

**Joint ESAMI/ Maastricht Doctorate Programme**

**"The Development and Tax Issues in the Global Diamond Value Chain:  
With Reference to the Diamond Mining Industry in Tanzania & Botswana"**

***(Assignment for DBA Programme)***

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## **0.0 Abstract and Summary**

This paper postulates a generalised ‘**tripartite value chain model**’, to make a comparative analysis of the diamond industry in Tanzania and Botswana. The logic of this model is that value-creation is the outcome of the continuous interactions between three parties. First, is the government, which creates the enabling environment for firms and households to engage in diamond mining. Both governments have ‘all rights of ownership in minerals’ and which ‘in the public interests’, confers on interested parties, the ‘right to prospect for, retain, mine, transfer rights and close mines, in accordance with the law as therein established’. Second are the large scale mining companies (LSMs) and the artisanal and small scale miners (ASMs), responding to the enabling environment and infrastructure created by government, by engaging in the diamond industry. Third are the tax authorities, distributing the wealth created by firms and households, through progressive and investment-neutral taxation and injecting proactive investment incentives, in order to realise an effective tax rate (ETR) of return, conducive to the development of the diamond industry. The conclusion is that the sustainability of the diamond industry, in both countries, will depend on private/public partnerships in large investments; capacity building of ASMs; the finding of alternative livelihoods for displaced local communities; upgrading; increased economic value added; and the realisation of optimal tax yields from the diamond industry. For that to happen, five issues have to be addressed. First, is the opening-up of the diamond industry to fair and regulated global competition, by checking the oligopolistic practices of De Beers and other emerging multinationals, through the empowerment of the World Diamond Council (WDC). Second is the urgency to build the capacity of the artisanal and small scale miners (ASM), through public/private partnerships interventions, such as the on-going Mwadui Community Diamond Partnership (MCDP) programme in Tanzania. Simultaneously is the need to find alternative livelihoods for the indigenous communities, such as the Bushmen of Botswana, being displaced from mining areas. Third is the sustenance of a more robust regulatory and supervisory regime, to enhance compliance to the Kimberly process and protect the natural environment. Forth and more important, is the urgency for increased domestic value added, through vertical and horizontal integration. Fifth is the faster up-grading of each chain, through impeccable corporate governance on the development value chain; technical innovation and human resources development on the business chain coupled with increased access to finance and market information on the ASM chain; and increased tax yield and compliance on the tax value chain.

### **Keywords**

Tripartite value chain, stakeholders, artisanal and small scale miners (ASM), De Beers, issues, intervention, resource curse’, Dutch disease, critical success factors (CSF)

### **1.0: Introduction and Organisation**

The Botswana diamond industry, accounts for 40% of GDP, 80% of exports and about 90% of foreign exchange earnings. In Tanzania, the diamond industry is being modernised and still accounts for less than 1% of GDP, exports, and foreign exchange respectively. The aim of the paper is to identify the key players along each of the three chains, the issues impacting chain governance, required intervention and critical success factors. The paper is organised in five parts. This first part is introductory. The second is a comparative macro-economic analysis of Tanzania and Botswana in the context of the curse theory. Third is the evolution of the diamond as a globally traded commodity - especially the role played by De Beers in the development of the global diamond value chain.

Forth is the map of the tripartite value chain. Fifth and arising from the tripartite map, is the analysis of the stakeholders, issues, required intervention, measures for sustainability and critical success factors. Included in this part are the concerns of the artisanal and small scale miners in the areas of technology, market information, finance and capacity building such that they can become the engine for rural transformation and poverty reduction in their communities. The final part contains the value added and gross margins computed for the global, large scale and small scale miners in Tanzania. Comparative figures for Botswana were not available.

## 2.0: Situational Analysis

### 2.1: The Curse Hypothesis: Is it Relevant to Tanzania and Botswana?

The ‘resource curse hypothesis’ (Autey R., 1993) and its corollary, the so called ‘**Dutch disease**’, (The ‘Economist’, 26<sup>th</sup> November 1977) is that there is a direct link between the sudden exploitation of an abundant natural resource and the slowing down of national economic growth. This downward trend may be due to induced laxity in macro-economic management, fiscal indiscipline and armed conflict. Several variants of the curse theory and its impact have been postulated. In discerning the voluminous literature on the curse theory, five key symptoms are tested to confirm whether Tanzania is ‘curse’ ‘Positive’ while Botswana is ‘Negative’. These are accordingly (a) the sudden drop in the rate of growth of real GDP (Sachcs & Warner, 1997); (b) corruption (Ross M. L., 2004); the rise of armed civil conflict or political instability (Collier and Hoeffler, 2004); (d) the reliance on a very narrow export base - the so called ‘staple trap’ concept (Autey R. et al’ 2001); and (e) and consumer price increases (inflation) – the Dutch Disease effect (Corden, W. M., 1984). These caricatures are tested on Tanzania and Botswana using a single source of hard data, namely the African Development Indicators 2007, except for Corruption Index from Transparency International. The results are captured in **Table 1.1** below.

Table 2.1: Testing the 'Resource Curse' and Dutch Disease Parameters By Country								
No	Resource Curse Indicators	East African Community (EAC) Countries						Botswana
		Burundi	Kenya	Rwanda	Uganda	Tanzania <sup>a</sup>	EAC Average <sup>b</sup>	
1	Average annual percentage growth in real GDP (2000 to 2005)	2.2	3.4	5.1	5.6	6.5	4.6	5.6
2	Corruption index ( On scale 1 to 10 where 1 is very high level of corruption and 10 is negligible corruption)	3	2.1	2.8	2.8	3.2	2.8	5.4
3	Political stability index (On Scale -2.5 to + 2.5 (Where minus 2.5 is very unstable and plus 2.5 is very stable)	-1.4	-1.1	-0.5	-1.2	-0.2	-0.9	1.2
4	Export Diversification Index (On Scale '0% (low)' to '100%' very high: 2000-2005)	1.3	15.2	3.1	5.8	18.7	8.8	1.3
5	Average inflation rates 0% to 100% (where '0% is better of than 100%) 2000 to 2005	11	10.5	6.7	6	5.9	8	8.03
Source: Derived from World Bank: African Development Indicators 2007 & Transparency International 2007								

**On curse No 1**, namely “the decline in the average annual real GDP growth rate”, Tanzania, with a score of **6.5%** performed better than Botswana with **5.6%**. **On curse No 2**, namely “corruption by the political leadership, Tanzania was rated below Botswana with a score of **3.2** compared to **5.4**, on a scale 1 to 10, where 10 is the most desired position. **On curse No 3**, namely “Political stability”, Tanzania lagged behind Botswana with a Political Stability Index **of minus 0.2** compared to Botswana with a **plus 1.2** on the Scale -2.5 to + 2.5 (Where minus 2.5 is very unstable and plus 2.5 is very stable). **On curse No 4**, namely “narrow export diversification”, Tanzania fared much better than Botswana with an Export Diversification Index **of 18.7%** compared to **only 1.3%**, out of the maximum score of 100% - the same score as Burundi – a war torn country. **On curse No 5**, namely, “rising average inflation rate”, Tanzania performed better had a lower inflation rate of **5.6%** compared to Botswana at **8.03%**. Hence, on the basis of the parameters tested herein, one cannot conclude that Tanzania is suffering from the **acquired resource curse and Dutch disease syndromes** herein abbreviated as CUDDS while Botswana is not. Surely, with the level of unemployment standing at nearly 40% for Botswana (2007) compared to Tanzania’s at 6.5%; with the rate of HIV/AIDS infection at 32% compared to Tanzania at 7.2%; and with the risk of catching malaria averaging 31.5% compared to Tanzania at 3.0% (2000 -2005), and with the diamonds projected to be exhausted by 2029, it is be too early to speculate.

## **2.2: Critique of the Curse Hypothesis**

The proponents of the curse theory have been challenged on four counts. First, that it is a discourse in the obvious, since by the law of economics, resources will always move from low-return economic sectors and regions to high-return growth sectors *mutatis mutandis*. Secondly, that the key authors (Sachs and Warner, 1995, 1997, 2001) based their conclusions on simple regression analysis (Arezki R. and van der Ploeg F., 2007) in which many variables influencing macro-economic behaviour, were held constant. However, when the same variables used in their analysis are subjected to “instrumental variables techniques to correct for endogenous nature of the explanatory variables, the conclusions of the curse analysis collapses. This is because they ignore fundamental economic history, national, regional and international power politics which undermine national economic management. Thirdly, some aspects of the curse theory as put by Ross 1999; Auty 2001; Busby et al. 2002; Isham et al., 2003; and Sanga S. P., 2006, imply that by exploiting an abundant natural resource, institutions, governance and economic growth suddenly declines. The facts confirm the contrary, in that it is the presence of multinationals with their drive for cheap labour and flouting of national and international laws - either through bribing the willing or undermining leaders who refuse to cooperate - that leads to a gradual decline of the capacity of established state institutions to manage the national economic process. Finally, it is now established that the entire data used by the proponents of the ‘curse theory’ to analyse African and Latin American economic experiences, are those from the ‘cold war period’ during which time political ideology rather than economics or some unknown curse determined the tempo of economic growth. The solution lies in the empowerment of World Trade Organisation (WTO) to enhance fair global competition.

## **3.0: The Natural Diamond as a Product**

### **3.1: Diamond Formation, Mining and Uses**

The natural diamond is a scarce commodity, being embedded in volcanic bearing rocks protruding through the earths’ crust, in a carrot-like looking pipe - the *kimberlite*. Today, July 2008, there are 4,000 known *kimberlitic* in the world. However, only 400 (10%) of

them contain diamonds, and only 40 (1%) of these are of any economic value (BHP Billiton Co., 2005). The geological value-chain of diamonds, started some 50 million years ago, with volcanic eruptions, pushing the embedded diamonds located 150 to 200km down the diamond stability fields, through narrow fissures in the lithosphere to the earths’ crust to form the *kimberlite* (Elkedra Diamonds NL. 2007). Over the years, while some of the diamonds have remained embedded in the kimberlitic pipes, the rest have been chipped-off and deposited down quake-lakes, along rivers and sea beds, or under deserts and ice-fields.

Six diamond mining methods are currently in use, namely: underground; open-pit, large scale modern alluvial; artisanal and small scale alluvial; coastal; and deep sea dredging. The mining costs vary according to ownership, size, technology and mine location.

No	Method	Size of Operation	Productivity in tons per day (tpd)	Costs/ US\$ per ton
1	Open pit mining of kimberlite pipes	Large	10,000	12 to 18
2	Open pit mining of alluvial terraces	Large	30,000	8 to 12
3	Sub-level underground mining	Medium	5,000 tpd to 15,000 tpd	18 to 25
4	Block-caving underground mining	Very large	30,000 tpd to 60,000 tpd	5 to 12
5	Underground fissure mining	Small	200 tpd to 800 tpd	28 to 35

Source: BRC Diamond Core Ltd: 2008

A study done by the Canadians in 1998 (Federal Government of Canada, 1998) established the average global mining operating costs (excluding depreciation, amortisation and interests) to vary from US\$ 5 to US \$6 per ton for very large and easy to access modern diamond mines to US\$ 30 per ton for those mines in difficult. Total mining costs, inclusive of depreciation, amortisation and interest varied from US\$15 to US\$ 30 per ton for smaller and larger mines respectively.

Analysis of the small scale miners cost structure revealed costs approximately four times higher than the global average.

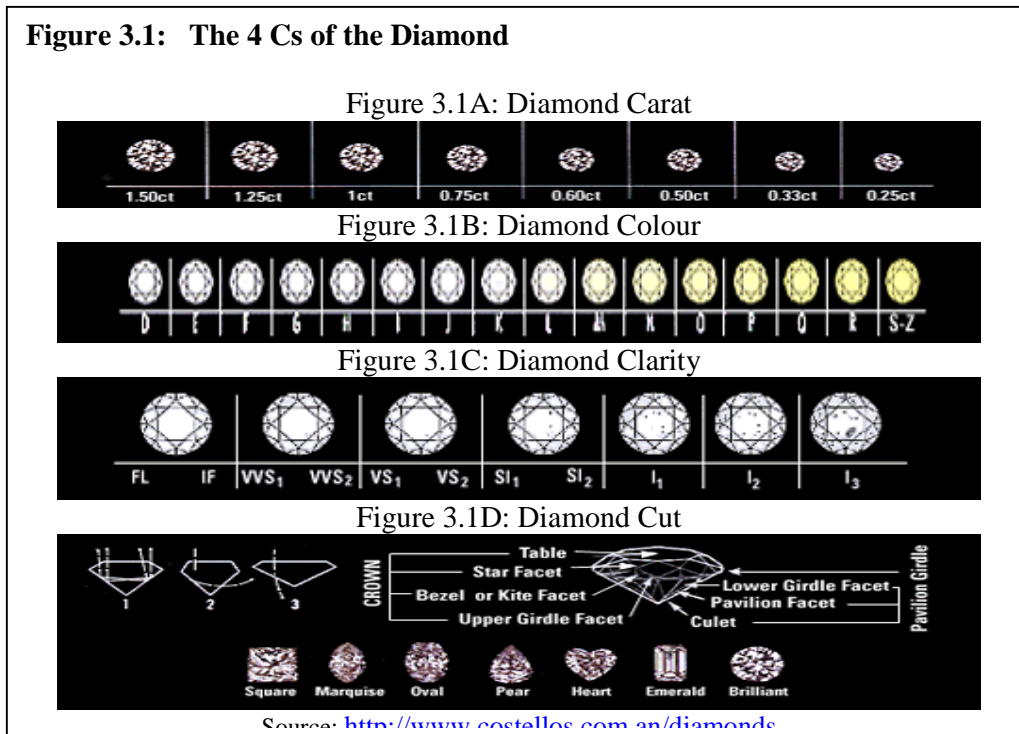
It is estimated that due to the oil crisis these costs may have increased from those indicated in **Table 3.1** above.

Diamonds have three uses: industrial diamonds - constituting 80% of world production and used in hard surface cutting, boring and earth movement equipments; gem diamonds - constituting 15% of production and applied in jewellery manufacturing; and investment diamonds - usually large special-feature diamonds, purchased as a store of value, especially during super hyper inflation, such as the current situation in Zimbabwe.

### **3.2: Diamond Grades and Quality Specification**

Diamond grade or yield is defined as the weight of diamonds expressed in carats per ton of ore. According to De Beers, it has wide global variation, ranging from 0.3 to 1.3 carats per ton. The value of ore per ton is equal to the grade times the average value per carat of individual diamonds in the deposit.

The average size of stones at individual mines varies from 0.01 (1 mm in size) carats to more than 0.7 carats. The global average is about 0.4 to 0.5 carats per stone. According to De Beers, mines rarely fine stones exceeding 1 carat (200 milligrams) and if found rarely exceed 400,000stones per annum – representing 0.5% of global production. Overall, very few stones exceed 1 carat. As shown in **Figure 3.1** below, the quality of diamonds is determined by the so called 4 Cs: namely, carat weight certified from an accredited gem appraisal laboratory, colour, clarity and cut-shape (<http://www.costellos.com.au/diamonds>). Some of the lead laboratories are Jewellery Council of South Africa (CSA); Antwerp Diamond Laboratory (ADL); American Gem Appraisal Laboratories.



### 3.3: Current World Trade in Diamonds

As shown in **Table 1.2** below, the lead producing countries are Russia, Botswana, Congo DRC, Australia and South Africa, while the major import and exporting countries are the European Union (EU), India, Israel, UAE and China.

**Table 3.2: Production of Rough Diamonds: 2004 to 2007**

No	Producing Country	2004			2005			2006			2007		
		Quantity in millions of carats	Average Value per carat US\$	Value millions of US\$	Quantity in millions of carats	Average Value per carat US\$	Value millions of US\$	Quantity in millions of carats	Average Value per carat US\$	Value millions of US\$	Quantity in millions of carats	Average Value per carat US\$	Value millions of US\$
1	Russia	39	57	2,205	38	67	2,531	38	67	1,574	38	69	2,625
2	Botswana	31	83	2,576	32	90	2,870	34	94	3,208	34	88	2,960
3	Congo DRC	30	18	536	33	19	615	29	15	432	28	13	365
4	Australia	20	16	314	33	17	547	3	19	560	19	20	365
5	South Africa	14	76	1,076	16	85	1,319	15	91	1,362	15	93	1,417
6	Canada	13	130	1,645	12	118	1,454	13	106	1,397	17	97	1,657
7	Angola	6.1	128	788	7.1	154	1,089	1	123	1,133	10	131	1,272
8	Namibia	2.0	335	673	1.9	373	697	2	375	901	2	316	715
9	Ghana	0.9	29	26	1.0	33	34	1	32	31	1	26	23
10	Tanzania	0.30	115	35	0.22	115	25	0.27	42	26	0.28	101	28
11	Others	2.8	123	347	3	154	424	39	39	1,506	4	173	679
	<b>Grand Total</b>	<b>159</b>	<b>64</b>	<b>10,222</b>	<b>177</b>	<b>66</b>	<b>11,606</b>	<b>176</b>	<b>69</b>	<b>12,129</b>	<b>168</b>	<b>72</b>	<b>12,107</b>

**Table 1.2B: Imports of Rough, Polished & Manufactured Diamonds**

		2004			2005			2006			2007		
		Quantity in millions of carats	Average Value per carat US\$	Value millions of US\$	Quantity in millions of carats	Average Value per carat US\$	Value millions of US\$	Quantity in millions of carats	Average Value per carat US\$	Value millions of US\$	Quantity in millions of carats	Average Value per carat US\$	Value millions of US\$
1	EU	194	64	12,472	202	73	14,741	191	72	13,734	187	77	14,427
2	India	187	40	7,524	183	50	9,147	172	50	8,557	174	56	9,664
3	Israel	42	144	6,022	36	171	6,178	27	202	5,493	24	245	5,858
4	UAE	28	31	884	37	40	1,485	42	37	1,561	43	46	1,954
5	China	26	60	1,560	21	82	1,731	25	86	2,114	27	84	27
6	Switzerland	13	70	882	13	119	1,547	10	127	1,261	10	140	1,394
7	USA	3.6	223	792	3	284	889	4	189	817	5	170	899
8	Thailand	2.1	190	408	1	219	284	3	209	526	3	214	548
9	S. Africa	0.9	656	609	1	665	729	1	906	672	1	1,706	2,114
10	Canada	0.18	319	58	0	254	83	0	310	136	1	124	128
11	Botswana	0.08	306	25	0	382	30	0	362	60	0	536	119
12	Tanzania	0	0	0	0	0	0	0	0	0	0	0	0
13	Others	4	184	652	3	226	765	3	221	705	5	606	2,940
	<b>Grand Total</b>	<b>499</b>	<b>64</b>	<b>31,887</b>	<b>502</b>	<b>75</b>	<b>37,609</b>	<b>479</b>	<b>74</b>	<b>35,636</b>	<b>479</b>	<b>84</b>	<b>40,072</b>

**Table 1.2C: Exports of Rough, Polished & Manufactured Diamonds**

		2004			2005			2006			2007		
		Quantity in millions of carats	Average Value per carat US\$	Value millions of US\$	Quantity in millions of carats	Average Value per carat US\$	Value millions of US\$	Quantity in millions of carats	Average Value per carat US\$	Value millions of US\$	Quantity in millions of carats	Average Value per carat US\$	Value millions of US\$
1	EU	194	64	12,472	202	73	14,741	191	72	13,734	187	77	14,427
2	India	187	40	7,524	183	50	9,147	172	50	8,557	174	56	9,664
3	Israel	42	144	6,022	36	171	6,178	27	202	5,493	24	245	5,858
4	UAE	28	31	884	37	40	1,485	42	37	1,561	43	46	1,954
5	China	26	60	1,560	21	82	1,731	25	86	2,114	27	84	27
6	Switzerland	13	70	882	13	119	1,547	10	127	1,261	10	140	1,394
7	USA	3.6	223	792	3	284	889	4	189	817	5	170	899
8	Thailand	2.1	190	408	1	219	284	3	209	526	3	214	548
9	S. Africa	0.9	656	609	1	665	729	1	906	672	1	1,706	2,114
10	Canada	0.18	319	58	0	254	83	0	310	136	1	124	128
11	Botswana	0.08	306	25	0	382	30	0	362	60	0	536	119
12	Tanzania	0	0	0	0	0	0	0	0	0	0	0	0
13	Others	4	184	652	3	226	765	3	221	705	5	606	2,940
	<b>Grand Total</b>	<b>499</b>	<b>64</b>	<b>31,887</b>	<b>502</b>	<b>75</b>	<b>37,609</b>	<b>479</b>	<b>74</b>	<b>35,636</b>	<b>479</b>	<b>84</b>	<b>40,072</b>

Source: World Diamond Council: Kimberly Process Certification Scheme

### **3.4: Diamond Availability in Botswana**

In Botswana, the first *kimberlite* pipe was discovered in 1966 in the Kalahari Desert, homeland to the Sun people, the great-great grand parents of modern man, according to the Sahara Pump theory (van Zinderen Bakker E. M., 1962; Burroughs, William J. 2007). Commercial production commenced under De Beers at Orapa in 1970. Up to 2005, Botswana had scooped 476 million carats of diamonds valued at 45 million US dollars, placing the country in fifth global position in output terms and second in value terms (Janse A.J.A., 2006). It has not been possible to establish the number of kimberlites identified in Botswana today, but a report by Firestone Diamonds in 2007 indicated that they had identified 81 known kimberlites 17 of which were proven to be diamondiferous pending further analysis to determine their economic viability. However, considering that De Beers has been conducting extensive exploration of the country since the 19c0's, the number of known kimberlites may well be higher than the 300 kimberlites and 60 diamondiferous pipes so far identified in Tanzania. As of July 2008, there were 6 active diamond mines operating in Botswana. Four of them were owned by Debswana Diamond Mining Company (Pty) Ltd, which is a 50-50 joint venture between De Beers and the Government of the United Republic of Botswana. The four are (a) Damtshaa (commissioned in 1982), Jwaneng, Letlhakane and Orapa – are owned by Debswana Diamond Mining Company (Pty) Ltd which is a 50-50 joint venture between De Beers and the Government of the United Republic of Botswana.

### **3.5: Diamond Availability in Tanzania**

In Tanzania, the first kimberlite was discovered in 1910 and commercial production began in 1925 at Mwadui in Shinyanga, the heartland of the snake-dancing tribesmen, the Sukuma, who had long honoured these glittering stones while herding their pythons for royal dance performances. It was them who assisted the great Canadian Geologist, Dr. Williamson, to discover the diamonds at Mwadui (named after a paramount Chief of the area). Dr. Williamson, whose remains still lie buried at Mwadui, is very much honoured in the diamond world, because he established a local people-centred mine development model suitable for the 21<sup>st</sup> Century. It was him who inspired the artisanal and small scale miners to exploit the alluvial deposits adjacent to the Mwadui *kimberlite* at Maganzo, so as to learn by doing, having started with them at Mabuki, in Mwanza Region in 1910. To this extent and until his untimely death with cancer in 1958, at the prime age of 50, he resisted Cecil Rhodes, the founder of De Beers, from taking over the mine at Mwadui (Knight, John & Stevenson, Heather, 1986). The Mwadui diamond field, together with its sister cluster *kimberlite*, the New Alamas (Swahili word for diamonds) Diamond Mines, all measuring 146 hectares in area, with an estimated reserve of 50.9 million carats is the largest economically exploitable diamond-bearing volcanic pipe in the world (Gobba J. M., 1989). The mine is also one of the oldest continuously operating in the world and by 2006 had produced 19 million carats (3,800 kg) since its commissioning in 1925.

However, the yield has declined from 60 carats per 100 tons of ore in the first 25 years of operations (1925-1950) to 5 carats per 100 tons of ore when I visited it in June 2008. Average throughput has declined to an average of 300,000 carats (60 kilos) per annum from the peak of 924,984 carats (185 kilos) achieved in 1966. The good news is that the Mwadui kimberlite has been found to be a pyroclastic *kimberlite* (perpendicularly protruding down below the earth) meaning that the mining can be extended from the current 90 metre deep to beyond 350 metre deep, such as the Anebar Mine in Russia which is 500 metres deep. Overall, between 1870 to 2005 Tanzania had produced 21 million carats of rough diamonds valued at 3 million US\$ at the average price of US\$ 145 per carat. As of June 2008, Williamson Mwadui Mine was owned 75% by De Beers and 25% by the Government of Tanzania.

**IT SHOULD BE NOTED THAT DE BEERS SOLD THEIR SHARES IN WILLIAMSON DIAMOND COMPANY THE FIRST WEEK OF SEPTEMBER, 2008.**

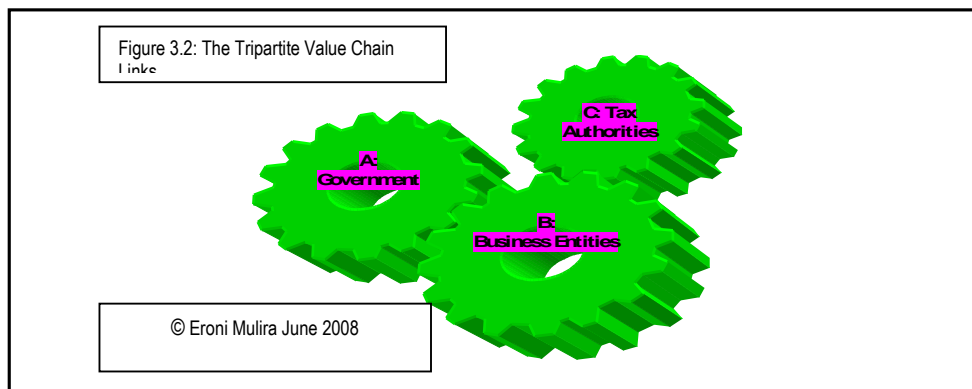
#### **4.0: The Global Diamond Value Chain**

##### **4.1: The Concept of Value Chain**

The value chain concept (Porter M. 1985) depicts the links between inbound, operations and outbound logistics in delivering value-for-money goods and services to customers, through the marketing, sales, service and customer-care channels, supported by an integrated management information system (IMIS) in all functional areas. The upgraded version of this concept is the global value chain (GVC) model, flowcharting the inter-relationships between raw materials, components, production and export marketing supply networks through which internationally traded commodities reach the final customer ( Gereffi G. and Memedovic O., 2003).

##### **4.2: The Drivers of the Global Diamond Value Chain**

The three parties, constituting and engaged in the tripartite global diamond value chain, are accordingly, the national governments; business entities; and the relevant tax authorities along the global tax effective supply management chains (GTESMC). The government sets the policy, legal, institutional and regulatory frameworks necessary for the sustenance of the diamond mining industry and for ensuring fair play, competition and environmental protection. The business entities are firms and households engaged in diamond mining and trade. The tax authorities collect government revenue and administer investment incentives promulgated by the government. These tripartite relationship and stakeholder links are captured in **Figure 3.2** below.

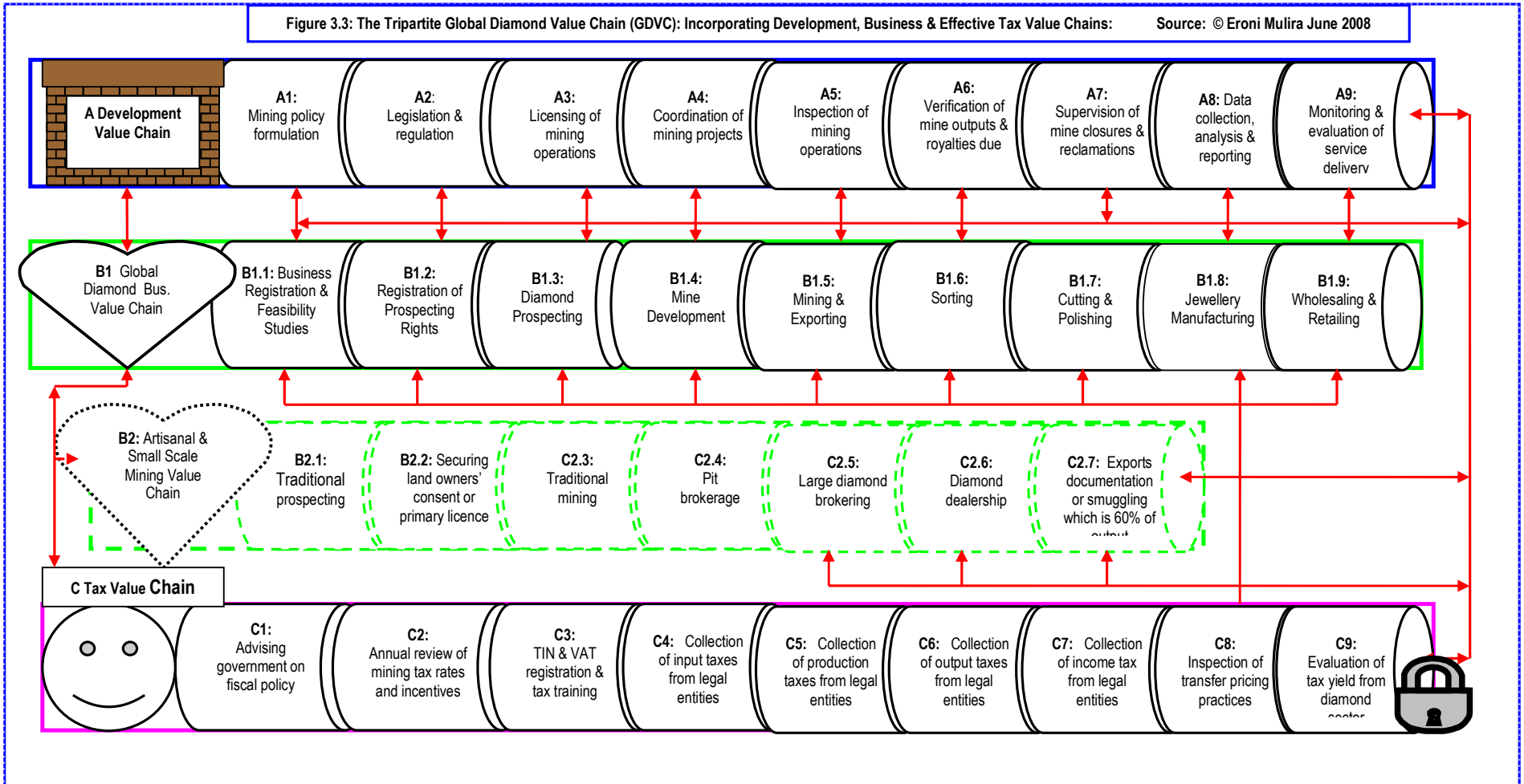


##### **4.3: The Tripartite Global Diamond Value Chain Map**

Arising from the relationship between the three forces driving the global diamond value chain, the tripartite diamond value chain map is charted in **Figure 3.3** below. Chain A is the development value chain, consisting of the core public service functions rendered by governments in promoting, regulating and guaranteeing fair play to all stakeholders in the diamond industry. Chain B is the diamond business value chain consisting of two tributaries. Chain B1 is the large scale mining value chain, consisting of the generic functions on the global diamond mining value chain. Chain B2 is the artisanal and small scale mining value chain depicting the activities of the informal and small scale miners found in the Shinyanga and Mwanza Regions of Tanzania. Chain C is the tax value chain consisting of the applicable input, process, output and consumption taxes applicable at each stage of business chain link.

The discussions, on the relationship between the actors along each chain and in relationship to others, are based on a field visit to Shinyanga in Tanzania and internet searches on the diamond industry in Botswana. For each country and along each of the three chains, the discussion is structured into five parts, namely: (a) the primary and secondary stakeholders or actors; (b) the pertinent issues impacting the value chains (c) required interventions to address the issues; (d) the critical success factors for sustainability of the diamond industry; and (e) proposed responsibility authority, and reporting centres for implementation.

**Figure 3.3: The Tripartite Global Diamond Value Chain (GDVC): Incorporating Development, Business & Effective Tax Value Chains: Source: © Eroni Mulira June 2008**



## **5.0: Analysis of Stakeholders, Issues, Interventions and Sustainability Measures**

### **5.1: The Diamond Industry Development Value Chain in Tanzania**

#### **5.1.1: Chain Functions and Stakeholder Analysis**

As per the development value chain captured in Row A, in Figure 1.2, chain-links A1 to A9, the core related functions on the mining sector development value-chain are;- (a) policy formulation and review; (b) legislation and regulation; (c) licensing of mining operations; (d) co-ordination of diamond mining projects and related businesses; (e) inspection of mines to ensure compliance to safety and environmental regulations; (f) verification of mine outputs and computation of royalties as per Section 86-93 of The Mining Act, 1998; (g) supervision of mine closures and land reclamations; (h) data collection, analysis and reporting; and (i) monitoring and evaluation of public service delivery to the mining sector as per the requirements of the Tanzania Public Service Reform Programme (PSRP) 2002 to 2012, which requires line ministries to consummate clients service charters with their constituents.

The analysis of stakeholders, issues, required interventions, critical success factors for sustainability, and responsibility centres for their implementation is done along the chain as a whole, rather than breaking them into separate chain link functions. This is because many of the actors listed below have multiple functions along the development value chain.

#### **5.1.11: Primary Stakeholders/ Actors**

The primary stakeholders/actors along the diamond sector development value chain functions are captured as herein below.

- Minister of Minerals and Energy (MEM), whom, in consultation with the Mining Advisory Committee formulates and reviews mining policies (see the Mineral Sector Policy of October 1997), and through the Commissioner of Mines, authorises or enters into development agreement for diamond prospecting and mining as well as granting mineral rights, conferring transferable and negotiable value to the holder of the instrument (Section 6-10 of The Mining Act, 1998)
- Attorney General (AG) - responsible for guaranteeing prospecting and mining private property rights to bona fide holders and generally for overseeing law enforcement and excellent governance in the mining sector
- Minister of Finance (MoF), responsible for fiscal policy formulation and through the Tanzania Revenue Authority (TRA), for effective tax management, administration, custody of royalties and tax revenues from the mining sector (Section 86-93 of The Mining Act, 1998)
- Minister of Lands & Human Settlement (MoL), the guarantor of security of land tenure (see The Land Act, 1999 and The Village Land Act, 1999) responsible for due process in the evaluation and compensation of land bequeath to large scale miners from local mining communities
- National Environment Authority (NEMA) for ensuring compliance to environment laws and issuing environmental impact assessment certification (EIA);
- Tanzania Investment Centre (TIC) – the one stop centre for investment promotion and custodian of the Land Bank
- Existing large scale mining companies (LSM's) especially De Beers, which owns 75% of Williamson Diamond Mine at Mwadui in a twenty five percent (25%) joint venture with the Tanzanian Government
- Artisanal and small scale miners (ASM's) operating at Maganzo and Nyanghwale - Kahama in Shinyanga Region and Mabuki, Mwanza Region
- Potential foreign investors responding to investment incentives coordinated by the Tanzania Investment Centre (TIC)
- Representatives of local mining communities and associations such as the Tanzania Chamber of Mines (TCM); the Tanzania Women Miners Association (TAWOMA); and various Regional Mining Associations (REMA's)
- Political parties represented in Parliament, especially the ruling party, Chama Cha Mapenduzi (CCM), and the lead opposition parties: the Civic United Front (CUF); and the Chama Cha Democracia (Chadema)

### 5.1.12: Secondary Stakeholders/ Actors

The secondary stakeholders/actors along the diamond sector development value chain functions are captured as herein below.

- The Bank of Tanzania (BoT) – responsible for monitoring the export value of diamonds and the foreign exchanged realised therein
- Multilateral lending agencies: the World Bank which participated in the formulation of the Mining Policy 1997; the International Monetary Fund (IMF), which is giving technical advise on the sustenance of macro-economic stability; the African Development Bank (AfDB) which is active in financing infrastructure development and rehabilitation in the economic concentration areas of Tanzania; the Multilateral Investment Guarantee Agency
- Bilateral grant providers, especially the EU member countries which are financing 40% of the annual national budget - 2008 to 2009
- The East African Community (EAC) focused on the harmonisation of mining policies and investment tax incentives based on the principles of the Marginal Effective Tax Rate (METR)
- Tanzania Federation of Trade Unions (TFTU) concerned about low wage rates and poor safety conditions in mines in addition of non-compliance to ILO covenants by employers in Tanzania
- Association of Tanzania Employers (ATE) active in enhancing chain governance and promoting corporate social responsibility (CSR) among its members.
- Private Sector Foundation - driving private sector participation in the development of the mining sector as per the objectives of the Mining Policy to raise contribution of mining sector to GDP to 10% by 2025
- Ministry of Labour and Youth Development, concerned about gender and child exploitation, especially among ASMs in the mining sector as well as pressing for the reforms of the low wage policy being practised by large scale miners in Tanzania
- Ministry of Regional Administration and Local Government - concerned with the failure by the mining companies to pay the stipulated US\$ 200,000 provided in the Mining Regulations 1999.

### 5.1.13: Issues, Interventions, Critical Success Factors for Sustainability

No	Salient Issues in Chain	Required Intervention	Critical Sustainability Factors	Responsibility Centre	Reporting: To whom
1	Lack of well defined programmes, strategies and action plans for alleviating poverty among artisanal and small scale miners (ASMs) in the Mining Policy of 1997 and the Mining Act of 1998	Establish an all inclusive, independent special commission to study the geological, technical, economic, value-added, social, political, and tax implications of the diamond industry in Tanzania, with special attention to the circumstances of ASMs.	The Commission must focus on seven related issues, namely: the changes in the global diamond trade and measures to enhance competitiveness; the marginal effective rate of taxation (MERT) in the diamond industry; access to rough diamonds by local processes and jewellery manufacturers; human resources and technical development for the mining industry; access to credit and diamond market information; illegal exportation of diamonds; and enforcement of the Diamond Mining and Trading Regulations 2002.	Minister of Energy and Minerals (MEM)  Commissioner of Mines	Cabinet, quarterly and to Parliament annually
2	Low wage rates and benefits for Tanzanians working in the diamond mines.	Supervise the payment of the minimum living wage of T. Shs 350,000 per month recommended by the Ministry of Labour for the mining sector	Indexation of living wage rates in all sectors in Tanzania to the average national inflation rates	Minister of Labour (MoL)	Cabinet and Parliament annually
3	Smuggling of diamonds to neighbouring countries	Reform the Diamond Mining and Trading Regulations 2002 into a comprehensive Act of parliament with stiff penalties for smugglers of precious and semi precious stones	Development of a vibrant domestic rough diamond market in diamond mining areas to discourage diamond smuggling to Kenya, Dubai, India and Thailand. ASMs require cash on delivery, which is not available with local brokers and dealers – hence smuggling	Minister of Trade and Industry Board of External Trade (BOET)	Cabinet and Parliament quarterly
4	Increasing global speculation by foreign holders of diamond prospecting licenses through internet sales advertisement of diamond properties in Tanzania	Restrict foreign holders of prospecting licenses to a maximum of 1,000 square kilometres per applicant instead of the existing 5,000 square kilometres.	<ul style="list-style-type: none"> <li>• Monitor outcomes of international adverts of diamond properties.</li> <li>• Levy windfall gain tax on diamond property sales</li> <li>• Strengthen the capacity of Zonal Mining Officers</li> </ul>	Minister of Energy and Minerals  Commissioner for Mines	Cabinet and Parliament quarterly

<b>Table 5.1: Summary of Issues, Interventions, Critical Sustainability Factors &amp; Implementation Centres (Cont'd)</b>					
No	Salient Issues in Chain	Required Intervention	Critical Sustainability Factors	Responsibility Centre	Reporting: To whom
5	Falsification of mine output figures and values in order to minimise royalty and tax payments	Outsource valuation to a reputable international diamond valuation firm and reconcile records at the mine site instead of relying on FOB export prices as is currently the case	Determine the marginal effective tax rate for the diamond sector and simplify tax collection	Tanzania Revenue Authority (TRA); Tanzania Chamber of Mines	Minister of Finance and MEM
6	Limited domestic value added in the diamond industry	Legislate for the trading, sorting, polishing cutting and manufacturing of jewellery as in the case of Canada and to some extent Botswana which is cooperating with De Beers to do so	Promotion of public/private partnerships in the formation of a diamond trading and sorting company such as is the case in Botswana to enhance royalty and tax collection. Dissolve the TANSORT UNIT at the Ministry of Energy and Minerals	Tanzania Investment Centre Private Sector Foundation Minister of Trade & Industry	Minister of Finance, MEM and Attorney General
7	Land conflict in diamond mining areas	Formalisation of lands right as per the Land Act, 1999 and Village Land Act, 1999 in order to reduce conflict in diamond mining areas	Effective implementation of land reforms initiatives (Lange Siri, 2008) especially: Property and Business Formalisation Programme (MKURABITA in Swahili) aimed at reducing poverty by registering poor peoples wealth (land, houses and other property); issuance of Village Land Certificates (CVL); issuance of Certificates of Customary Right of Occupancy (CCRO); Strategic Plan for the	Minister of Lands	Cabinet and Parliament as and when required
8	Poor compensation of local communities evicted from large scale diamond mining sites	Establishment of market based compensation schemes to address conflict between investors and local communities	Application of the discounted cash flow approach in determining the present value of land (through the use of the income approach in property	Attorney General; Minister of Finance and Minister of Lands.	To Cabinet & Parliament as and when required
9	Limited Tanzania Government equity participation in diamond mining ventures	Adopt the policy of 50:50 share ownership in all large scale diamond industry ventures such as is the case in Botswana	Improvement of physical and social infrastructure in diamond mining areas - in addition to widening and deepening non-tax fiscal incentives such as the Financial Assistance Programme (FAP) adopted in Botswana	Minister of Finance & Attorney General	To Cabinet & Parliament as and when required
10	Limited exploitation of the diamond potential in Tanzania	Liaise with De Beers and other emerging multinationals for intensified diamond exploration, mining and for the creation of diamond trading and sorting facilities similar to the ones in Botswana and entice Sight Holders to purchase diamonds in Tanzania	Establishment of Mining Sector Export Credit Guarantee & Risk Insurance Scheme to cushion Tanzanian , regional and international banking and credit institutions against the presumed high risks in lending to mining enterprises in Tanzania Transform Geological Survey of	Bank of Tanzania (BoT), International Finance Corporation (IFC) Minister of Finance (MoF)	To Cabinet & Parliament as and when required
11	Reluctance of mining firms to pay the annual US\$ 200,000 to local authorities	Impose stiff penalty for non-payment as per the regulations	Subject renewal of licenses to evidence of compliance to local authority subventions	AG; MEM; Minister of Local Government	To Cabinet quarterly and Parliament annually
12	Widespread illegal mining by the ASM's	Tighten mining regulations and supervision by District Mining Officers	Involve the ASMs in the enforcement of legal mining activities in their areas	Commissioner of Mines	Minister of Energy and Minerals, monthly
13	Environmental degradation in diamond mining areas	Enhance supervision of mine closures and land reclamation in accordance with the Mining (Environmental Management & Protection) Regulations 1999; & National Environment Management Act 2004	Outsource the supervision of mine closures and land reclamation. Vet the environmental management section in the Annual Report of mining companies to the Commissioner	NEMA; Zonal Mining Officers	Minister of Environment, monthly

## **5.1.2: The Global Diamond Business Value Chain in Tanzania**

### **The Diamond Industry Leaders**

The diamond industry is dominated by a few large firms, most of which are involved in various capacities throughout each link of the global value chain. DeBeers has dominated the industry historically, but other players have presented formidable competition. Some of the firms focus on diamond mining and production, and others mine and work with a wide range of materials. As with the countries, many firms upgrade and expand into different parts of the global value chain. The major firms in the global value chain are, namely, De Beers, with its market value reduced from 80% to 43%, Alrosa (Russian – with a market share of 12%, Rio Tinto (Australian with a market share of 9%, BHP Biliton (Australian with a market share of 6%), Aber (Canadian with a market share of 2%), and Leviev (Russian with a market share of 12%).

De Beers is changing its strategy from being the world’s major supplier of diamonds to being a leader of a competitive industry, and are therefore focusing on mines and exploration activities and reviewing their mining assets portfolio focussing on those with the best strategic fit that will aid them to achieve their vision. Consequently De Beers has sold off Williamson Diamond Company of Tanzania to Petra Diamonds Limited for US\$ 10m and their oldest mines in South Africa; Cullinan and Kimberly Underground Mines and has also consolidated West coast diamond operations into a single independent diamond company.

### **5.1.21: Chain Functions and Stakeholder Analysis**

As per the global diamond business value chain captured in Row B1, in Figure 1.2, chain-links B1.1 to B1.9, the core related functions on the global diamond business value-chain are;- (a) : business registration & feasibility studies; (b) registration of mining rights; (c) diamond prospecting(d) mine physical facilities development (e) mining and on site processing; (f) sorting for sales (g) cutting and polishing; (h) jewellery manufacture; and (i) wholesaling and retailing to final customers

The analysis of stakeholders, issues, required interventions, critical success factors for sustainability, and responsibility centres for their implementation is done along the chain as a whole, rather than breaking them into separate chain link functions. This is because many of the actors listed below have multiple functions along the development value chain.

### **5.1.22: Primary Stakeholders/ Actors: Tanzania**

The primary stakeholders/actors along the global diamond business value chain in Tanzania are captured as herein below:

- Large scale mining companies either engaged in diamond mining directly or supplying services to the diamond mining sector. The most active in diamond mining being De Beers, which has two diamond mines: Williamson Diamond Mining Company at Mwadui (75% De Beers & 25% Government of Tanzania with 166,000 carats/year capacity); and the New Almasi Diamond Mine also at Mwadui and 100% owned by Williamson with a capacity of 93,000 carats/year.
- The Mwadui Diamond Community Partnership (MCDP)
- Other local community based organisations (CBO’s) representing villages in the diamond mining areas of Maganzo and Nyanghwale - Kahama in Shinyanga Region and Mabuki in Mwanza Region
- Tanzania Investment Centre (TIC)

### **5.1.23: Secondary Stakeholders/ Actors: Tanzania**

The secondary stakeholders/actors on the diamond business value chain are firms and households providing support services and basic needs required in diamond mines.

- Lakota Resources (T) Ltd; Stanley Mining Services (Tanzania) Ltd; Unified Resources Development Limited.; ALS Chemex Tanzania; Anmercosa Exploration; Bulk Mining Explosives (Tanzania); Corstor (Tanzania); El Hillal Minerals; Engineering Associates; Exploration and Mining Association; Gaily & Roberts Ltd; Geological Survey of Tanzania; Kilimanjaro Mines Ltd; LTA Construction Ltd; Major Drilling International; and Monsoons Mines Logistics; Tanzania Electricity Supply Company (TANESCO); local farmers, transporters and internet service providers (ISPs).

### 5.1.24: Issues, Interventions, Critical Success Factors for Sustainability

No	Salient Issues in Chain	Required Intervention	Critical Sustainability Factors	Responsibility Centre	Reporting: To whom																					
1	Abuse of investment incentives issued by the Tanzania Investment Centre (TIC)	Strengthen the monitoring and reporting of the activities of TIC Certificate of Incentive beneficiaries	Continuously update the Customs Department of TRA with the list of valid incentive holders	TIC	Minister of Finance & Economy																					
2	Unaffordable Reconnaissance License Fees to local entrepreneurs. License preparation fee is US\$250, annual rent is US\$10/km <sup>2</sup> and renewal fee is US\$200.	Issue Free Reconnaissance Permits instead of Licenses. Like in Botswana, such a <b>Reconnaissance Permit</b> does not confer exclusive rights on the holder but allows the holder to look over a wide area in the country without any financial obligation. The validity of the permit is one year and the permit itself is not an entitlement to a prospecting licence. A permit is not transferable.	Create a robust Geological Survey Authority of Tanzania, with the necessary autonomy and resources to undertake continuous reconnaissance for the benefit of all investors	Minister of Energy and Minerals  Attorney General	Cabinet and Parliament as and when required																					
3	Invasion and eviction of artisanal and small scale diamond mining sites by medium local companies and large multinational mining companies. This has occurred at Mabuki Mwanza diamond mining sites and the miners are very disappointed	Sensitise the local community leaders and miners on the Mining Policy 1997 and Mining Act 1999  Offer alternative livelihoods to artisanal and small scale miners operating in areas where the mine yield is very minimal – such as at Mabuki, which was abandoned by Dr Williamson in the 1940's	Restrict artisanal and small scale alluvial diamond mining to a maximum of 30 meters below. From thereon, up to even 500 meters, it should be the domain of large scale mining companies with state of the art technology, safety infrastructure, financial backing and	MEM; NEMA;  Minister of Science and Technology  Tanzania Chamber of	Cabinet and Parliament as and when required																					
4	Domination of large diamond mining in Tanzania by De Beers. De Beers Investments owns 75% of Williamson while Williamson owns 100% of new Almasi Mines all at Mwadui.	Induce competition in the diamond industry and enhance transparency in the entire diamond trade in Tanzania. Promote the industry to other international diamond exploration, mining and trading companies	Encourage global competitors such as Liviev, the Israeli-Russian Company; BHP Billiton of Canada; Aber of Canada; Firestone of UK; Arosa of Russia and Rio Tinto Zinc of	Tanzania Investment Centre (TIC) and Board of External Trade	MEM and Minister of Industry and Trade.																					
5	Low value added in rough diamond production and exports. As shown in Table 5.3 in the adjacent column, the average FOB export price for rough diamonds, for the period 2004 to 2007, was US\$ 106/ct for Tanzania compared to US\$ 93.74/ct for Botswana and US\$73.6/ct globally. Cutting and polishing factories in importing countries are prepared to pay US\$ 20/ct for very low quality stone; US\$ 200/ct for medium; US\$ 400/ct for good quality; and US\$ 600/ct for top quality rough diamonds.	<table border="1"> <caption>Table 5.3: Av. FOB price US\$/ct</caption> <thead> <tr> <th>Year</th> <th>Tanzania</th> <th>Botswana</th> </tr> </thead> <tbody> <tr> <td>2004</td> <td>115</td> <td>88.53</td> </tr> <tr> <td>2005</td> <td>115</td> <td>98.29</td> </tr> <tr> <td>2006</td> <td>93</td> <td>97.47</td> </tr> <tr> <td>2007</td> <td>101</td> <td>90.67</td> </tr> <tr> <td>Av</td> <td>106</td> <td>93.74</td> </tr> <tr> <td colspan="3">Global average US\$73.6/ct</td> </tr> </tbody> </table> <p>Source: World Diamond Council: Kimberly Process Certification Scheme</p>	Year	Tanzania	Botswana	2004	115	88.53	2005	115	98.29	2006	93	97.47	2007	101	90.67	Av	106	93.74	Global average US\$73.6/ct			The sustainability of the diamond industry in Tanzania requires the effective promotion of joint private/public investment in creating trading, sorting, cutting, and polishing facilities. Botswana, Namibia and South Africa have already done this in joint venture investment with De Beers  For Tanzania to do this an aggressive gemstones industry technical skills development programme is required.	Tanzania Investment Centre (TIC) Board of External Trade (BOET)  Private Sector Foundation	MEM and Minister of Industry and Trade.
Year	Tanzania	Botswana																								
2004	115	88.53																								
2005	115	98.29																								
2006	93	97.47																								
2007	101	90.67																								
Av	106	93.74																								
Global average US\$73.6/ct																										

### **5.1.3: The Artisanal & Small Scale (ASM) Diamond Business Value Chain in Tanzania**

The artisanal and small-scale miners' diamond business value chain captured in Row B2, in Figure 1.2, chain-links B2.1 to B2.7. As established during the field visit to Shinyanga and Mwanza two groups are active on this value chain. First, are the traditional miners called 'artisanal' miners, who are unlicensed informal operators using very crude mining tools. They consist of off-season local farmers who go into the bushes to look for diamonds relying on their traditional exploration skills passed down the line from ancestors. The only cost and risks they bear is time, feeding and social deprivation. As such, their operations are in two cycles. The first mining round takes place in the dry season and consists of prospecting, site development, ore digging and pilling. The second round takes place during the raining season, when they have to combine the planting and weeding of food and cash crops, with the processing of the ore left behind during the first round, using water filled in the horse-shoe shaped holes. The second category in this group are young men, women and children, from the local villages, as well as immigrants from other parts of Tanzania, who come to scavenge on abandoned diamond mining sites, such as those found in Mabuki, Mwanza.

#### **5.1.3.1: The Artisanal and Small Scale Diamond Miners**

The third group of stakeholders is the artisanal and small scale miners engaged in the fastest growing industry in Mwanza. Although the miners numbered about 5,000 as at May 2005, it is estimated that 75% of the total local population around Mwanza area depend on the artisanal and small scale diamond mining business.

The secondary economic activities arising from this booming artisanal and small scale mining trade include, first those providing input supply such as water, fuel, local transport, food, mining equipment and tools to the miners and second those providing social support services such as schools, dispensaries, pharmacies, hospitality and catering services, markets, wholesale and retail shops.

The artisanal and small scale miners follow a very strict division of labour along the value chain. The lowest in the chain in terms of responsibilities, incomes and status are the **youth migrant workers or 'future miners'** found seasonally at the pit-heads (Phillips C. L. et al. 2001). A majority go back to their rural areas but a few remain to become mine **permanent mine workers or 'pit gangs'** who are the next in the value chain. These mine workers are not paid a salary but are provided with food until such a time that they share the proceeds on the discovery and sale of diamonds on the ratio of 60% to 80% for themselves and the balance for the claim holder. The next on the value chain are the **brokers**, licensed under Section 81 of the Mining Act 1998, and operate around the pit-heads. Brokers have knowledge on the quality of the stones and prevailing prices and play the role of product preparation, promotion and marketing to nearby markets for which they earn commissions varying from 10% to 20%.

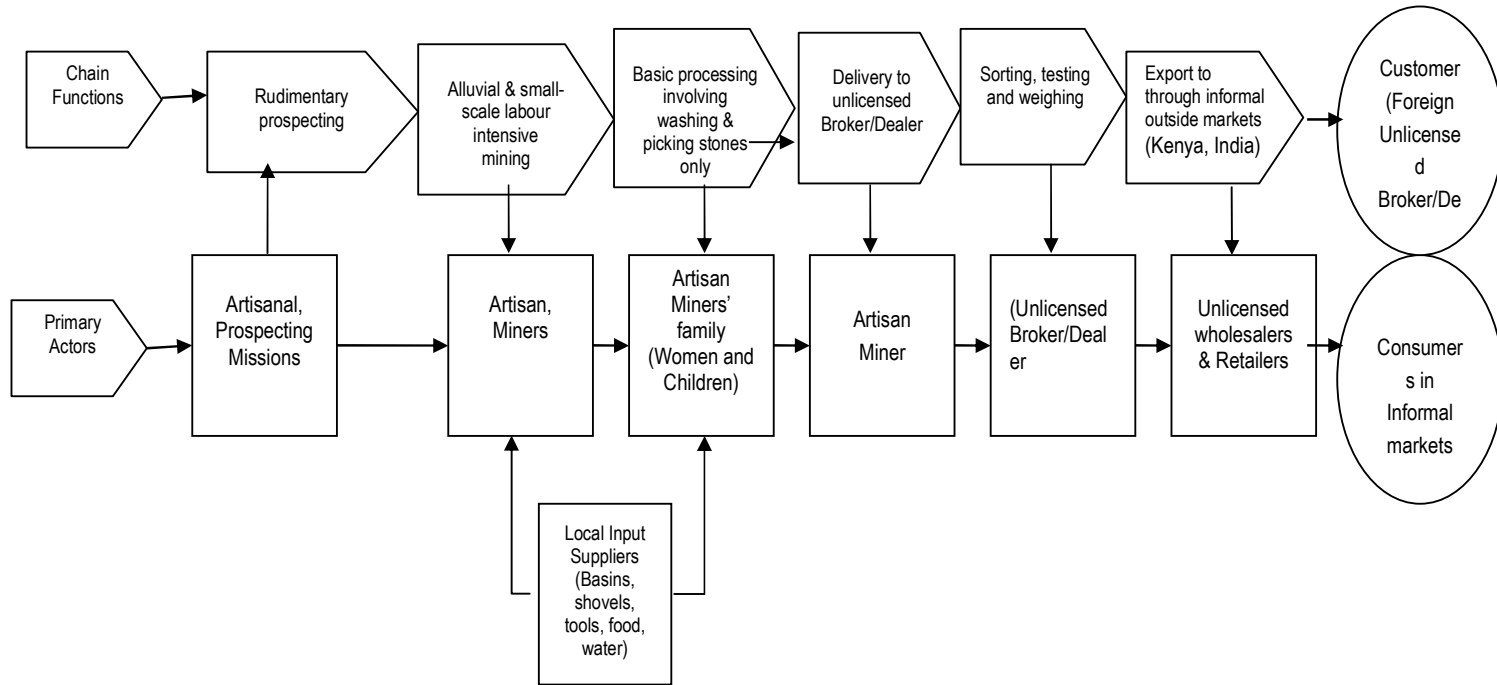
The next in the value chain are the **claim holders** who are normally responsible people within the mining community with some capital for investment in mining operations. Under the law, a holder means 'the person in whose name the mineral right is registered'. At the end of a production period, which depends on the discovery of a stone, the proceeds are shared between the workers and the claim holder on the ratio of 20% to 40% for the claim holder and the rest to the workers.

The claim holders take responsibility for marketing the product to the best buyer in the nearby towns and as such have a lot of experience on stone quality and internet access on world diamond market prices. They also play a role in sorting the stones for the market at their own expense in addition to the mining cost they have already incurred. In this regard, claim holders normally get working capital advance from either local or foreign master dealers on the undertaking to sell exclusively to them – hence contributing to the smuggling of diamonds.

The last stakeholder in the small scale diamond trade is the 'master dealer' licensed under Section 74 of the Mining Act 1998. They play a key role in the diamond trade in that they are the buyers in the local market and exporters to foreign countries. Unlike the brokers in the value chain, the dealers take a lot of risk including rising production costs, marketing and promotional expenses, export documentation and input-output tax exposures. Indeed, it is argued by the master dealers, that all the tax liabilities of the mineral sector falls on them, since the other parties in the value chain can easily avoid and evade taxes.

The relationship between all the parties in the artisanal and small scale diamond value chain is captured in **Figure 5.1** below.

**Figure: 5.1 Tanzania Diamond Industry: Informal Business Value Chain**



**Source: Own Configuration**

**Table 5.3: Diamond Business Value Chain: Issues and Intervention in the Informal Sector**

<b>Code</b>	<b>Chain</b>	<b>Stakeholders</b>	<b>Issues</b>	<b>Intervention</b>	<b>Actors</b>
1	Prospecting	Artisanal & small scale diamond diggers, small miners association, Commissioner of mines, TRA and local authorities	Lack of skills and equipment	1. Allocation of explored areas by government. 2. Training in traditional diamond prospecting and soil skills 3. Provision of basic equipment.	Ministry of Minerals & Energy, Williamson Diamond Co. Ltd, Small Miners Association, Chamber of Mines, NGOs
2	Mining	Artisanal & small scale diamond diggers, contract miners, small miners association, Commissioner of mines, TRA and local authorities	Licensing, lack of mining plots, thefts, lack of food, poor roads, environmental degradation, finance, technology, tax avoidance	Licensing, allocation of mining plots, security of allocated mining plots, credit facility and organisation of SACCOS, supply credit for mining implements, agriculture extension services, partnerships with large-scale miners, reduced royalty rates.	Relevant Government Departments, Banks, Chamber of Mines, TRA, Williamson Diamond Company Ltd., NGOs.
3	Processing	Artisan miners and their families, the community, brokers and dealers	Lack of processing and testing equipment, Water shortage, Lack of knowledge of prices, lack of processing knowledge, quality control.	Availability of testing & processing equipment on hire arrangement, Installation of water supply system, training in quality standards and client needs	Ministry of minerals and mines, Chamber of Mines, Ministry of water and sewerage, Ministry of agriculture.
4	Domestic brokers & dealers	Artisanal & small scale diamond diggers, Brokers & Dealers association, Commissioner of mines, TRA and local authorities	Dealership & brokerage licensing, thefts, finance, testing equipment and ICT facilities, lack of knowledge of consumer demands and prices, tax avoidance	Strengthening the Mineral Brokers & Dealers Association, provision of security system, provision of funds, Formation of SACCOS, training in marketing and diamond trade, training for tax compliance.	Chamber of Mines, Banks, TRA
5	Export	Immigration department, Artisanal & small scale diamond diggers, small miners' association, Commissioner of mines, TRA and local authorities	Conflict diamonds, Licensing, finance, ICT technology, tax avoidance	Availability training in Extractive Industries Transparency initiative (EITI), licensing and tax compliance, export finance and documentation; availability of credit finance.	Commissioner of Mines, TRA, Banks

## **5.2: CHALLENGES AND INTERVENTION STRATEGIES FOR THE ARTISANAL AND SMALL-SCALE MINING SECTOR**

### **5.2.1 Opportunity**

Artisanal and small scale mining are labour-intensive activities, which do not require large investments or sophisticated equipment. This low barrier to entry provides considerably more potential for creating jobs than does highly mechanized mining; and, if systematically promoted have the potential to develop into a viable indigenous mining industry.

Artisanal mining can also provide employment for large numbers of women, who are usually the most disadvantaged and vulnerable group among the poor. The purchasing power thus generated should foster regional development in artisanal mining districts; but that is not so in the diamond mining districts in Tanzania.

Artisanal mining is an important factor in preventing migration to the towns but is constrained by the uncertain duration of the discoveries, and the difficulties in organizing the miners. Self-selected groups are effective based on character, discipline and if properly assisted, can be very cohesive. Experience shows that group collaboration between miners sharing common goals and interests are more likely to succeed than loosely organized cooperatives. Once a viable organizational structure is put in place, artisanal miners need to be encouraged to become entrepreneurs and operate as a business.

Tanzania government is changing strategy from wholesale assistance to the artisans to one of individualized recognition through entrepreneurial promotion and support.

*The major challenge of informal mining is to upgrade the sector from a subsistence activity to an economically viable small-scale sector in order to benefit the “bottom of the pyramid”.*

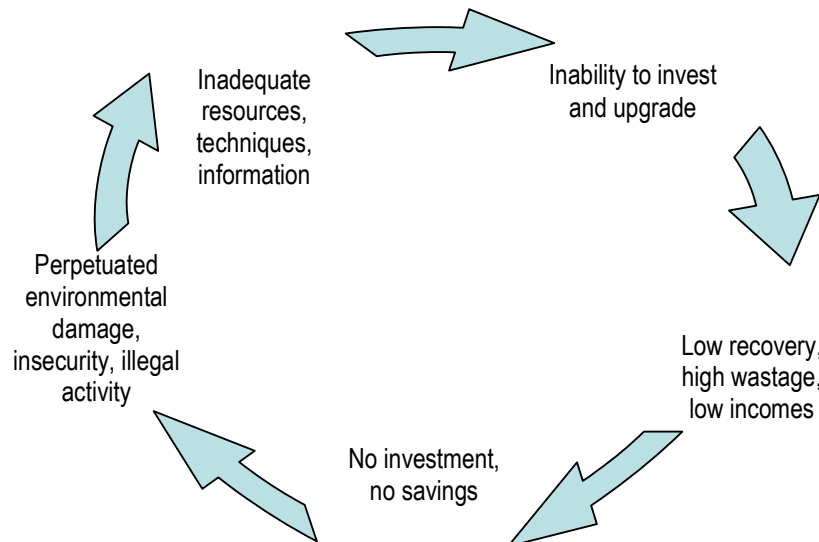
### **5.2.2 Constraints**

Although informal mining has the potential to be a beneficial economic activity, in Tanzania it is constrained by numerous factors, which may be grouped into three major categories: a high degree of health, safety, and environmental risk, limited access to credit and a lack of equipment and appropriate technology and lack of formal organization, leading to illegal activity and conflicts with international mining companies.

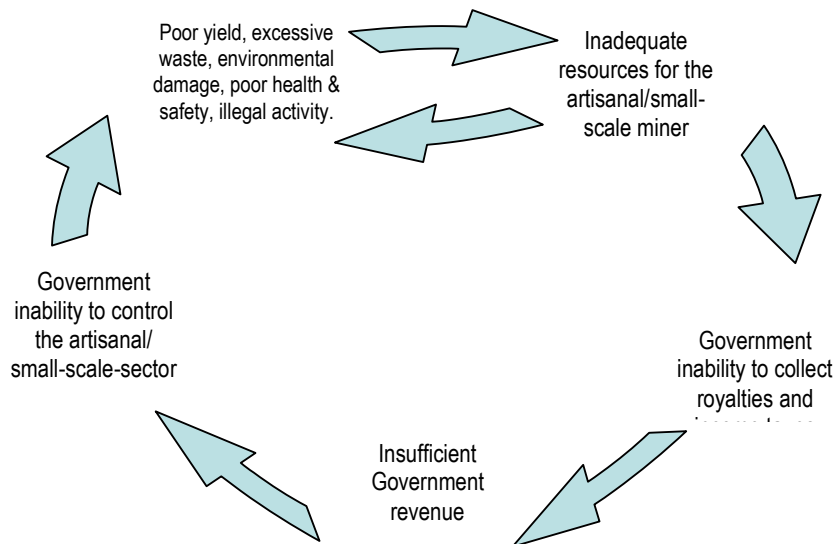
The problem is that both the informal miners and the government of Tanzania are caught in *vicious cycle*. The use of inadequate mining and processing techniques and equipment leads to low productivity and low recovery of valuable minerals, which in turn results in low revenues and the inability to accumulate funds for investment. The lack of funds to improve methods and acquire appropriate equipment traps artisanal miners in crude, inefficient mining and processing as shown in **Figure 5.1** below.

Mining authorities are also caught in a similar cycle of constraints. They are often unable to control artisanal mining because they lack adequate operational resources to enforce existing regulations. This in turn results in illegal operations; poor environmental, health, and safety standards; and a loss of fiscal revenues. The lack of funds from fiscal revenues limits the ability of the government to perform its regulatory function and perpetuates uncontrolled artisanal mining. The Zonal Mining Officers discussed with confirmed the lack of adequate field staff and transport to provide comprehensive extension services to this group. The resulting negative cycle is shown in **Figure 5.2** below.

**Figure 5.2: Vicious Circle of the Small-scale Miners**



**Figure 5.2: Vicious Circle of the Mining Authorities**



Both negative cycles must be broken to overcome constraints on artisanal mining.

### 5.2.3: Proposed Interventions

#### 5.2.31 Environmental, Health, And Safety Issues

Environmental destructiveness is the single most visible aspect of artisanal diamond and includes soil erosion and river silting. Health hazards include occupational diseases, lack of worker protection, and lack of general support in underground pits.

Ideally all mining, including artisanal mining, should be subjected to the same environmental health and safety laws, but regulations and technical standards need to be realistic and achievable, which will require compliance incentives. This responsibility should be undertaken by the Ministry of Energy and Mines, Local Governments, Nongovernmental Organizations and Private Companies. There is need to sensitise all parties, including the miners, about the situation and encourage them to participate.

#### 5.2.32 Women Effective Participation in Artisanal and Small-scale Mining.

Women participation as owners, operators and investors in diamond mining is hampered by social, cultural, technical and financial factors, including lack of access to funds and expertise in mining. In its reform programs, the government should recognize the contribution of women and initiate awareness programs to promote their effective involvement.

Tanzania has about 550,000 artisanal and small-scale miners of which 25 per cent are women that are engaged directly or indirectly in mining activities. Table below illustrates women participation in different mineral commodities.

S/N	Commodity	Direct	Indirect	Total
1	Gold	8,400	41,810	50,216
2	Diamond	523	505	1,028
3	Gemstone	17,866	56,430	74,296
4	Salt	9,876	7,585	17,464
5	Aggregates	14	37	62
6	Dimension Stones	9,920	7,699	17,619
	<b>Grand Total</b>	<b>36,709</b>	<b>106,444</b>	<b>143,153</b>

*Small-scale Mining and Sustainable Development within the SADC Region*

Diamond and aggregates attract less women than the other minerals. In Shinyanga women are left home to manage the agricultural farms for food provision. Moreover, the lack of credit traps them at a subsistence level of mining, extracting what is easiest in very precarious conditions.

#### 5.2.33 Technical and Financial Issues

The upgrading of the informal sector through the introduction of modern mining and processing techniques can increase productivity, mineral recovery, and revenues and help to break the vicious cycle facing the small-scale miners and the public authorities. This can be achieved through model mines and training centres and the mobilization funds through no-collateral loans, such as SACCOs and third-party guarantees. The donor community could catalyse the process by influencing government policies to create a conducive environment for the supply of financial

services to the sector and by supporting training and other interventions to strengthen local microfinance institutions and providing basic social infrastructure and services.

### **5.2.34 Legal and Regulatory Issues**

Legalising the artisanal mining is the essential first step toward its transformation into a sustainable activity. The legal and regulatory intervention should address the formalisation of artisanal and small-scale mining operations; the regulatory impediments to the transition from informal mining to formal, sustainable enterprises development and the management of relationships between artisanal miners and international mining companies.

Discoverers of deposits should be able to establish and transfer title, which will ensure their rights and enhance the creditworthiness of the mining enterprise. Regulation of mining activity should protect both the environment and the rights of indigenous miners. The licensing system should be simplified and marketing arrangements liberalized.

**In conclusion**, a holistic approach appears to be the key to a long-term solution for transforming artisanal mining into sustainable small mining in the diamond sub-sector in Tanzania. Such an approach requires a partnership between governments, NGOs, artisanal miners' associations, international donor agencies, and international mining companies.

## **5.3: The Tax Value Chain in Tanzania**

### **5.3.1: Chain Functions and Stakeholder Analysis**

As per the tax value chain captured in Row C, in Figure 1.2, chain-links C1 to C9, the core related functions on the tax value chain provided by Tanzania Revenue Authority (TRA) are:- (a) advising Government on fiscal policy; (b) annual review of mining tax rates and incentives; (c) TIN and VAT registration and tax training; (d) Collection of input taxes from legal entities (e) Collection of production taxes from legal entities; (f) Collection of output taxes from legal entities; (g) Collection of income taxes from legal entities; (h) inspection of transfer pricing records; and (i) evaluation of tax yield from the diamond sector.

The analysis of stakeholders, issues, required interventions, critical success factors for sustainability, and responsibility centres for their implementation is outlined below.

### **5.3.2.: Primary Stakeholders/ Actors**

The primary stakeholders/actors along the tax value chain functions are captured as herein below.

- Minister of Finance (MoF), responsible for fiscal policy formulation.
- Tanzania Revenue Authority (TRA), for effective tax management, administration, custody of royalties and tax revenues from the mining sector (Section 86-93 of The Mining Act, 1998)
- Minister of Minerals and Energy (MEM), whom, in consultation with the Mining Advisory Committee formulates and reviews mining policies (see the Mineral Sector Policy of October 1997), and through the Commissioner of Mines, authorises or enters into development agreement for diamond prospecting and mining as well as granting mineral rights, conferring transferable and negotiable value to the holder of the instrument (Section 6-10 of The Mining Act, 1998)
- Tanzania Investment Centre (TIC) – the one stop centre for investment promotion and custodian of the Land Bank
- Existing large scale mining companies (LSM's) especially De Beers, which owns 75% of Williamson Diamond Mine at Mwadui in a twenty five percent (25%) joint venture with the Tanzanian Government
- Artisanal and small scale miners (ASM's) operating at Maganzo and Nyanghwale - Kahama in Shinyanga Region and Mabuki, Mwanza Region
- Potential foreign investors responding to investment incentives coordinated by the Tanzania Investment Centre (TIC)
- Representatives of local mining communities and associations such as the Tanzania Chamber of Mines (TCM); the Tanzania Women Miners Association (TAWOMA); and various Regional Mining Associations (REMA's)
- Attorney General (AG) - responsible for guaranteeing prospecting and mining private property rights to bona fide holders and generally for overseeing law enforcement and excellent governance in the mining sector

### 5.3.3.: Secondary Stakeholders/ Actors

The secondary stakeholders/actors along the tax value chain functions are captured as herein below.

- Ministry of Regional Administration and Local Government - concerned with the failure by the mining companies to pay the stipulated US\$ 200,000 provided in the Mining Regulations 1999.
- The East African Community (EAC) focused on the harmonisation of mining policies and investment tax incentives based on the principles of the Marginal Effective Tax Rate (METR)
- Private Sector Foundation - driving private sector participation in the development of the mining sector as per the objectives of the Mining Policy to raise contribution of mining sector to GDP to 10% by 2025

### 5.3.31.: Issues, Interventions, Critical Success Factors for Sustainability

No	Salient Issues in Chain	Required Intervention	Critical Sustainability Factors	Responsibility Centre	Reporting: To whom
1	Tax evasion through transfer pricing by both the foreign and local miners	Serious auditing of transactions to ensure adherence to 'arms' length principle' GAAP, and complete disclosure of related parties to TRA.	Development of comprehensive transfer pricing guidelines; Training the tax and legal officials in the transfer pricing practises and regulations; Education of the miners about the advantages of paying taxes to elicit compliance. Determination of effective tax rates and removal of <i>nuisance</i> taxes.	Commissioner of Taxes	Minister of Finance
2	Falsification of mine output figures and values in order to minimise royalty and tax payments	Mine inspectors should be capacitated to vet production figures; Alternatively, outsource valuation to a reputable international diamond valuation firm and reconcile records at the mine site instead of relying on FOB export prices as is currently the case	Determine the marginal effective tax rate for the diamond sector and simplify tax collection; Reimburse small scale miners the costs of recordkeeping which is a deterrent factor since they lack the skill of proper record maintenance.	Commissioner of Mines; Tanzania Revenue Authority (TRA); Tanzania Chamber of Mines	Minister of Energy and Minerals; Minister of Finance and MEM
3	Smuggling of diamonds to neighbouring countries, meaning that royalties are not paid to Government.	Reform the Diamond Mining and Trading Regulations 2002 into a comprehensive Act of parliament with stiff penalties for smugglers of precious and semi precious stones	Development of a polishing and cutting industry in Tanzania to provide organised and ready market for ASM's rough diamonds and discourage diamond smuggling to Kenya, Dubai, India and Thailand.	Minister of Energy and Minerals and Minister of Industry and Trade	Cabinet and Parliament quarterly
4	Limited domestic value added in the diamond industry means less taxes to Government	Legislate for the trading, sorting, polishing cutting and manufacturing of jewellery as in the case of Canada and to some extent Botswana which is cooperating with De Beers to do so	Promotion of public/private partnerships in the formation of a diamond trading and sorting company such as is the case in Botswana to enhance royalty and tax collection. Dissolve the TANSORT UNIT at the Ministry of Energy and Minerals	Tanzania Investment Centre Private Sector Foundation Minister of Trade & Industry	Minister of Finance, MEM and Attorney General
5	Reluctance of mining firms to pay the annual US\$ 200,000 to local authorities	Impose stiff penalty for non-payment as per the regulations	Subject renewal of licenses to evidence of compliance to local authority subventions	AG; MEM; Minister of Local Government	To Cabinet quarterly and Parliament annually
6	Widespread illegal mining by the ASM's limits the tax base	Tighten mining regulations and supervision by District Mining Officers	Involve the ASMs in the enforcement of legal mining activities in their areas Design incentive schemes for those who pay royalties e.g. "soft loans"	Commissioner of Mines	Minister of Energy and Minerals, monthly

### 5.3.4: The Applicable Taxes in the Diamond Sub-Sector

The applicable taxes in the diamond value chain can be grouped into input, production, output, and profit taxes. A comparative analysis of these taxes with those of other minerals, and non-mineral sectors in Tanzania and those of Botswana is shown in **Table 1.1** below.

Table 5.6 Evaluation of Comparative Tax Rates To The Diamond Sub-Sector In Tanzania							
No	Type of Tax	TANZANIA				BOTSWANA	
		Rate/Amount in Diamond Sector	Basis of Computation	Other minerals	Non-Mineral Sectors	Rate/Amount in Diamond Sector	Basis of Computation
<b>A</b>	<b>Input Taxes &amp; Fees</b>						
1	Prospecting licence	\$100		\$50		\$156	At \$ 0.78 per km; minimum of \$156
2	Retention licence	\$100		\$100		\$1,560	\$1,560 per km, Increases by \$150 annually
3	Special mining licence	\$1,500		\$1,500			
4	Mining licence	\$1,000		\$1,000		\$15 per km <sup>2</sup>	
5	Gemstone mining licence	\$500		\$500			
6	Primary prospecting licence	\$20		\$20			
7	Primary mining licence	\$20		\$20			
8	Brokers licence	\$100		\$100			
9	Dealers licence	\$250		\$250			
10	Import duty	0%	Imports and local supplies of goods and services to mining companies and their subcontractors exempted		Imports of inputs for agriculture, husbandry and fishing are exempted under the harmonised EA tariff on a drawback scheme; others pay 20% VAT		
	Import duty	5%	5% in first year of production and thereafter, zero	Same as diamond	10%		
11	Exercise duty						
12	VAT on imports		Imports of capital goods are exempted;	Same as diamond	Same as diamond		
13	VAT on domestic purchases		Domestic sales are subject to a VAT rate of 20%, but fully refundable.	Same as diamond	Same as diamond	10%	Across the Board
14	Withholding tax on goods supplied to others		Exempt from goods and services supplied by them,	Same as diamond	Same as diamond		

15	Withholding tax on goods purchased by miner		Withholds tax on goods and services purchased by them				
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No	Type of Tax	TANZANIA			BOTSWANA		
		Rate/Amount in Diamond Sector	Basis of Computation	Other minerals	Non-Mineral Sectors	Rate/Amount in Diamond Sector	Basis of Computation
<b>B Production Taxes</b>							
1	Depreciation allowances	100%	100% depreciation allowance on all mining capital expenditure for the lifespan of their mining operations	Same as Diamond	100% for agriculture; manufacturing 50% others range 37.5% to 5%.	100% on capital items during the first year of operation	
2	Sorting fees						
<b>C Output Taxes</b>							
1	Corporation tax	30%	Corporation tax rate is 30%, reduced to 25% for three years of new registered quoted companies with at least 35% public equity.	30%	30%	25%	Unlimited carry over of losses
<b>D Profit/ Trading Taxes</b>							
1	Withholding tax on technical services payments to sub contractors	Various	5% to resident and 15% on non resident sub contractors; 3% of gross management fees or 20% if fees exceed 2% of operating costs.				

Source: Government Notice No. 217 Published On 30/7/99 [First Schedule Mining \(Mineral Rights\) \(Amendment\) Regulations, 2001,Tanzania.](#)

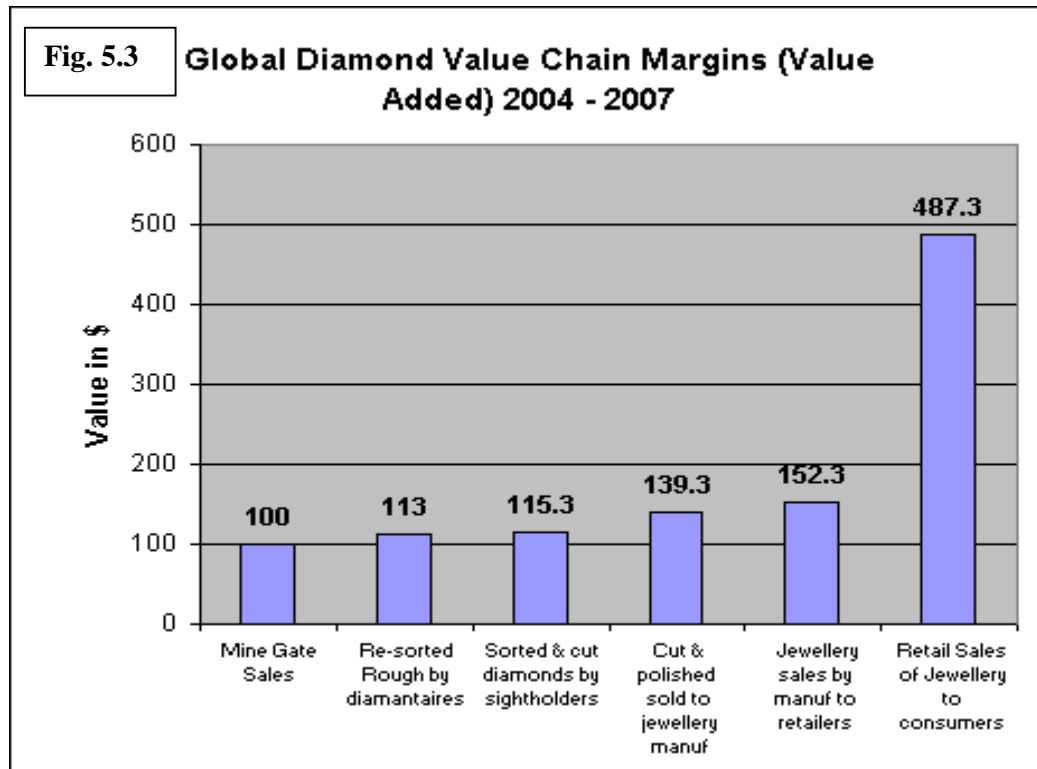
### 5.3.5 Quantification of the Value Added in the Global Diamond Value Chain.

An attempt was made to quantify the value added in each of the production stages. The mark-up value of diamonds increases exponentially as it passes through the links of the global value chain. The charts below show how much value is added during each stage in terms of the percentage of the original value.

S/N	Stage on the Global Value Chain	Value Added as % of original Value
1	Mine Sale	100
2	Re-sorted Rough by diamantaires	113

3	Sorted & cut diamonds by sightholders	115.3
4	Cut & polished sold to jewellery manufacturers	139.3
5	Jewellery sales by manufacturers to retailers	152.3
6	Retail Sales of Jewellery to consumers	487.3
<b>Source: Derived from “Value Added Aspects of the Canadian Diamond Industry, (1998)</b>		

The value added is presented graphically below.



The table below shows De Beers profitability Indicators in the diamond business globally for the period 2006 and 2007.

S/N	Profitability Indicators	De Beers			
		2007		2006	
		(US\$m)	% of Total Sales	(US\$m)	% of Total Sales
1	Total Sales	6,836	100%	7,030	100%
2	Gross Profit	1,375	20%	1,432	20%
3	Operating Profit	340	5%	419	6%
4	Income Before Tax	794	12%	884	13%

5	Income After Tax	486	7%	523	7%
6	Underlying Earnings after adjusting for net gains on derivatives	483	7%	425	6%

The table below reveals the fob prices of rough diamonds translated into diamond jewelry sales between 2004 and 2007.

Quantification of the Value Added for the diamond business in Tanzania based on the fob price per carat of medium quality diamond from export trade statistics and by applying the margins indicated above is summarised in the table below.

<b>Table 5.9: Diamond Value Chain: Value Added Quantification for Tanzania Within the Global Market(2004-2007)</b>						
S/N	Stage on the Global Value Chain	Value Added as % of original Value			Price of 1 Ct of medium Quality diamond (US\$ Export Statistics)	
			2004	2005	2006	2007
1	Tanzania FOB Prices	100	115.3	115.1	93.9	101.4
2	Re-sorted Rough by diamantaires	113	130.3	130.1	106.1	114.5
3	Sorted & cut diamonds by sightholders	115.3	132.9	132.7	108.3	116.9
4	Cut & polished sold to jewellery manufacturing	139.3	160.6	160.3	130.8	141.2
5	Jewellery sales by manufacturing to retailers	152.3	175.6	175.3	143.0	154.4
6	Retail Sales of Jewellery to consumers	487.3	561.9	560.9	457.5	494.0

*Source: Bank of Tanzania, 2008, Economic bulletin for the quarter ending June 2008: Bank of Tanzania*

From the table above the final retail price is five times higher than the mine gate price in Tanzania.

### **5.3.6 Quantification of the Diamond business margins for De Bees in Tanzania**

From the audited accounts of Williamson Diamonds Ltd. the only large scale miner in Tanzania gross margins were derived from the Income and Expenditure Statement covering 11 years (1994-2004) as shown below. Due to the contract Williamson had to sell at 90% of gross sales value to Diamond Trading Company, the sales have been adjusted by 10% to get the true figure. Although 60% of the imports were from related parties and there is every possibility, therefore that the import prices could have been inflated due to transfer pricing, the costs were not adjusted for lack of adequate information. The summarised statements are shown below.

**Table 5.10: Williamson Diamonds Limited (Incorporating New Alamasani (1963) Limited) Tanzania**

Restated Income statements for the years 1994- 2004 (US\$ '000)												
S/N	Components	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
1	Diamond Proceeds Restated	3,176	4,962	16,635	17,931	11,470	19,836	31,914	19,668	14,688	25,244	32,207
2	Realisation expenses	-747	-206	-687	-670	-587	-933	-1,469	-1,085	-822	-1,119	-1,416
3	Net Diamond Income	2,429	4,756	15,948	17,261	10,883	18,903	30,445	18,583	13,866	24,125	30,791
4	Other income	-	1,111	792	534	497	453	825	916	656	-	141
5	Operating expenses	-4,320	-11,082	-15,005	-15,801	-18,406	-16,018	-17,999	-15,931	-16,010	-24,123	-26,528
6	Stock Movement	-337	1,514	-185	-497	135	2,651	-666	-203	1,046	-352	791
7	Extra ordinary item	7,372	-	-	-	-	-	-	-	-	-	-
8	Operating Profit /(Loss)	5,144	-3,701	1,550	1,497	-6,891	5,989	12,605	3,365	-442	-350	5,195
	Operating Profit /(Loss) as % of sales	162%	-75%	9%	8%	-60%	30%	39%	17%	-3%	-1%	16%
9	Finance costs	-	-	-	-	-	-1,970	-1,876	-1,080	-891	-1,068	-1,282
10	Exception items	-	-	-741	-298	-575	-221	-16	-48	-33	-	-
11	Exchange losses	-	-				-3,243	-78	-1,337	-1,212	-28	-61
12	Profit / (Loss) before taxation	5,144	-3,701	809	1,199	-7,466	555	10,635	900	-2,578	-1,446	3,852
13	Taxation	-91	-	-474	-511	-	-166	-910	-606	-	-66	-1,311
14	Net Profit /(Loss) for the year	5,053	-3,701	335	688	-7,466	389	9,725	294	-2,578	-1,512	2,541
<b>Source: Williamson Diamonds Limited Audited Financial Statements</b>												

### 5.3.7 Williamson Diamond Company Ltd. Operating Margins.

From Williamson’s Income and Expenditure Statement, and discounting the year 1994 which reported extra ordinary income amounting to US\$ 7,372,000, the operating profit margin for the remaining 10 years averaged -2%, leading to an accumulated loss of (US\$1,285,000) over the 10 year period. These statistics clearly indicate the unimaginable loss suffered by the miners selling the rough diamonds at the mine gates and the loss of government revenue in unpaid corporate taxes. The large miners with the capacity to upgrade and selling to external markets can reap some profits. This justifies the call for upgrading in the value chain by Tanzania to emulate Botswana.

### 5.3.8 Quantification of the Gross Margins for Average Small-Scale Diamond Miners in Shinyanga Region, Tanzania

I visited Shinyanga region where 90% of the diamond mining activity is currently taking place. I was able to discuss with a number of artisanal and small scale miners in way of determining not only heir developmental needs but also if the business was profitable or not. The relayed income and expenditure scenario is summarised in the Profit and Loss statement for a small scale minor, who requested anonymity.

S/N	Components	Notes	T. Shs.	US&
<b>A</b>	<b>Rough Diamond Sales</b>	1	<b>7,532,500</b>	<b>6,550</b>
<b>B</b>	<b>Prime Costs</b>			
1	Royalties @ 5%		376,625	328
2	Pit digging	2	200,000	174
3	Hire of equipment, compressors etc.	3	100,000	87
4	Oils for compressors		100,000	87
5	Water for washing the ore	4	120,000	104
6	Food for the workers	5	600,000	522
7	Testing charges by the dealer		300,000	261
	<b>Total Prime Costs</b>		<b>1,796,625</b>	<b>1,562</b>
	<b>Operating/Gross Margin</b>		<b>5,735,875</b>	<b>4,988</b>
<b>B</b>	<b>Overhead Expenses</b>			
1	Miscellaneous tools and equipment	6	300,000	261
2	Licenses (prospecting, primary mining)		80,000	70
3	Soil testing in South Africa	7	345,000	300
4	Plant maintenances		100,000	87
5	Weighing machines		150,000	130
6	Security		60,000	52
7	Transport		100,000	87
8	Amortisation of Preliminary Expenses	8	50,000	43
	<b>Total Overhead Expenditure</b>		<b>1,185,000</b>	<b>1,030</b>
	<b>Total Expenditure</b>		<b>2,981,625</b>	<b>2,593</b>
<b>C</b>	<b>Profits</b>			
1	Profit Before tax	9	4,550,875	3,957
2	Profit before tax as % of sales		60%	60%
3	Average cost per carat		74,541	65
4	Average sales price per carat		188,313	164
5	Average margin per carat		113,772	99
<b>D</b>	<b>Distribution of profits</b>			
1	Financier (50% of gross margin)	10	3,766,250	3,275
2	Mine owner	11	784,625	682
	<b>Total Distribution</b>		<b>4,550,875</b>	<b>3,957</b>

### 5.3.9 Notes to the Profit and loss statement:

1. A small scale miner can process only 20 tons of ore a day with a yield of less than 5 carat per 10 tons of ore. Some days are dry; with no carat at all. The diamonds are produced in the ratio of 75% industrial, 15% semi gem and 10% excellent gem, and the firm gate price is \$ 45, \$200 and \$1,000 respectively. An average of 40 carats are produced a month.

The values of the three types are as follows:

S/N	Components	T. Shs.	US\$
1	Excellent gem grade	2,300,000	2,000
2	Semi gem grade	1,840,000	1,600
3	Industrial	1,552,500	1,350

2. Pit digging is done by 10 diggers working 6 days a week at T Shs. 1,000 per day.
3. The compressors are hired at a rate of T.Shs. 25,000 per day.
4. 400 litres of water re required per day procured at T.Shs.20 per 20-litre drum.
5. Food expenses are T.Shs. 60,000 for the 10 working months.
6. Miscellaneous tools and equipment include: basins, shovels, picks, sacks, ropes, sieves, masks, gloves, boots etc.
7. For more accurate results the miners prefer to send the soil to South Africa for testing. The US\$ 300 includes transport costs and testing fees.
8. Preliminary expenses (start-up costs) for prospecting, site clearance, and construction of sheds were computed at T.Shs. 500,000 amortised over 5 years.
9. This is profit before finance charges and would not be subjected to the 35% corporation tax.
10. The financier takes 50% of the gross sales. The financier employs a *site watcher*, who ensures that the correct amount of stones are reported and that the financier is not cheated.
11. The mining group are not paid wages, they are fed OR share 15% of the final proceeds.

The computations above were for registered small-scale miners. It was not possible to obtain meaningful figures from the artisan miners who feared licking information to the owners of the blocks or the Tanzania Revenue Authority, and were suspicious of any strangers on the sites.

The capital investment for this group is low, but there are several factors that seem to ruin a wood be good business.

First, approximately 60% of the mineral is smuggled out of the country and hence does not fetch a good price. The attraction for smuggling is on-the-spot payment and avoidance of tax payment. Second, there are several people in the pool who share the revenue from the mineral; the money lender will claim 50%, 25% is paid to the licence holder, 5% goes to the gang of diggers and the owner goes away with only 20% of the profits.

**Legalising small scale mining, availing soft loans and organising the marketing of rough diamonds together with providing upgrading opportunities appear to be the strategies for a long-term solution for the small-scale diamond miners. This is only possible through partnership of the stakeholders.**

### **5.3.10 The Case for Botswana**

It is hereby noted that there are no ASMs in Botswana. Three reasons may be attributed to this. First, the large scale diamond mining activities is taking place in the Kalahari Desert, far away from areas of human settlement, located 50 kilometres along either side of the railway line, running South and North East from Lobatse through Gaborone, Palapye, Mahalapye, Francistown and to the border town of Selibe Pikwe. In addition, it was not in De Beers’ interest to incorporate small scale diamond mining development in their production strategy. Hence, unlike in Tanzania, where the late Dr Williamson, before establishing Mwadui in 1940, worked closely with local communities at Mabuki, Mwanza Region to develop small-scale diamond mining capacity (1925 to 1940), the same never happened in Botswana. Second, the local people in Botswana have found livestock ranching to be more lucrative than mining, considering the positive impact of the Tribal Grazing Land Policy (TGLP) which secured government support to tribal groups based on the 8 X 8 kilometres allocation and fencing. In addition, Botswana’s beef products have, since the 1970s, been given special access to the EU beef market at guaranteed above world market prices. Third the enactment of the Precious and Semi-Precious Stones (Protection Act) has meant that informal mining and trade in diamonds is strictly forbidden.

## 6.0 References

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