A Study of the Economic and Environmental Impacts of Foreign Direct Investment in the Mining Sector in Zambia

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Abstract: Foreign direct investment (FDI) is important to the future of development of Africa. The free flow of capital across borders tends to be favoured by many African countries including Zambia because it is a means of increasing the capital available for investment and for stimulating the economic growth needed to reduce poverty and raise living standards on the continent. Undoubtedly FDI contributes to achieving sustainable economic development. This paper seeks to examine the impacts that FDI in the mining sector has made to economic and environmental situations in Zambia. The paper will review and analyse the extent to which such impacts have contributed to economic growth in environmental standards and how sustainable development has been realized as a result of the introduction of this initiative and/or opportunity.

Keywords Foreign direct investment, Economic growth, Sustainable economic development, Mining sector, Environmental factors.
1.0 Introduction

Until recently, FDI was not fully embraced by African leaders as an essential feature of economic development. This was due largely to fear of losing political sovereignty, pushing domestic firms into bankruptcy due to increased competition, ensuring regulation for market entry in the natural resource sector as well as the fear of accelerating the pace of environmental degradation (Dupasquier and Osakwe, 2006). According to Moss et al (2004), much of African skepticism toward foreign investment is rooted in history, ideology, and the politics of the post-independence period.

In the 1960s, most African countries imposed trade restrictions and capital controls as part of a policy of import-substitution industrialization aimed at protecting domestic markets and conserving foreign exchange reserves (World Bank, 2006). Available literature showed that this inward looking development strategy discouraged trade and foreign direct investment with harmful effects on economic growth and living conditions in Africa (Rodrik, 1998). The low economic performance of African countries between the late 1970s and mid-1990s, coupled with the globalised world economy led to a shift in favour of outward-looking development strategies. Although moderate improvement has been achieved, changes in economic policies are still needed to enhance macroeconomic performance and attain the minimum growth rate required to meet the United Nations Millennium Development Goals. Attainment of sustained growth and development requires an increase in investment through an increase in FDI flows.

Prevailing attitudes and concerns in the region are due to the fact that African policymakers are unconvinced of the potential benefits of FDI that could be fully realized. Clearly, the sector in which a country receives FDI affects the extent to which it could
realize its potential benefits (Mlambo, 2005). For many observers, the capacity of African countries to attract FDI is principally determined by their natural resources and the size of their local markets. In the case of Zambia, a successful policy of privatization programme was propagated to attract FDI into the mining sector.

The literature on FDI in Africa is just starting to receive great attention (Asiedu, 2002a, 2002b; Rogoff & Reinhart, 2003, Schoeman et al, 2000). However, much of the reported studies tend to focus on the FDI flows and the empirical determinants of FDI in the region, but very little discussion on the impacts of such direct investments. FDI impact has been primarily focused on financial investment flows and stock patterns (Makola, 2003). The present paper attempts to overcome this limitation. It examines foreign investment in Zambia mining sector and attempts to measure the impact of such investment in terms of expected environmental and economic gains to stakeholders and the economy of Zambia.

The remainder of this paper is organised as follows. Section 2 presents a review of the literature on FDI covering the recent trends, determinants and the costs and benefits of FDI. Section 3 discusses the FDI in Zambia, particularly in the mining sectors while section 4 outlines and examines the economic and environmental impacts of FDI in the mining sector. The last section contains some concluding remarks.

2.0 Literature review

2.1 Recent FDI trends in Sub-Saharan Africa

According to De Vita (2005; P. 8) Foreign direct investment (FDI) is “the setting up of a new overseas operation (Greenfield investment) or a firm of international inter-firm cooperation that involves a significant equity stake in or effective management control of
host country enterprises”. Greenfield investment involves the establishment of wholly new operations in a foreign country (Hill, 2005).

The rapid advances in technology have led to tremendous increases in FDI. Global inward FDI flows increased from 23.1% in the period 1986-1990 to 40.2% over the period 1996-2000, whilst FDI outflows rose from 25.7 to 35.7% within the same period (UNCTAD, 2003). The decline in FDI inflows and outflows between 2001 and 2002 were the results of a slow recovery in the global economy, the winding down of privatization and the adverse effects of the auditing and accounting scandals in some advanced countries in relation to the stock markets. There are wide differences across regions. The absolute values of FDI are higher for Asian developing countries, followed by Latin American and Caribbean countries, while African countries received comparatively little FDI. Sub-Saharan Africa received 6% of world FDI in 1980 but its share reduced to 0.5% in 2000 and presently stands at 2.2% (UNCTAD, 2005). Countries that have been able to attract FDI are those with the largest domestic markets. The principal investors in Africa are the USA, France and the UK, Germany and Portugal.

Whilst investment was flowing to different regions of the world and countries in different proportions, the African continent received the lowest share of the global FDI inflows over time. At $36 billion in 2006, FDI inflows into Africa were twice their 2004 levels. This was due to increased interest in natural resources, improved prospects for corporate profits and a more favourable business climate. Greenfield projects and investments in expansion also grew significantly. Despite this increase, Africa’s share in global FDI fell to 2.7% in 2006, compared with 3.1% in 2005, much lower than that of other developing regions (UNCTAD 2007). Globally, the mention of Africa portrays negative images of civil unrest, war, poverty and social problems. For this reason, African countries are faced with the great challenge of attracting FDI (Makola, 2003). The flows of FDI to sub-Saharan
Africa (SSA) have traditionally been in oil and natural resources sector (Allaoua and Atkin, 1993; Morisset, 2000), although there has been a trend in recent years to invest in services and manufacturing (UNCTAD, 1999). FDI to SSA also tends to be concentrated in a few countries, and in the period 1986-1996 four countries, Nigeria, Angola, Egypt and Ghana were the dominant recipients. In fact, 41% of the average inflows in the period 1995 to 1998 went to four oil exporting countries in the region, namely Angola, Congo Republic, Equatorial Guinea and Nigeria (Pigato, 2000). Furthermore, since 2001 the major recipients of flows in the region where South Africa, Morocco, Nigeria, Angola, Algeria, Equatorial Guinea and Sudan (Dupasquier and Osakwe, 2006). In 2006, many African countries adopted measures to attract FDI as well as to improve the impact of FDI on their development. Prospects for FDI inflows into Africa remain positive due to persistently high global commodity prices, though some moderation is expected (UNCTAD, 2007).

The increase in FDI in SSA is explained by a limited number of large transactions in relatively small economies, including investment in natural resources exploitation and infrastructure development and also privatisation transactions. Privatisation has been an important source of FDI in countries like Mozambique, Tanzania and Zambia, but ostensibly slow progress of the sale of the largest parastatal entities tends to suggest that there is considerable opportunity yet for further inflows of foreign investment over time. Zambia in particular has privatised 250 companies (Jenkins and Thomas, 2002). The review of the existing FDI in SSA indicates that, despite improvement in the policy environment, SSA’s share of FDI in developing countries continues to decline. Although SSA has reformed its institutions, improved its infrastructures and liberalized its FDI regulatory framework, the degree of reforms has been mediocre; hence SSA has become less attractive for FDI.
2.2. Why? Determinants of FDI in Africa

Although there have been a considerable number of analytical and empirical studies on FDI inflows, there has been a limited consensus on which factors play an unambiguous role in explaining the location decision of transnational corporations. It is generally accepted that market size and access to natural resources are crucial determinants in their decision processes. Not surprisingly, the African countries that have been able to attract most FDI have been those with the largest tangible assets such as natural and mineral resources as well as large domestic markets, though some countries attract investment input into the manufacturing sector (an example is South African automobile FDI). About 65 per cent of total FDI inflows to Africa, concentrated in South Africa, Nigeria, and Cote D’Ivoire in 1996/1997, which also accounted for about two-third of the sub-continent’s GDP during the same period (Cleeve, 2007). Traditionally, about 60 per cent of FDI in Africa is allocated for oil and natural resources (UNCTAD, 1999). Cleeve (2007) suggests that FDI is actively sought by most SSA countries because of the contribution that FDI can do to their economies. Most of the countries in SSA have improved their investment climate through major policy changes, by liberalising their investment regulations, privatisation of state-owned enterprises and by offering incentives to foreign investors. Some countries in Africa have made partial progress on implementing economic reforms, in monetary, regulatory, trade, fiscal and financial policies (Dow, 2007).

Investors are often motivated to invest in foreign markets for a number of determining factors. The list of these determinants may be very long, but not all factors are equally important to every investor. A certain critical minimum factors must be developed by the host country before FDI inflows begin to operate. To attract capital for economic growth and development of the sectors in the SSA, some of the motivations/incentives found by other authors include: local market size; presence of natural resources; location, stable
macroeconomic and political environment, labour costs, openness, taxes and tariffs, corruption, poor infrastructure and inflation (Morisset, 2001; Asiedu, 2002; Reinhart and Rogoff, 2002). In conclusion, however, the empirical literature on the FDI determinants is split over the relative importance of most of the variables.

2.3. The costs and benefits of FDI

The contribution of FDI to the development of a country are widely recognised as filling the gap between desired investment and domestic mobilised savings, increasing tax revenue and improving management and technology, as well as labour skills in the host country (Blomstrom and Kokko, 2003). The effects of FDI on the host country can be positive or negative. This paper limits itself to the discussion of economic and environmental effects of FDI as they are related to the research objective. The positive effects of FDI on the host country improve access to export markets, creation of tax revenues and improvement of the balance of payment. Feldstern (2000) suggest that FDI is very important because it provides a source of capital and compliments domestic private investment. It contributes to total factor productivity and income growth in the host country over and above what domestic investment would trigger.

Literature has recorded some gains to the host country from FDI. These include the transfer of capital, knowledge and technology to domestic firms; creation of spillovers and linkages in the host country; human capital development; balance of payment as shown in Figure 1 (Feldstern 2000; Traca, 2007). The figure below shows the economic benefits of FDI in the host-country.
The arrival of foreign investors can also have a beneficial impact on the environmental operations of domestic companies. Local firms try to match the product characteristics and quantity standards of foreign-owned operations and supplies working to cater for foreign operations will increase process and product quality to meet high standards. Table 1 below shows the benefits of FDI to domestic firms, workers and Government.

FDI inflow can also have detrimental effects. A multinational company (MNCs) may have a negative effect on competition and possibly force local firms out of the business. Hill (2005) stresses that increased competition makes subsidiaries of foreign MNCs to have greater economic powers than indigenous competitors. By virtue of their power in the economy, they have access to draw funds from international financial institutions to subsidize costs in the host market, which could drive indigenous companies out of business and allow the firm to monopolize the market. MNC activities can also result in en-
environmental degradation. Grossman and Kruger (1993) demonstrated the inverse relationship between a country’s per capita income and its level of environmental quality: Increased incomes are associated with an increase in pollution in poor countries, but a decline in pollution in rich countries.

**Table 1: Benefits of FDI to host country**

<table>
<thead>
<tr>
<th>Domestic Firm</th>
<th>1. Linkage effects: Backward and forward (brings in investment and growth upstream and downstream)</th>
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<tr>
<td></td>
<td>2. Knowledge spillover effects (Technology and management skills and market expert)</td>
</tr>
<tr>
<td>Workers</td>
<td>1. Employment of salaried workers employed by investors</td>
</tr>
<tr>
<td></td>
<td>2. Ambiguous effects on employment of domestic established producers</td>
</tr>
<tr>
<td>Government</td>
<td>1. Force good policies</td>
</tr>
<tr>
<td></td>
<td>2. Raise tax revenue on foreign capital</td>
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*Source: Traca (2007)*

Liang (2006) broke down the effects of growth on the environment into three components:

- **Scale effects**, which is the change in pollution with the change in the scale of the production, holding constant the mix of goods and production techniques.
- **Composition effect** which is the change in the share of the dirty goods of national income and the increase in pollution as the economy devotes more of its resources to producing the dirty goods.
- **Technique effect** is the change in pollution as cleaner techniques are used for production.
Despite the inherent costs in FDI, the review suggests, therefore, that the benefits of FDI to the host country depend on the host-country’s investment policies and the promotion of private sector development.

3.0. Foreign Direct Investment in Zambia - Trends

Zambia has been a republic since independence from Britain in 1964. It is landlocked and shares borders with eight countries. Copper wealth has made Zambia one of Africa’s most highly urbanized countries (UNCTAD, 2006). According to CUTS (2003), Zambia experienced considerable economic growth in the first decade of independence and during that period, most major social, economic sectors manifested substantial rates of growth, especially the manufacturing industry. Zambia has a generally positive investment climate, although progress towards a more open economy has been intermittent over the last three years. The country has affirmed its commitment to fostering private sector development and welcoming FDI. The perceptions of the attractiveness of investment climate in Zambia, as is the case elsewhere, are predicated on the degree to which the environment is assumed to be robust with respect to the country’s policy, legislation and institutional regime (CUTS, 2003).

Zambia has many attributes to attract foreign direct investment (FDI). It is a mining economy with decades of experience in mining-related activities. The quality of its mineral resources is equivalent, if not better, than those found in many successful mining economies. Recent export trends, mainly spearheaded by FDI, also demonstrate the great potential and scope that exists in Zambia for deepening investment in non-traditional export sectors such as vegetables and flowers and non-copper mining. The prospects for investment in higher value added activities in mining, services and agriculture are also immense. Zambia has also unexploited rural resources, unspoiled forest land areas for
tourism. Export potential is also enhanced by regional trading arrangements and privileged market access opportunities granted by developed countries. With the opening up of the Zambian economy in the 1990s, FDI inflows increased considerably reaching $334 million in 2006 as shown in figure 2 below (UNCTAD, 2006).

**Figure 2: FDI flows, 2002-2006**

![FDI Flows, 2002-2006](image)

*Source: Bank of Zambia (2007)*

This was largely explained by the implementation of an ambitious privatization programme (1994-2001), investments in copper and cobalt extraction, and greenfield investments in the agricultural sector, in particular horticulture and floriculture production, and in tourism. The immediate challenge for Zambia is to increase and sustain FDI inflows beyond recent levels, and to reap greater benefits from FDI for diversification, industrialization and development (UNCTAD, 2006).

According to UNECA (2015), the country’s GDP has been growing at a rate of 6% starting from 2010 and experienced a lower growth rate of 4.6% in 2015. However, despite
Zambia being a landlocked country which has hampered its economic growth opportunities, it has performed fairly well in attracting FDI as illustrated in Figure 3 below.

**Figure 3: FDI inflow in Zambia**

![Figure 3: FDI inflow in Zambia](image)

*Source: Bank of Zambia (2017)*

From Figure 3 above, it can be seen that FDI flow at the beginning of the period was $621.1 million in 2014 followed by a slight decline in 2014, another two years of stagnation before a decline in growth in 2006 to 255.2 million. The country witnessed FDI growth before 2014. The researcher believes the growth in FDI flows in Zambia has been due to the size and growth of domestic and regional market stressed by Dunning (1998) and Caves (1996) about market seekers aimed at penetrating new markets or maintaining existing ones as reported by Cleeve (2007).

Recent FDI inflows have contributed modestly to the much-needed diversification of the economic base and exports. There is also some evidence to indicate that it has contributed to the skill and technology transfer. But the assessment of this report is that given
its resource potential, Zambia is under-performing and should have done better in attracting FDI (UNECA, 2015). Based on Zambia’s recent record and the level of foreign investment moving into other countries in the region, this report estimates that Zambia should be able to attract on average about $400 million a year as can be seen from figure 2 above.

The key message of this report is that Zambia can realize this potential, but will need to work hard on bringing its investment policy framework, macroeconomic policies, infrastructure and the costs of doing business to levels that make the country’s producers more competitive regionally and globally.

Zambia’s FDI performance is strongly based on indices from the mining industry, in which FDI has been the major source of capital, technical inputs and managerial capability. Overall, Zambia’s FDI flow has not changed significantly in the last years, especially when measured relative to population and size of economy and few FDI has been concentrated in the mining sector as illustrated in Figure 4 below.

**Figure 4: Investments in Commitments by Sector (USD)**

Source: Investment Climate Statement (2007)
From Figure 4 above, it can be seen that about 38.2% ($6, 248, 354, 8 43,473,000) of FDI in Zambia is in the mining sector followed by construction sector with 30% ($4,933,500,140,428,266) out of the total of $16,355,278,180,460,500 (Investment Climate Statement, 2007). The Investment Climate statement argues that much of Zambia’s foreign direct investment is in the mining sector, particularly as a result of the privatization of mines previously operated by the government-owned Zambia Consolidated Copper Mines, ZCCM.

In summary, the review of FDI in Zambia indicates that despite Zambia opening its doors to new markets for foreign investment, the country has not clearly defined investment policy which incorporates sound economic or environmental objectives of the requirements for development oriented investment policy. The current policy is a set of fiscal measures for new investments; incentives are silent on development clauses.

3.1. The Mining Sector in Zambia

Much of Zambia’s FDI is in the mining sector, particularly as a result of the privatization of mines previously operated by the government-owned Zambia Consolidated Copper Mines, ZCCM. UNCTAD (2006) report indicates that mining is the heart of Zambia’s economy. Large scale mining has for 70 years exploited the country’s natural endowments of copper, coal, lead and zinc. The mining sector is the main contributor to the country’s GDP. According to Africa Foreign Direct Investment report (2006), copper and cobalt mining contributes 10 percent to Zambia’s GDP and represents 70 percent of export earnings.
The nature of recent FDI in the mining sector in Zambia reflects a greenfield investment (through the purchase of land for explorations in key geographical locations), and acquisitions under the government’s privatization programme largely dominated by foreign investors from China, UK and South Africa. The main foreign investors in the Zambia mining privatization sector include: Konkola Copper Mines, Mopani Copper Mine, Kansanshi Gold mines and Lumwana copper mines.

Using Dunning’s eclectic paradigm, most of FDI in the Zambian mines is driven by natural resource efficiency, and strategic asset-seeking motives. Zambia has mineral deposits which act as one of the influencing factors for FDI location, but the country lags behind in infrastructure development. Most investors in the mining sector are those seeking physical resources (mineral ores) and cheap labour and not technological capabilities. The strategic asset seekers acquire assets of foreign companies. In Zambia, all previously state owned mines were acquired by foreign investors, giving new owners full control of the mining operations to inject own organizational systems and management styles (Dunning, 1993).

The boom in the mining sector has been a particularly strong driver in the country’s recent growth and increased FDI inflows. Firstly, privatization has been followed by recapitalization. Secondly, copper mines have benefited from increased prices in the global commodity market (UNCTAD 2006).

4.0. Economic and Environmental impacts of FDI in Zambia mining sector

Policymakers and beneficiaries are often interested in the impact of FDI in the mining sector to the economy and stakeholders. For the purpose of this paper, the benefits are defined as the economic and environmental gains resulting from FDI in the mining sector,
and the costs of such gains would constitute the implications of the initiatives in the country. CUTS, (2003) noted that the impact of FDI in a country, would depend on a number of factors such as; the mode of entry (Greenfield or mergers and acquisitions); the activities undertaken and whether these are already undertaken in the host country; sources of finance for FDI; and the impact of the activities of domestic companies.

Most of the revenue generated from mining went into rehabilitation and expansions of existing mines, new exploration projects, development of new mines and rehabilitation of mining support companies. From empirical review, the most publicised benefits of the increased mining sector investment resulting from Zambia’s economic reforms are shown in Table 2. The contribution of FDI to employment in the mining is noticeable. In 2002, mining employed less than ten percent of formal sector workers. However, there have been spillovers and indirect employment creation for suppliers of goods and services to the mining sector. Privatization-linked FDI in mining was initially associated with a negative impact on employment as new foreign owners rationalized operations. One mine was closed, causing widespread concerns about privatization. Employment in mining declined from over 52,000 in 1995 to 35,000 in 2002. But with post privatization and greenfield FDI take off, it rapidly increased, reaching 54,000 in 2003. The factors shown in the table 3 below depict the perceived economic costs of FDI in the mines.

One clear conclusion is that the effects of FDI on economic growth and development more widely is not necessarily homogeneously positive or negative, consistent with the view that the impact of FDI depend on the type of FDI, firm characteristics, economic conditions and policies. Appropriate policies to benefit from FDI include building up local human resource and technological capabilities to capture productivity spillovers. Although the mining industry occupies a relatively small part of the land surface, it does have significant and often irreversible impacts (Danielson and Lagos, 2001). By its nature,
mining has a permanent environmental impact in that a non-renewable natural resource is exhausted. Environmental impacts can occur during all the phases of a mining project, exploration, disposal of waste rock and overburden, ore processing and plant operation, tailings (processing wastes) management, infrastructure (access and energy) and construction of camps and towns. Table 2 above outlines the main physical, environmental impacts of the mining industry.

Table 2: economic and environmental impact of FDI

<table>
<thead>
<tr>
<th>ECONOMIC</th>
<th>ENVIRONMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>BENEFITS</td>
<td>COSTS</td>
</tr>
<tr>
<td>Employment creation through Cheap and well remunerated workforce</td>
<td>Capital investments written off due to waste</td>
</tr>
<tr>
<td>Diversification</td>
<td>Impact of copper prices and incentives in the mining company</td>
</tr>
<tr>
<td>Capital investment</td>
<td>Profits undetermined, failure to declare dividends</td>
</tr>
<tr>
<td>Technological spillover</td>
<td>Lack of control of management decisions and R&amp;D by local nationals</td>
</tr>
<tr>
<td>Opening of new plants</td>
<td>Loss of job incentives to employees</td>
</tr>
<tr>
<td>Global standards</td>
<td>Limited business relationship between foreign affiliates and local companies</td>
</tr>
<tr>
<td>Increase in trade deficit</td>
<td>Fossil fuel costs</td>
</tr>
</tbody>
</table>

Source: (Feldstern, 2000; CUTS, 2003; UCTAD, 2006)

The mining industry has in recent years turned its attention to the environmental impacts of its activities, and in particular is addressing the issue through the Global Mining Initiative and the Mining, Minerals and Sustainable Development Project (MMSD) which is addressing the issue of the contribution of the mining sector to sustainable development.

5.0. Conclusion
This paper has discussed trends in FDI and determinants from the Sub-Saharan Africa and particularly Zambia mining sector. The level and relative importance of FDI has fluctuated over time, and was high in the early part of the 20th century, low in the middle part and growing and high towards the end. Recently there has been an increase in FDI to Africa, though concentrated in a few regions and countries, reflecting their economic wealth, but also reflecting the ability of countries to create the conditions that efficiency and strategic asset seeking FDI need. Using findings from empirical review, this paper examined economic and environmental gains and impacts of FDI in the mining sector in Zambia.

When compared to state ownership, the findings reviewed that the economy and environmental standards in Zambia has improved since FDI. The inflow of FDI in the mining sector in Zambia has contributed to economic growth, improvement in environmental standards and provided sustainable development. However, there is a need to revise and change investment regulations (incentives) in order to get the most benefits of FDI in Zambia. The result and analysis have both pointed to the direction that foreign investors benefited from the mining investment in Zambia due to the incentives given by the government and stable macroeconomic and political environment. The research could have been further reinforced with access to primary data from the experts in mining.
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