growth industry: environment management services and systems.

Apart from scope, two factors make these industries attractive to South Africa. Firstly, the knowledge and skills of these industries have made local mining more viable, extending the lives of mining operations and rendering large projects feasible. The more dynamic the industry, the better it can support mining operations domestically and in the region. The second attractive aspect of these industries is their source of competitive advantage: their success arises from an on-going process of improvement, adaptation and innovation that is very difficult to replicate. This allows firms to move up the value chain, increasing their value-added.

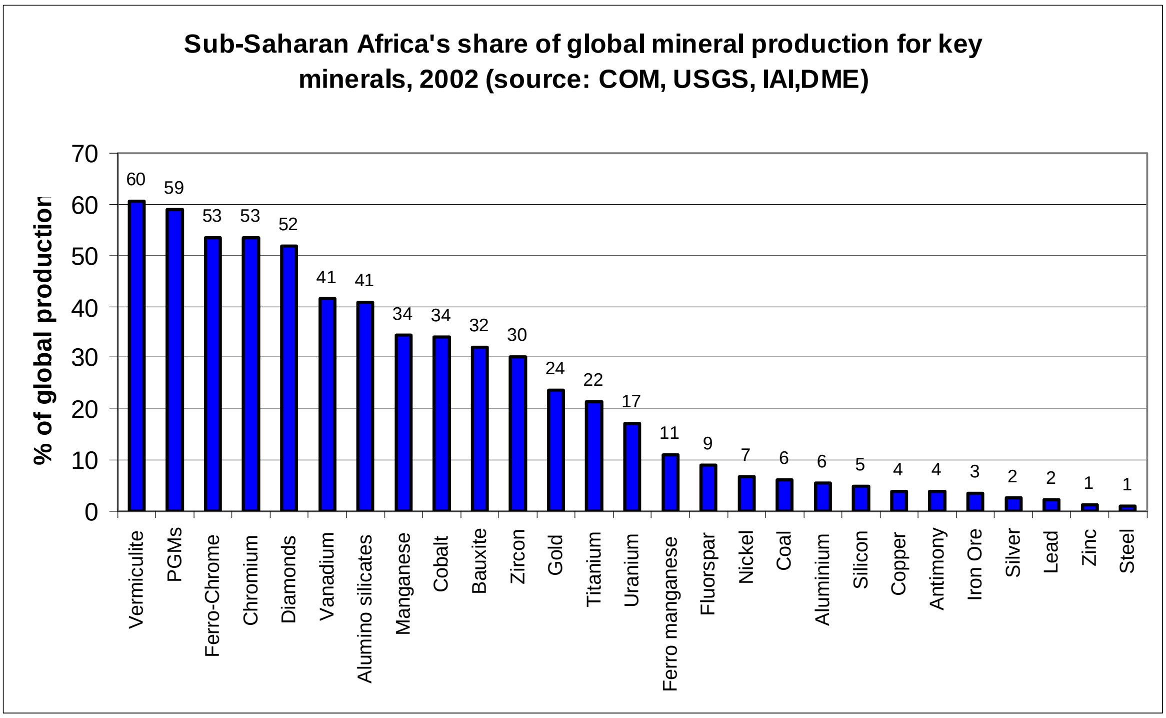
THE ROLE OF SUB-SAHARAN AFRICA IN GLOBAL MINERAL RESERVES AND PRODUCTION

Sub-Saharan Africa could be classified as a veritable "Minerals Treasure Throve" and based on current information has the world's largest reserves of platinum group metals, gold, chrome, manganese, vermiculite, titanium and large reserves of many other minerals. However, a large portion of Sub-Saharan Africa's mineral potential is unknown as a result of the tumultuous period of history prior to the 1990's. This is rapidly changing as these countries have reformed their mining and investment laws to attract exploration and mining companies. Investment in exploration[6] in Sub-Saharan Africa increased by a large 52% to US$571 million in 2004 as exploration companies raced hard to uncover new potential in the region. The following chart shows the known mineral reserve base of Sub-Saharan Africa:

[6] Source: Metals Economics Group, Canada.



Similarly, as the sub-continent has opened up to exploration and investment so too has production increased. Sub-Saharan Africa is the world's largest producer of some 10 minerals including vermiculite, gold, platinum group metals, chrome, ferro-chrome, diamonds, vanadium, alumino-silicates, etc.



The contribution of the mining sector is already substantial. In 2002[7] mineral sales accounted for some 27% (US$24 billion) of Sub-Saharan Africa's merchandise exports (US$89 billion in total). The mining sector is already contributing substantially to the economies of South Africa, Botswana, Gabon, Guinea, Ghana, Mali, Namibia, Tanzania, Zambia and Zimbabwe. The multiplier effects have been demonstrated in the South African example listed above.

WHAT IS REACH?

The EU is considering new policy proposals called the Registration, Evaluation and Authorisation of Chemicals (REACH). The policy is aimed at protecting human health and the environment from chemicals whilst also strengthening the competitiveness of the EU chemicals industry. The policy is viewed as one of the most far-reaching regulatory programmes that the EU has ever launched. The proposed new regulatory regime will provide a harmonised approach to chemicals regulation throughout all EU member states. The policy applies to chemicals produced and exported to the EU. The proposed regulatory regime shifts the burden of providing information on risk assessments for chemicals from the regulators to the producers and users of chemicals. The proposal extends the scope of application of REACH to include minerals in the form of ores or concentrates. Considering that most ores contain trace quantities of substances that the EU would classify as hazardous and because most ores are imported into the EU in large quantities, these ores and concentrates would be subject to REACH.

The REACH proposal can be summarised into 4 steps, which all eligible materials imported into the EU must satisfy.

Registration: The REACH proposals require that all substances imported, or produced in the EU, which are not specifically excluded from REACH and which are in quantities greater that 1 tonne per annum, must be registered with the EU Chemicals Agency. The application for registration would require the producer or importer to provide a technical dossier[8]. Should the quantity of the production or importation exceed 10 tonnes per annum then a chemical safety report[9] would also be required. This would result in the producer or importer incurring a direct cost for the preparation of the documents and a direct cost in terms of paying a registration fee to the Chemicals Agency. To try and reduce costs the EC has suggested the use of consortia to prevent duplication of testing.

For substances that are produced or imported into the EU in amounts greater than 1000 tonnes per annum and which have properties considered to be carcinogenic, mutagenic or negative for human reproduction the REACH process will be phased in over an accelerated 3-year process. The following table highlights the registration deadline:

[7] Source: IMF International Financial Statistics and Chamber of Mines estimates.
[8] A Technical dossier would include data on the properties and uses of the substance as well as guidance on the safe use of the product.
[9] A Chemical Safety Report would provide details of the hazard classification of a substance and a determination on whether the substance is persistent, bioaccumulative or toxic. Exposure scenarios would need to be developed for all identified uses, and would be annexed to the safety data sheets that will be supplied to downstream users.

Table 3: REACH Registration Deadlines

			1 - 10t
>1000t + CMR		100 – 1000t	10 - 100t
Yr O	Yr 0 + 3	Yr 0 + 6	Yr 0 + 11

Evaluation: This is a process whereby the dossiers are distributed to various EU member state authorities who will then examine the registration dossiers to evaluate its proposals (such as checking on proposed testing) and secondly in terms of evaluating the substance. These authorities can then make a draft decision on the substance and submit this to the EU Chemicals Agency. The draft decision could include a proposal for approval of the substance or authorisation or restriction.

Authorisation: For substances of very high concern, an authorisation is required for their use and their placing on the market. Such substances include the following:

- Carcinogenic, mutagenic or toxic for reproduction (CMRs);
- Persistent, bioaccumulative and toxic, or very persistent and very bioaccumulative (PBts/vPvBs); and,
- Identified as causing serious and irreversible effects to humans or the environment equivalent to those above on a case-by-case basis.

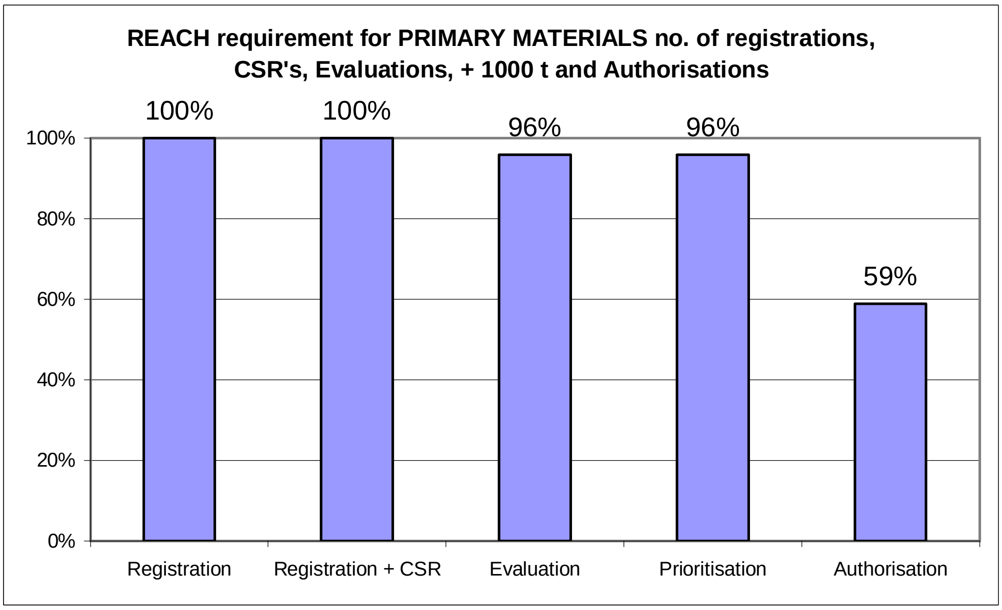
The authorisation procedure consists of two steps: in a first step the EU Chemicals Agency will need to determine which substances will be included in the system, which uses of the included substances will be exempted from the authorisation requirement and which deadlines will need to be met. Once a substance is included on the system, the second step is that all existing users of such substances will have to get an authorisation within the determined deadline. The user will have to demonstrate that the risk from the use of the substance is adequately controlled or that the socio-economic benefits outweigh the risks. Even the downstream users will have to notify the agency that they are using an authorised substance. The authorisation process is likely to be a lengthy and costly exercise for applicants. Furthermore, authorisation requirements would encourage substitution of authorised materials by other alternatives.

Restriction: REACH also provides for the restriction of certain dangerous substances as recommended by the Commission. This enables community wide restrictions on the use of substances such as asbestos where the Commission has demonstrated that the risks in the use of the substance are not adequately controlled.

WILL REACH APPLY TO MINERALS FROM SUB-SAHARAN AFRICA?

In order to try and assess the likely application of REACH to minerals and ores from Sub-Saharan Africa the Chamber of Mines of South Africa conducted a survey of mining companies both within South Africa and in the Southern African region. To ensure confidentiality of the information it was summarised on an industry-wide basis. The study was constrained by limited resources and focussed on materials from the inorganic sector.

Based on information received, the graph below shows the percentage of materials that would be subject to registrations (1-10 tonnes exported to EU annually), registration with Chemical Safety Reports (CSR's) (10-100 tonnes exported to EU annually), Evaluations (100-1000 tonnes exported to EU annually), Prioritisation (>1000 tonnes exported to EU annually) and Authorisations. The need for authorisation is typically due to low concentrations of carcinogenic, mutagenic or repro-toxic impurities in the materials.



Source: Chamber of Mines

The following table compares the above percentages with those from a similar study conducted in the EU by Eurometaux.

Table 4:	**REACH COVERAGE OF PRIMARY MATERIALS**	
	SA	**EU**
Registration	100 %	100 %
Registration + CSR	100 %	99 %
Evaluation	96 %	99 %
Prioritisation	96 %	90 %
Authorisation	>59 %	>70 %

Although the exact costs associated with REACH compliance for primary materials has not been determined, estimates of €500,000 (R4 million) per material have been mentioned. Such costs would be particularly detrimental for smaller companies, which may need to conduct such studies for primary materials with charateristics that are unique to a specific orebody.

This means that:

- Primary materials exported to the EU fall under REACH and at least 50% require authorisation, which also implies the consideration of substitution.
- Most primary materials exported to the EU from Sub-Saharan Africa need registration and a Chemicals Safety Report (CSR) within three years.

IMPORTS OF MINERALS INTO THE EUROPEAN UNION

The EU is a major importer and user of minerals from all over the world. While the EU does have local production of copper, zinc, iron ore, cobalt, etc, it is a major importer of gold, diamonds, platinum group metals, uranium, coal, bauxite, antimony, copper, cobalt, lead, nickel, titanium, zinc, chrome, iron ore, manganese, silicon, vanadium and a range of industrial minerals.

Given the historical colonial relationships, Sub-Saharan Africa is a major exporter of minerals to the European market. In 2004[10], excluding energy imports, the EU imported some US$104 billion worth of precious metals, base metals and diamonds from the rest of the world. Of this some US$12,5 billion came from ACP countries of which Sub-Saharan Africa forms the vast majority (95% of the total). So about 11% of precious metals, diamonds and base metal imports into Europe come from Sub-Saharan Africa. This does not include industrial minerals and other mineral exports to the EU – so it is an understated quantum of Sub-Saharan African mineral exports to Europe.

Considering that total Sub-Saharan African mineral exports are some US$23 billion, the Chamber of Mines therefore estimates that over half of Sub-Saharan Africa's mineral exports are to the EU.

The simple fact of the matter is that the EU matters for Sub-Saharan African mineral exporters.

POTENTIAL IMPACT OF REACH ON SUB-SAHARAN AFRICA

Given that the EU accounts for a substantial share of mineral imports into the EU, the potential consequences of the application of the REACH policy in its current form are significant. The potential impact takes a number of different forms in terms of both direct and indirect costs. Perhaps the largest cost is the opportunity cost of foregone mineral production in Sub-Saharan Africa, which would have played a substantial role in the upliftment of the region.

THE DIRECT COSTS OF REACH

[10] According to Eurostat, Comtext, Statistical Regime 4, 6 April 2005.

The **direct costs** of complying with REACH will have a material impact on mining companies in Sub-Saharan Africa. These costs include the administrative costs of complying with REACH, testing and monitoring. Given the recent re-emergence of the mining sector in Sub-Saharan Africa, the burden is potentially large – especially for the smaller mining companies. Many of the affected mining companies are new emergent black empowerment companies as Africa attempts to create wealth and ownership by Africans for Africans (this process is led by the empowerment Charter in South Africa). For many smaller mining companies to capacity does not exist to generate the information required for REACH. For each mineral commodity, the expected direct cost is of the order of €500,000 to as much as €4 million for data rich substances based on the work done by Eurometaux[11]. The problem for Sub-Saharan African mining companies is that many export more than 1000 tonnes to the EU and so would have to comply within 3-years.

Given that mining companies are essentially price takers – any increase in costs would have to be absorbed by the mining companies. Formation of consortia is also complicated by the variability in the composition of ores and concentrates. The impact of the direct cost is an addition to mining production costs, which raises investment hurdle rates, and thus sterilises ore in the ground (which becomes uneconomic to mine), reduces investment and therefore undermines this critically important sector for Sub-Saharan Africa. ***This cannot be the intention of the REACH policy.***

THE INDIRECT COSTS OF REACH

The indirect costs are potentially substantial. In particular, the limiting of trade access of key African mineral exports to the EU will materially affect the viability of mining in many countries. Unlike other major mineral producing countries such as Australia or Latin America, Sub-Saharan Africa's dependence on the EU market is substantial. While some African mining companies may be able to shift some mineral production to other regions (such as Asia), if REACH leads to the constraint or restriction of market access to the EU market for Sub-Saharan African mineral producers this will have a substantial negative impact on the producing countries.

Consider the following table, which illustrates the role of Sub-Saharan Africa in world mineral production. This table significantly understates the exact position – because of the lack of data on mining from many African countries.

[11] "The New EU Chemicals Policy, REACH, a challenge or a concern to the metals and mining industry?" Presentation by H. Waterschoot and G.Thiran, Brussels, 15 December 2004.

Table 5: Sub-Saharan Africa's Share in Global Mineral Supply, 2002

	SS-Africa	Global	SS-Africa
	US$ millions	US$ millions	% of total
Diamonds	5081.0	7600.0	66.9
Gold	6010.1	25384.1	23.7
PGMs	3409.2	5772.9	59.1
Silver	67.1	2733.6	2.5
Coal	2944.7	47893.5	6.1
Uranium	135.1	779.8	17.3
Aluminium	1682.0	30242.5	5.6
Bauxite			
Antimony	6.7	174.6	3.8
Cobalt	210.4	620.8	33.9
Copper	837.3	21361.0	3.9
Lead	28.5	1325.9	2.2
Nickel	523.9	7649.2	6.8
Titanium			
Zinc	83.2	6525.9	1.3
Zircon	94.5	314.0	30.1
Chromium	126.7	237.5	53.3
Ferro-Chrome	699.4	1308.1	53.5
Iron Ore	619.0	18176.4	3.4
Steel			
Manganese	406.9	1186.9	34.3
Ferro manganese	345.7	3107.4	11.1
Silicon	41.8	871.5	4.8
Tungsten			
Vanadium	138.6	335.4	41.3
Alumino silicates	26.2	64.2	40.8
Fluorspar	34.7	383.6	9.0
Vermiculite	24.8	41.1	60.5
Industrial minerals	424.1		
TOTALS	24,001.5		

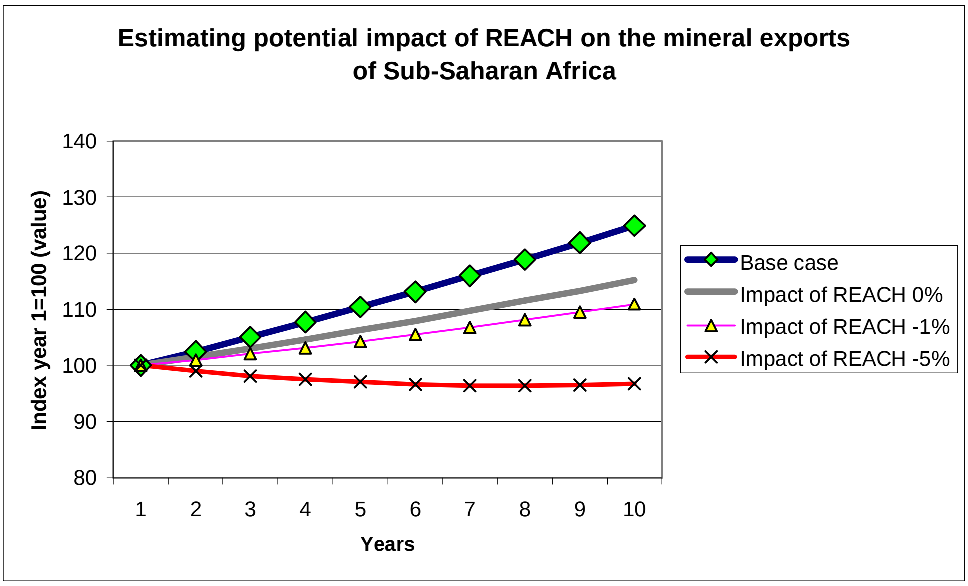
Sources: USGS, COM, DME, IAI

With the exception of South Africa, the rest of Sub-Saharan Africa has little refining or processing capacity – so most of the minerals are exported in bulk raw form. Many of these ores contain trace, natural quantities of substances considered hazardous in the EU, with the result that these ores require authorisation under REACH. The result may well be a promotion of substitution away from these ores and concentrates.. For Sub-Saharan African mining companies this would not be a benefit, as the market to Europe would decline, thus undermining the mining industry and development of the sub-continent.

Attempting to quantify the potential indirect cost is subject to a range of assumptions and can provide an indicative outcome at best. Nevertheless, the following assumptions are made to try and quantify the potential impact. The synchronised global commodity boom driven by growth in industrial demand from the OECD and from newly industrialising countries, such as China, are likely to result in a continued growth in mineral demand and production over the next decade. This growth in physical demand is assumed to be 2.5% per annum[12]. Commodity prices are kept constant. The growth in demand for minerals from the EU is

[12] The Chamber of Mines used the average annual growth rates in supply of gold, PGMs, aluminium, copper, lead, zinc and nickel over the past 5-years as the likely growth rate going forward.

provided for in three scenarios, zero growth, minus 1% growth and minus 5% growth per annum as a result of authorisation and possible substitution effects. In the EU scenarios it is assumed that the non-EU market demand increases at 3% per annum versus the 2.5% assumed in the base line. The following chart helps demonstrate the potential impact under these scenarios:



Of course static models do have their downside, but are used as purely indicative of the possible impact. The real impact will depend on the mineral investigated and the evolving market conditions over the period. Nevertheless on an indicative basis, if the impact of REACH was to result in zero growth in Sub-Saharan mineral exports to the EU, then the Sub-Saharan Africa region could have lost an accumulative US$12 billion in potential exports versus the expected base case, or some US$2.5 billion per annum by year 10. If market derogation and substitution effects were even larger, the consequences would be devastating to Sub-Saharan mineral exporters.

While these indirect costs are simple straight-line estimates, the potential opportunity cost of foregone investment in mining for Sub-Saharan African countries could be very significant. As explained earlier the mining sector can play a substantial role in providing the foundation for economic growth and development in Sub-Saharan Africa if given the right governance conditions. There are very few other sectors that have the critical-mass and scope to play this role.

Constraining the mining sector via REACH is tantamount to constraining Africa's developmental and growth prospects.

HAS THE EU REALLY CONSIDERED THE COSTS OF REACH TO NON-EU DEVELOPING COUNTRIES?

According to the European Commission[13] "*The Regulation proposed by the Commission on 29 October 2003 achieves all the objectives identified in the White Paper and thus represents a model of sustainable development by pursuing objectives of the three pillars: economic (industrial competitiveness), social (health protection and jobs) and environmental*." Unfortunately, little attention has been placed on the potential negative impact of the REACH proposals on the mineral sectors and economies of developing countries, especially those in Sub-Saharan Africa. ***The EU has not conducted any impact assessment of REACH on the EU's major trading partners – especially developing regions such as Sub-Saharan Africa.*** The potential substitution effects will have a drastic negative impact on the existing and potential mining sector of the region. As demonstrated above, it is the mining sector that will be required to drive industrialisation in Sub-Saharan Africa in the future. If REACH seriously undermines mining, it will seriously undermine the African Renaissance, NEPAD and the ability of Africa to meet its own development challenges.

Again "the law of unintended consequences" applies. REACH, with its good public policy intentions – will have serious negative unintended consequences for the mining sector and for the economic development of Sub-Saharan Africa. This cannot be the intention of REACH to undermine the economic growth potential of Sub-Saharan Africa.

[13] Why do we need REACH? REACH in Brief, European Commission Report, 15 September 2004, page 2.