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China-Africa Economic Cooperation: Development Assistance and Economic Interests

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Abstract

There has been an increasing engagement between China and Africa in recent years as reflected by the level of aid, trade and investment flows. Building on the data available on China's development assistance flows into Africa together with China's FDI stocks as a 'strategic interest variable' gives an insight into the considerations given to the allocation of development financing. The findings based on project financing across a sample of twenty countries used as a proxy of China's bilateral engagement turnover indicate a significant relationship with FDI.

Keywords: Development Assistance, Concessional Loans, China, Africa, FDI, China Eximbank, OECD-DAC

Table of Contents

1. Introduction

Development assistance from China to Africa is nothing new, but the nature, volume and the architecture of it are observed to have changed over time. The new Chinese model of development aid is unique in that it is palpably woven into its strategic economic interests in Africa in what Davies et al (2008) call a 'coalition of engagements'; aid is seen to be one aspect of the state's collaborative business approach in the region. There have been some studies in recent years that seem to consider China's development assistance as an economic diplomacy tool used to advance its commercial interest in securing resources and investments needs. Studies such as that of (Nour, 2010, Lengauer, 2011) cite the approach by China of underpinning its assistance to resources in deals such as oil-backed concessional loans in Sudan and Angola as being opportunistic at most. This view is echoed by of Brautigam (2008), Robertson and Corkin (2011) who notes that China's large infrastructure loans are normally extended to countries rich in resources especially oil and also used as a gateway for its investments in recipient countries. However, in all these studies such views are largely based on informed opinions instead of hard empirical findings. The aim of this paper is to weigh in on this debate by systematically testing the allocation of Chinese loans in the region using FDI as a 'strategic interest' variable and find out if its assistance is donor interest driven. This research may be of great importance in providing an insight into the nature, distribution of Chinese loans and implications this has or will possibly have on Africa's economic development as regard infrastructure development and debt sustainability.

China's development assistance in this paper is defined by the turn over of its bilateral loans (i.e. project financing). Aid from China to Africa is mostly given through projects not as budgetary support (Brautigam, 2008).Traditionally Chinese aid is extended to African countries it has diplomatic links with. China enjoys diplomatic ties with many of Africa's forty eighty countries with the exception of Burkina Faso, The Gambia, Swaziland and Sao Tome and Principe which recognise Taiwan, (Lengauer,2011)

The rest of the paper is structured as follows. The next section will provide a background on China's economic engagement in Africa. Third section looks at China's development assistance.

The fourth will be an empirical analysis. Lastly the fifth section will look at economic implications for development in Africa.

2. Background

2.1 Literature Review on China –Africa Economic Engagement

There is an enormous body of literature on China's economic engagement with Africa based on aid, FDI and trade as well as on aid motivations

Studies by (Lengauer 2011, Hubbard 2007, Brautigam 2008, Wang and Bio-Tchane, 2008) have made attempts at following aid flows to Africa by gathering information based on press releases and the recent less detailed white paper published by The State Council on aid in 2011 since there is no time series data provided by the Chinese authorities. Wang and Bio-Tchane (2008) estimated that the annual Overseas Development Assistance (ODA) flows to Africa increased from $310m in the period of 1989-1992 to $1.5 billion in 2004-2005.Brautigam (2008),estimates specifically looking at concessional loans commitments identified flows of around $10 billion by 2009 from 1995 when China started giving out such loans. Based on the white paper on aid released in 2011, concessional loans are mainly directed to economic infrastructure development (61%), industry (16.1%), and energy and resources development (8.9%) with agriculture getting 4%.Out of all concessional loans given by China, Africa was the destination of 45% of that amount in 2009, (Lengauer, 2011). The calculation and tracking of aid flows is complicated by the lack of time series data and the combining of aid together with commercial loans: so precise figures are never easy to get.

Due to the opaqueness of Chinese development assistance flows there is an increasing body of researchers who are critical of China's aid to Africa who see the lack of detail as an attempt by the Chinese authorities to mask their motives. For instance Nour (2010) and Lengauer (2011) see China's aid as largely driven by economic considerations to secure resources as well as open up new markets for its investments and goods. Nour (2010) cites the tying of Chinese aid to Sudanese oil exports and investments as a clear indication of aid creating a channel for the

pursuit of commercial interest. Although he acknowledges the importance of aid on infrastructure development he sees it as a long term threat as regard debt sustainability in countries like Sudan that were (are) not beneficiaries of debt relief programme and have no access to other alternative sources of finance. Others like Davies (2010) see the giving of aid by China as an attempt to water down its 'brazen corporatist approach' in its engagement with Africa. The thinking is premised on the concessional financing model used to finance infrastructure projects in recipient countries which ties aid to other requirements seen as beneficial to Chinese exports and firms. The concessional loans terms and conditions on procurement and use of Chinese contractors are both export promoting and as well as capital funding tool for China's firms. The model provides Chinese state owned firms (SOE's) with easy capital to enter African markets as the front movers giving them an option to latter establish themselves once they finish their projects in host countries. It has been observed in the infield research studies done in Ghana for example that a good number of SOE's entered into the market through the implementation of China Eximbank led concessional loans projects and later on went to bid on local projects or establish consortiums to venture into other business interests available locally, (Davies et al, 2008).There are those who perceive China's disregard for institutional quality in giving its aid as an affront to the efforts of traditional donors who are focused on aid that enhances institutional capacity. This is the perception shared by Weston et al (2011) who feel that China's commercial interest override other considerations in its aid allocation.

There is however, recognition of the role on infrastructure development that Chinese aid is playing in the region as it fills a saving-investment gap. Africa, especially Sub-Saharan Africa suffers from infrastructure deficit and lags behind other developing countries affecting regional trade and economic growth, (Foster et al, 2009). Poor infrastructure is a major constraining factor on trade, Africa's share of 3% of the total world trade arises from high transport costs which make it twice as expensive as OECD countries to transport goods across borders, (Davies (2010). Addressing the short fall will have wide implications on economic development.

By and large, Alesina and Dollar (2005) in their study of aid allocation in general found out that aid flows are usually dictated by donor country strategic needs as well as the recipient country's economic needs and policy performance. Aid motivations can in a nutshell be framed within the

context of donor interests and recipient needs guided by Jolly and Gadbois (1989) four aid mandates:

- Humanitarian needs
- Economic and Development Growth
- Promotion of trade and commercial interests
- Protection of geopolitical and foreign policy interests

2.2 Theoretical Analysis

*Donor Interest Model: (*McKinlay and Little, 1977, 1978, 1979; Maizels and Nissanke 1984)

The donor interest model inbuilt assumption is that bilateral aid is used to advance donor interests as postulated first by McKinlay and Little. Based on their reasoning the amount of aid given to a developing country is in proportion to the level of donor interest in that particular country. These interests span from economic, security, political, promotion of democracy, development and stability. Maizels and Nissanke (1984) find this model to be relevant in the context of bilateral aid. Under this model donor country is seen to have a number of reasons to advance development assistance. Maizels and Nissanke (1984) building on the work of McKinlay and Little categorize these into three main categorize:

- Political and security interests
- The investment interest- a donor country will be interested in ensuring economic development, by addressing the constraining factors as such for the purpose of securing own investments and strategic goals in a recipient country. Such aid is perceived to be a subsidy of its investments in the host country. The main purpose is to secure continual profitability of own firms in the country and minimise operational risks.
- Trading interest – a donor country will be willing to finance and promote economic development in those countries that it has trading interest with to secure resources.

They contend that even if aid is donor oriented it may still result in positive economic development through incidental effect in the receiving country.

Strategic interests of a donor country in a recipient country can be captured by the actual amount given to each country or as percentage share of total aid given to a group of countries based on the McKinlay and Little absolute commitment concept. Alternatively as argued by Maizels and Nissanke (1984) it is better to measure strategic interests using relative aid commitments to recipients as opposed to absolute commitments which do not take into recognition the influence of country's size in terms of population has on aid allocation decisions which can lead to difficulties in the interpretation of regression results. Population on the recipient side can be an indicator of need, since countries with large populations can be said to be in need of more assistance than less populous countries at the same level of development. Additionally, population size is perceived to be a sound donor strategic variable since it denotes economic potential, political and military strength hence regional influence.

2.3 Historical Perspective: Sino-Africa Economic Cooperation

Egypt became the first African country to establish formal diplomatic ties with China after its own independence in 1956. As more and more African countries became independent, by 1978 China had diplomatic connections with almost forty countries, (FOCAC, 2010). China's engagement in Africa during the colonial era was much ideologically centred focusing mainly on assisting most African nationalists materially and training to fight against colonialism and capitalism. After most African countries became independent, trade and economic relations with China started to deepen. Trade was growing and Chinese contractors were taking on engineering projects on the continent, (FOCAC, 2010).Chinese engagement with Africa pre 2000 was more on a bilateral basis. In 2000, The Forum on China-Africa Cooperation (FOCAC) was created in Beijing, with the main objective of building a strategic partnership based on equality, trust, economic cooperation and to exchange ideas. FOCAC is a triennial forum, starting with 2000. Under this multilateral framework the China's government has introduced a host of measures to engage and facilitate economic cooperation with African countries. Some of the measures that have been initiated and implemented revolve around the issues of debt relief, zero tariffs for the least developed countries (LDC's) in the region, development assistance, concessional loans, science and technology training and public and medical health, (FOCAC,2010).

2.4 China-Africa Trade Recent Trend

Trade between China and Africa has increased manifolds over the years. Trade turnover was around $11 billion in 2000 and is projected to reach $400billion by 2015, (Robertson and Corkin, 2011).Currently Africa is one of the regions that has a trade surplus with China. China's trade volume with Africa reached $158.83 billion in 2011, with a deficit of $28.28 billion (Appendix, Table 2). In relative terms Africa's share of trade turnover is only 4% of the $3.6 trillion Chinese trade volume with the rest of the world, (Appendix, Table 2).About 80% of trade turnover with Africa is with ten countries, eight of which have trade surpluses with China: see Fig.1: China's exports from Africa are mainly oil and base metals such as aluminium, iron ore, copper, etc. Since China is the leading global consumer of most of these commodities and its demand is huge (Kamwanga and Koy, 2009). Crude oil accounts for 80% of China's imports from Africa i.e. 30% of total oil imports, (Foster et al 2009). China exports are mainly mechanical, electronic products, textiles, footwear etc, (Asche and Schuller, 2008)

Fig.1 Trade between China and its largest trading partners (2011):

Partner	Imports from China US$ M	Exports to China US$ M	Total US$ M	%'Share hare of Trade	Trade Deficit/Surplus
South Africa	13,362	32,095	45,457	29%	24,812
Angola	2,784	24,922	27,706	17%	22,138
Sudan	1,995	9,542	11,536	7%	9,052
Nigeria	9,206	1,584	10,789	7%	757
Egypt	7,283	1,518	8,802	6%	(2,954)
Algeria	4,472	1,961	6,433	4%	(2,511)
Congo	489	4,672	5,162	3%	3,846
Congo DR	827	3,162	3,989	3%	119
Morocco	3,043	476	3,518	2%	476
Ghana	3,110	363	3,473	2%	363

Source: Calculations based on Comtrade trade data (2011)

South Africa is China's largest trading partner by far in Africa with a share of 29% of the total trade turnover in the region and trade surplus of $18 billion. Much of South Africa's exports consist of a variety of minerals ores such as coal, chrome ores, gold, iron, platinum, cars etc, (Burke et al 2008) South Africa's share of global production is significant for many minerals (Appendix, Table 4). South Africa happens to be also the largest market for Chinese exports.

Trade with Nigeria, Angola, Algeria, Egypt, Sudan and Congo is mainly in crude oil. These countries are the biggest oil producers in Africa and account for 12% of global production as of 2010, (Appendix, Table 4). Angola was the second largest exporter of oil to China after Saudi Arabia's exports worth $39.5 billion in 2011 (based on Comtrade calculations). Angola now accounts for 18% of China's total oil imports since 2006, (Executive Research Associates, 2009). Oil exports from Angola and Sudan were secured at the back of oil for infrastructure long term loans; where concessional, non concessional loans or a combination of both are given out with guaranteed oil exports being used as collateral by the host governments. Now a common practice with other resources as well (Davies et al, 2008).

2.5 China Investments in Africa

China's ODI in Africa is primarily resource seeking and has been increasing with the increasing demand of raw materials needs. Looking at Fig.2 Chinese FDI is heavily concentrated in the oil sector (26%), followed by copper and iron. Chinese investments are fairly diversified in economies like South Africa, Egypt and Mauritius that are also diversified. Most of the investments are undertaken by large SOE's. Chinese top most destinations for their investments are not significantly different from those favoured by other foreign investors if one looks at the top ten countries (Appendix, Table 1 and 3).

Fig.2 China Outward Investments Deals of $100m or more compiled by The Heritage Foundation 2006-11

Investor	Value ($US millions)	Subsector	Country
Sinopec	**730.00**	Oil	Angola
Sinomach	500.00	Autos	Cameroon
Sinopec	540.00	Oil	Cameroon
CNPC	**200.00**	Oil	Chad
China Railway Engineering	1,190.00	Copper	DRC
MCC and Sinohydro	1,700.00	Copper	DRC
Minmetals	1,280.00	Copper	DRC
Export-Import Bank	3,000.00	Metals	DRC
CITIC and Chinalco	940.00	Aluminum	Egypt
Tianjin Development	200.00	Property	Egypt
Jushi Group	230.00	Other	Egypt
Bosai Minerals	1,200.00	Aluminum	Ghana
Sinopec	850.00	Gas	Ghana
Chinalco	**1,350.00**	Iron	Guinea
Wuhan Iron and Steel and China Development Bank	**110.00**	Iron	Liberia
CNPC	**150.00**	Oil	Madagascar
Taiyuan Iron consortium	**750.00**	Property	Mauritius
CNPC	4,990.00	Oil	Niger
China National Nuclear	190.00	Metals	Niger
China Railway Construction and China-Africa Development Fund	2,970.00	Construction	Nigeria
CNOOC	2,270.00	Energy	Nigeria
China Railway Materials	260.00	Iron	Sierra Leone
Shandong Iron	1,490.00	Iron	Sierra Leone
First Auto Works and CADF	100.00	Autos	South Africa
ICBC	5,600.00	Banking	South Africa
Jinchuan	1,360.00	Copper	South Africa
CIC	250.00	Investment	South Africa
SinoSteel	230.00	Steel	South Africa
Jinchuan Group and China Development Bank	230.00	Metals	South Africa
CITIC, China Development Bank, Long March Capital	470.00	Metals	South Africa
Sinochem	**500.00**	Agriculture	Sudan
CNOOC	**1,450.00**	Oil	Uganda
China Nonferrous	310.00	Copper	Zambia
China Nonferrous	300.00	Copper	Zambia
SinoSteel	100.00	Steel	Zimbabwe
Sinosteel	300.00	Metals	Zimbabwe
	38,290.00		

*Heritage Chinese Investment Tracker only records $100m+ deals

Source: The Heritage Foundation

In 1990 China's FDI stock in Africa was $49 million and has grown ever since (Ancharaz and Nowbutsing, 2010).China's FDI stock in Africa as of 2010 was $13 billion (Appendix, Table 1). Overally Chinese stock at 2.4% is still relatively small compared to Africa's total FDI stock of $553 billion, (Appendix, Table 3). About 55.7% of China's outward investments are concentrated in four countries and 91.1% are located in only 20 countries. South Africa is the largest FDI host of China's ODI on the continent and is the top destination when it comes to overall FDI stocks in Africa from elsewhere (Appendix, Table 3). South Africa is an open upper middle income country, the biggest economy in the region and is relatively advanced with a diversified economy unlike most other countries in the region.Even though South Africa is the largest Chinese ODI host, China's share of FDI stock in South Africa is only 3.1% as of 2010 (Appendix, Table 3). Nigeria is the second destination. Nigeria's attraction appears to be that it is an upper middle income country, the most populous (158 million people) and the biggest oil producer on the continent, (Appendix, Table 4)

3. China's Development Finance

3.1 The Nature of China's Development Assistance

As noted by Davies et al (2008), the Chinese government has a broad definition of development assistance (aid) which is not in line with what is generally acceptable under OECD-Development Assistance Committee (DAC) standards. China's development aid in Africa is a combination of Overseas Development Aid (ODA) and other official flows (OOF), (Brautigam, 2008). OECD definition of aid encompasses grants or loans that are given to developing countries on bilateral terms, concessionary in nature with main objectives of promoting economic development and welfare, (Davies et al,2008). The ODA component is made up of concessional loans, zero interest loans and grants. They are deemed to be aid under the OECD (DAC) rules if they have a grant element of 25% of the total loan, (Brautigam, 2011) Furthermore, under DAC standards mixed loans i.e. ODA (soft loans) and OOF(commercial loans) are to be reported separately and only acceptable for projects that can not get commercial financing, (Ahmad 2008:Brautigam 2008).Another requirement under DAC standards is that aid should be untied with the exception of food and technical aid, (Brautigam, 2008). The biggest challenge with Chinese development

assistance is that it is a conflation of both concessional and non-concessional financing. The large loans are more often than not a package of ODA and other official flows (OOF). For example the financing of Bui Dam hydro electric project in Ghana was made up of $292m in commercial export credits at a commercial interest rate and $270m as a concessional loan, (Brautigam, 2008). This is often thought to be the norm in financing such big projects .Although it is very difficult to isolate what is concessional or not which can make a difference under OECD –DAC rules as to the true meaning of developmental assistance. Since such terms are not made public at best the loans given out regardless of the mix they are official flows given to another government, therefore they in essence capture China's strategic interest. In one way it could be argued that they make their interests apparent by combining long-term commercial loans with aid as way of ensuring continual engagement and leverage their soft power with host nations over a long time.

Types of China's ODA

Chinese aid can be identified in three forms based on the 2011 white paper on aid, (Lengauer, 2011):

- Grants-given out to finance the building of hospitals, schools, small and medium projects
- Interest –free loans: finance public facilities, other projects that can improve people standards of living and they have a tenure of 20 years
- Concessional loans – available to finance large and medium sized infrastructure projects and other projects that promote economic development and social benefits. They have a repayment period of 15 to 20 years with interest rate of between 2% -3% and include a grace period of 5-7 years.

3.2 Organisation Structure of China's Development Finance

China's aid is directed by the Ministry of Commerce (MOFCOM) with involvement of the Ministry of Foreign Affairs at ministerial level, beneath them are two government agencies supporting the disbursement, valuation and implementation of projects aid loans. The two government agencies involved are the Department of Aid and the Bureau of International Economic Cooperation. The former is responsible for the budget allocation and the disbursement,

while the latter is involved with the implementation and monitoring of project. A large chunk of China's aid is given out through projects not as balance of payment, (Brautigam.2008). MOFCOM role in development finance architecture is to give grants and zero interest loans and works in coordination with China Eximbank on concessional loans, (Brautigam.2008).

Policy Banks

When it comes to the allocation of loans China Eximbank and China Development Bank are the main providers. Of the two the China Eximbank is the only bank that can give bilateral concessional loans, CDB on the other hand operates on a commercial basis. Concessional loans are used for projects aid normally combined with commercial loans for big projects .According to Brautigam (2008), concessional loans are now the largest window of China's aid. China Eximbank is now one of the largest lenders on the global stage, and much so in Africa. In the last decade the bank gave out $67 billion, $12 bilion more than the World Bank, (Cohen, 2011). China's value of loans at $58 billion between the periods 2005 - 2012 is almost four times the foreign direct investment in the region, (Fig.4).China Eximbank loans make up the greater portion of the loans given in projects to Africa. Loans from China Eximbank accounted for 92% of China's projects finance commitments in Africa between the periods of 2001-7. (Foster et al, 2009). CDB' s portfolio on the continent has been growing rapidly as well, by end of 2010 it had committed itself to 35 projects across 30 countries, (Brautigam,2011). It is important to note that CDB loans are offered at commercial rates as opposed to concessional. With projects being undertaken it is difficult to isolate amounts given as commercial loans and those given at concessional terms since neither of the two banks publish any detailed information as regard their allocations and the terms of their loans.

3.3 China's Donor Interests

The nature of aid from China is deemed to be different from what is regarded as aid under the OECD (DAC) rules; this has resulted in heavy criticism that China is using its aid to exploit resources of other developing countries. So it important to understand the nature of aid based on China's values as well as the fact that it is still a developing country with limited resources.

China's aid is modelled on the principles of *lisuonengi* and *lianlierxing* i.e. overseas aid should be within China's capacity and means. China's aid since 1964 has been guided by eight principles, (Lengauer, 2011):

1. Equality and mutual benefit
2. Respect of sovereignty –no interference
3. Low interest loans or zero interest
4. main purpose to build self reliance for the recipient country
5. support of project that results in capital accumulation
6. project have to done using equipment from china

Broadly speaking Chinese motivations in their aid allocation decisions are in no way different from considerations that other donor countries have when they decide the recipients of their aid premised on the donor interest model. Bilateral aid by and large by nature is to be expected that within its construct it seeks to foster and nature national interest of the donor country in the recipient country. It can not be expected to be altruistic. From the findings of 2008 NYU Wagner School Study, in trying to understand Chinese aid – they identified economic and commercial interest to be dominant considerations,(Lengauer, 2011) .Chinese economic motives are largely driven by the need to secure natural resources, from crude oil to minerals that are essential for economic expansion.

Chinese government dominance in the economy and the proximity of the state owned enterprises to its strategic policies be they on foreign policy matters or industrial policy enables them to have development assistance run in tandem with their own trade and investment interests. Considering the need for resources for its economic growth, the 'Go Global' strategy makes it possible for the state to use its aid to pursue its donor interests. China's state centred approach to development which incorporates all state structures and relevant institutions situates the government differently from its peers from elsewhere when it comes to maximizing its strategic goals through use of development assistance. From the coordination standpoint of it, it is easy for the Chinese government to be able institutionally direct aid and investments to countries that are of strategic importance resources wise and politically since it is the main or sole shareholder in most of those firms making inroads abroad.

Chinese outward direct investments are born out of a government's foreign investment strategy 'Going Global' unveiled in the Five Year Plan (2001-2005) that encourages domestic firms to investment abroad. Part of the strategy is to engage in economic cooperation with regional blocks and FOCAC is one such forum, (Brautigam, 2008). The political embeddings in the structures of SOE's has a bearing in the direction of their investments and access to finance. This makes it easier for the state to align its investments with national strategic considerations abroad. SOE's overseas drive has greatly been based on the government's economic cooperation with other countries, this is especially so in Africa where Chinese development assistance seems to open ways for its firms to enter markets initially as contractors bearing no financial risk at all. Chinese ODI is characteristically different from other countries as it is largely driven by state owned enterprise (SOE's). Almost 84% FDI stocks and flows are state owned, (Hurst, 2011).In the in-market research conducted in Ethiopia, Ghana and Zambia by Davies et al, (2008) it was found out that Chinese MNC's tends to use aid as a lever to gain investment opportunities and markets.

Leveraging Aid: The intersection between development assistance and investments interests

China unlike OECD countries still use tied aid; all China Eximbank project loans require that 50% of procurement are from China, the project has to be done by a Chinese contractor(s) with Chinese labour, Brautigam (2008). This to a great extent gives Chinese contractors a cautious entry point into a foreign market shielded from credit and operation risk since China Eximbank will be the one paying and in turn get its money from the host country. It has been observed that a number of SOE's penetrate markets as has been the case in Ghana via China Eximbank concessional loans projects, (Davies et al 2008).

Angola Model

China widely uses its aid in the form of grants, loans alongside its commercial investments to gain access to resources and build political relationships, (Davies et al, 2008). China Eximbank is now increasingly using the resource for infrastructure deals known as the 'Angola Model' where

repayment of concessional loans or packaged loans (i.e. concessional and commercial) for infrastructure development are repaid using natural resources (e.g. oil), (Foster et al, 2009). Angola is often cited as one great example of how interlinked Chinese commercial and political interests are. China Eximbank loans gave Chinese oil giant Sinopec access to Angola's oil through the oil for infrastructure loan deal. (Executive Research Associates,2009).Deals structured in this manner achieve three things; (1) political connections, (2) secure essential resources and (3) entry of their on MNC's since most countries that accept such deals lack the capital to exploit their own resources. Such deals are increasingly becoming the norm for Chinese investments in Africa according to (Kaplisky and Morris, 2008: Ancharaz and Nowbutsing, 2010).

China's aid to Sudan as well as that of Angola is seen to be motivated by political and economic considerations. The aid for infrastructure development is combined with commercial loans whose interest is tied to petroleum exports guarantee from Sudan conditioned upon Chinese companies doing the work with their own equipment using Chinese labour, Nour (2010).

Resource-backed deals have become common place used mainly to secure essential resources not just oil in exchange for concessional loans (EU, 2011):e.g.

- Guinea bauxite for the construction of a dam
- Zimbabwe chromium for construction of thermal power
- Gabon Iron
- Ghana cocoa for the construction of hydro electric power
- Congo (DRC) copper mining concessions for $6 billion infrastructure development
- Nigeria oil –preferential access

Their preference of such deals can be said to be driven by two reasons. One to ensure guaranteed supplies of essential raw materials, secondly it could seen as credit risk management plan on the part of the Chinese.

4. Data Analysis and Methodology

4.1 Empirical Test

As highlighted earlier in the paper the intention is to find out if development assistance is used as a tool to advance China's strategic interests in this instance FDI using data from The Heritage Foundation China-Global –Investment –Tracker 2012 on contracts loans (of $100m or more) made up of 20 Africa countries in the period between 2005-2012 and Economic Freedom Index, for institutional quality together with China's Ministry of Commerce (MOFCOM),2010 Statistical Bulletin of China's Outward FDI (Appendix, Table1) as well as World Bank Development Indicators for 2011

As regard the loans given out, there were 20 countries that had received contract loans from China by end of 2012 (Fig 4) and 12 that had received loans by 2010 which is a very small sample that would have resulted in a loss of important observations and considering that projects loans are not annual flows the aggregation of them are considered not to be materially significant. The Heritage Foundations only keeps track of loans that are $100m or more, so it does not necessarily mean the countries listed are the only ones receiving development assistance. According to Brautigam (2011) aid from China is widely distributed to all countries in the region with diplomatic ties with Beijing, not included are countries that recognise Taiwan as a state. However, the size of the loans can be an indication of the depth and commitment of economic cooperation with recipient countries saving as a barometer to measure donor strategic interest. It is also important to note that not all loans are necessarily concessional as some are given at commercial rates, but since China Eximbank uses 'package financing' where they mix concessional with commercial loans it is difficult to isolate ODA from market loans because the terms of the loans are not made public, (Brautigam 2008, Hubbard 2007). What is known however, is that China made concessional loans commitment at FOCAC summit in 2006 of $2billion combined with $3billion of preferential export credits and at the 2009 summit they pledged $10billion in concessional/preferential credits to be committed over the course of three years by 2012, (Brautigam, 2011). Based on the formulation of concessional loans, it can be assumed that China has given away $15billion of aid between 2006-2012 which is less the

amount of loans calculated for the period 2005-2012 which is $58 billion, (Fig. 4) indicating that a greater component is made up of either commercial or zero interest loans. It is always challenging for researchers to get data on aid flows since Chinese government does not report its aid commitments, many researchers have to rely on estimates through reports made in the media, (Brautigam, 2011)

The model used here is an OLS; the intention is to find out if there is a relationship in the direction of economic cooperation (development assistance), outward FDI and oil producing countries. If there exists a correlation between the loans, FDI and big oil producers, tentatively it will be seen to be an indication of development finance being used as a strategic tool to build up soft power to enable investments as well as to ensure resource access.

Hypothesis to be tested:

Hypothesis 1: China's FDI stock will be high in countries that receive large loans:

$$LogPCLoans = \beta o + \beta LogFDI + \beta LogGDP + \beta LogPOP + \beta LogFC + + \beta LogPR + \beta LogIF + \varepsilon$$

Hypothesis 2: China's loans and FDI tend flow more to oil producing countries:

$$LogPCLoans = \beta o + \beta LogFDI + \beta LogGDP + \beta LogPOP + \beta LogFC + + \beta LogPR + \beta LogIF + Dummy + \varepsilon$$

Results

Fig 3.Determinants of Contract loans (2005-2010):OLS Regression

Dependent Variable: LOANS	**Equation 1**		Equation 2		
Variables	Std.	P-Value	Variables	Std.	P-Value
C	103.5941		C	111.2220	
FDI per capita	0.884706	***	FDI	0.879483	***
GDP per capita	0.022498	***	GDP	0.032213	***
POP (Population)	0.987566		POP	1.213704	
FC (Freedom from Corruption)	8.134996		FC	9.120391	
PR(Property Rights)	7.287697	***	PR	7.280783	***
IF (Investment Freedom)	3.621364	****	IF	3.627396	****
Dummy for Oil –producing Countries			OIL=1	111.4540	
R-squared	0.718084		0.745087		
Adjusted R-squared	0.587969		0.596387		
Number of Countries	20		20		
*<0.10**p<0.05,***p<0.01,	****p<0.001				

Dependent Variable

Contracts loans published by the Heritage Foundation which tracks Chinese investments and contracts abroad is chosen since the financing of these projects are based on bilateral arrangements rather than private contracting. It is an indirect estimate of development assistance since it combines both ODA and other government official flows (OOF). Contracts are not included as FDI since these projects will be handed to the respective host governments upon completion. This dependant variable shows data on turnover of bilateral engagement (divided by population) based on the relative commitment concept of donor interest model to get net aid per head since population size can be taken to denote recipient need as well as capture donor interest based on size, (Maizels and Nissanke, 1984).Developing countries with big populations are likely to need more aid than countries with small populations from donor perspective they represent market potential as well as political importance. There are some studies that employ absolute aid as the dependent variable, but the regression results are problematic to interpret, (Jolly and Gadbois, 1989).

Explanatory Variable

ODI stock for 2010 was chosen instead of FDI flows; since they are cumulative they are likely to be a good indicator of the long term commitment overtime as opposed to flows which changes from year to year. FDI is chosen since it is considered to be an approximate measure of strategic interest capture.

Control Variables

It is important to note that they are other factors that affect the flow of FDI into a host country other than aid,

GDP (Constant 2000) The GDP of a recipient country reflects the size of the market, the state of development. GDP per capita is used as an indicator of need relative to other countries for development assistance

Institutional Quality Indexes; Generally ODA and FDI tend to flow to countries with better and well functioning institutions that protect and encourage private enterprise to operate without hindrance.

Investment freedom-open market economies allow for the easy flow of capital, making it easier for investors to move their resources in activities they deem viable without constraints.

Property Rights- It indicates the respect of private enterprising and the capacity of judicial system to enforce contracts without interference from national governments

Freedom of corruption-introduces uncertainty and insecurity in business transactions undermining meaningful investments

First regression test is for all countries using contract loans per capita as the dependent variable to take account of relative need since large countries will generally get more aid flows because of the size of their populations.FDI stock per capita is used as an independent variable controlling for GDP, and institutional quality indexes. Second test is done using a dummy for oil biggest producers (i.e. Nigeria, Angola, Sudan, Egypt, Algeria and Libya based on the regions above average oil production levels of 2010 (Appendix, Table 4) to capture the general view that one of

China's strategic interest is to secure oil supplies and also because oil constitute 80% of Africa' s total exports to China, (Foster et al 2009).

Results Discussion

The regressions give some insight into the determinants of China's development financing. The GDP per capita, FDI, property rights and investment freedom are significantly related to project loans. FDI stock per capita is significantly related to bilateral loans, a sign that Chinese lending is closely related to FDI in part perhaps due to tied aid. The dummy for oil producing countries is not significantly related to loans allocation, an indication that loans are not concentrated only to oil producing countries as is widely perceived. The significance of GDP could be that China gives large loans to those countries that are perceived to have the capacity to repay with high per capita incomes. As a requirement for concessional loans lending by China Eximbank, the recipient country which is the guarantor of the loan must have good credit and capacity to make repayments, (Hubbard, 2007).The results are in line with observations made by some researchers such as Brautigam (2008) that large concessional loans are advanced to countries that have relatively high GDP per capita and have rich deposits of natural resources that can be used as collateral for such loans. According to Brautigam (2011), grants and zero interest loans are given fairly to a number of countries whereas concessional loans are given based on the country's ability to repay either because it's a middle income economy or the project being financed will generate income. Chinese lending is statistically significantly related to investment freedom and property rights. One of the condition for concessional lending is that the recipient country must have political stability and relatively favourable economic conditions for economic growth, (Hubbard, 2007).

4.2 Descriptive Empirical Findings:

The distribution of loans in based on Chinese financed contracts being under taken or completed in Africa between the periods of 2005 -2012.

Fig.4 Contract Loans 2005-2012 Distribution

Country	Contracts Value US$ ml 2005-2012	%Share	Income Group
Nigeria	13,590.00	23.33%	Upper middle income
Algeria	10,500.00	18.02%	Upper middle income
Chad	6,620.00	11.36%	Lower middle income
Ethiopia	6,360.00	10.92%	Lower middle income
Libya	4,240.00	7.28%	High income
Sierra Leone	2,980.00	5.12%	Low income
Cameroon	2,760.00	4.74%	Upper middle income
Egypt	2,210.00	3.79%	Upper middle income
Zambia	2,030.00	3.48%	Lower middle income
Sudan	1,910.00	3.28%	Upper middle income
Ghana	1,830.00	3.14%	Upper middle income
DRC	660.00	1.13%	Low income
Guinea	530.00	0.91%	Low income
Congo	520.00	0.89%	Upper middle income
Djibouti	510.00	0.88%	Low income
Angola	350.00	0.60%	Upper middle income
Uganda	350.00	0.60%	Lower middle income
Mauritius	110.00	0.19%	High income
Mauritania	100.00	0.17%	Upper middle income
Zimbabwe	100.00	0.17%	Low income
	58,260.00		
High Income: 7%, Upper Middle Income: 58%, Lower Middle Income: 26% and Low Income:8%			

Source: The Heritage Foundation 2012

One major notable thing is that big loans seem to be given to mostly upper middle income countries taking 58% of all the loans when combined with high income and lower middle income groups together they constitute 92% of the loan portfolio in Africa. The reason as mentioned elsewhere is that terms and conditions of concessional loans require that the recipient country is stable and has the capacity to repay the loans. Together these countries are host to 51% of China's total FDI stock in the region followed by South Africa with 31% which is a semi-industrialised country, (Appendix, Table 1).Chinese loans allocation considerations can be said to be enhancing to their ODI because these countries will not only be able to repay loans but they also present ready markets for Chinese manufactured goods. The loans within the reference of investments interest in the donor interest model act as a subsidy to Chinese firms: first by enabling them to enter markets as contractors without assuming financial risk and secondly by

addressing the major operational constrain which is infrastructure. The railroads, roads and hydro electric power stations are not only beneficial to the host countries, they will also make it easier for Chinese firms to power their plants and transport the resources they need from the continent as well as export their goods in. Chinese loans into Africa for the period under review are almost four times as much as FDI flows. An indication perhaps of China's effort to consolidate its economic diplomacy ahead of its investments.

Nigeria can be seen as important strategically in the eyes of China because of the size of its potential domestic market of 158 m people, its huge oil reserves, and its strategic location in the Gulf of Guinea region. From a donor interest perspective Nigeria is important both economically and politically. It is the largest oil producer in Africa controlling about 24% and 3% global annual production as of 2010 respectively (Appendix, Table 4)

Algeria has enjoyed good diplomatic relations with China since 1958, much favoured for being a co-sponsor of the motion in United Nations in 1970s that restored China legitimate seat.It has been rewarded with big contracts in recent years, with CITI Group and China Railway Construction Corp being awarded the largest Chinese contract on the continent so far of $6.25 billion, (Ying and Xin, 2008). Additionally it is the third biggest oil producer on the continent.

Ethiopia importance is more largely as a potential market because the size of its population of around 81m as well is the de facto status of Addis Ababa as the capital city of Africa because of the African Union Headquarters. The country has no notable resources.

Chad perhaps offers a unique case that demonstrates Chinese market entry strategy; loans first, investments latter. Before 2006 there were no diplomatic ties between Chad and China because of the latter's allegiance to Taiwan. Since Chad switched to China, it has been receiving enormous amount of loans because of its oil, it is currently an insignificant ODI destination (Appendix, Table 1). Chinese companies have managed to secure some oil exploration and drilling rights, (Foster et al, 2009).

5. Economic Development Implications for Africa

The amount of loans being pumped into Africa from China can be a double edged sword if they continue to be lack of transparency as regard the composition. Availability of the loans fills a financing gap between savings and capital spending in Africa, (Nour, 2010). On the other hand because China's development assistance is packaged together with commercial interest loans the cost of most of the loans is unknown to many stakeholders creating a very difficult situation in the monitoring of debt levels and can possibly undermine the efforts by other lenders on debt relief. There is a general worry by other stakeholders that the loans could lead to unsustainable debt levels and dependence, leaving some countries locked indebt for a long time to come especially those countries that have not been beneficiaries of debt relief program and can not borrow from other international lenders like Angola, Sudan and Zimbabwe, (Foster et al, 2009) There is no questionable doubt that infrastructure financing is going a long way in addressing infrastructure deficit on the continent

Implication on Economic Development

The loans have a greater appeal to most African countries because of few conditions that are attached to them as is the case generally with the multilateral lenders. The loans are generally given to finance projects that are chosen by the host government and approved by China Eximbank. Exim loans have the appeal of ownership allowing the host government to direct the loans to areas they feel need to be addressed as opposed to the lender coming up with their own projects as is the case with World Bank funding and IMF. African governments are given 'policy space' to leverage and direct loans to projects that matters to their constituencies (Oya,2008), The focus by Chinese lenders on infrastructure development is considered a noble one by a number of stakeholders . Africa suffers from perennial infrastructure deficit hampering development on regional trade, as well as foreign investment. The infrastructure development targets hydro electric power, railroads. According to Foster et al (2009), by end of 2007 China had committed to provide $3b towards the construction of 10 major hydro projects which will increase the generating capacity by 30%. The impact in this area will be huge in the future enabling trade and more foreign investments.

Threats to future African Development

There is challenge that is posed by the loans and another one by Chinese investments. The mixing of loans and lack of detailed terms, especially as regard resource-backed ones creates a degree of opacity that makes it difficult to know exactly what the benefits are. Resource for infrastructure loans such the one that was negotiated by the government of Ghana where the loan for Bui dam hydro electric project is backed by 20 years supply of cocoa (Robertson and Corkin, 2011) are complex to evaluate in the long run creating a potential hazard for some countries which may end up being locked in bad deals as it eliminates market options. The level of debt that some countries are incurring in light of the fact that some government regimes negotiating these loans can not be hold accountable by their constituencies there is a concern that some countries will end up wallowing in a sea of debt once their resources wane out. The findings by EU (2011), notes that some countries that benefited from debt relief have already contracted debt in excess of those values e.g. Guinea, and some more debt, Nigeria and Mauritania for instance, the debts are built at the back of loans coming from China.

China's cheap manufactured imports are crowding out local competing manufacturers driving them out of business in most African countries as they are destroying local industries. This more true with the textile industry. The large number of Chinese workers who are contracted to projects as resulted in the increase in small scale Chinese traders selling cheap goods competing with African informal traders, (Brautigam, 2011). In many African countries this is a big challenge since the majority of the people are informal traders whose livelihoods solely depends on selling wares

6 Conclusions

This paper considered the aspects of donor interests in the calculation of China's development assistance allocations. Due to the limitation of data available, an attempt was made to try and analyse Chinese aid using an indirect method of contract loans which can be said to be partially reflective of China's aid allocation considerations. It is difficult to isolate the loans because they are often offered in the form of a packaged finance with no terms being made public; so the level of non concessional and concessional terms are not clearly know. China has been noted to have a broad interpretation of aid than is the case under OECD-(DAC) rules making difficult to draw credible comparisons with OECD countries.

The findings show that China's financing tend to be directed to those countries that are in the middle income to high income bracket that have the capacity to repay loans and are also generally resource rich. Out of the sample only Ethiopia, Djibouti and Mauritius can be considered non resource rich countries.

In a nutshell there appears to be a significant intersection between development assistance and investments an indication of the donor leveraging its resources to advance its on interest which have an incidental effect of meeting the recipients' needs. It is perhaps worth evaluating China's development finance in the context of South-South cooperation where another developing country is trying to assist other developing countries with its limited resources. Guided by its eight principles on aid; the first principle seeks equality and mutual benefit. So China's Development can be seen by some to be of mutual benefit.

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APPENDIX

Table 1.China Outward FDI Stock by Country as of 2010

Ministry of Finance (MOFCOM)

China Outward FDI stock by country as 2010 in Millions (USD)

Country	ODI Stock ($USM)	Share
South Africa	4,153.0	**31.8%**
Nigeria	1,210.9	**9.3%**
Algeria	973.3	**7.4%**
Zambia	943.7	**7.2%**
Congo DR	630.9	**4.8%**
Sudan	613.4	**4.7%**
Niger	379.4	**2.9%**
Ethiopia	368.1	**2.8%**
Angola	351.8	**2.7%**
Egypt	336.7	**2.6%**
Tanzania	307.5	**2.4%**
Mauritius	283.3	**2.2%**
Madagascar	229.9	**1.8%**
Kenya	221.6	**1.7%**
Ghana	202.0	**1.5%**
Botswana	178.5	**1.4%**
Guinea	136.4	**1.0%**
Republic of Congo - Brazzaville	135.9	**1.0%**
Zimbabwe	134.5	**1.0%**
Gabon	125.3	**1.0%**
Uganda	113.7	**0.9%**
Equatorial Guinea	86.3	**0.7%**
Liberia	81.7	**0.6%**
Chad	80.0	**0.6%**
Mozambique	75.2	**0.6%**
Cameroon	59.6	**0.5%**

Togo	58.1	**0.4%**
Morocco	55.9	**0.4%**
Mali	47.8	**0.4%**
Namibia	47.1	**0.4%**
Central African Republic	46.5	**0.4%**
Mauritania	45.9	**0.4%**
Senegal	45.0	**0.3%**
Rwanda	41.6	**0.3%**
Sierra Leone	41.5	**0.3%**
Benin	39.3	**0.3%**
Cote D'voir	33.0	**0.3%**
Malawi -	32.4	**0.2%**
Libya	32.2	**0.2%**
Guinea-Bissau	27.0	**0.2%**
Seychelles	19.4	**0.1%**
Eritrea	12.5	**0.1%**
Djibouti	12.5	**0.1%**
Lesotho	8.9	**0.1%**
Burundi	6.5	**0.0%**
Cape Verde	4.6	**0.0%**
Comoros	4.0	**0.0%**
Tunisia	2.5	**0.0%**
Gambia	1.2	**0.0%**
Sao Tomé and Príncipe	0.0	**0.0%**
	13,077.84	

Source MOFCOM: Ministry of Commerce 2010

Table 2 Trade-Exports and Imports (2011) COMTRADE

Partner	Imports from China $Usm	Exports to China $USm	Total	Share of Trade	Trade Deficit/Surplus
South Africa	13,362	32,095	45,457	29%	24,812
Angola	2,784	24,922	27,706	17%	22,138
Sudan	1,995	9,542	11,536	7%	9,052
Nigeria	9,206	1,584	10,789	7%	757
Egypt	7,283	1,518	8,802	6%	(2,954)
Algeria	4,472	1,961	6,433	4%	(2,511)
Congo	489	4,672	5,162	3%	3,846
Congo DR	827	3,162	3,989	3%	119
Morocco	3,043	476	3,518	2%	(245)
Ghana	3,110	363	3,473	2%	(254)
Zambia	617	2,776	3,393	2%	1,902
Benin	2,875	176	3,051	2%	(2,698)
Libya	720	2,064	2,784	2%	1,797
Kenya	2,369	60	2,428	2%	(814)
Tanzania	1,654	490	2,144	1%	(210)
Equatorial Guinea	266	1,673	1,939	1%	799
Cameroon	874	663	1,537	1%	663
Mauritania	-	1,517	1,517	1%	1,107
Tunisia	1,113	219	1,332	1%	(461)
Ethiopia	885	292	1,177	1%	(408)
Mozambique	700	257	957	1%	(359)
Zimbabwe	410	464	874	1%	(39)
Gabon	270	578	848	1%	(102)
Senegal	680	69	749	0%	(435)
Botswana	616	101	717	0%	(515)
Côte d'Ivoire	541	162	703	0%	(468)
Guinea	630	16	646	0%	(488)
Madagascar	503	103	607	0%	(194)
Djibouti	509	0	509	0%	(282)
Namibia	282	224	507	0%	130
Mauritius	497	10	507	0%	(281)
Mali	298	150	447	0%	(75)
Uganda	359	40	400	0%	(108)
Chad	95	265	360	0%	(26)
Gambia	291	54	345	0%	(171)
Sierra Leone	225	28	253	0%	(39)
Burkina Faso	56	182	238	0%	127
Malawi	112	46	158	0%	(45)
Eritrea	148	1	149	0%	(66)
Rwanda	67	78	145	0%	28
Niger	142	2	144	0%	2
Somalia	91	6	97	0%	(29)
Togo	2	77	78	0%	77
Cape Verde	50	-	50	0%	(50)
Liberia	-	41	41	0%	41
Seychelles	35	0	35	0%	0

Swaziland	31	0	31	0%	0
Central African Rep.	-	28	28	0%	13
Guinea-Bissau	15	4	19	0%	4
Burundi		14	14	0%	14
Lesotho		7	7	0%	
Western Sahara		0	0	0%	
	52,236	61,138	158,832		28,288

Source: Comtrade (2011)

Table 3. UNCTAD 2010 Inward Stock and MOFCOM STOCK 2010

	Total Global Stock	**China Stock**	Share of Total
Africa	2010	MOFCOM 2010 FDI Stock	
South Africa	132396	4152.98	3.14%
Egypt	73095	336.72	0.25%
Nigeria	60327	1210.85	0.91%
Morocco	42023	55.85	0.04%
Tunisia	31367	2.53	0.00%
Angola	25028	351.77	0.27%
Sudan	20743	613.36	0.46%
Algeria	19498	973.26	0.74%
Libyan Arab Jamahiriya	19342	32.19	0.02%
Congo	15983	135.88	0.10%
Ghana	9098	202	0.15%
Zambia	8515	943.73	0.71%
United Republic of Tanzania	7966	307.51	0.23%
Equatorial Guinea	7374	86.25	0.07%
Côte d' Ivoire	6641	32.99	0.02%
Uganda	5853	113.68	0.09%
Mozambique	5489	75.24	0.06%
Namibia	5290	47.11	0.04%
Liberia	4888	81.67	0.06%
Cameroon	4828	59.61	0.05%
Madagascar	4452	229.87	0.17%
Chad	4168	80	0.06%
Ethiopia	4102	368.06	0.28%
Congo, Democratic Republic of	3994	630.92	0.48%
Mauritius	2319	283.29	0.21%
Niger	2310	379.36	0.29%

Kenya	2262	221.58	0.17%
Mauritania	2155	45.88	0.03%
Seychelles	2017	19.36	0.01%
Guinea	1917	136.41	0.10%
Zimbabwe	1754	134.54	0.10%
Senegal	1615	45.03	0.03%
Gabon	1438	125.34	0.09%
Botswana	1299	8.88	0.01%
Mali	1234	47.77	0.04%
Cape Verde	1140	4.58	0.00%
Lesotho	1129	8.88	0.01%
Malawi	961	32.4	0.02%
Togo	955	58.11	0.04%
Burkina Faso	905	0	0.00%
Swaziland	902	0	0.00%
Djibouti	878	12.47	0.01%
Benin	849	39.33	0.03%
Gambia	675	1.19	0.00%
Somalia	566	0	0.00%
Sierra Leone	495	41.48	0.03%
Eritrea	438	12.54	0.01%
Rwanda	435	41.63	0.03%
Central African Republic	369	46.54	0.04%
Guinea-Bissau	190	27	0.02%
São Tomé and Principe	163	0.031	0.00%
Burundi	86	6.51	0.00%
Comoros	58	0	0.00%
553,974.00			

Table 4: World Mineral Production (2010)

World Mineral Production: 2006-2010				
British Geological Survey 2012				
			World Total tonnes (metric)	
Country	2010	Africa Share	Global Production	World Share
Aluminium			**41,500,000.00**	
Cameroon	76,000.00	4%		0.18%
Egypt	281,100.00	16%		0.68%
Mozambique	557,000.00	32%		1.34%
Nigeria	21,200.00	1%		0.05%
South Africa	807,000.00	46%		1.94%
Subtotal	**1,742,300.00**		**4%**	
Chromium ores and Concentrates			**30,000,000.00**	
Madagascar	134,500.00	1%		0.45%
South Africa	10,871,095.00	94%		36.24%
Sudan	56,823.00	0%		0.19%
Zimbabwe	510,424.00	4%		1.70%
Subtotal	**11,572,842.00**		**39%**	
Coal			**7,153,000,000.00**	
South Africa	254,521,945.00	98.65%		3.56%
DRC	120,000.00	0.05%		0.00%
Egypt	300,000.00	0.12%		0.00%
Malawi	79,185.00	0.03%		0.00%
Mozambique	25000	0.01%		0.00%
Niger	246,558.00	0.10%		0.00%
Nigeria	44,148.00	0.02%		0.00%
Swaziland	145,903.00	0.06%		0.00%
Tanzania	16,000.00	0.01%		0.00%
Zambia	14,000.00	0.01%		0.00%
Zimbabwe	2,488,856.00	0.96%		0.03%
Subtotal	**258,001,595.00**		**4%**	
Copper			**16,200,000.00**	
Botswana	25,000.00	1.80%		0.15%
DRC	377,900.00	27.23%		2.33%
Mauritania	36,969.00	2.66%		0.23%
Morocco	15,000.00	1.08%		0.09%
South Africa	102,600.00	7.39%		0.63%
Tanzania	6,400.00	0.46%		0.04%
Zambia	819,159.00	59.03%		5.06%
Zimbabwe	4,675.00	0.34%		0.03%
Subtotal	**1,387,703.00**		**9%**	
Diamond			**135,000,000.00**	
Angola	8,362,139.00	10.83%		6%

Botswana	27,556,000.00	35.70%		20%
Cameroon	12,000.00	0.02%		0%
Central African Republic	301,558.00	0.39%		0%
Congo	381,242.00	0.49%		0%
DRC	20,166,220.00	26.12%		15%
Ghana	308,679.00	0.40%		0%
Guinea	374,096.00	0.48%		0%
Ivory Coast	300,000.00	0.39%		0%
Lesotho	108,827.00	0.14%		0%
Liberia	25,357.00	0.03%		0%
Namibia	1,475,610.00	1.91%		1%
Sierra Leone	437,552.00	0.57%		0%
South Africa	8,868,389.00	11.49%		7%
Tanzania	82,028.00	0.11%		0%
Togo	96.00	0.00%		0%
Zimbabwe	8,435,224.00	10.93%		6%
Subtotal	**77,195,017.00**		**57%**	
Iron			**2,611,000,000.00**	
Algeria	1,474,279.00	2%		0.06%
Egypt	1,800,000.00	2%		0.07%
Mauritania	11,109,000.00	15%		0.43%
Morocco	44,665.00	0%		0.00%
Nigeria	50,000.00	0%		0.00%
South Africa	58,709,330.00	80%		2.25%
Tunisia	162,300.00	0%		0.01%
Uganda	3,795.00	0%		0.00%
Zimbabwe	37.00	0%		0.00%
Subtotal	73,353,406.00		**3%**	
Crude Petroleum			**3,901,000,000.00**	
Algeria	77,700,000.00	16.2%		2%
Angola	90,700,000.00	18.9%		2%
Cameroon	3,200,000.00	0.7%		0%
Chad	6,400,000.00	1.3%		0%
Congo	15,400,000.00	3.2%		0%
DRC	1,050,000.00	0.2%		0%
Egypt	35,000,000.00	7.3%		1%
Equatorial Guinea	13,600,000.00	2.8%		0%
Gabon	12,200,000.00	2.5%		0%
Ghana	360,200.00	0.1%		0%
Ivory Coast	2,196,000.00	0.5%		0%
Libya	77,500,000.00	16.2%		2%
Mauritania	412,465.00	0.1%		0%
Morocco	7,400.00	0.0%		0%
Nigeria	115,200,000.00	24.1%		3%
Senegal	316,000.00	0.1%		0%
Sudan	23,900,000.00	5.0%		1%

Tunisia	3,731,400.00	0.8%		0%
Subtotal	**478,873,465.00**		**12%**	
Platinum			**482,000.00**	
Botswana	3,888.00	1.3%		1%
Ethopia	8.00	0.0%		0%
South Africa	287,304.00	93.2%		60%
Zimbabwe	17,221.00	5.6%		4%
Subtotal	**308,421.00**		64%	
			tonnes (metal content)	
Uranium			**63,900.00**	
Malawi	671.00	6%		1%
Namibia	4,965.00	48%		8%
Niger	4,198.00	40%		7%
South Africa	583.00	6%		1%
Subtotal	10,417.00		16%	

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