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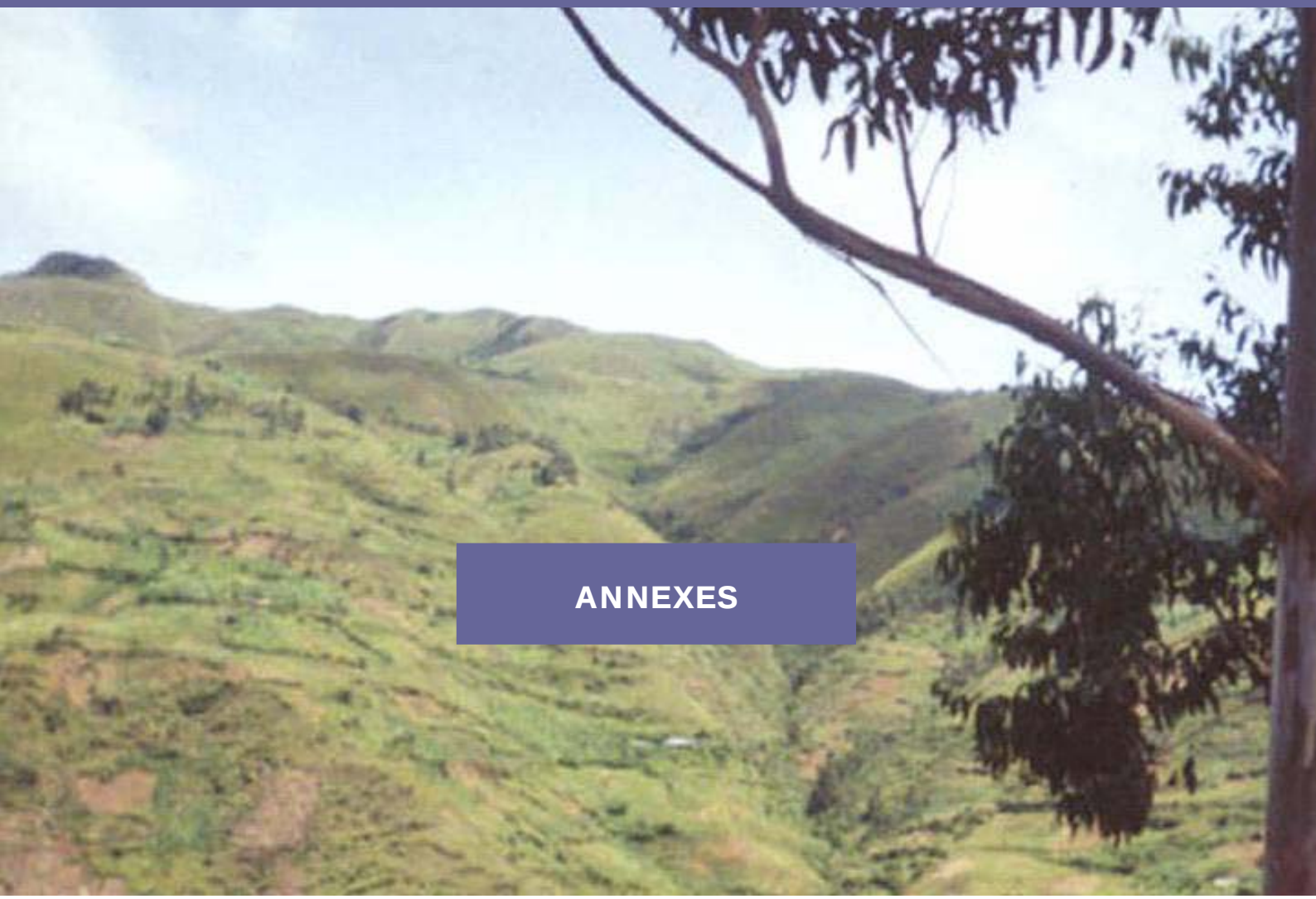
NATURAL RESOURCES AND TRADE FLOWS IN THE GREAT LAKES REGION



ANNEXES

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Annex I – STATISTICS
By El Hadji Diène

The statistics in this report are drawn from data available from the various national institutions for recovering customs and excise duties or for control (OFIDA, OCC, ZRA), as well as from banks (CBC) and the COMESA database.

Table 1: Balance of payment/GDP (%) 2002-2007

Country	2002	2003	2004	2005	2006 Estimates	2007 Projections
Burundi	-3,5	-4,6	-8,1	-10,50	-17,50	-16,20
DRC	-3,2	-1,8	-5,7	-4,9	-4,2	-0,2
Kenya	2,2	-0,2	-2,7	-2,2	-3,8	-5,8
Rwanda	-6,7	-7,8	-3,0	-3,1	-10,8	-10,00
Tanzania	-6,8	-4,7	-3,9	-5,2	-8,3	-9,8
Uganda	-4,9	-5,9	-1,0	-1,6	-5,0	-7,1

***Source**: IMF, Regional Economic Perspectives, Sub-Saharan Africa, May 2006, cited by CEA-AE*

On the whole, statistical analysis was made extremely difficult owing to the diversity of sources, the data's lack of accuracy, its inconsistency, and finally due to the virtual impossibility of putting the data into perspective. Without harmonisation of nomenclature, which was a major source of divergence in the various databases, the figures do not always present the same economic reality. For example, it makes little sense to talk about the production of copper without specifying the precise type of product (concentrates, metal ingots or sheets). On the other hand, and depending on the source, direct or indirect taxes may already be incorporated into the figures provided. This is true of the data coming from COMESA. *A contrario* the data coming from ZRA includes gross figures and does not incorporate any tax.

In Zambia and in the COMESA, ZRA and CSO databases, the HS (Harmonized System) frame of reference is used systematically which means that it is easier to read the various statistics. Moreover, in Zambia again, the international customs declaration system, ASYCUDA (Automated System for Customs Data), allows the procedure to be automated. In the DRC no institution has an automated database which leaves greater room for error and omissions in data collection and interpretation. Furthermore, the figures collected are often in paper format and illegible.

Yet the project concerning the use of natural resources and trade flows across frontiers would be unable to attain its objectives without a good understanding of the level of trade flows across frontiers, the production of minerals and goods, and the various forms of exchanges between DRC and its main neighbours.

During the first stage of the research we used the available data to try to understand the various underlying mechanisms affecting flows by looking at the large masses and their trends over time. Our fields of investigation were, however, restricted to the two Kivus and Katanga. Various missions were carried out first of all in the two Kivus (Beni, Butembo, Gorna, Bukavu, Uvira) and Rwanda (Gisenyi, Cyangugu). We also visited the gold, coltan, cassiterite and forestry sites in Walikale, Masisi and Beni Butembo in North Kivu, the sites of Kamituga in the Mwenga, and Shabunda, Kalehe, Fizi and of Baraka in South Kivu.

Next the mission went to Katanga to visit the production sites for copper and cobalt around Lubumbashi-Kipushi (Ruashi. Kalukuluku, Lupoto, Luswishi) and those of Likasi and Kambove (Lwishaa and its surroundings- Mbola, Kateketa, Kansonga, Shamitunda, Kafunda, Kabolela), and Kolwezi and its surroundings (Mutoshi, Lualaba, Kawama, Luilu, Kapata).

Finally a mission travelled to Kinshasa to gather official data from OFIDA[1], the 'OCC[2], the BCC[3] and the CEEC[4] and then proceeded to Lusaka to set up the team of interviewers on both sides of the border between Zambia and the DRC.

A. KATANGA

1. Exploitation Framework

Typology (products, features, etc.): The main natural resources exploited and crossing the border areas into Zambia are minerals (mainly copper and cobalt), timber, and dry and frozen fish. Some maize and wheat flour finds its way back into Zambia after being exported to DRC. The land type around the borders is mainly flat so, it is easy for transportation by road. Illegal trade is also easy on bicycles given the topography.

Type of minerals: The main minerals are copper and cobalt ores and concentrates. These are the only officially registered minerals at customs offices.

Controlling groups (ethnic or military groups, etc.): The main authority controlling Zambian imports of minerals is the Ministry of Mines. A license is a legal requirement to import minerals. Timber and other products also require an import license obtained through the Zambia Revenue Authority (ZRA). The Export Board of Zambia has some regulations on imports and export of products to maintain quality standards of products.

Main actors: The main actors are the mining companies importing ores and concentrates. There are also small traders, medium-scale businesses and large companies exporting foodstuffs to the DRC across the borders. Money changers have a strong influence on the pricing mechanisms. They set the daily rate as there are no official banks or foreign exchange offices to control currency exchange rates. Traders on the Zambian side estimate that there are close to 960 000 traders between Lubumbashi and Kasumbalesa offering a vast market for all types of traders.

[1] OFIDA, Office des Douanes et des Accises
[2] OCC, Office Congolais de Contrôle
[3] Banque Centrale du Congo
[4] Centre d'Evaluation, d'Expertise et de Certification

2. Zambian Customs Data Collection

Officials from the Zambia Revenue Authority (ZRA) record data from customs points at borders using the ASYCUDA (Automated System for Customs Data). The ASYCUDA software at borders only allows customs officials to fill in a CE20 form with details of the trader, vehicle registration, items, weight or volume, origin, transit and destination and other details pertaining to customs duty and other taxes to be paid.

The ZRA headquarters in Lusaka use software and the Harmonised System (HS) codes reviews to categorize the raw data from borders.

The Zambian customs offices are computerized. The DRC customs offices observed work manually. This manual process leaves a lot of room for errors and distortion of data.

There is no weighbridge at the Zambian or DRC sides of the border to verify weights accorded on the CE20 forms leaving, offering another opportunity for data distortion. A weighbridge exists near Lubumbashi and on the Ndola-Lusaka road. The introduction of a weighbridge at the border crossing is would enable spot checks of volumes.

3. Commodities Traded at Borders

The major commodities crossing from the DRC into Zambia are copper ores and concentrates and cobalt ores and concentrates. Others are fabrics (popularly called Chitenge or Kitenge) produced in Belgium and Holland. The Export Board of Zambia and COMESA list other products from the DRC, which include various types of timber and fish. The Export Board also indicates that maize and wheat flour come from the DRC; however, our findings are that maize meal/flour (mealie-meal), wheat or meslin flour and most foodstuffs actually originate from Zambia and so are resold from the DRC since there are no farms and factories to produce maize, wheat and subsequent flour products in the Kasumbalesa crossing.

4. Kasumbalesa Border (KSU)

This is the main border entry for goods imported into the DRC along the Lubumbashi-Lusaka Corridor. It is about 15km from Chililabombwe and approximately 485km from Lusaka city. At this border crossing, the bulk of imports into the DRC are foodstuffs while the bulk of exports are minerals. Foodstuffs exported to the DRC include maize (excluding seeds), wheat and meslin flour, maize flour, dried fish, fruits (especially oranges), tea, dried groundnuts and live goats.

It was also discovered that cement for construction is being exported in considerable quantities. The table below shows indications of exports through Kasumbalesa border.

5. Analysis

The overall aim of the project is to enhance sustainable and equitable use of natural resources in the interest of regional stability and helping the poor. The findings of this study on the Katanga-Zambian side complements the work of other

consultants and researchers to understand cross border trade and the mechanisms involved through interviews with stakeholders. At times companies were not willing to provide data or information regarding imports of ores and concentrates from the DRC. Aggregate information was obtained from the Headquarters of the Zambia Revenue Authority in Lusaka. The Central Statistics Office, COMESA and Export Board of Zambia were also approached for data to fill in missing gaps in some data, like quantities and transit goods through Zambia.

Data from the all sources indicate that there is a high volume of exports in foodstuffs primarily going into the DRC from Zambia.

There is a need for better harmonization of customs procedures on the border areas so that the Zambian and Congolese customs can expedite clearance. Computerization of data inputting in the DRC is an urgent requirement. In addition, training of officials on both the DRC and Zambian customs should be ongoing.

2006 Data shows that the following were exported to the DRC:

- Wheat flour valued at US$40,923,445,106.
- Tea at US$137,553,016.
- Cement at US$39,480,770,252.
- Sugar at US$8,032,372,016 (Zambia Revenue Authority).

A total of US$ 26,174,286 (Zambia Revenue Authority) worth of copper ores and concentrates were imported by different mining companies. The Export Board estimates US$24,292,539 mineral imports and COMESA US$25,924,619 which are all very close. Total exports from Zambia to DRC including non-mineral items were US$218,918,439. This represents a major trade imbalance.

It was observed that Maize exports to the DRC do not seem to include maize seed. There is a new programme under AGRIDEP in Lubumbashi now trying to encourage DRC nationals to go into agriculture and make use of vast, fertile virgin land. Some maize seed is now being exported to DRC to promote agriculture. This is a paradigm shift for the people of this region that have been accustomed to trading and dealing in minerals over many years. However, given the better rainfall patterns and fertile soils, Katanga could become a net exporter of food.

Table 2: Zambian balance of payments with DRC 2003-2004 (USD)

	2003	2004
Import	3,413,321	10,053,113
Export	22,551,732	37,400,548.4
Balance	**19,138,411**	**27,347,435**

Source: Zambia Revenue Authority

Table 3: Zambian imports by zone from DRC: mineral products

Year	Office	Goods Description	Volume kgs	Value kwacha	VAT	Value USD
2003	KSU Total	Cobalt ores and concentrates	1,575,374	584,857,300	102,350,029	122,432
2003	KTW Total	Cobalt ores and concentrates	673,025	124,798,824	21,839,796	26,125
2003	NDO Total	Cobalt ores and concentrates	6,188,050	5,114,787,000	895,087,730	1,070,711
2003	Total Cobalt		8,436,449	5,824,443,124	1,019,277,555	1,219,268
2003	KSU Total	Copper ores and concentrates	29,068,453	8,009,375,375	1,401,640,699	1,676,654
2003	KTW Total	Copper ores and concentrates	3,534,394	1,492,467,594	261,181,831	312,428
2003	NDO Total	Copper ores and concentrates	1,945,250	979,148,328	171,350,960	204,971
2003	Total Copper		34,548,097	10,480,991,297	1,834,173,490	2,194,053
2003	**Total year**		**42,984,546**	**16,305,434,421**	**2,853,451,045**	**3,413,321**
2004	KSU Total	Cobalt ores and concentrates	33,778,687	12,482,088,765	2,184,365,518	2,612,956
2004	KTW Total	Cobalt ores and concentrates	1,254,856	1,253,762,025	219,408,354	262,458
2004	NDO Total	Cobalt ores and concentrates	2,971,665	2,089,115,972	365,595,317	437,328
2004	Total Cobalt		38,005,208	15,824,966,762	2,769,369,189	3,312,742
2004	KSU Total	Copper ores and concentrates	54,070,464	27,264,014,974	4,771,202,732	5,707,351
2004	KTW Total	Copper ores and concentrates	4,848,284	3,163,856,260	553,674,848	662,310
2004	NDO Total	Copper ores and concentrates	2,981,505	1,770,882,589	309,904,454	370,710
2004	Total Copper		61,900,253	32,198,753,823	5,634,782,034	6,740,371
2004	**SS Total Ores & Conc**		**99,905,461**	**48,023,720,585**	**8,404,151,223**	**10,053,113**
2004	KTW Total	Other ores and concentrates, nes	40,000	8,851,848	1,626,527	1,853
2004	KSU Total	Wood, nes in the rough..., (excl. treated)	840	321,718	70,376	67
2004	LVI Total	Wood, nes in the rough..., (excl. treated)	120	1,086,830	237,744	228
2004	Total Other		40,960	10,260,396	1,934,647	2,148
2004	**Total year**		**99,946,421**	**48,033,980,981**	**8,406,085,870**	**10,055,261**
2005 *	KSU Total	Cobalt ores and concentrates	31,413,281	19,605,102,223	3,430,892,939	4,391,824
2005	KTW Total	Cobalt ores and concentrates	506,421	574,582,377	100,551,918	128,715
2005	Total Cobalt		31,919,702	20,179,684,600	3,531,444,857	4,520,539
2005 **	KSU Total	Copper ores and concentrates	91,485,198	44,858,654,299	7,850,264,675	10,048,982
2005	KTW Total	Copper ores and concentrates	176,505	68,812,920	12,042,262	15,415
2005	NDO Total	Copper ores and concentrates	109,523,700	22,746,907,898	3,980,708,883	5,095,633
2005	Total Copper		201,185,403	67,674,375,117	11,843,015,820	15,160,030
2005	**Total year**		**233,105,105**	**87,854,059,717**	**15,374,460,677**	**19,680,569**
2006	KSU Total	Cobalt ores and concentrates	17,140,081	8,843,737,039	1,547,654,039	**2,451,147**
2006	KTW Total	Cobalt ores and concentrates	14,904	14,606,500	2,556,138	**4,048**
2006	NDO Total	Cobalt ores and concentrates	39,030	16,980,399	2,971,570	**4,706**
2006	Total Cobalt		17,194,015	8,875,323,938	1,553,181,747	2,459,901
2006	KSU Total	Copper ores and concentrates	154,846,264	89,198,332,730	15,609,709,008	**24,722,376**
2006	KTW Total	Copper ores and concentrates	1,906,774	479,657,572	83,940,075	**23,265**
2006	NDO Total	Copper ores and concentrates	14,043,684	6,141,492,577	1,074,761,214	**1,702,188**
2006	Total Copper		170,796,722	95,819,482,879	16,768,410,297	26,447,829
2006	**SS Total ores&conc**		**187,990,737**	**104,694,806,817**	**18,321,592,044**	**28,907,730**
2006	NDO	Dark red meranti, light red meranti and	1,000	2,335,912	510,981	**523**
2006	**Total year**		**187,991,737**	**104,697,142,729**	**18,322,103,025**	**28,908,253**
2007	KSU Total	Cobalt ores and concentrates	**780,000**	**841,289,800**	**147,225,719**	**198,776**
2007	Total Cobalt		780,000	841,289,800	147,225,719	198,776
2007	CHR Total	Copper ores and concentrates	9,000	7,641,000	1,337,175	1,810
2007	KSU Total	Copper ores and concentrates	31,610,859	31,214,477,794	5,462,533,863	7,388,774
2007	KTW Total	Copper ores and concentrates	3,173,354	40,243,903,356	7,042,683,091	9,823,194
2007	NDO Total	Copper ores and concentrates	4,893,116	15,991,983,763	2,798,597,166	1,604,728
2007	Total Copper		39,686,329	87,458,005,913	15,305,151,295	18,818,505
2007	**Total year**		**40,466,329**	**88,299,295,713**	**15,452,377,014**	**19,017,282**
* en 2005 l'OCC declarait en concentres de cobalt exportes(kgs):				84,105,000	38%	importes par la Zambie
** en 2005 l'OCC declarait en concentres de cuivre exportes (kgs):				117,315,000	**58.31%**	des importations de la Zambie
Importation de la Zambie venant de RDC en concentres de cuivre (kgs)				**201,185,403**		dont 42% non declarees en RDC
KSU: Kasumbalesa	KTW:Kitwi	NDO:Ndola	LVI:	CHR:		
2007 data from january to april						
Cooper ores & concentrates from Kitwi are varying from .06 USD/tone to 4 USD/tone. This might be ajusted fo rely to narket price at this period						
Exept in 2005 Kasumbalesa appears to be he main border point to Zambia						

***Source**: Zambian Revenue Authority, ZRA 2007*

Table 4: Zambian Exports to the DRC: agrifood Products

	2002		2003		2004	
COMMODITY DESCRIPTION	Value $US	Weight (KGS)	Value $US	Weight (KGS)	Value $US	Weight (KGS)
meat (bovine,swine,shepp,lamb,chikens,ducks,pigs,hams,...)	243,314	185,006	218,052	122,204	48,149	37,601
fish,salmonidae,albacone,tunas,sardinesbisling, sprats,herrings	545,651	737,617	156,910	391,205	514,260	5,438,738
Total milk and derivatives	32,760	53,155	471,902	165,484	143,064	108,339
Total other animal, birds, fish and derivatives	1,051,898	570,121	96,413	27,123	21,666	14,940
bulbs,tubers,rizhones,other live plants, flowers and buds, potatoes	51,293	19,840	0	0	84,619	59,742
Tomatoes fresh or chilled	249,077	90,673	181,771	59,355	0	0
Onions and shallots, fresh or chilled	63,730	22,968	10,545	3,500	0	0
Other vegetables, carrots,cucumbers,gherkins,beans,lettuces	40,681	13,400	1,129	380	81,438	21,634
Dried onion - in bulk	170,655	685	104	900	0	0
Total other dried vegetables	9,886	51,080	1,626	8,000	14,258	27,058
Manioc(cassava)...Other	174	1,250	0	0	0	0
Total nuts	3,660	37,900	1,775	1,868	3,847	4,100
Bananes, apples, oranges,citrus,strawberries,melons	40,305	78,910	2,797	5,900	5,201	16,488
Coffee	0	0	526	25	101	69
Tea	682,899	682,971	667,645	618,250	526,230	579,521
Spices,pepper,curry and other	97	150	8,307	13,096	3,962	30,245
Maize	114,206	181,835	220,382	1,498,880	1,031,922	6,568,403
Rice	59,734	117,891	65,639	149,604	1,343,908	3,022,177
Wheat or meslin flour	157,477	354,761	859,281	1,990,374	2,242,032	5,002,786
Total other cereals flour	281	700	133,656	428,400	424,178	1,724,923
Groats and meal	50,640	218,640	47,514	311,650	1,414,575	7,722,598
Grains,germ,potato flour-meal-powder,starches and soya beans	10,621	52,230	42,161	156,749	159,955	1,225,559
(Soja-bean, ground-nut,palm ,sun-flower,safflower,cotton) oil	18,679	24,592	101,088	54,096	432,381	427,668
animal and vegeables oil and prepared meal and fish	58,708	41,476	291,762	142,508	500,409	34,570
Raw cane sugar, in solid form	17,726,831	51,567,998	12,651,669	41,441,495	17,468,888	57,875,777
Cane, lactose, glucose,chimically pue fructose	9,133	56,160	36,338	121,070	44,867	155,687
Chewing gum	20,943	17,030	94,574	74,123	172,040	157,110
Sugar confectionery (incl. white chocolate), not c	208,390	244,318	947,516	603,976	1,471,884	1,318,096
Biscuits,waffles,wafers,rice pape and other bead	25,971	46,098	66,039	32,948	53,284	111,474
Milk and cream in solid or powdered form or sweetened	269,062	107,012	1,412,782	967,018	1,127,774	1,724,642
Total	25,269,372	59,899,435	22,551,732	54,704,308	37,400,548	123,080,752

***Source**: Central Statistics Office, CSO in ZAMBIA*

B. THE KIVUS

Table 5: Exports from North Kivu

Exportations du Nord Kivu hors Beni-Butembo en 2002							
Produits	Qté en kg	Valeur en FC	Valeur en $	% Goma-Ville	% Bunagana		
Café arabica	2,106,950	312,617,179	625,234	100%			
Thé	398,197	17,555,589	35,111	54%	46%		
Pyrochlore	502,472	296,460,000	592,920	100%			
Cassiterite	224,089	37,655,200	75,310	100%			
Autres minerais	101,556	18,325,200	36,650	100%			
Exportations du Nord Kivu en 2006							
Nature produits	Quantité (kg)	Valeur FOB (FC)					
Café arabica	1,579,460	1,123,738,481	2,247,477				
Café robusta	1,545,700	531,051,562	1,062,103				
OR	-	-					
Pyrochlore	-	-					
Cassiterite & or	2,876,517	1,796,003,959	3,592,008				
Wolfram	64,400	36,082,200	72,164				
Scories & déchets	78,344	1,579,292	3,159				
Autres débris	58,600	6,743,369	13,487				
Thé	306,770	91,615,044	183,230				
Bois	3,250,834	372,419,064	744,838				
Papaine	258,388	777,194,922	1,554,390				
Ecorces pigeum	460,800	42,334,700	84,669				
Ecorces Quinquina	4,559,045	848,556,684	1,697,113				
Raowolfia	65,345	50,020,138	100,040				
Export Nord Kivu par corridor en 2006							
	BENI (kg)	GOMA (kg)	ISHASHA	TOTAL (kg)	Valeur /kg fob Goma	TOTAL $ FOB	%
Cassiterite	22,000	2,748,094		2,770,094	2.5505	7,065,125	20%
Coltan	2,000	56,924		58,924	3.6926	217,583	1%
Wolfram	104,190	367,992		472,182	2.25	1,062,410	3%
OR	26	9		35	14500	507,500	1%
Autres minerais	4,350	29,992		34,342		-	
Café	6,556,230	916,181	-	7,472,411	1.05	7,846,032	22%
Quinquina	5,323,000	461,488		5,784,488	0.603	3,488,046	10%
Thé	129,300	178,046		307,346	0.37	113,718	0%
Bois brut	2,453,000			2,453,000	0.13155	322,692	1%
Bois finis (planches)	1,086,147			1,086,147	0.3664	397,964	1%
Autres produits agr (papaine, pigneum)	1,584,220			1,584,220	2	2,982,713	8%
TOTAL	**23,820,693**	**5,674,907**	-	**29,495,600**		**35,248,610**	100%
Part en tonnage exporté	**81%**	**19%**	**0%**	**100%**			
Droits de douane perçus							352,486

Source: *OFIDA 2007*

According to OFIDA the FOB value of exports for 2006 from North Kivu were USD 14,121,849 with the customs duties paid being USD 106, 724 at the official tax rate of 1%.

We calculate the value per kilo on the basis of the FC value implemented by OFIDA.

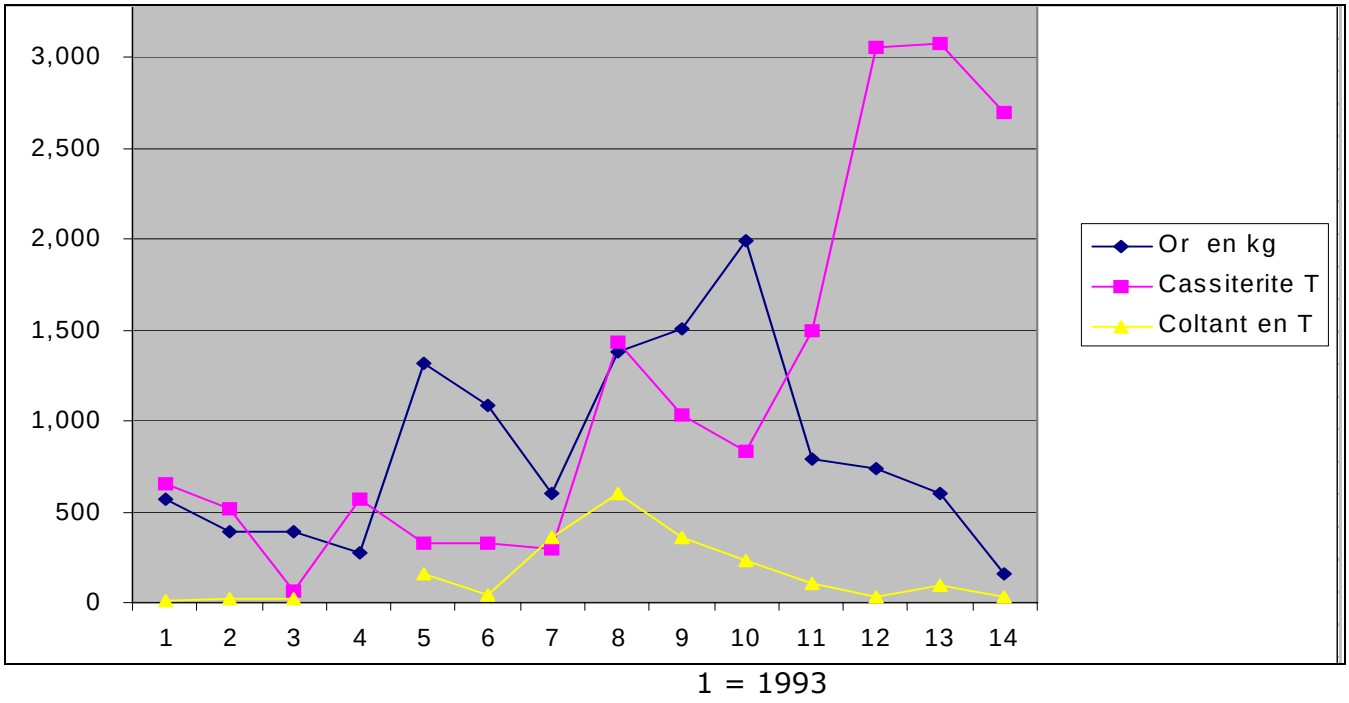
As in South Kivu it would seem that there has been a strong devaluation of customs duty. For example, we can be certain that coltan was going for up to $6.5 in 2006 at Goma, as was cassiterite. The same applies to the planks from Beni which we know cost no less than $15, or $1.5/kg.

In our opinion, apart from the question of fraud surrounding quantities, there has been an underestimation of value by 50%.

The Beni corridor represents 91% of transactions whereas that of Goma only represents 9%. Goma is the main export point for minerals, whereas Beni is the main export point for agricultural produce and timber.

The other corridors show nothing in terms of exported products derived from natural resources.

Graph 1: Gold, Cassiterite and Coltan Exports from South Kivu 1993-2006 by weight



1 = 1993

Only exports of cassiterite are in a growth situation. The other minerals, and even coltan which is often associated with cassiterite, are experiencing a major recession, bordering on extinction. The same applies to gold which has become an export originating from Burundi. However, in the case of coltan this could be related to the mis-labelling of coltan as cassiterite, as an attempt to avoid the higher taxes levied on coltan exports.

Although we know that all these minerals have been used by artisans since the 90s these illustrations might help to advance the hypothesis that production increased during the war of 1996-2003. Since the unification of the country, production has fallen (except for cassiterite). We can assume three things either singularly or in combination: either the number of miners has decreased (a very unlikely hypothesis), the productivity of the miners has decreased (also unlikely), and/or the Central

Government has less control of exports than existed during the rebellion meaning that fraud in exports is increasing.

Compared to the 90s, gold exports from South Kivu have fallen by 80%. The same is not true for cassiterite and coltan. The wars and the bankruptcy of the mining company SOMINKI do not explain the drop in production. In fact on the contrary, they have had a positive effect on production as people resort to artisanal mining in the face of chronic displacement and extreme poverty. There is no reason to believe that they might have acted in a way which only discriminated against gold. The idea of large scale fraud surrounding gold has been confirmed. It is easier to conceal gold than it is to conceal cassiterite and coltan. The fraud with regard to the latter cannot be explained either. The drop in world prices of coltan and the international embargo on coltan from the Congo (or the Great Lakes) might partly explain the drop. But if that is the explanation how can we explain the production from large scale mines in 2006, such as Masisi? (See the coltan/Masisi surveys in 2006.)

Another hypothesis, and by no means the least important, is the undervaluing of purchasing value and therefore the customs value. This is the subject of point 2 below.

The principle exporting corridor is the central Corridor of Bukavu-Kigali-Dar Salaam. The Bukavu-Kalundu-Kigoma-Dar es Salaam corridor is used less and less because of the poor state of the port of Kalundu (Uvira).

The customs value of mining exports (CIF exit DRC)

Based on the valuations of the Office Congolais de Contrôle (OCC) and the Office des Douanes et Accises (OFIDA), the tables below show the official values of mining exports from South Kivu.

Table 6: Cassiterite Exports from South Kivu in USD 2003-2006

Year	Volume# (tons)	Value ($)	Taxes## ($)	Number of exports	Export value ($)
2003	2 986	4 437 788	221, 889	135	1, 486
2004	2 945	3 364 213	168, 211	52	1, 142
2005	3 416	6 213 428	310, 671	59	1, 819
2006	2 388	6 709 120	335, 456	32	2, 810

4 months
total 5% of custom value

***Source**: OFIDA*

The export valuations are below the purchase price of the goods at the trading posts. For example, during the first quarter of 2007, the OCC and OFIDA valued one ton of cassiterite at $2,711 whereas it was bought for between $2,500 and $6,700 according to content, with the figure of $4,600 predominating for coltan from Walikale (largest production zone).

Table 7: Coltan Exports from South Kivu 2003-2007

Year	Ton	Value ($)	Taxes ($)	No. of exports	Customs value / T ($)
2003	47	93590	4679,5	7	1991
2004	32	78590	3929,5	5	2456
2005	84	830362	41518	11	9885
2006	24	210996	10550	4	8792
2007	6	32400	1620	1	5400

Source: OFIDA

Table 8: Exports of Wolframite from South Kivu 2003-2007

Year	Volume (T)	Value ($)	Taxes ($)	No. of exports	Customs value / T ($)
2003	100	79,680	3,984	5	797
2004	190	187,680	9,384	7	988
2005	259	510,600	25,530	13	1 971
2006	471	1,296,520	64,826	16	2 753
2007	65	182,000	9,100	N/A	2 800

Source: *OFIDA*

Table 9: Exports by Destination Country

CASSITERITE (T)					
Countries	**2003**	**2004**	**2005**	**2006**	**2007**
China	N/A	N/A	22.5	N/A	12
UAE	N/A	N/A	22.8	N/A	N/A
UK	1012	N/A	N/A	N/A	270
Rwanda	198	177	226.7	N/A	37.5
Malaysia	N/A	N/A	702	842	N/A
Germany	N/A	967	720	N/A	N/A
Belgium	1775	1868	1302	1251	472
Thailand	N/A	N/A	N/A	46.8	380.4
Total	**2985**	**3012**	**2996**	**2139.8**	**1171.9**
COLTAN (T)					
Countries	**2003**	**2004**	**2005**	**2006**	**2007**
Belgium	4	11	84.5	12.6	6
South Korea	N/A	N/A	N/A	10.9	N/A
UK	36.7	14	N/A	N/A	N/A
Rwanda	6	6	3	N/A	N/A
China	N/A	N/A	47	N/A	N/A
Total	**46.7**	**31**	**134.5**	**23.5**	**6**

Source: *OFIDA*

Except for Belgium there is no consistency in exporting. In fact we cannot understand how exports from a country can disappear from the official statistics (see the case of exports to the UK, China or even the case of Rwanda where no exports appear in 2006).

Table 10: Evolution of Agri-Food Exports in North Kivu

	Volume (tons)	Value ($)	Volume (tons)	Value ($)	Volume (tons)	Values ($)
Year	**Tea**		**Quinquina**		**Coffee**	
2004	533	121 832	690	380 040	221	186 492
2006	875	718 869	520	421 076		

Source: *OFIDA*

Through the weakness of the information that they include, these various tables show that despite adopting the Mining Code in 2002 (in which it was required that 60% of mining revenues must revert to the central authorities) and despite unification of the country in 2003, Kinshasa seems to have no influence on mining activities in the two Kivus. The customs and excise office only has piecemeal, fragmented information, which is updated too late to enable national and international bodies to make adequate decisions in real time.

Table 11: Rough Diamond Exports 2005-2006

	2005			**2006**		
	Carats	**Value** (US$)	**Unit price** (US$/carat)	**Carats**	**Value** (US$)	**Unit price** (US$/carat)
Artisanal	26,838,727	793,807,933	29.58	26,030,843	642,140,543	24.67
Industrial	4,895,020	76,500,035	15.63	2,694,295	36,138,902	13.41
Total	31,733,748	87,037 968	45.21	28,725,138	678,279,445	23.61

Source: OCC

DRC is the Africa's second largest producer of diamonds. As shown in Table 11, artisanal mining constitutes the majority of diamond production. In 2006 Global Witness estimated that one million people work in the artisanal diamond sector. The value of recorded artisanal diamond exports is US$650-800 million per annum, in contrast to industrial exports, which barely represent 9-16% of total exports by caratage. Industrial production of diamonds came primarily from MIBA and Sengamines until March 2005, when Sengamines was sold to First African Diamonds (80% share) and MIBA (20% share). Many international diamond mining companies, such as De Beers, BRC Diamond Corporation, and Mwana Africa PLC, have obtained exploration licences. The value per carat indicates that the majority of exports are for industrial diamonds, with the industrial mines seemingly exporting a greater proportion of gem diamonds. Special attention should be given to the artisanal sector when implementing policies reforming the diamond sector, owing to its socio-political and its economic scale.

Table 12: Cassiterite Exports from Rwanda

	1998	1999	2000	2001	2002	2003	2004
Production	400	300	400	300	200	300	300
Exports	200	500	1000	1000	600	1600	1900
Exports of tin refined by Rwanda	200	200	200	200	200	200	200
Balance	0	-400	-800	-900	-600	-1500	-1800

Source: *Global Witness*

In 2004 official statistics of countries importing cassiterite originating from Rwanda (Belgium, Kenya, South Africa, Tanzania, Uganda and United Kingdom) showed no increase in exports from Rwanda to these countries. This indicates that the enormous quantities we know exist are crossing the border illegally. If all the cassiterite exported by Rwanda came from Rwandan production, taking account of the local production refined at Gisenyi, the weight of exports would be identical to that of production. The table above shows surpluses possibly reaching 1800 tons per year.

Table 13: Comparative tax rates on Timber

Country	Withholding	Import duty (EAC)	VAT	Road Tax or Vehicle Entry Taxes
Burundi	5%	10%	17%	USD 9.50 computerization fee USD 14.50/vehicule
DRC	0.6% export duty	4%	8%	1% (OCC)
Kenya	6%	10%	16%	1% movement permit
Rwanda	5%	15%	18%	152 USD per truck & trailer
Uganda	6%	10%	18%	70-140 USD per vehicle

Source: OFIDA

Table 14: Comparative Tax Rates on Minerals 2005

Country	Mining Royalties	Export Taxes	VAT	Comptoirs
DRC	0.5% iron & ferrous metals			
	2% non-ferrous metals	8%		
	2.5% precious metals			
	4% precious stones			
	1% industrial minerals, solid hydrocarbons			
Rwanda			18%	
Uganda			18%	
Zambia	3% Copper and Cobalt	No taxes on minerals	17,5%	Large-scale mining: USD 0,4-8,57/km2
	5% precious, semi-precious stones			Small-scale mining: USD 0,09/ton
	2% other minerals			Artisanal Mining: USD 0,9/ton and USD 0,40/Km2

Source: INICA

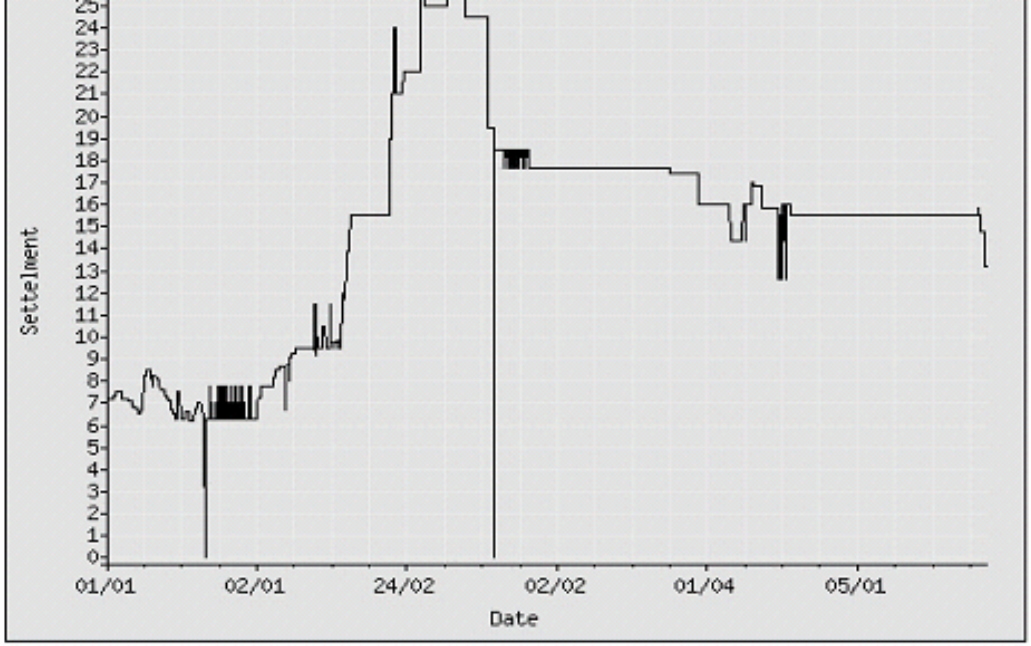
Table 15: Production and Trade by Mineral in Tons, 2002-2006

COPPER										
	2002		2003		2004		2005		2006	
Country	Production	Export	Production	Export	Production	Export	Production	Export	Production	Export
DRC	27 359	N/A	16 359	N/A	18 995	N/A	26 389	N/A	18 715	N/A
Rwanda	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Zambia	380 000	970 673 322	385 000	983 501 252	390 000	1 282 213 300	425 000	1 121 532 101	450 000	N/A
COBALT										
	2002		2003		2004		2005		2006	
Country	Production	Export	Production	Export	Production	Export	Production	Export	Production	Export
DRC	11 865	N/A	7 929	N/A	9967	N/A	8234	N/A	5107	N/A
Rwanda	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Zambia	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
GOLD										
	2002		2003		2004		2005		2006	
Country	Production	Export	Production	Export	Production	Export	Production	Export	Production	Export
DRC	2 154	N/A	819	N/A	1202	N/A	2244	N/A	174	N/A
Rwanda	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Zambia	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
CASSITERITE										
	2002		2003		2004		2005		2006	
Country	Production	Export	Production	Export	Production	Export	Production	Export	Production	Export
DRC	577	N/A	1 728	N/A	9 645	N/A	8 950	N/A	5 002	N/A
Rwanda	200	N/A	300	N/A	300	N/A	N/A	N/A	N/A	N/A
Zambia	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
COLTAN										
	2002		2003		2004		2005		2006	
Country	Production	Export	Production	Export	Production	Export	Production	Export	Production	Export
DRC	157	N/A	1 728	N/A	77	N/A	152	N/A	28	N/A
Rwanda	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Zambia	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

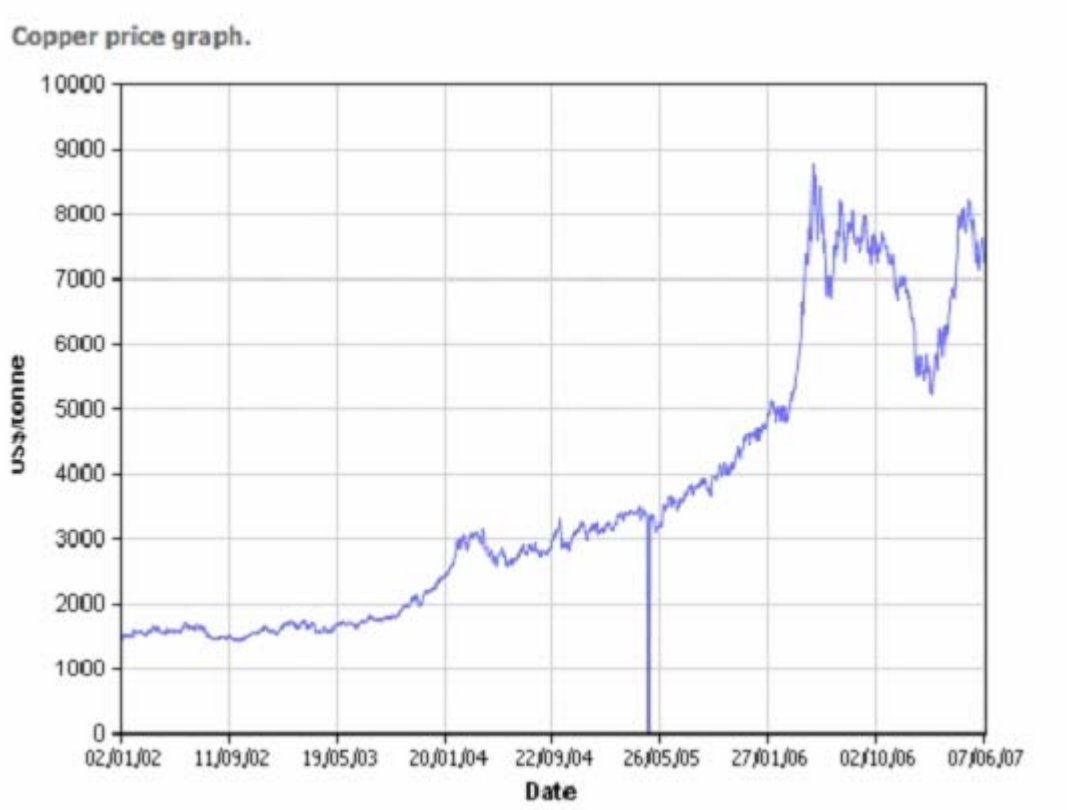
Source:

CATEGORY		TONNAGE	(000)	TONNAGE	(000)	TONNAGE	(000)
ZAMBIA EXPORT	COPPER	182,462	339,379	159,637	296,925	161,024	299,505
	SUGAR	0	-	0	0	-	
	COBALT	605	1,125	0	0	-	
	CLNKERS	0	-	0	0	-	
	C/CONCE	0	-	3,785	7,040	-	
	OTHER	13,500	33,950	3,397	5,119	3,185	16,214
SUB-TOTAL		**196,567**	**374,454**	**166,819**	**309,084**	**164,209**	**315,719**
RSA	CONT.	0	0	0	0	-	
CONGO	MANGANESE	16,664	30,996	23,957	41,829	42,878	99,949
TANZANIA		26,698	9,938	39,093	18,038	43,669	15,400
SUB-TOTAL		**43,362**	**40,934**	**63,050**	**59,867**	**86,547**	**115,349**
T/ EXPORT		**239,929**	**415,388**	**229,869**	**368,951**	**250,756**	**431,068**
ZAMBIA IMPORT	GRAINS	7,633	14,197	117	218		
	PETROLEUM	3,273	6,088	15,378	28,603	20,375	37,898
	SULPHUR	6,103	11,352	0	0		
	FERTLIZER	28,586	58,843	67,618	113,365	42,475	62,658
	CONT.	5,166	9,609	2,954	5,494	2,241	4,168
	OTHER	5,068	8,024	4,564	8,489	32,054	59,620
SUB-TOTAL		**55,829**	**108,113**	**90,631**	**156,169**	**97,145**	**164,344**
DRC	FUEL/CONT.	61,581	109,424	62,349	115,976	66,790	124,544
MALAWI	PETROLEUM	35,345	30,326	28,743	25,507	19,389	18,949
RWANDA		-	-	0	0		
ZIMBABWE	MAIZE	-	-	0	0		
TANZANIA		18,277	14,233	45,284	36,264	17,124	13,580
SUB-TOTAL		**115,203**	**153,983**	**136,376**	**177,747**	**103,303**	**157,073**
T/IMPORTS		**171,032**	**262,096**	**227,007**	**333,916**	**200,448**	**321,417**
LOCAL							
TANZANIA	G.CARGO	183151	176,101	161,180	221,653	136,298	107,051
ZAMBIA	G.CARGO	16168	9,588	14,422	13,279	13,727	9,486
SUB-TOTAL		**199,319**	**185,689**	**175,602**	**234,932**	**150,025**	**116,537**
G/ TOTAL		**610,280**	**863,173**	**632,478**	**937,799**	**601,229**	**869,022**

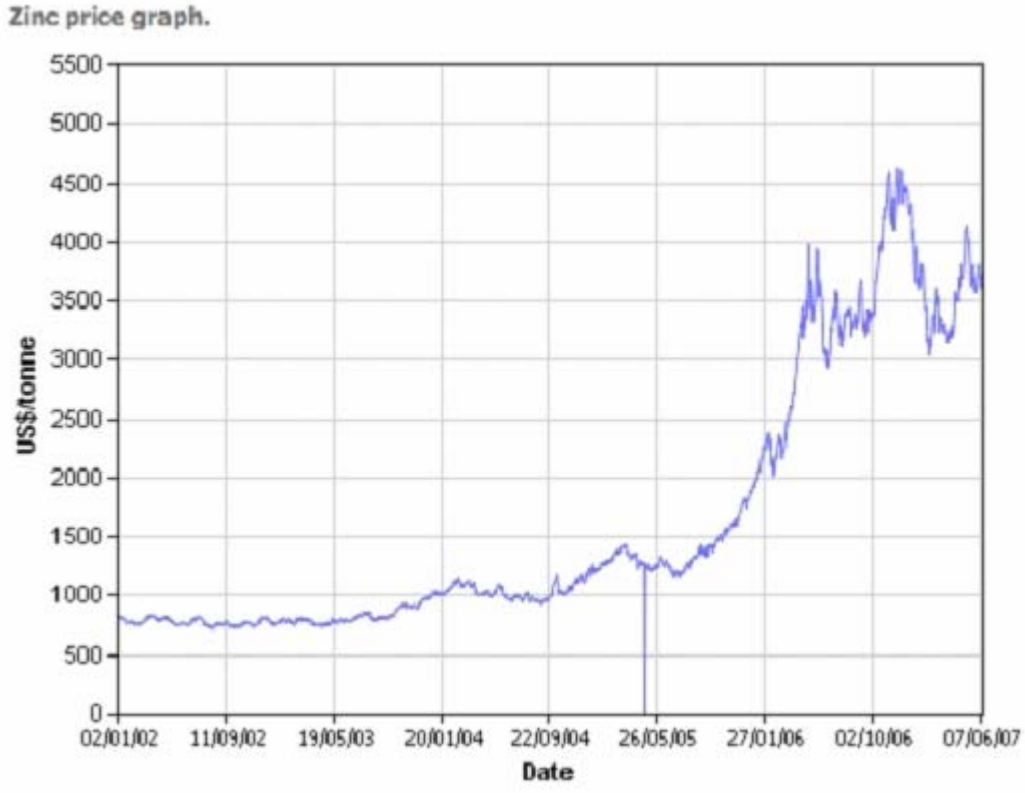
Source: *Tanzania Zambia Railway Authority Head Office Statistics 2003-2006*



Graph 3: The World Market Price for Copper 2002 - 2007



Graph 5: The World Market Price for Zinc 2002-2007



Ranked by Volume	Volume
Crude oil	9,216,249 barrels 1,2 million tons
Timber	146 000 tons
Copper	26,389 tons
Zinc	15,100 tons
Palm oil	15,000 tons
Diamonds	29,447 carats
Cobalt	8,234 tons
Cassiterite	8,950 tons
Wheat flour	7,764 tons
Rubber	5,578 tons
Coffee	4,900 tons
Gold	2,244 tons
Cacao	1,289 tons
Wolframite	444 tons
Coltan	152 tons
Alcohol	2,272,488 Hl
Soft drinks	1,036,963 Hl

Ranked by Value	Value (US$ Millions)
Diamonds	858
Crude oil	459
Cobalt	59
Copper	58
Timber	32
Coffee	8
Cassiterite	6
Rubber	3
Coltan	1
Gold	540 000
Zinc	-
Palm oil	-
Cacao	-
Wolframite	-
Wheat flour	-
Alcohol	-
Soft drinks	-

Source: OFIDA and CBC

IMPORTS INTO DRC (2005)

Ranked by volume	Volume (tons)	Value (US$ millions)
Oil products	1,007,000	432
Food products	499 000	196
Chemicals	83 000	99
Machines/domestic appliances/metal products	73 000	187
Transport equipment (excluding spare parts)	42 000	99

Source: OFIDA and CBC

Ranked by Value	Value (US$ millions)	%
Oil products	432	17%
Food products	196	37.7%
Machines/domestic appliances/metal products	187	8.5%
Chemical industries products	99	16%
Transport equipment (excluding spare parts)	99	8.5%

Source: *OCC*

Ranked by Value based upon CBC statistics	Value (US$ millions)
Consumer goods	540
Energy (oil)	431

Table 18: Formal Sector Business Climates

		Trading Across Borders					
Country	Overall Ranking 1-175	N° of Docs. to Export	Time to Export (days)	Cost to Export ($ /container)	N° of Docs. to Import	Time to Import (days)	Cost to Import ($ /container)
Burundi	166 (160)	12	80	3 625	14	124	3 705
DRC	175 (175)	8	64	3 120	12	92	3 308
Kenya	83 (80)	11	25	1 980	9	45	2 325
Mozambique	140 (137)	6	39	1 516	16	38	1 616
Rwanda	158 (158)	14	60	3 840	20	95	4 080
Tanzania	142 (150)	3	24	822	10	39	917
Uganda	107 (103)	12	42	1 050	19	67	2 945
Zambia	102 (92)	16	60	2 500	19	62	2 640

Paying Taxes			
Country	N° of payments /year	Time to prepare & pay (hrs/year)	Total tax rate as a % of profits
Burundi	40	140	286.7
DRC	34	312	235.4
Kenya	17	432	74.2
Mozambique	36	230	39.2
Rwanda	43	168	41.1
Tanzania	48	248	45.0
Uganda	31	237	32.2
Zambia	36	132	22.2

Source: *Doing Business 2007: How to Reform*, World Bank 2006

Table 19: Transit traffic throughput for the port of Mombasa by country of origin (thousand tons)

Country	2002	2003	2004	2005	2006
Uganda	1,7001.1	1,893.7	2,209.9	2,680.2	2,822.0
Tanzania	157.0	181.8	229.9	281.4	270.2
Burundi	28.8	4.2	19.8	28.8	67.5
Rwanda	80.8	176.8	201.8	218.6	253
Sudan	93.0	75.3	67.2	146.8	137.8
DRC	100.2	71.6	106.9	134.2	226.5
Others	45.1	49.2	55.1	45.7	140.7
Total	**2,214.9**	**2,452.6**	**2,890.6**	**3,535.7**	**3,918.0**

Source*:* Kenya Ports Authority

Table 20: Total Cargo throughput deadweight tons (DWT) 2005-2006

Country	Represented by	2005	2006
Kenya	K.P.A.	13,280,747	14,402,018
Tanzania	T.P.A.	6, 285,060	6, 330,402
Mozambique	C.F.M.	9,982,300	10,598,200

Source*:* NTTCA

Table 21: Dar es Salaam Port Total Traffic (MnT) 1998-2005

	1998	1999	2000	2001	2002	2003	2004	2005
Uploading	2.93	3.17	2.94	3.51	3.63	4.12	4.81	4.82
Downloading	1.10	0.79	0.73	0.85	1.06	1.38	1.64	2.04
Total (1)	4.04	3.96	3.67	4.36	4.69	5.49	6.45	6.86

(1) This total includes metric tons of domestic goods or in transit

Source: Tanzania Harbours Authority

Table 22: Roads in the Great Lakes Region

Country	Total area (km²)	Population (million)	Total network (km)	Paved Roads (%)
Burundi	27,834	6.37	4,471	25.00
DRC	2,345,410	60.00	157,000	1.60
Kenya	582,645	33.82	63,800	13.90
Uganda	241,038	27.00	27,037	6.00
Rwanda	26,338	8.44	14,900	9.10
Tanzania	945,090	36.76	88 200	4.20
Total	**4,168,355**	**172.39**	**291,608,00**	**59,80**

Source: INICA, 2007

Table 23: Ugandan Officially Reported Mineral Production (2006)

	2005	2006	2005	2006
Mineral	**Quantity** (in Tons)		**Total Value** (in 10^3 UGX)	
Limestone	540,755.59	425,610.665	54,075,559	51,073,279.80
Pozzolanic Materials	138, 932.65	213,639.9	2,917,586	4,486,437.90
Vermiculite	2,574	3,512	875,160	1,194,080
Colombo-Tantalum	0.273	0.103	410	1,545
Cobalt	637.840	689.21	30,645,661	33,113,783.66
Gold	0.046	0.021919	1,076, 664	787,239.741
Gypsum	285.310	121.2	28,531	12,120
Lead (Galena)	NIL	46	0	115,000
Wolfram	45.11	94.802	50,523	106,178.24
Kaolin	55	NIL	5,500	0
Iron Ore	208.53	NIL	20,853	0
Syenitic Aggregate	4,519	6,080	0	9,120
Volcanic Ash	5,052.89	NIL	106,111	0
TOTAL			**89,809,337**	**90,898,784.341**

Source: MEMD Annual Report, 2006

Table 24: Ugandan Mineral Exports as per Permits issued for year 2006

Mineral	Export (in Tons)		Total Value (in 10^3 UGX)	
	2005	**2006**	**2005**	**2006**
Gold	5.921	6.10684	164,137,754	219,337,415.36437
Vermiculite	2,353	4,468	800,020	1,535,328
Diamonds (g)	9,122.52	338.16 (carats)	56,939	71,243
Cobalt	252.728	200	11,036,287	9,711,729
Wolfram	5.039	78	5,644	88,292
Colombo-Tantalum	0.05	NIL	750	0
Tourmoline	NIL	14.74	0	3,727
Tin	NIL	3.5	0	8,634
Lead(Galena)	NIL	32	0	80,854
Rubies	NIL	0.00072	0	1,845
Sapphire	NIL	0.000625	0	923
TOTAL			**176,037,394**	**230,839,990.36437**

Source: MEMD Annual Report, 2006

Table 25: Ugandan Mineral Imports as per Permits issued for year 2006

Mineral	Quantity Imported	Units	Total Value	
			USD	**UGX**
Diamond§	338.17	Carats	50,607	92,206,855
Fluorspar	280	Tons	154	280,000
Gold	6066.283	Kg	3,241,719	5,966,782,251
Gypsum	22,000.00	Tons	12,085	22,000,000
Limestone	27,000.00	Tons	14,831	27,000,000
Red Garnet	9	Kg	500	927,350
Rubies	720	G	1,500	2,774,485
Sapphire	625	G	500	910,235
Tin	3	Tons	4,023	7,500,000
Tourmaline	14,644	Kg	13,000	24,085,615
		Grand Total	**3,338,919**	**6,144,466,791**

§ An additional 210 Pcs were imported

Source: *MEMD Annual Report, 2006*

Trade is a major driver for economic growth, poverty reduction and stability in the region. However, tariff reduction alone will not bring trade benefits. Any strategy to enhance the potential for trade to drive development will need to include improved transport infrastructure, trade and transport facilitation, enhanced private sector capability to produce goods and services competitively (e.g. through the provision of cheap electricity), improved government services, and a reduction in risk and transaction costs for trade participation by the poor.

Modern just-in-time and just in-sequence manufacturing and retailing techniques minimize the cost of maintaining inventories through "warehousing in transit". Great Lakes supply chains need improvement to capture more of the opportunities trade can offer for driving development in the region.

Annex II - ECONOMIC ANTHROPOLOGY OF SOUTH KIVU, NORTH KIVU AND KATANGA

By Cyril Musila

1. Economic Anthropology of the Kivus

'Ethnic' networks and spheres of political influence

There are two axes of competition in the Kivu: inter-, between North (Goma) and South (Bukavu) Kivu and intra-, within each province. By their complexity, the modalities of competition within North Kivu seem to explain the various stakes facing Eastern DRC. Existing rivalries were, in effect, sanctified with the decentralisation test-policy applied to the Kivu in 1986, dividing the province into three administrative entities: Maniema, North and South Kivu. Broadly speaking, the dynamics at play in the area are organised around economic and political competition between Nande and Banyarwanda networks in North Kivu and Bashi and Barega actors in South Kivu.

Nande actors in North Kivu have developed and equipped the towns of Butembo and Beni in order to gain a certain amount of economic independence from Goma, the Banyarwanda-controlled capital of the province. Nande businessmen built the hydroelectric plant providing electricity to Butembo and are now working on a larger one on the Semliki River. The Banyarwanda have made Goma the economic centre of Eastern DRC, a pivotal market for agricultural goods produced on their many farms across the Masisi and Rutshuru regions. These four 'ethnic' groups – Banyarwanda, Barega, Bashi and Nande – and their respective trade networks are the main actors in the economic landscape of the Kivu, along with a significant Indo-Pakistani community and a handful of Europeans. They are at the top of the pyramid of trade operators and hence decision-makers in the Kivu, from which are recruited the leaders of socio-economic and political organisations in the region.

Due to the absence of a competitive network or group active in Maniema (630,000 inhabitants), it remains on the sidelines of regional competition. It is mainly an extraction zone for primary resources, agricultural and forest products (mostly wild game) as well as a market for manufactured goods from Uganda (motorcycles, clothing, shoes, hair and beauty products, soap and pharmaceutical goods produced in India, imported by Nande and Indo-Pakistani businessmen) or Lubumbashi, transported on the dilapidated "Kalembelembe" train by way of a seriously run down railway network. Once a month, this 15-car cargo train (with a 40 ton capacity by car for a total of 600 tons) links up Kindu to Lubumbashi to supply Maniema in manufactured goods and sell the province's agricultural production, notably palm oil and plantain bananas (*makemba*) in the vicinity of Kibombo.

In terms of regional influences, Maniema is at the crossroads of North Kivu, eastern Africa, southern Africa and the Central Congo Basin. It is geographically linked up to Katanga, Kasai (despite the fact that the road is presently impracticable), the Congo River and the Western province (Kisangani) by road (not very practicable).

For an understanding of the Kivu economy, one must look at the trade networks and social groups that run them.

North Kivu

North Kivu has a population of 2,462,000[15] roughly divided into the following ethnic groups: Nande, Banyarwanda (Hutu and Tutsi), Nyanga, Hunde and Tembo. Goma aside, the area is administratively divided into five territories: Beni, Lubero, Masisi, Rutshuru and Walikale. Cross-cutting both ethnic and administrative data, the province can be separated into three coherent areas:

1. Beni and Lubero: Nande zone of influence
2. Rutshuru: ("indigenous") Banyarwanda zone of influence
3. Goma-Masisi-Walikale: a heterogeneous area of Hunde, Tembo and Banyarwanda peoples around Masisi and Nayanga in Walikale

Ethnically diverse, this last area is where Banyarwanda immigrants primarily settled during the 1940s (mainly Hutu), followed by Rwandan refugees in 1959 (mainly Tutsi). It has since been prone to serious inter-ethnic strife and violent conflict over land and territorial control. The presence of ex-RAF and ex-Interhamwe along with a number of different militias (notably Mayi-Mayi) in the last two zones and in South Kivu since 1996 has only exacerbated cohabitation issues.

Beyond local disputes in these three zones, the determining dynamic in the region is contention between the two dominant groups – Nande and Banyarwanda – for economic and political leadership. It manifested itself soon after Congolese independence between 1962 and '63. During this period marred by rebellions, secessions and demands for autonomy in key provinces, the two groups clashed over how to divide the Kivu province. Political and economic control of the area was at stake by way of gaining representation in the future provincial assemblies. Two names symbolised the rivalry at the time: Denis Paluku, a Nande, and Cyprien Rwakabuba, a Tutsi Munyarwanda from Rutshuru. Later, it was, in effect, consecrated by the Mobutu regime's "decentralisation" policy, tested in the Kivu in 1986 be dividing the province into three parts: Maniema, North and South Kivu.

The conflicts of the 90s and rebellions of the last decade exacerbated and militarised the competition for economic and political control. A variety of armed groups (Mayi-Mayi, RCD-Goma, RCD-Kis/ML, etc.) fought for political and economic control of the region. This rivalry still exists today, just a few months after the elections. Ethnic political networks have always worked hand in hand with economic networks as many political leaders are also important traders and businessmen.

Today, Nande businessmen retain almost exclusive economic and political control of the Northern districts: Butembo, Beni and Lubero, up to Bunia in Ituri. With the inauguration of its new airport in 2006, the town of Beni, the Nande fief, is attempting to place itself in direct competition with Goma, the Banyarwanda fief.

The Nande are also present in Goma, Masisi and Walikale, in competition with the Banyarwanda for economic control and political management of North Kivu. The latest elections in North Kivu marked a rise in Nande political power concerning provincial and national deputes as well as the government of the province. The replacement of Eugène Serufuli (a Banyarwanda) by the Nande Julien Paluku as governor of North Kivu illustrates this quest for provincial leadership.

[15] In the absence of reliable statistics, the above demographic data was taken from the Independent Electoral Commission and therefore only includes registered adult voters. .

South Kivu

With its 1.667.000 inhabitants,[16] South Kivu has less complex dynamics. Competition for economic and political control of the province (Governorship, Provincial Assembly, etc.) is primarily between the region's two main ethnic groups: the Bashi and the Barega, both from the northern part of South Kivu. The principal characteristic of this competition is that it has not come to the confrontation or violence seen in North Kivu.

Economically, the Bashi tend to be traders while the Barega own most of the agricultural and mineral resources of the province. Barega land includes: Mwenga and Shabunda (both important mining sites), palm oil and quinquina plantations, important forest (wood) and animal resources, including Kahuzi-Biega National Park.

During INICA's 2004 survey in the Kamituga (Mwenga) and Shabunda mining areas, miners expressed the feeling that the Barega were being robed of the fruit of their natural resources by Bashi traders who "have the money and set ridiculous prices."

Even if the argument should be placed in the particular context of the basic miners' poverty (diggers, etc in artisanal mines), it demonstrates a degree of mistrust between the different operators along the value chain.

2. Economic Anthropology of Katanga

Space and Man

In south-west DRC, Katanga is entirely in the southern hemisphere between 4° - 5° South and 21°30' – 30°45' East. In the north it is surrounded by the provinces of South Kivu and Maniema, in the north-west by the provinces of Eastern and Western Kasai, in the west and south-west by the Democratic People's Republic of Angola and in the south-east by Zambia. In the east and north-east, Lake Tanganyika separates Katanga from Tanzania.

Katanga is the second largest Congolese province after the Eastern province (503.239 km²), covering 496.887 km². Katanga represents 21% of the DRC's 2.345.095 km². In 2003 the province's population was estimated at 8.167.240 inhabitants with a yearly growth rate of 3.9%.

This vast territory is subdivided into several administrative units including four rural districts (Upper–Katanga, Upper–Lomami, Lualaba and Tanganika), three cities (Lubumbashi, Likasi and Kolwezi) and the urban-rural district of Kolwezi. Mining areas are spread out across all of these districts. Thus, there are both urban and rural mining areas.

Several Bantu ethnic groups, both matriarchal and patriarchal, live in Katanga. Ethnic groups often share the same area due to the migrations, conquests and industrialisation of the early 20th century. Ethnic blending (Katanga has 60 trans-ethnic and multicultural communities) makes is difficult to identify specific groups. Nevertheless, there are four main ethnic groupings: Balamba-Bemba, Baluba, Basanga and Lunda.

The two smallest sub-groups within the Balamba-Bemba are the Aushi (in Kasenga and Sakania) and the Lala (in Sakania). The Lamba are mainly present in Kipushi and

[16] Demographic data from the DRC Independent Electoral Commission, 2006.

Sakania, and in lesser numbers in the Kambove areas of Lemba and Kaonde. The Bemba are primarily in Kasenga and Pweto, including sub-groups such as the Bashila of lake Moero and the Tabwa of southern lake Tanganyika.

Between the Lamba-Bemba of South Katanga and the Baluba of North Katanga there are 5 tribes of Balubaisés: Babuile, Bakunda, Balomotwa, Bashimba-Bazela and Bazela. These tribes occupy all of Mitwaba and parts of Pweto and Kasenga.
The following sub-groups live in the North-East Triangle (Manono, Mitwaba, and Pweto): Babuyu, Bahemba, Baholoholo, Bakalanga, Balumbu and Batumbwe.

The Basanga occupy the centre of the province. They are mainly in Likasi, Kambove, Lubudi, and Mutshatsha and in parts of Mitwaba and Kasenga.

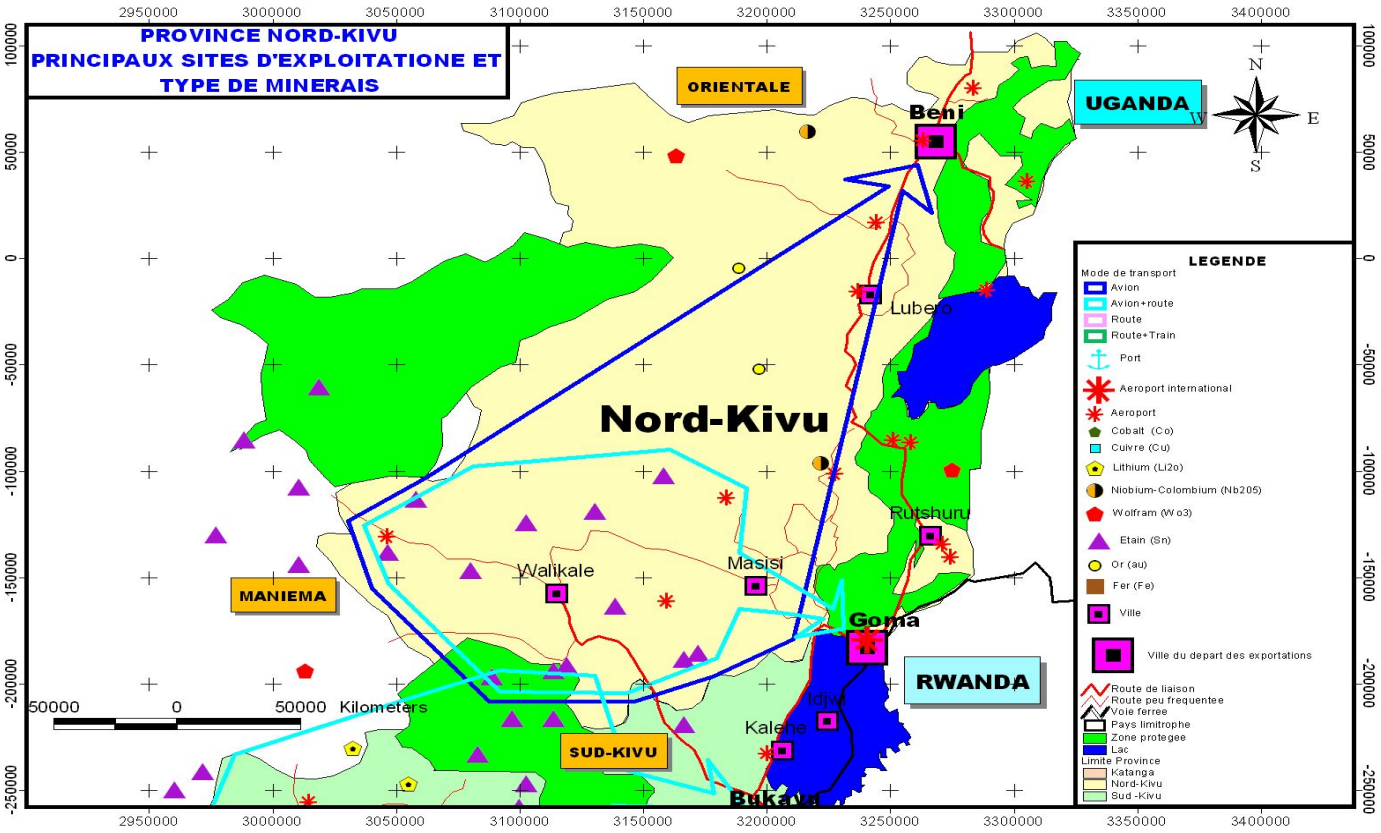
Finally, the Lunda ethnic grouping is composed of the 5 major tribes of the Lualaba region: Aruund (in Kapanga), Luena (in Dilolo), Minungu, Ndembo (in Mutshatsha), and the Kasaji and the Tshokwe in Sandoa.

The organisation of economic activities along ethnic lines is complex, as the various ethnic groups try to diversify their activities. Economic activities revolve primarily around the exploitation of the resources available on the land inhabited by these ethnic groups: farming for those on agricultural land and mining for others. However, North Katanga is predominantly oriented towards agricultural production and South Katanga towards mineral extraction. The north also has a few gold and other mineral deposits. Thus, although the north's economy leans towards agriculture, it is supplemented by artisanal trade and exploitation of gold and coltan. The south's economy depends almost exclusively on mining, either artisanal or industrial. Agriculture, mostly small scale activities on a few modern farms, is marginal.

Commerce is characterised by the variety of operators from other regions of the DRC or neighbouring countries. In North Katanga, around the town of Kalemie, the Fulero and Bashi of South Kivu dominate commercial activities. West Africans, Tanzanians, South Africans and Asians operate from Lubumbashi. However, in some districts local groups still control commerce. People from the Kasai region of the DRC are present both in the north and the south. During the crisis of Gecamines in the 1990s, the presence of "Kasaiens" was the source of ethnic conflicts with the Katangais. Fomented by Kyungu Wa Kumwanza, the governor of Katanga, these conflicts resulted in the forced departure of hundreds of thousands of Kasaiens to the two Kasais.

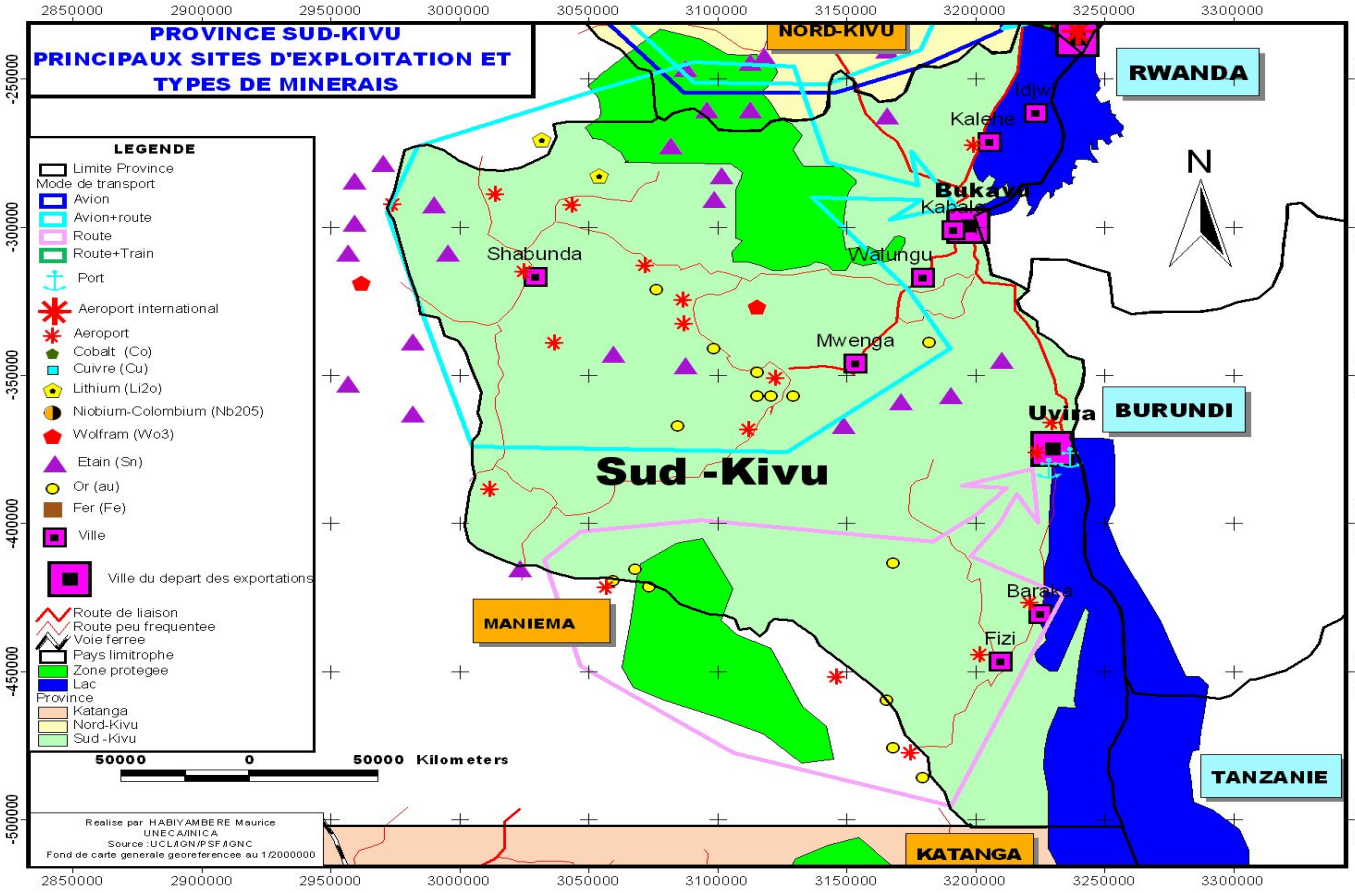
Annex III - CARTOGRAPHY

North Kivu – Principal Mining Sites and Minerals



North Kivu's mineral production, from sites mainly around Walikale and Masisi, are sent to three main destinations: Beni, Goma and Bukavu. These three towns are the exit points for minerals from North and South Kivu. Thanks to their administrative status, airport facilities and warehouses, they are centres for regrouping and storing mineral production. Transportation, both via air and road, spreads the flux of minerals across the two provinces. The mining economy of North Kivu is therefore well integrated into the commercial dynamics of the greater Kivu.

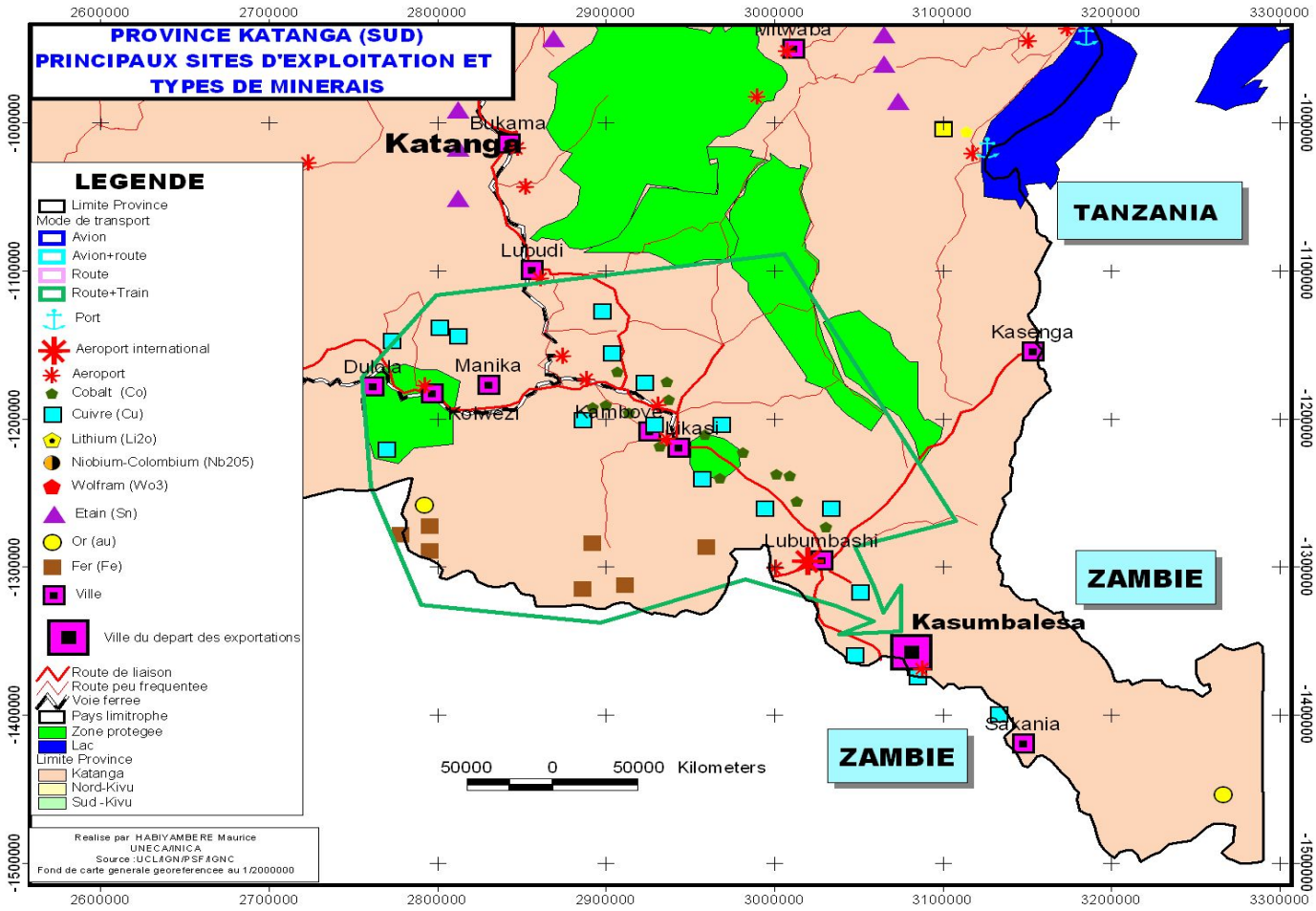
South Kivu – Principal Mining Sites and Minerals



South Kivu's mineral production is essentially commercialised within the province. Production from mining sites in the north (Shabunda, Mwenga and Walungu) is sent to Bukavu, the only town in the province with "comptoirs" for processing and exporting minerals. Transport between Shabunda and Bukavu is only via air, due to the poor state of roads. Minerals are transported from the sites to airplanes by porters, who carry extremely heavy loads.

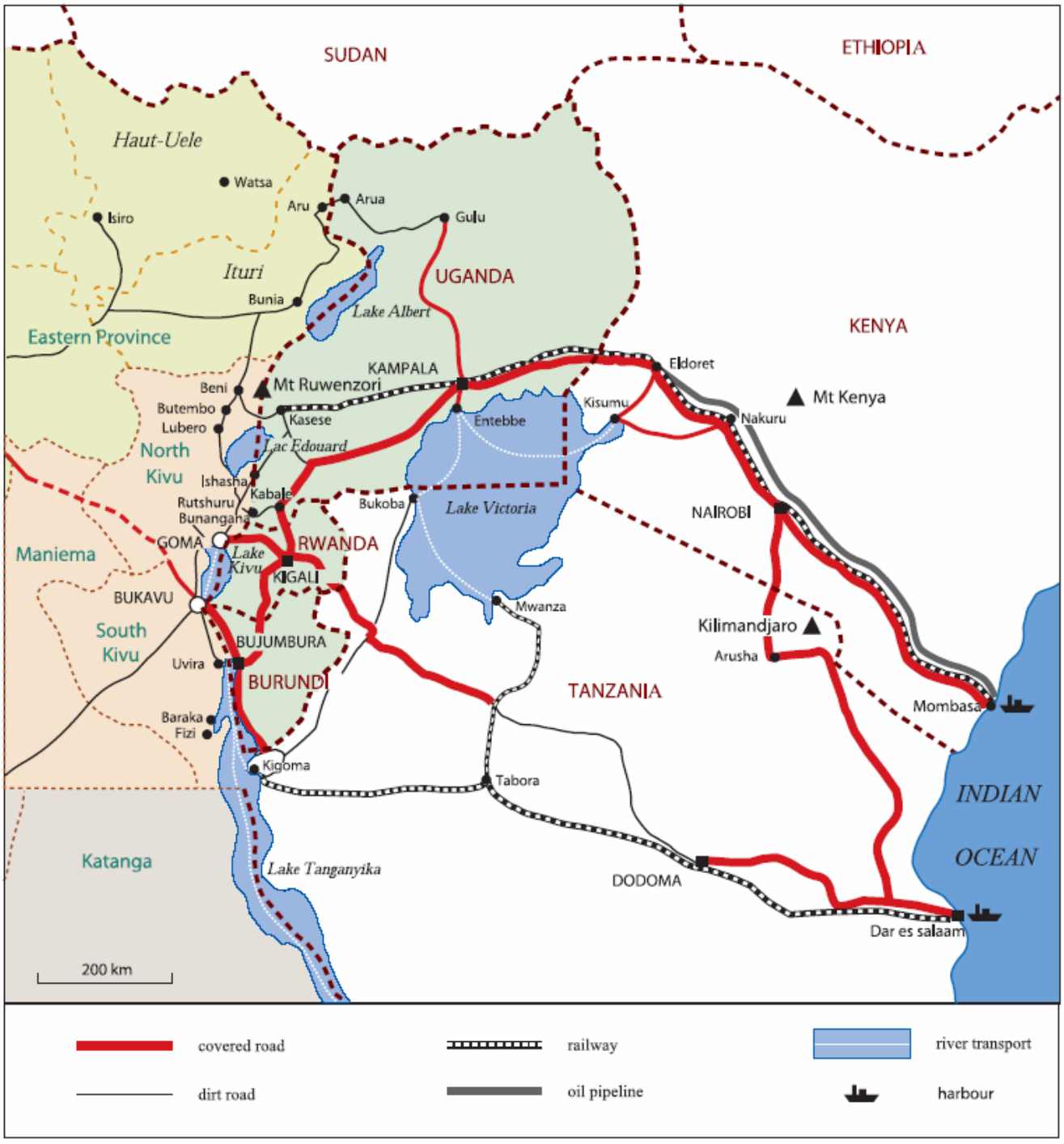
Production from the south (Fizi and Baraka) is sent exclusively to the small town of Uvira. The distinctive characteristic of Uvira is that it is only a transit point for minerals, despite being the second largest port of the DRC. The port facilities have been destroyed by bad management and repeated conflicts. There are no "comptoirs". Minerals, especially gold, are sent to Rwanda or Bujumbura where they are traded for imported manufactured goods and spare parts for vehicles.

Katanga – Principal mining sites and minerals



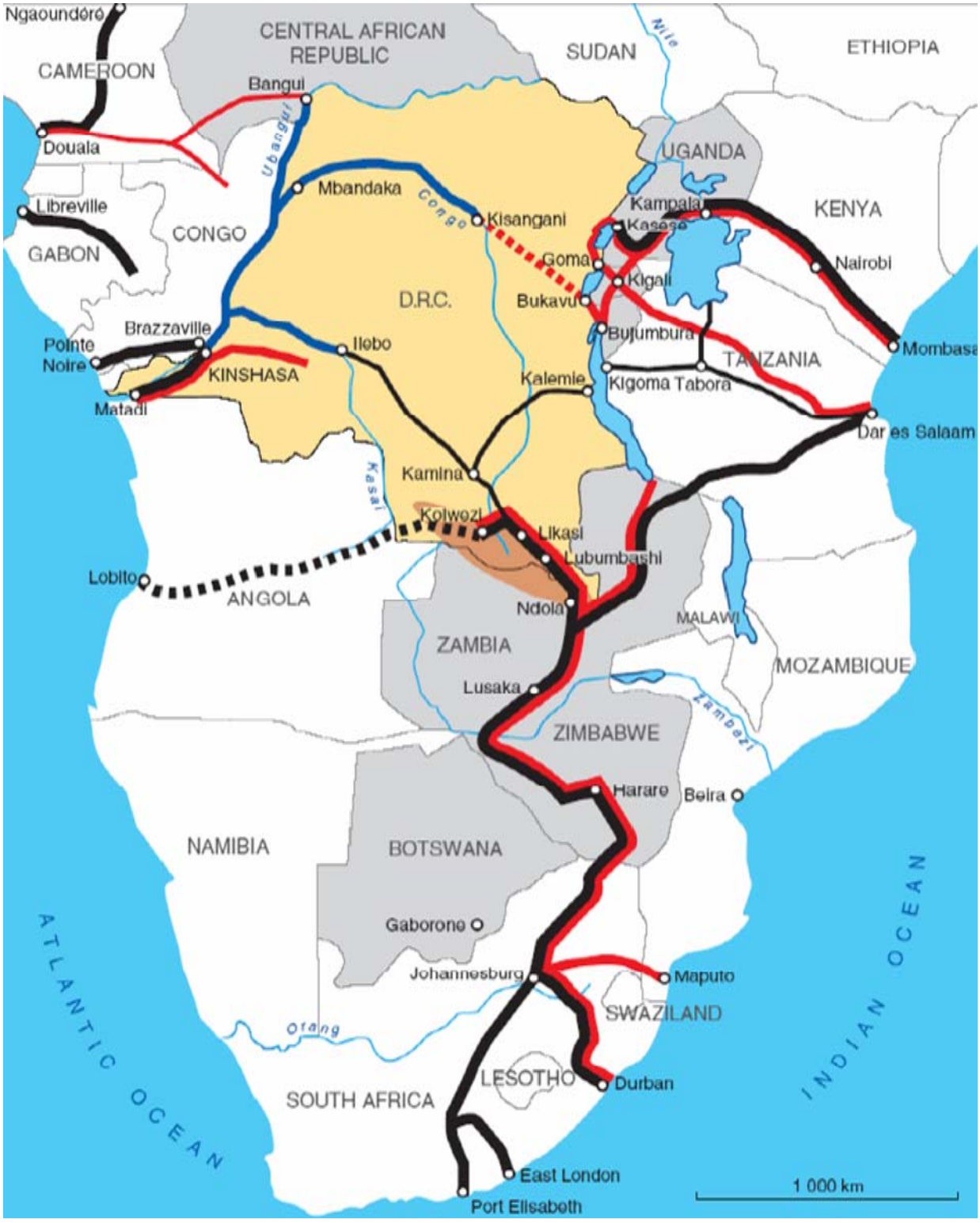
Although Katanga is the bastion of Congolese industry and mining, of which Gecamines was the symbol, the province is confronted with a rise in artisanal mining due to the progressive decline of the company. Despite this decline, Gecamine's long hold over the organisation of the province has left a lasting impact on its socio-economic functioning. Katanga's mineral production basins and the quality of its roads set it apart from other provinces. The border post of Kasumbalesa is the main exit point of minerals destined for Zambia and the various Indian Ocean ports (Maputo, Bera, Port Elisabeth, Nakala). Unlike the Kivus, Katanga has an excellent road network that is used to transport minerals. A rail network, bordering the road, speeds up and increases transport capacity.

Northern and Central Corridors



Source: INICA

DRC – International trade routes



Source: INICA

Annex IV - THE IMPACT OF THE MINING CODE ON ARTISANAL MINING IN THE DRC

By Maria Eklund

I. Introduction

"On July 11, 2002 the transitional government of the DRC passed into law a New Mining Code that was developed by the DRC Ministry of Mines and Hydrocarbons with the assistance of the World Bank. The New Mining Code came into force in January 2003 and the mining regulations thereunder came into force on March 26, 2003. […] The principal intention of the New Mining Code is to create a stable investment environment for companies investing in the DRC, providing them with security of title and certainty of process.

In the DRC, all deposits of mineral substances are owned by the state. The President […] is given the power to declare, classify and declassify areas of the DRC as prohibited for mining activities and also has the power to promulgate regulations […]. No person may explore for minerals or carry on mining operations except under the authority of an exploration certificate or exploitation permit […]. The permit holder is obliged to undertake regulatory duties within specified time limits. These regulatory arrangements […] include technical, environmental and other requirements.

Under the New Mining Code, mining rights are regulated by exploration, exploitation, small scale exploitation and tailing exploitation permits.

Exploitation permits for tailings […] have initial terms of five years with five year renewal terms. An exploitation permit may not exceed 400 km². An entity and its affiliates may not hold more than 50 exploration permits, and the total surface area granted may not exceed 20,000 km².

The New Mining Code provides that only DRC entities can have exploitation rights. Before a new exploitation permit is granted, a DRC company must be incorporated, and an undertaking given to transfer 5% of the share capital of the company to the DRC government. Exploitation permits are valid for 30 years, renewable for 15-year periods until the end of the mine's life. […]

Any foreign nationals, including any legal entity governed by laws other than the DRC, are required to elect domicile with an authorized mining or quarry agent located in the DRC and must act through this intermediary. The mining or quarry agent will act on behalf of and in the name of the foreign national or foreign legal entity with the mining authorities, mostly for the purposes of communication.

Environmental obligations under the New Mining Code require the preparation of an environmental impact study and an environmental management plan for a development project, both of which must be updated if a renewal of a mining licence is sought. As well, the New Mining Code provides for a biennial environmental audit. If a company does not pass this audit, it may lose its permit. Upon closure of the mine, shafts must be filled, covered or enclosed, and a certificate obtained confirming compliance with environmental obligations under the terms of the environmental impact study and environmental management plan.[5]

[5] Excerpt from http://www.tealmining.com/properties/info_congo.asp.

II. Artisanal Mining under the Mining Code

The Mining Code (Law N# 007/2002) and its regulation (Decree N# 038/2003), intended to regulate the extraction and trade of certain listed minerals and to promote investments by large companies in the mining sector while increasing public revenues. The war had created havoc in the mining industry and in 1998, President Laurent-Désiré Kabila authorized the artisanal exploitation of mineral concessions belonging to the government-owned company Gecamines by presidential decree.

The number of artisanal miners in the Katanga region alone is estimated to be about 100,000. The situation of miners in the DRC is made worse by the fact that in certain regions they are subject to extortion by armed groups. In areas where the government is more present, corruption is so widespread that artisanal miners suffer from extortion by government agents, be they employees of the Ministry of Mines, security forces or customs officers. To make matters worse, the artisanal miners association of Katanga (EMAK), whose objective is the defence of miners, has been accused of extortion as well.

Artisanal mining can contribute to the sustainable development of a country's natural resources. Extensive participation in artisanal mining activities can be linked to the absence of a strong state presence. The fact that these activities take place in remote and/or inaccessible areas contributes to their informality and marginality.

Legislation that tries to solve the problem of informality and illegality must also address the issue of child labour, environmental concerns and safety and health hazards.

The countries with artisanal mining have tried the following approaches:
1) Ignore it, legislating only for the formal mining sector;
2) Give it a special status, distinguishing the area of application of the legislation;
3) Consider that artisanal mining benefits a part of the population and as such is an activity that deserves to be encouraged and an appropriate legal framework established.

The new Mining Code introduces a new order concerning large scale mining. Like other codes sponsored by the World Bank it deregulates and liberalizes the mining industry. The problem is that the treatment of artisanal exploitation of minerals does not mark a significant departure from previous Congolese legislation which largely ignored artisanal mining. The mining code failed to acknowledge that the situation of the population had changed for the worse in the prior decade: the war had created millions of displaced people, there was a widespread lack of governance and a majority of the population were living in poverty, lacking the means to support themselves. In that context the number of people which owed their subsistence to artisanal mining had increased. The Code creates cumbersome procedures which the artisanal miners must follow in order to formalize their situation and does not seem to offer a viable alternative for this population.

III. Analysis of the artisanal miners' rights and obligations under the Mining Code and its regulation

The Mining Code deals with small scale mining in articles 11, 14, 15, 26, 27, 30, 109- 120, 127, 128 and 261 and ss concerning tax and customs. The regulation in its Title IX (artisanal exploitation of mines) articles 223 to 237 and Title X

(Transformation, transport and commercialization of products of artisanal mines) articles 238 to 265. Annex V contains the norms that define the responsible behaviour of the artisanal miner.

Artisanal miners have the right to exploit an area that is specially designated as open to artisanal mining and which is indicated in their Artisanal Exploitation Card. The Government has yet to designate the areas reserved for artisanal mining in the Kivus despite repeated requests from both artisanal and small-scale miners. Below are some of the relevant definitions of terms from the mining code:

Artisanal Exploitation Card: document authorizing any person of Congolese nationality in whose name it is issued, to extract and concentrate mineral substances by using artisanal tools, methods and processes pursuant to the provisions of the present Code;

Trader's Card: document issued pursuant to the provisions of the present Code, which authorises the person in whose name it is issued to buy gold, diamonds or any other substances classified as minerals, from persons holding a valid artisanal miner's card, and to resell these substances to authorized traders;

Authorized Trader: Any person authorized to purchase mineral substances extracted by artisanal mining methods from traders or artisanal miners, for the purpose of reselling them locally or exporting them in accordance with the provisions of the present Code;

Artisanal Exploitation: Any activity by means of which a person of Congolese nationality carries out extraction and concentration of mineral substances using artisanal tools, methods and processes, within an artisanal exploitation area limited in terms of surface area and depth up to a maximum of thirty metres;

Small-scale Mining Exploitation: Any activity by means of which a person carries out permanent small-scale exploitation, requiring a minimum amount of fixed installations, by using semi-industrial or industrial processes, after a deposit has been found.

The rights granted artisanal miners are precarious: the level of security of claims is for only one year after which the permit can lapse. In effect, the areas open for artisanal mining can be disaffected should the conditions change, for example if the government considers the area will be more productive through industrial mining. The artisanal miners affected cannot contest the government's decision to close the area.

Should an area be disaffected, the artisanal miners who are currently exploiting such lands can:

a) leave within sixty days from the notification of the decision to close the artisanal mining zone; or

b) use their pre-emptive right and request a permit as a small scale mining concern. To be able to use this right the miners of the area concerned must organize themselves. They have 30 days following the notification of closing of the artisanal mining zone to exercise their pre-emptive right. Taking into consideration that small scale miners can obtain exploration or exploitation permits if they meet certain conditions and that the minimum investment

required in order to qualify as a small scale miner is of 100,000 dollars, it is unlikely that artisanal miners could upgrade to become small scale miners.

A big constraint to more economic security for artisanal miners is that technically they must pass a written test in order to be registered, an obvious barrier to entry. Furthermore, in order to renew a one year permit, artisanal miners must attend training classes and pass the respective exams regarding their knowledge of environmental issues and safety standards.

Artisanal miners are allowed to sell gold only to state-authorized traders, exchange markets, or trading houses. Trading houses can obtain the authorization of the Minister of Mines in Kinshasa to export gold.

The problem lies in that most of the traders, who generally buy at the mining site and sell to trading houses in larger towns, are as informal as the miners themselves. They escape regulation and contribute largely to the problem of exploitation of the miners by paying them extremely low sums which do not correspond to the value of their minerals.

Another major constraint imposed on the artisanal miners is contained in Annex V of the Behavioural code, which prescribes obligations to comply with written formalities, as well as certain practices for the protection of the environment such as restoring the land exploited to its previous condition.

One criticism regarding the treatment of artisanal mining in the mining code and its regulation is that it ignores the reality of the thousands of miners that were already present on mining sites throughout the country and who had very limited choices to provide for themselves with an alternative activity. By not effectively encouraging the artisanal exploitation of certain minerals that do not require heavy investment or equipment and by choosing primarily to promote large scale mining, the Code misses the opportunity to create revenue at the domestic level by proposing a concrete alternative to the artisanal miners.

Instead of imposing the heavier burden of compliance upon the most powerful component in the chain (i.e. the international purchasers and the trading companies that supply them, the transport companies, the trading companies, the exporters, the processors of the ore) and working backwards towards the weakest one, the mining code and its regulation creates obligations to the weaker component, i.e. the miners.

The government coffers would be enriched in the short term through lucrative royalties originating from concession rights to large mining companies. In a country with the poor governance record of the DRC it is unlikely that these revenues would be transferred to the communities which would use them in creating employment in other economic activities for the benefit of a large majority.

After the promulgation of the Code, mining companies that negotiated the concessions belonging to Gecamines as well as other companies found a large number of artisanal miners working on their land. These companies can expel the miners from their land with the assistance of public armed forces or using their own security forces[6].

[6] One possible alternative was studied for the town of Kolwezi specifically, where under the leadership of Mr Kisula Ngoy, governor of the province of Katanga, a steering committee was formed in 2002 by large mining companies such as Anvil

The wisdom of the legislative option of encouraging mainly large scale mining in the hopes of attracting foreign investment can be questioned. While for certain minerals it is desirable to use technologically sophisticated industrial mining in order to recover resources which lie at greater depths or which require specific processing that is out of the reach of the small-scale industry, the extent and diversity of the minerals which make the DRC one of the most mineral-rich countries in Africa also make it possible and desirable to extract minerals at a smaller scale.

The government of the DRC must evaluate its development objectives taking into account the difficult situation faced by its population dedicated to artisanal mining. It seems incoherent that in the year the Code was approved, in a country divided by war, with no real presence of government in most of the land, where the government was not even in a position of securing peace and safety for the population, the text makes extensive demands to miners who are for the most part illiterate and living on incomes of less than US$ 1 per day.

IV. Comparative analysis of other countries' regulation of artisanal mining

A) Madagascar's new mining code

A more recent example closer to the reality of the DRC is the legalization of artisanal mining under Madagascar's new mining code of 2005[7], as implemented by the regulations of 2006. Under Madagascar's new code, artisanal miners are granted a permit without any further requirement, upon the payment of a very small fee. The new rules aim to integrate small-scale or artisanal miners in the formal economy. Every miner or panner must pay $1.5 for an annual permit. Gold traders, who buy the gold to sell it on, must pay $50 for their permit. A model artisanal gold mine project has been set up in the community of Antanimbary under these rules. The money collected from the permits is administered by the mayor of the village and is to be used to fund local community projects. If the Antanimbary model proves to be successful it will be implemented in other artisanal gold mining communities nationwide. The budget of the city hall has increased threefold and the community has improved its infrastructure with the proceeds of the permits.

B) The Tanzanian mining code

Like the DRC, Tanzania's mining code focuses on attracting private foreign investment. However, the majority of all mineral export earnings come from gold mining by artisanal miners.

Experts say that "it is not clear that government earnings from taxes and royalties connected with large-scale foreign-owned industrial mining maximises the revenues and developmental benefits that could accrue to the country." [8]The government will

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mining, DCP, K.O., Bazano, TFM , the mining department, the city hall, EMAK, SESCAM, SNKK,as well as the traditional chiefs. The steering committee's proposal was to request from the government that specific mining concessions belonging to Gecamines be dedicated to artisanal mining for a period of five years. While this solution may be a convenient for large international companies, it places on the government the burden of determining whether to open up additional land for artisanal exploitation.

[7] Law N 2005-021 dated October 17, 2005 which partially modified law N 90-022 of August 19, 1999 which approved the Mining Code. Official Journal*, 2006-02-20, 3015, pp. 1569-1597*

[8] Paula Butler, "Tanzania: Liberalisation of Investment and the Mining Sector Analysis of the Content and Certain Implications of the Tanzania 1998 Mining Act". In Discussion Paper N 26 Regulating Mining in Africa For whose benefit? Edited by Bonnie Campbell, Groupe de recherche sur les activités minières en Afrique (GRAMA), Faculty of Political Science and Law, Université du Québec, Montréal (UQAM), Bonnie Campbell, Pascale Hatcher, Ariane Lafortune and Bruno Sarrasin, With the collaboration of Thomas Akabzaa, Department of Geology, University of Ghana, Legon and Paula Butler, Ontario Institute for Studies in Education, University of Toronto

be better served using other strategies that have been helpful to industrial nations with a mining sector, such as "minerals processing, development of the mining services and equipment supply side of the industry, as well as enhanced local ownership of mining and exploration companies in order to appropriate a greater share of profits."[9]

C) The Malian mining code

The almost complete failure of by the government of Mali to provide its citizens with public services has been presented by analysts as a case in point for the argument that a government may be so starved for revenues that it would embrace the promotion of foreign investment as if it were its fundamental role, "even at the expense of abandoning its own development role of ensuring the minimal conditions necessary for the social and economic development of its population."[10]

D) Peru's artisanal mining law

Law N# 27651, formalizing and promoting small-scale and artisanal mining was voted in 2001. It is the first attempt made by the Peruvian government to regulate a sector that had been until then largely ignored. Among the considerations that lie behind this change is the acknowledgment that artisanal mining employs a large number of people, many of them living in remote areas with no other alternative for income and provides them with an occupation and means of providing for their basic needs (however meagre) while demanding a very low level of personal investment and limited technical skills.

Because of the problems encountered in fighting terrorism in the 80s and early 90s, the government severely punished the use of explosives without proper permits. This restriction provided an additional incentive for artisanal miners to formalize and have access to the explosive they needed in their gold mining activities.

Most of the approximately 50,000 artisanal miners in Peru are engaged in gold mining. Almost all of them are "informals." The artisanal mining of gold produced 14.780 kg in 2004 while the small-scale mining production was only 280 kg. Although there has not been much direct confrontation between the artisanal miners and the owners of concessions, the main problem is that the activities take place on governmental land to which the artisanal miners have no claim. While in some cases it is after the exploration and discovery of minerals that more informed parties rush to establish their mining rights to the detriment of the artisanal miners who were first to explore the areas, in many other cases the miners take over inactive mines or areas where third parties hold rights of exploration or exploitation without compensating the rightful owners.

The law establishes criteria to distinguish artisanal mining from small scale mining: an artisanal miner can process up to 25 TM/day, and the small miner can process up to 350TM/day. The artisanal miner can lay claim to up to 1,000 ha while the small miner can claim up to 2.000. The fees are of US$ 0,50 per ha for the artisanal miner and US$1,00 per ha for the small-scale miner. The law creates an obligation of minimal production in the case of metals of US $25 per ha for the artisanal miner

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Nordiska Afrikainstitutet, Uppsala 2004

[9] Ibid

[10] Pascale Hatcher: "Mali: Rewriting the Mining Code or Redefning the Role of the State? "In Discussion Paper N 26 Ibid fn 2 supra.

and of US $ 50 per ha for the small-scale miner. There are fines imposed in case of non compliance with this obligation after the seventh year.

Like other countries where artisanal mining exists the fact that this activity takes place for the most part in remote areas makes governmental control difficult. A main concern of the Peruvian government is respect for the environment and observance of safety measures.

Prior to Law N# 27651, Mining Law N# 14 regulated the activity and artisanal mining was briefly mentioned. The regulation of Law 27651 was approved by Decree 013-2002-EM (later amended).

Law 28315 and its regulation Decreto Supremo 040-2004-EM, (as amended) established a new delay for the artisanal miners' preemptive right, that can be exercised in the areas they occupy according to a list to be established by separate regulation.

Some of the formalities for artisanal miners are:
- annual declaration in a specific form (R.M. 272-2003-EM/DM);
- training classes and exams regarding their knowledge of environmental issues and safety standards to renew a one year permit;
- biannual declaration to be presented in order to confirm their status of small scale and artisanal miner.

Miners' organizations complain that these formalities are cumbersome and try to reduce them.

As part of the efforts to promote formalization, the Mining Direction has edited simple manuals and guides. It has also set up training programs, which the miners are supposed to attend and which are valid for only two years.

The law has encouraged a relatively small number of artisanal miners and a larger number of small-scale miners to formalize their activities. As of March 9, 2006, 1470 small-scale miners had formalized their situation, while only 751 artisanal miners had done so.[11]

International organizations and cooperation projects such as the Gama project of the Swiss Cooperation (COSUDE) have assisted miners in creating companies and cooperatives and promoted training among the miners.

V. Conclusion

Informality is a definition, a term opposed to formality and regulation. An informal activity is one which is carried out without observance of the regulations established by the relevant legal system. For an activity to be "formal" there must be a body of regulations which control it. It is also a societal choice and governmental policy which responds to the objectives pursued by the specific country. A government could chose to "liberalize" an activity by freeing it from regulation or by limiting the regulations to specific areas. Becoming conscious of this choice is important because

[11] Presentation by Walter Sánchez of the Direction of Mining Promotion of the Ministry of Mining and Energy at the public audience "Management of artisanal mining and social responsibility in mining development and poverty alleviation in the Andean and Amazonian region which took place in Lima, Peru on March 10, 2006.

it shows that there is no "informal" mining unless the government has regulated the activity and the specific rules enacted exclude other ways of carrying out this activity.

Informality can and should be distinguished from illegality. In a first stage, making the practice of artisanal mining legal per se when carried out on government land, within the boundaries set forth by the Ministry, would confer the miners the reassurance of not beening outside the law and subject to extortion by the same government agents charged with enforcing these laws.

A second stage consists of making the legal activity "formal" that is, regulated. For formalization to succeed it should proceed in stages and adapt itself to the reality of the country. It is not the best practice to intend to replicate a model that responds to a different reality where social development departs significantly from that of the DRC.

The recognition of the individual miner's license to mine would be best ensured by issuance of a miner's card by the representative of the local government closest to the site. The main purpose of these cards would be to create a registry of the miners in order acquire better knowledge of the number of miners dedicated to the activity in each area. This would also provide the government with approximate numbers for mineral production.

This automatic recognition will eliminate a source of extortion.[12] Furthermore, making the government responsible for buying the minerals at a fair price would eliminate the middlemen who currently exploit the miners.

If a best practice model such as the Madagascar model were to be followed, part of the resources generated from the artisanal mining licenses should be reverted to local governments which could use these revenues, to address the social needs of the mining communities. This could include creating schools and medical dispensaries as well as training programs that would evolve into training in technologies that would best preserve the environment.[13]

Under the current system, many miners are victim of accidents in the mine, pits crumble, mud and rocks trap or crush them, their health and that of the community is endangered by the use of mercury and other dangerous chemicals. Granting legal status prepares the ground for a later stage, which is to raise awareness among the artisanal miners that they can be actors in improving their working and living conditions through local initiatives.

An additional measure would consist in the establishment of government-supervised trading houses and processing plants at a small scale, where miners would sell their day's production at a fair price calculated according to the international market.

By giving legitimacy to their activity and by increasing the revenues through payment of a better price for their products, formalization can facilitate the task of raising the miners' awareness of safety standards and make them evolve towards training and the use of technology which respects the environment. The seeds for

[12] "Before this new law, I was always afraid when I worked,» says Lauren Rakotondramara, artisanal miner in the mine of Antanimbary, "but now I have my papers so no-one can cause me problems and I don't fear anybody." Interview by Jonny Hogg of the BBC News, May 1, 2007.

[13] This assumes however optimistically that the decentralization granted by the Constitution in favour of the local governments will not result in the increase of corruption by local leaders desirous of obtaining illegal revenues from the mining activities.

building trust within the mining community in view of a more responsible mining will thus be sowed.

VI. Recommendations

- Artisanal miners are a disadvantaged group that needs the protection of the government. Imposing too stringent conditions for the exercise of their activities places them outside the law and contributes to further weaken their situation with regard to individuals and entities which either exploit their work or extract illegal payments from them.

- Educational campaigns should be undertaken in order to create a conscience that artisanal mining is an economic activity and should not be per se an illegal occupation. Doing so would require the creation of conditions to formalize the artisanal miners by: a) effectively designating areas for artisanal exploitation; b) a census of artisanal miners, in which miners may participate without danger of sanctions or retaliation; c) creating incentive for formalization through the delivery of the artisanal miner card free of charge and reducing to a minimum the formalities for its issuance. The task of issuing such cards could be delegated to the local authorities situated as close as possible to the production centers.

- The requirement that the artisanal miners have knowledge of hygiene, environmental and safety regulations while well-intentioned does not address the real problem of the exploitation of artisanal miners and the lack of governmental presence in the areas where this activity takes place. Regulations place the burden of compliance on the miners when it should also be placed on those that exploit them.

- The denial of the artisanal miner card if a miner fails to pass the test is unfair. While the test can be part of an on-going capacity building effort, it should not be a ground for denial of the card.

- More control should be exerted upon traders and trading companies in order to determine the origin of the minerals purchased. Eventually, help ensure that the mineral being sold was extracted by artisanal miners working under basic hygiene and safety conditions.

- In addition, creating processing centres can also improve the conditions for artisanal miners to secure a better price for their products.

- The government can create trading houses which allow the artisanal miners to obtain a better price for their minerals.

- The number of middlemen can be reduced by giving real economic incentives for actors at either end of the supply chain to interact directly and to negotiate prices and conditions directly.

- Empower artisanal and small-scale miners by giving them access to information concerning the market value of the minerals they extract.

- Make continuous efforts to eliminate corruption.

- Public participation and feedback is important in order to give stakeholders the opportunity to influence major decisions that affect them. Miners are more likely

to take responsibility for environmental protection, mine safety and health standards, eliminating child labour etc. if they are involved in decision making processes.

- Social acceptability and awareness raising could be improved if the interests of mining communities are taken into account. The Mining code could be better accepted if open discussions are held with artisanal miners and some compromises are made in their favor.

Annex V - CASE STUDY CASSITERITE EXPLOITATION AND TRADE IN NORTH KIVU

By Nicholas Garrett

1. GEOGRAPHY OF MINING

1.1 Map the main artisanal mining production and trading areas

- **Map the sites where the research was conducted**

The research was conducted in North Kivu's trading capital, Goma and in North Kivu's principal Cassiterite mine, Mpama/Bisiye. The mine is located between the following coordinates: E027°40'00" and E27°50'00", as well as S01°10'05" and S01°00'00". This means the mine is situated around 90km northwest of the town of Walikale in the Groupement Wassa in Walikale territory. Mpama/Bisiye is not part of the concessions of the former parastatal company SOMINKI and its successor SAKIMA. Mpama / Bisiye has four mining sites, of which the largest accounts for a minimum of 70% of production at Mpama/Bisiye. The mining sites are situated 5, 15, 35 and 45 minutes from Mpama/Bisiye's principle support village, Manoiré. Artisanal mining in Mpama/Bisiye started in 2002. Prospecting for gold and diamonds is also undertaken near Mapma/Bisiye.

- **Map the sites where the minerals are processed.**

Processing is undertaken on the properties of those *comptoirs* in Goma, who have an official export license, issued by the Ministry of Mines after a review of export practices in April 2007. In May 2007 the *comptoirs* were Amur, M.P.C., Sodexmines, Starfield, Bakulikira, Ets Panju, M.H.I, Munsad, Clepad, Hill Side, Bulongo Gems, Avisam-Trad, W.M.C. and Metachem. One *comptoir*, the company Mining and Processing Congo (M.P.C.), has processing capacities both in Goma and, through its associated company M.P.A. (Metals Processing Associates), in Gisenyi, Rwanda. M.P.A. also owns a furnace/foundry in Gisenyi, which has been disused since 2006. The cassiterite is processed further and smelted in Thailand and Malaysia at Thaisarco Smelting and Refining Corporation and Malaysia Smelting Corporation respectively. Not all exported cassiterite is pre-processed on the territory of the DR Congo.

- **Map the sites where the minerals are traded.**

There is no cash economy in Mpama/Bisiye. The general population, *creuseurs*, *pelleteurs*, *boiseurs*, *commerçants* and small *négociants* therefore trade the mineral in the mine and its support villages. Cassiterite leaves Manoiré via a 40km long trail connecting Mpama/Bisiye and the village of Ndjingala. The transport is organised by small *négociants*. Porters transport the mineral. It is traded by *négociants* in the villages of Ndjingala and Mubi, located 42km and 31km northwest of the town of Walikale on the Walikale - Kisangani road. Some of the small *négociants* in Mpama/Bisiye and some of the *négociants* in Ndjingala and Mubi are directly aligned with *comptoirs* in Goma. From Ndjingala and Mubi a crosschecked estimated 80% of produce leaves for Goma, via a "landing strip" in the village of Kilambo, 22km north of the town of Walikale, which is a part of the Kisangani-Walikale road. A further 15% leaves for Goma by truck on the Goma-Walikale road and another 5% leaves for Kisangani on the Walikale – Kisangani road. Goma is North Kivu's Cassiterite

trading centre, where *comptoirs* buy the cassiterite. The Goma-based *comptoirs* also buy cassiterite from other areas in North Kivu, Maniema, South Kivu and Katanga. The *comptoirs* officially export the mineral through middlemen in the United States, Belgium, the UK and South Africa, such as SOGEM (now Traxys North America LLC), Trademet, Afrimex, Euromet, A&M Minerals and Metals, as well as Metmar. One *comptoir* sells directly on the London Metal Exchange. Unofficial exports via Rwanda are traded in Kigali.

- **Assess accessibility**

Individual access to Walikale territory and the Mpama/Bisiye mine is possible, but there are obstacles related to the security situation, a lack of physical infrastructure and a hostile climate.

- **Access to Walikale territory:**

The German NGO "Deutsche Welthungerhilfe" is currently reconstructing the Goma – Walikale road, depending on the vehicle, the current journey time is between 12 and 48 hours. The Goma-Walikale road runs through FDLR held territory, as well as territory controlled by troops loyal to General Laurent Nkunda. Travelling by road is presently not advisable to foreigners. The FARDC, the FDLR and troops loyal to General Nkunda have set up semi-permanent barriers along the road, where fluctuating "taxes" are being charged for passage. There is a barrier at Mushake, just past the town of Sake, manned by the FARDC, where US$ 25 is being charged per truck. There are further FARDC barriers in Kashubere and Mobi. The FDLR operates a barrier at Nyabiendo. More research is required to establish the exact taxes charged and further locations of the barriers. The Bukavu – Walikale road is impassable by vehicle. It stops in the village of Hombo. The Kisangani – Walikale road is in good condition, except for a 30km stretch at the halfway mark. The Mubi – Walikale part of the Kisangani – Walikale road was reconstructed by the Chinese and is in perfect condition.

In the village of Kilambo, 22km north of the town of Walikale, part of the Mubi – Walikale road is used as a landing strip. The landing strip breaches international aviation safety regulations, as it runs through a populated area and has not even rudimentary facilities one would expect of an airport, except for perfect tarmac. Both transport and passenger airplanes departing from Goma use the landing strip. MONUC operates two weekly passenger helicopter flights from Goma to Walikale town.

- **Access to Mpama / Bisiye:**

The principal access to the Mpama/Bisiye mine is a 40km long trail from the village of Ndjingala, 42km Northwest of Walikale town on the Walikale – Kisangani road, to Mpama/Bisiye's principal support village, Manoiré. The terrain is difficult and temperatures can rise to 40°C with humidity in excess of 95%; torrential rainfall is common, causing deep mud and flooding.

There are checkpoints at the entrance and the exit of the trail in the villages of Ndjingala and Manoiré, respectively. There are two more checkpoints, one between the mining sites and the village of Manoiré and one between the mining sites and the village of Maroje. Territorial police, the ANR, the FARDC's non-integrated 85th

brigade, as well as representatives of traditional authorities and the Department of Health man the checkpoints.

At the time of research the local security situation was volatile, which is related to a recent political economy change. (Please refer to point 2.1.) Developments can happen fast. Only on 29th October 2006, the FARDC's non-integrated 85th brigade attempted to assassinate members of a delegation of the company Mining and Processing Congo (M.P.C.) on a visit to Mpama/Bisiye. One member of the delegation was wounded. M.P.C. is in the process of setting up its exploration camp.

- **Assess government**

The mine is governed by multiple institutional infrastructures, transcending traditional and modern realms. There are four families, who claim a stake in the traditional realm. The families are Bangandula, Bassa, Bakwame and Bayangane. Of the four families, the Bangandula family, represented by its head Babuni Motokotoko, and the Bassa family, represented by its head Kidege Ramazani, dominate the traditional realm. The Bangandula family is the *Chef de Colline* of Mpama/Bisiye, which, in turn, is situated within the territory governed by the Bassa family, within the Groupement Wassa. The Bangandula family and the Bassa family reside in the village of Logu, 82km Northwest of Walikale town, on the Walikale-Kisangani road.

In the modern realm, the representative political institutions of the central government are contributing to the government of the mine. SAESSCAM, the newly installed cooperative COMIMPA and the legitimate concessionaire to Mpama/Bisiye, Mining and Processing Congo (M.P.C.), also contribute to the government of the mine. The representative military institution of the central government in the form of the FARDC's non-integrated 85th brigade is in charge of security provision in the mine. Please refer to 2.1.

- **Assess legality**

Judging by the DR Congo's Mining Code and its accompanying Mining Regulations, artisanal mining in Mpama/Bisiye is illegal. In February 2007, Walikale Territorial Administrator, Mr. Tshishiku and the Director of North Kivu's Division of Mines, Mr. Ndimubaze declared Mpama/Bisiye unsuitable for artisanal mining. Two mining sites are in breach of the Mining Regulations' minimum safety standards. Tunnels, for example, extend in length up to 150 metres; 30 metres are allowed. The number of miners and traders in possession of the correct documents is low. Of 50 *creuseurs* interviewed, four had an "artisanal miner's card", which is to be held by individual miners. Of ten interviewed small *négociants*, three had a "trader's card". Nevertheless the central government has legally sanctioned artisanal mining in June 2007 through the official installation of the cooperative COMIMPA (Cooperative Minière Mpama Bisiye) on the mine. SAESSCAM is overseeing the installation of COMIMPA.

Mining and Processing Congo (M.P.C.) holds "Permit de Recherche" (exploration permit) PRS266 over the Mpama/Bisiye concession, registered with the Cadastre de Mines and issued by the Ministry of Mines in Kinshasa. M.P.C. is the legal concessionaire of Mpama/Bisiye and is currently undertaking a geological survey of the concession. The cooperative COMIMPA was officially installed on the mine for the duration of M.P.C.'s "Permit de Recherche". The installation of COMIMPA on the

mine is the outcome of a conflict over title rights to Mpama/Bisiye between M.P.C. and the company G.M.B. (Groupe Minier Bangandula).

1.2. Profile the demography of the mining community and gather information on migrancy.

- **What is the demography of the mine?**

It is necessary to distinguish between the demography of the mining sites and the demography of Mpama / Bisiye's support villages, Manoiré and Maroje.

- **Assess demography of the support villages (figures extrapolated from interviewed cross-section):**

An estimated 10.000 people live in the support villages, including the workers from the mining sites. 30% are female and 70% male. 20% are children under the age of 10, 20% are youths (10-18 years) and 10% are over the age of 45. There are very little people who appear to be over the age of 60, but no exact figures were established to this effect. There are an estimated 200 trading stalls, manned by between 1 and 10 persons, both male and female. The stalls sell food and general merchandise. There is a small group of around 30 poachers and fishermen, all male. Of the 3.000 females, 1.000 are, so-called "free women", who are unmarried and not in a permanent relationship. Part of their livelihood strategy is prostitution. (See also section 3.2.)

- **Assess the demography of the mining sites (figures extrapolated from interviewed cross-section):**

Around 1.800 people work in the four mining sites. They work in 167 alluvial mining, open-pit and hard rock sites. 31, 438, 133 and a further 1130 workers were counted in the four mining sites respectively. There are 1100 *creuseurs*, 150 *responsables* (representatives of the "owners" of the tunnels, pits etc.), 400 *pelleteurs* and 50 *boiseurs*. In addition there were 100 *commerçants*, 25 small *négociants* and (up to) 50 soldiers of the FARDC's non-integrated 85th brigade. The 85th brigade has a permanent presence in the mine. *Creuseurs* are miners; *responsables* are representatives of the owners of the tunnels, pits, etc.; *pelleteurs* clear the mining sites of rocks, soil and other overburden, depending on the mining method; and *boiseurs* construct the woodwork in the tunnels. Women are prohibited from entering the mining sites by the traditional authorities and there were no women to be seen on the mining sites. There were no children under the age of 10 to be seen on the mining sites, however, there was a minimum of 300 youths (10-18 years). Of the overall population on the mining sites:

- 20% had a combatant background,
- 20% were orphans or without knowledge of their families' whereabouts,
- 75% had spent less than six years in school,
- 10% had attended university,
- 25% were married with their families living in the support villages, and
- 30% were married with their families living further away
- 45% were unmarried

- **Examine the issue of migrancy, refugees and displacement (figures extrapolated from interviewed cross-section).**

The migratory background of the population differs by gender. The overall male population originates from the following geographical areas: 45% Bukavu; 25% Walikale; 15% Kisangani; 5% Goma; 10% other areas, including the Kassais and Kinshasa. The female population originates from the following areas: 45% Walikale; 15% Bukavu; 10% Kisangani; 5% Goma: 25% other areas, including the Kassais and Kinshasa. Of the interviewees none indicated to be of foreign origin. 10% of the overall population considered itself to be internally displaced. Migrants are integrated into the community and new arrivals do seem to be accommodated as long as they adhere to the present social structure and announce their arrival with the traditional authorities.

2. POLITICAL ECONOMY OF MINING

2.1. Map the theoretical and actual supply chains for each mineral coming from each site. Analyse how and why the theoretical and actual supply chains differ.

- **How, where and by whom (actors) are the minerals mined?**

Cassiterite mining in North Kivu is 100% artisanal. In Mpama/Bisiye the artisanal miners undertake alluvial, open pit and hard rock mining. Alluvial and open pit mining is undertaken on the surface; hard-rock mining is undertaken underground. Open pits are up to 15 metres deep. Tunnels stretch up to a maximum length of 150 metres.

Around 1.800 people work in Mpama/Bisiye's four mining sites. They work in 167 alluvial mining, open-pit and hard rock sites. The number of mining sites is roughly equally divided between the three mining methods. Hard-rock mining accounts for the large majority of production with a crosschecked estimate of 75%. Please also refer to the "demography of the mining sites" above.

Mining and Processing Congo (M.P.C.) holds "Permit de Recherche" PRS266 over Mpama/Bisiye. Under SAESSCAM's supervision, the cooperative COMIMPA (Cooperative Miniere Mpama Bisiye) was officially installed on the mine in June 2007 for the duration of M.P.C.'s "Permit de Recherche". At the time of research, COMIMPA was in the process of enlisting the resident artisanal miners. While COMIMPA is supposed to represent the resident artisanal miners, 11 of the cooperative's founders are also shareholders in the company G.M.B. (Group Minier Bangandula). G.M.B. had previously operated an extortion racket in and around Mpama/Bisiye and has been embroiled in a conflict with M.P.C. since 2005.

- **How, where and by whom (actors) are the minerals processed?**

The minerals are processed by the Goma-based *comptoirs*, who are in possession of an official export license issued by the Ministry of Mines after a review of export practices in North Kivu in April 2007. Please refer to section 1. The *comptoirs* employ day labourers on their properties to crush and wash the cassiterite to rid it of impurities as much as possible. Impurities include granite, iron and bismuth. The cassiterite in Mpama/Bisiye has an average tin content of 53% and an average iron content of 25%. Contrary to common perception the iron is not separated and sold separately. Basic machinery, such as a crusher, a medium crusher, a two-wheel crusher, a magnetic separator and a separating table is used in processing. Not all

comptoirs possess all of the latter machinery. The aim is to bring the cassiterite up to a tin content export grade of 65% or higher, but not all exported shipments have a tin content grade of 65% or higher. The export grade of 65% tin content or higher can be obtained either through refinement or the mixing of different tin content grade cassiterite.

Depending on the size of the *comptoir* and the size of the shipment, from 5 up to 100 day labourers are employed in processing, earning between 1 and 5 US$ per day.

In addition to its Goma operations, the company Mining and Processing Congo (M.P.C.) has the capacity to further process cassiterite through its associated company M.P.A. (Metals Processing Association) in Gisenyi, Rwanda, where it can refine cassiterite up to 80% tin content. While there is also a furnace/foundry in Gisenyi, it has been disused since 2006 as a result of high electricity prices and lack of profit due to excess capacities. M.P.C. is considering relocating it to Walikale or rebuilding a furnace/foundry in Walikale. This idea has not yet progressed into the realms of the achievable.

- **How, where and by whom (actors) are the minerals transported?**

The cassiterite is transported with porters, small trucks, aeroplanes, lorries and cargo vessels. Inter-province transport also happens by small motorboats and dugout canoes. In Mpama / Bisiye, porters transport bags of cassiterite from the mining sites to the village of Manoiré. From there, they transport the mineral for 40km to the next village on the Walikale-Kisangani road, Ndjingala. This transport is organised by small *négociants* and *négociants*.

In Ndjingala *négociants* store a proportion of the minerals, the remainder is transported to Mubi with small trucks, where further *négociants* store the rest of the minerals. As soon as a critical mass of two tonnes is reached, the cassiterite leaves Ndjingala and/or Mubi in small trucks for the village of Kilambo. In Kilambo, the minerals are loaded onto six Let-410 transport planes, which transport two tonnes of cassiterite each to Goma, plus a maximum of three passengers. Charges are US$ 0.5 per kg of cassiterite, in other words US$ 1.000 per flight. Six planes do up to 4 rotations per day. The flight companies currently operating cassiterite flights on the Kilambo – Goma route are Safe Air and Doreen Airlines.

In Goma, the cassiterite is offloaded and transported by small trucks to the different *comptoirs* for processing. Depending on the size of the *comptoir* and the size of the shipment, from 5 up to 100 day labourers are employed for reloading, earning between 1 and 5 US$ per day. Earnings depend on the *comptoir*. Upon processing, the mineral is placed in bags and/or drums. Once a critical mass of between 20 and 25 tons is reached, the material is exported in containers to Mombasa. From there freighters take the mineral to Thaisarco Smelting and Refining Corporation in Thailand and Malaysia Smelting Corporation in Malaysia for further processing and smelting.

Cassiterite shipments from Goma use the so-called "northern corridor" via Mombasa. The "northern corridor" can in turn be subdivided into the "northern route" via Uganda and the "southern route" via Rwanda. The principal trucking companies doing the Goma – Mombasa run are TMK, Jambo Safari and SDV Agretraf. Official transports mainly use the northern route to Mombasa, through

Uganda via the Bunagana border crossing. Only a minority of official exports use the southern route, via the Goma – Gisenyi border crossing, or the Kibumba border crossing, from where the trucks proceed to Kigali and further on through Uganda to Mombasa. From Mombasa the minerals are shipped in drums, which means exports through the northern route are mainly in drums, which take between 700 and 900 kilograms. Exports through the southern route are often in bags, which take up to 100 kilograms and which are then repacked into drums in Rwanda.

The principal method of smuggling is under-declaring or wrongly declaring official exports; i.e. claiming to export 15 tons when actually exporting 25 tons or claiming to export cassiterite, when actually exporting, for example, wolframite. These practices are facilitated by the export in bags, which are harder to count and to check by OFIDA. There are a number of unofficial *comptoirs* in Goma, who unofficially transport small shipments of up to two tons of cassiterite per run to Rwanda using trails and slip roads. This practice has been reduced since April 2007 when newly elected Governor Julien Paluku ordered the physical closure of these trails and slip roads, as well as a 6pm border closure, which is enforced. A crosschecked estimate is a reduction of 30% of quantity smuggled. Total official exports from January 2007 until May 2007 was 3.023 tons. This implies that within the first five months of 2007, the total of officially recorded exports for 2006, 2.904 tons have already been surpassed. This is not necessarily the result of an increase in production.

- **How, where and by whom (actors) are the minerals traded?**

There is no cash economy in Mpama/Bisiye. The general population, *creuseurs*, *pelleteurs*, *boiseurs*, trade the mineral with the *commerçants* in the mine and its support villages, Manoiré and Maroje. In these transactions the mineral is weighed by hand. In transactions with small *négociants* the mineral is weighed with mechanical scales. To a degree therefore, a *commerçant* takes on the role of what in other contexts would be considered a petit *négociant*, only that he does not buy cassiterite outright, but trades his merchandise for it.

The cassiterite leaves Manoiré via a 40km long trail connecting Mpama/Bisiye and the village of Ndjingala. It is traded by *négociants* in the villages of Ndjingala and Mubi, located 42km and 31km northwest of the town of Walikale on the Walikale - Kisangani road. Eleven and twelve *négociants* could be identified in the village of Ndjinagala and Mubi respectively. In these transactions the minerals are weighed with mechanical scales. The *comptoirs* in Goma have alleged that *négociants* sometimes "wash" the Cassiterite down to pocket up to 10% of the load.

Some of the small *négociants* in Mpama/Bisiye and some of the *négociants* in Ndjingala and Mubi are directly aligned with *comptoirs* in Goma. From Ndjingala and Mubi a crosschecked estimated 80% of produce leaves for Goma, via the "landing strip" in the village of Kilambo, 22km north of the town of Walikale, which is a part of the Kisangani-Walikale road; a further 15% leaves for Goma by truck on the Goma-Walikale road; and another 5% leaves for Kisangani on the Walikale – Kisangani road. Goma is North Kivu's cassiterite trading centre, where *comptoirs* buy the cassiterite. In these transactions electronic scales and analyzing equipment is used to establish the tin content. The Goma-based *comptoirs* also buy cassiterite from other areas in North Kivu, Maniema, South Kivu and Katanga. The *comptoirs* officially export the mineral through middlemen in the United States, Belgium, the UK and South Africa, such as SOGEM (now Traxys North America LLC), Trademet,

Afrimex, Euromet, A&M Minerals and Metals, as well as Metmar. One *comptoir* sells directly on the London Metal Exchange. General feedback from the *comptoirs* was that they are required to pay unofficial taxes if they wish to export. Smuggling is undertaken via Rwanda, given the proximity to Goma. Estimates of smuggled amounts vary between 20 and 50%. Smuggled cassiterite is traded and repacked for export in Kigali.

2.2 Categorise the main methods and practices of production and trading for artisanally-mined minerals

- **How is mining organised? i.e. How are tasks allocated according to gender, age, ethnicity etc.**

This requires further research. There is a complex social structure in the mining sites of Mpama/Bisiye. There are no women in the mines. The four different mining sites are associated with different mining techniques and a different social status. There are two alluvial and open-pit mining sites, there are two more alluvial, open-pit and hard rock mining sites. The tunnels are the most productive parts of Mpama/Bisiye and therefore also have the highest social status. They are also the most dangerous production sites. Socially unconnected, new arrivals have to "work their way up" to be allowed to work in the tunnels. This process includes bribing, proving skill, becoming friends with the right people, doing the political bidding of people and proving manliness. In the largest mining site the mining is again sub-divided. Socially well-connected and skilled miners work in the tunnels. Socially less connected new arrivals do alluvial and open pit mining.

Teams undertake the mining. In alluvial mining, teams consist of between three and ten persons, of which the ratio of "creuseur" : *pelleteur* is normally 1:2. In open pit mining, teams consist of between three and twenty persons, of which the ratio of "creuseur" : *pelleteur* is normally 1:1. In hard-rock mining teams are organised per tunnel. This can vary between five and fifty persons, of which the ratio of "creuseur" : *pelleteur* is 2:1.

There are also ownership issues to consider. The tunnel "owners" and their representatives chose evidently skilled and physically suitable miners. *Boiseurs* construct the woodwork in the tunnels either by themselves, or in teams of up to 10 persons.

- **How is processing organised? I.e. How are tasks allocated according to gender, age, ethnicity etc.**

This requires further research. Day labourers are hired to support the processing of the minerals in Goma. They are often selected according to their skill level, but also at random. No specific comments can be made with respect to any social structure or hierarchy. The *comptoirs* have employees, who oversee the processing.

- **How is trading organised? i.e. How are tasks allocated according to gender, age, ethnicity etc.**

This requires further research. There are traders from different ethnic backgrounds, both women and men, varying in age between an estimated 18 and 55. There are no female "small *négociants* in the mining sites, but there are female traders in

Manoiré. Given the complexity of the trade, a particular social structure could not be observed.

- **What tools and equipment are used in exploitation?**

***creuseurs*:**
In underground hard rock mining, hammers and chisels are used for the mining. Battery-run torches are used for light; a pair of commonly used Chinese-made batteries lasts three hours. In open pit mining, shovels, pickaxes and crowbars are used for the mining. In alluvial mining, shovels and strainers and jerry cans are used for the mining. In case of insufficient rainfall, jerry cans are also used to transport water to the mine, both to wash the minerals and for alluvial mining. All three methods use plastic flour bags, buckets and large Tupperware to collect the cassiterite. These items are sold by *commerçants* at prices up to 10 times higher than in the territorial capital, Walikale.

***pelleteurs*:**
pelleteurs use shovels, or plastic flour bags to do their work. Those working inside the tunnels use the same torches as the *creuseurs*.

***boiseurs*:**
boiseurs use long-saws and hammers to aid their construction of the woodwork in the tunnels. They use slings made from lianas to transport straight wood to the mine from up to 10 kilometres away.

General:
20% of the population in the mining areas, including the porters have wellington boots.

- **Which tools and equipment would make the miners', *boiseurs* and *pelleteurs* job easier and/or more productive?**

Basic productivity improvements would derive from solid wellington boots, better torches and better batteries. The alluvial miners require water pumps to have sufficient water in the mine for alluvial mining.

Basic safety improvements could be brought about by helmets to be worn in the tunnels and open pits, as well as solid wellington boots with protective toecaps. Some tunnels extend in length to 150 metres hence oxygen levels are low, making oxygen pumps desirable. However tunnels over a length of 30 metres are illegal and even tunnels under 30 metres are a serious safety hazard.

- **What tools and equipment are used in transportation?**

Porters:
50 - 100 litre plastic flour bags are used to transport the minerals within and out of the mine, depending on availability. The bags are filled with cassiterite. Self-made backpacks are used to stabilize the bags for transport. Those porters who do not have self-made backpacks use cloth to sling the cassiterite bag onto their backs and around their foreheads. Only 20% of the porters have Wellington boots.

Other Transport:

From Ndjingala to Goma and from Goma to the final international destination the transport is well organised. The trucks and pick-up trucks transporting the cassiterite to Kilambo and to Goma are old, but easy to repair. The planes taking the cassiterite from Kilambo to Goma are also old, but perfectly suited for the "landing strip" in Kilambo, as they can land on the narrow road and be turned around by hand for take-off.

- **Which tools and equipment would make the porters' job easier and/or more productive?**

The mining company M.P.C. has pressed SAESSCAM to stop the porters in favour of transportation of cassiterite by helicopter. M.P.C. believes the porters' task is in breach of commonly accepted labour standards. M.P.C. intends to provide the porters with alternative employment on the mining sites. Should the porters continue, they should only be allowed to carry an acceptable amount of cassiterite per run and they need to be provided with adequate backpacks and Wellington boots. An alternative is to provide transport animals, such as donkeys or buffalos, though these would be vulnerable to disease in the tropical climate.

- **Which tools and equipment would make the other transport easier and/or more productive?**

The other transport is well organised. An improvement of the security along the Walikale-Goma road would help to improve productivity, as lorries could be employed to transport the mineral.

- **What tools and equipment are used in trading?**

This requires further research. The *commerçants* weigh the minerals by hand. The small *négociants*" and "negociants" use mechanical scales to weigh the minerals. The *comptoirs* use electronic scales and analysing equipment to establish the tine content.

- **Which tools and equipment would make trader's job easier and/or more productive?**

Mechanical scales would help the *commerçants*, as well as the miners. Equipment to establish the tin-content would make the *commerçants* and *négociants* job more transparent and more productive.

- **How do the chefs de collines acquire land to mine and how do they protect access to that land and its proceeds?**

The structure in Mpama/Bisiye is unique in the sense that the government has awarded a "permit de recherché" to the mining company Mining Processing Congo (M.P.C.). The DR Congo's Mining Code stipulates that underground mineral deposits are property of the state. This works to the detriment of the *Chef de Colline*. The Bangandula family, represented by its head Babuni Mtokotoko is the *Chef de Colline* of Mpama/Bisiye. The Bangandula's were the first ones to occupy Mpama/Bisiye and therefore hold the "right of first occupation". The *Chef de Colline* does not appear to have immediate responsibilities beyond conflict mediation within the community and therefore seems to be able to largely claim rents owing to his status. M.P.C. has consulted the traditional authorities in its dealings regarding Mpama/Bisiye.

- **How is the trading financed?**

The majority of the small *négociants* and *négociants* on the mining sites, Manoiré, Ndjingala and Mubi are financially backed by, or aligned with, *comptoirs* in Goma. Given the still malfunctioning banking system in the Congo, the *comptoirs* have an important role to play in the financing of both mining and trading. The *comptoirs* in Goma have different financial architectures to finance their operations. Given the complexity of the financing structures of the mining, which transcend civilian and military spheres and include cross-border networks, as well as European, South African and North American investors.

2.3. Identify and analyse the roles, responsibilities and rewards of the various operators in the chain, including governance.

- **What are the roles and responsibilities of each actor in the chain? (This ties in with aim 2.2) Ascertain who owns the mineral at each point of the chain and who receives payment from the owner and what for.**

1. **REWARDS: How are labourers and others paid? How are proceeds shared?**

a) Are the diggers, miners, transporters, paid for their labour (i.e. is it forced labour? Is it bonded labour?)?

No cash economy exists in Mpama/Bisiye. The workers on the mining sites, i.e. *creuseurs*, *boiseurs*, *pelleteurs* are paid for their labour in cassiterite. Or they pay themselves in cassiterite. This cannot be described as theft, rather as a method, mutually agreed upon with either the owner of the mining site or the traditional authorities. In irregular intervals, the resident FARDC non-integrated 85th brigade confiscates parts of the production. This affects mainly the tunnels with high production levels.

b) Are they independent or employed by someone else? On what terms? (Figures extrapolated from interviewed cross-section)

Some alluvial and open-pit miners are independent on all four mining sites, but their number is limited to 5 to 10%. All others are not employed, but paid, by the owner of the mining site through his representative. See above. With the installation of COMIMPA on the mine, this is currently changing.

c) If they're paid, what are they paid, when, and how (proportions cash, food, portion of the mineral etc.)?

There are different formulas, which determine how rewards are split. These formulas differ according to mining method, or tunnel, in the case of hard rock mining. Independent workers tend to split their proceeds equally in all production methods.

The pattern most frequently observed in hard rock mining is that the owner's representative receives 2/7 of a fixed amount, the *creuseurs* receive 3/7 and the *pelleteurs* receive 2/7. Within their group the workers split the proceeds equally.

The size of the fixed amount differs by mining site. The workers trade the cassiterite for food and other necessities with local traders, who charge hyperinflated prices.

***creuseurs*:** The *creuseurs* estimate they can earn up to $100 on a productive day. After correcting the US$ 100 figure for real prices and production levels, their income evens out at US$ 1 to 5 per day.

***pelleteurs*:** The pelletuers are paid less. Their real daily income is between US$ 0.5 to 3.

***boiseurs*:** The *boiseur*s receive 50kgs of Cassiterite for one carré of woodwork constructed in the tunnels. However, work and payment is irregular.

Porters: The porters receive US$ 25 per journey from Manoiré to Ndjingala in cash or cassiterite; and they receive US$ 10 per journey from Ndjingala to Manoiré. They can exchange their cassiterite at the regular rate in Ndjingala.

d) What are the different ways someone can be employed in the chain? Why does it work this way? Is there a better way it could work in terms of bringing greater benefits to the people at the bottom of the chain?

The mine is socio-economically structured. Unconnected new arrivals start off as *pelleteurs* in the less productive alluvial mining areas. With time and connections they can work their way into becoming *creuseurs* and slowly ascending towards more profitable open pit and underground hard rock mining.

e) If the diggers and miners are independent, whom do they sell to and why?

If the miners are independent, which is only ever the case in alluvial and open-pit mining, they sell to small *négociants* in the mining sites and in Manoiré. Independent alluvial miners work in small groups, predominantly producing very small amounts of "black cassiterite"[14], which they sell at a rate of US$ 4 / kg.

2. PROFIT: Gather information on pricing and revenue flows, and thus determine the profit margin at each point of the chain.

- **Identify the price paid for each mineral at each trading point of the chain. Ascertain how this price is determined.**

At the time of conducting the research in June 2007, the international market price for cassiterite was US$ 13.9/kg. At the time of research red cassiterite was valued at US$ 3/kg in Mpama/Bisiye and black cassiterite was valued at US$ 4/kg.

The following calculations give an overview of the price structure of red cassitierite and rest on a base price in Mpama/Bisiye of US$ 3/kg. The small *négociant* makes a profit of US$ 0.3/kg. Transport from Mpama/Bisiye costs US$ 0.5/kg. The *négociant* in either Ngjingala and/or Mubi again makes a profit of US$ 0.3/kg. Transport from Ndjingala to Kilambo costs US$ 0.4/kg and transport from Kilambo to Goma costs another US$ 0.5/kg. This implies *comptoirs* buy the mineral at US$ 5/kg. Factoring unofficial "taxes" the price can rise to US$ 5.4/kg.

[14] "Black cassiterite" has a higher tin content grade than "red cassiterite". Black cassiterite is found in alluvial mining, whereas red cassiterite is found in open-pit and hard rock mining.

The price the *comptoirs* pay depends on the grade of tin content. Prices normally vary between US$ 5.4 and US$ 7.3 for tin content of between 50 and 65%. If a *comptoir* buys 50% proof cassiterite at a price of US$ 5.4/kg, he loses around 30% of weight when processing the mineral to an export grade of 65%, as some tin is lost in processing. This brings the price up to US$ 7.02/kg. Official export charges, including transport to Mombasa cost another US$ 0.55/kg. Please see a sample calculation of official export charges below. Middlemen, who often cover the transport to Thailand and Malaysia, charge another US$ 0.8/kg for treatment charges and transport. The middlemen have impurity penalties with the end-user. If shipments contain more than 5% iron they are charged US$ 25/ton. The bismuth allowance is 0.05%/ton. Above 0.05%/ton, the penalty is US$ 25/ton. Presupposing the shipment is within the allowed impurity limit, this means the final price for the *comptoir* is 8.32/kg. The London Metal Exchange price for Cassiterite in June 2007 was US$ 13.9/kg. At a 65% tin content export grade, this makes a price of US$ 9.04/kg. In other words, the *comptoir* makes a profit of US$ 0.72/kg or 7.97%. Depending on volume and value these prices differ slightly. A cross-section of *comptoirs* has estimated profit margins between 5% and 12% are normal.

The following figures are a sample calculation of official export charges:

North Kivu's authorities work with a base price of US$ 2.9/kg to calculate export charges. For a 20 tons shipment of 65% tin content grade, valued at US$ 58.000, the following charges apply:

Tax to be paid to OFIDA: 5% = US$ 2.900
Tax to be paid to OCC: 0.8% = US$ 464 + US$ 140 laboratory charges = US$ 604
Tax to be paid to CEEC: US$ 58.000 x 1% x 65% + US$ 100 = US$ 477
CTPCM Tax: 0.2% = US$ 116
Provincial Tax: 1% = US$ 580
DGRAD Tax: US$ 58.000 x 7% x 10% = US$ 406
Transport costs to Mombasa: US$ 220 per ton = US$ 4.400

Total charges: US$ 9.483

- **What determines the price at each point of the chain?**

The input costs, service costs and formal, as well as informal taxes.

- **What determines when people choose to sell and who they choose to sell to? E.g. do miners stockpile or sell immediately? Why? Are traders always present at the mine or only at particular times? Are miners / diggers obliged to sell to their financier? [This indicates the level of vulnerability and freedom of miners]**

The minerals are sold to the small *négociants*, who are always in the mine, who are aligned with *négociants* in Ndjingala and Mubi, who are, in turn, aligned with *comptoirs* in Goma. The small *négociants* constantly release stock for transport to Mubi and Ndjingala. The *négociants* release stock as soon as a critical mass of two tons is reached, which is the loading capacity of the airplanes transporting the mineral from Kilambo to Goma. There is strict access control to the mining areas, which does allow both the authorities and the traders to control what goes in and

what goes out. There are informal taxes both on cassiterite leaving Mpama/Bisiye, as well as on all items coming in to Mpama/Bisiye.

2.4. Identify and analyse the risk environment for each operator in the chain. What are the principal physical, economic, and political risks (problems, uncertainties) faced by each operator in the chain?

- **What types of violence can happen when mining, trading, transporting etc.?**

There are numerous types of violence. No conflicts were reported among the mining population. Violence in the form of an assassination attempt on an M.P.C. delegation visiting the mine on 29th October 2006 occurred.

- **Construct a mining calendar and explore implications of seasonality on risks to miners and the cost of mining**

This point requires further research. The impact of seasonality could not be established, however, with exponentially more rainfall during the raining season, the physical risk, e.g. mudslides are bound to be higher than during the dry season. Rain has an adverse effect on open-pit mining productivity, while it has a positive effect on alluvial mining productivity. There is no movement from one mining method to the other with the season. Both methods are employed 365 days a year.

- **What proportion of the operators is indebted to someone else in the chain? What is the size of this debt? What are the terms of this debt?**

This point requires further research, in particular with respect to the debt structure in the trading chain. Of the population with mere access to the barter economy within the mine, a fluctuating, but very high number, e.g. 90% are indebted to the "commercants". Debt levels are also related to hyperinflated costs of basic necessities. Further inflation of prices is to be expected when people ask for credit.

- **How does the *comptoir* protect himself from the risk of theft?**

This point requires further research. Some "*comptoirs* work with associated small "negociants" in Mpama/Bisiye, as well as "negociants" in Mubi and Ndjingala. The small "negociants" and "negociants" are paid on delivery. *comptoirs*, who do not work with local small "negociants" or "negociants", pay for the cassiterite upon delivery at their properties. If the *comptoir* exports through middlemen, they tend to cover the transport risks, i.e. insure the shipments. Payments are also made to the appropriate government and military services to ensure safe passage of the minerals.

- **Data on health, disease and malnutrition**

While this data was not specifically researched and reliable data is hard to come by, the following was nevertheless reported:

- 95% of the population suffer from Vermiosis (worms)
- a high number of the population has an HIV positive status
- malaria is the most common serious disease

- at the time of research there was a measles epidemic

2.5. Determine who controls mineral production, transport and trade and therefore identify the networks operating out of the main sites.

- **Ascertain the ultimate destination of the mineral.**

The ultimate destination of the mineral is the global market for tin. Cassiterite is processed further and smelted in Thailand and Malaysia at Thaisarco Smelting and Refining Corporation and Malaysia Smelting Corporation respectively.

- **Consider how the different networks compete for access to the minerals and their revenues.**

Different networks have tried to secure access to the concession by relying on official documents dating back to the era of parallel institutional frameworks in the DR Congo, i.e. when North Kivu was still ruled by the RCD Goma. The mining company Mining and Processing Congo (M.P.C.) holds "Permit de Recherche" PRS266 over the Mpama/Bisiye concession, registered with the Cadastre de Mines and issued by the Ministry of Mines in Kinshasa. The Minister of Mines signed PRS266 on September 29th 2006. M.P.C. is the legal concessionaire of Mpama/Bisiye. Under SAESSCAM's supervision, the cooperative COMIMPA (Cooperative Miniere Mpama Bisiye) was officially installed on the mine in June 2007 for the duration of M.P.C.'s "Permit de Recherche". The installation of COMIMPA on the mine undermines the status of M.P.C. While COMIMPA is supposed to represent the resident artisanal miners, 11 of the cooperatives founders are also shareholders in the company G.M.B. (Group Minier Bangandula). G.M.B. had previously operated an extortion racket in and around Mpama/Bisiye. While the RCD Goma was still in charge in North Kivu, G.M.B. had signed an agreement with SAKIMA over the transfer of its cassiterite concessions. G.M.B. originally believed Mpama/Bisiye forms part of SAKIMA concession PE75. It has subsequently been established that it does not. Over a period of around a year, G.M.B. and M.P.C. were in open conflict over the concession, which entailed an assassination attempt on an M.P.C. delegation visiting Mpama/Bisiye in October 2006.

3. SUSTAINABILITY AND MINING

3.1. In what ways does mining help contribute to longer-term economic growth and sustainability in each community, and in the region?

- **RENTS: To what extent are mineral rents invested in physical infrastructure and social institutions in the community and region?**

Reinvestment of mineral rents into physical infrastructure in the community and region is minimal, if not zero. This holds for Mpama/Bisiye and Walikale territory at large. Physical infrastructure development is progressing slowly in North-Kivu in general. Projects, such as the reconstruction of the Goma – Kisangani road, are donor financed. If mineral rents are reinvested in Goma, then it is either for local elite and expatriate community uses, i.e. the construction of Restaurants and hotels, or for personal use in the form of houses. Reinvestment of mineral rents into social institutions requires more research. Traditional patronage networks are sustained with mineral rents on the local level. Reinvestment of mineral rents into

other social institutions, particularly into political and armed movements on the provincial level requires further research.

- **INFRASTRUCTURE: How does the infrastructure built and used for the minerals trade (transport, energy, etc.) support other economic activities? And not?**
- **What potential exists for this infrastructure to catalyse other economic activities (agriculture, forestry, tourism, etc.)?**

Presently there is no infrastructure built for the cassiterite trade specifically. The minerals trade makes use of existing infrastructure. An example is the part of the Goma - Walikale – Kisangani road in the village of Kilambo, which is used as a landing strip. The same road is used to transport minerals by mini-trucks to Kisangani and Goma respectively. Road taxes, which are collected at a number of barriers, as well as "per flight" taxes at the airstrip, are not reinvested in physical infrastructure.

Since the minerals trade makes use of existing physical infrastructure, the physical infrastructure is available for other economic activities, such as agriculture, forestry and tourism. The reconstruction of the Goma-Kisangani road will open up an important trade corridor. The volatile security situation along the road prohibits the full realisation of its developmental potential, particularly with respect to tourism. At the moment transport synergies are limited, given that planes undertake the majority of the transport. Given their high cost, they are more suited to elite usage or transport of goods for elite usage. Small trucks that transport cassiterite from Walikale to Goma are used for transportation on the return leg. There is currently no power in Mpama/Bisiye. There is no power in Walikale town, except for the early evening hours. Electricity supply in Goma is irregular. There are 55bn m3 of methane gas in Lake Kivu, which could be used for energy generation. The *comptoirs* in Goma reported very high electricity prices.

- **FEEDSTOCKS: What downstream industries exist for adding value to these minerals? What potential is there for developing these?**

As yet there are no downstream industries for adding value to cassiterite on the territory of the DR Congo. As described above, the processing currently undertaken on the territory of the DR Congo is limited. In its current form it does not sustain more than the occasional hiring of day labourers. The *comptoirs* have expressed an interest in upgrading their processing capacity and to possibly build a furnace/foundry, but they cite irregular electricity supply and high electricity costs, as well as a volatile political climate as the main deterrents to investment.

- **MARKET: Identify the support industries, which exist to supply the mining industry. What potential is there to increase their productivity?**

At present there are few cassiterite mining-specific support industries. The tools used, such as hammers and chisels are predominantly Chinese imports. The miners reported a lack of know-how as to manufacture goods on the Congolese side, which can be considered an opportunity for a developmental engagement with the sector. The prospect of a successful imminent substitution of imports for locally manufactured tools is limited. There is also limited local food production. It barely transcends subsistence levels. Fishing in nearby rivers is underdeveloped and it has

potential. Food and general goods supply is undertaken with the help of porters, who transport the goods from the villages along the Walikale-Kisangani road to Mpama/Bisiye. The potential to increase agricultural productivity is linked to the availability of land, the security of tenure, as well as the general security situation.

- **TECHNICAL MIGRATION: What potential is there for the introduction of technology to improve the performance of the minerals sector, but where that technology might also produce other economic benefits?**

Artisanal cassiterite mining is not in need of much technology. Electricity provision would support cassiterite mining and it would have a beneficial economic impact beyond the sector. The company Mining and Processing Congo (M.P.C.) is contemplating erecting a hydroelectric power plant near Mpama/Bisiye to power industrial cassiterite mining, provided it actually starts industrial cassiterite mining in the case of sufficient reserves. Depending on output, this could potentially have an important economic impact on Walikale territory. The idea is very much theoretical.

3.2. Assess how miners and foresters in the hinterland of the border areas use resource exploitation as livelihood and survival strategies to secure their households; determine which changes in the structure of trade and the mechanisms of resource exploitation mining and forestry do families perceive as priorities for helping them improve their livelihood and income security.

- **Why did the individual choose to do this livelihood activity? (e.g. mining, transporting, forestry etc.)**

Of the interviewed mining population, nobody indicated to have chosen the activity, because they regard themselves as particularly skilled in, or suited to it. Nor did any indicate that they originally chose the activity because it was their wish to do it. 35% indicated they originally started the activity as an income generator of last resort. 55% of interviewees indicated they originally started the activity because of the prospect of "quick money". Of the interviewees, 55% were from so-called peripheral socio-economic groups, such as ex-combatants, internally displaced people and orphans. 50% indicated they were peri-urban poor. 10% indicated they had attended university and 75% had spent less than six years in school.

- **How does mining/trading/transporting/forestry help the individual build their resiliency? (i.e. reduce their poverty)? (e.g. what assets does it help them build?)**

All those stakeholders with access to the cash economy outside Mpama/Bisiye earn an income. A porter, for example, can in theory earn US$ 350 per month, provided he concludes 10 return journeys on the Manoiré – Ndjingala trail. This is an enormous sum in the Congolese context. The *creuseurs*, *pelleteurs* and *boiseurs* with mere access to the barter economy in Mpama/Bisiye, are critically dependent on the level of cassiterite production. The *creuseurs* can only save and spend when they find sufficient amounts of Cassiterite.

- **How does mining/ trading/ transporting/ forestry make the individual more vulnerable? (i.e. how does it make them more poor? Which assets does it erode?)**

The activities erode physical assets through debt repayments. A proof of this aspect is up to 10 pawnshops. The barter economy also implies that if miners do not find sufficient cassiterite, they have to borrow from, for example, the food traders. The activities also erode social assets, such as linkages to the person's community of origin and family ties. It also erodes the population's health through exposure to disease and the arduousness of the working conditions. A majority of interviewees reported that mining erodes the population's dignity, given the low return on their labour and their adverse living conditions.

- **What other things prevent the individual from improving their resiliency (i.e. reducing their poverty)? (Think of structural issues)**

This point requires further research. The lack of a cash economy within Mpama/Bisiye prevents individuals from improving their resiliency. Extortion does prevent individuals from improving their resiliency.

- **If they could improve one thing to make their quality of life better, what would it be? The answer "more money" is not allowed.**

Interviewees gave diverse answers ranging from access to healthcare to "a closer relationship with God"; 100% added they would welcome, if not a higher, then a predictable income. In addition, very basic humanitarian requirements are missing in Mpama/Bisiye. M.P.C. intends to fund local social investment through SAESSCAM.

The miners do use a "roving savings system" to build assets. Under this system, within their group everybody donates the maximum possible share of their income to a fund. On a roving basis the fund goes to a different member of the team every month. This helps, for example, to buy more expensive gear, such as Wellington boots.

- **What other livelihood activities does each operator do daily, weekly, seasonally to make a living? And their families? How do they combine these activities? Why do they combine these activities? Etc. [NB many of these and other relevant questions are broken down into smaller pieces in the livelihoods questionnaire]**

More research on this question is required. The *creuseurs*, *boiseurs*, *pelleteurs*, *commerçants* and small *négociants* do not seem to carry out parallel livelihood activities. The rest of the population, including their dependents carry out livelihood activities limited to trade in food and general products. Subsistence agriculture is limited to about 10 very small fields for the entire population, where bananas and pineapples are grown. Fishing is very limited. Porters bring in 95% of food consumed from Ndjingala. The food arrives on the Goma-Walikale-Kisangani road from the surrounding provinces.

ANNEX VI - A SUSTAINABLE LIVELIHOODS ASSESSMENT OF OPERATORS IN THE NATURAL RESOURCES SECTORS

By Estelle Levin

INICA's research to date has focused on legislation, the mechanics of trade, transportation and the political economy of minerals extraction. While providing an understanding of the general context in which local populations strive to ensure their livelihood, a detailed account of how each navigates the field of opportunities and challenges generated by this context should contribute to grasping how natural resources contribute to poverty production and perpetuation, and how they might contribute to poverty alleviation. It is one thing to structure the playing field, for example by altering institutional capacities and responsibilities, laws and policies, political and economic systems; but these structural changes will produce little if the people whom such changes are targeted at, i.e. DRC's grassroots miners, agriculturalists and foresters, are unable to capitalise on or benefit from them. Placing people at the centre of poverty analysis can help identify factors capable of stimulating a positive cycle of growth at the local level. Assessing sustainable livelihoods will thus complement the work done so far by supplementing the birds-eye view analysis of political and economic systems, flows and networks with an evaluation of natural resource sectors from the perspective of actors operating within it.

Part I of a livelihoods assessment has been conducted in so far as INICA research has built a picture of the structures and processes that determine how natural resources are exploited, traded and transported. Investigations have been carried out at a cassiterite mine at Mpama/Bisiye in Walikale in North Kivu (Nicholas Garrett), a coltan mine at Masisi in North Kivu (Professor Mutabazi and Alain Chishugi), and at various sites in Katanga following visits to Lupoto, Luswishi, Lwisha, Kafunda, Kabolela, Mutoshi, Laulaba and Kawama (Professor Ilunda and Alain Chishugi). Part II will entail returning to these communities to look at individual and household livelihood strategies, asset profiles and vulnerability context, requesting feedback on proposed interventions where appropriate. With additional time and resources, further research on all aspects of the livelihoods framework should be conducted in other communities. An assessment of a gold producing community would be particularly interesting, given the absence of information on the trade and export of this commodity.

The next stage of the livelihoods assessment aims to achieve the following:

- *Illuminate the strengths and weaknesses of the people working in natural resource sectors* in terms of their ability to build personal wellbeing, and thus provide direction for interventions by exposing what should be built on, enabled and enhanced, and what should be discarded;
- *Give voice to the people targeted by proposed interventions*, firstly, to accommodate opinions on what needs to change to address poverty and insecurity, and, secondly, to alert project partners on how our analysis overlaps or opposes the opinions of both local communities and actors operating at each level of the supply chain; and
- *Provide baseline data* by which progress in poverty alleviation and natural resource management might be evaluated in the future.

Observers will have to follow how those who traditionally direct the natural resources sector are likely to respond to the structural changes proposed by the project partners; it is to be expected that they will work these changes to suit their own ends, which may or may not undermine original objectives. Analysing how changes may affect the rich and powerful and how the latter might become enablers or disablers of positive change would be prescient and cautionary.

Our assessment will build upon and draw from lessons learned from the livelihoods investigation conducted by the University of Lubumbashi and published by Group One. See Bibliography.

Main Research Areas

1. Census (baseline demographic data)
2. Structures and processes (political economy)
3. Vulnerability context (profile of risks and hazards)
4. Livelihoods assets and strategies (how do people ensure their security and cope with crises?)
5. Opportunities for Sustainable Development

Methodology[15]

This table sets out the full methodology for the livelihoods assessment. Much of this has already been completed in the communities detailed above, though work has yet to be completed in parts 3, 4, 5 and 1.3, appraising the key issue of migrancy.

15 This methodology is copyright of the author, Estelle Levin.

Principal Activities (Research aims)	Notes, research questions and activities	Inputs (Research tools)
1. Geography of Mining (Background and context)		
1.1 Map the main artisanal mining production and trading areas (i.e. geography of production)	• Map mining areas, sites where research was conducted, and sites where the minerals are processed and traded. • Develop a typology of mining sites. Assess accessibility, government, legality etc. • Include those that are controlled by the government and those still occupied by various armed groups (i.e. Walikale, Masisi), mines that are accessible and inaccessible, legal and illegal etc.	• Base maps for mapping exercises • List the mines to be visited, e.g. Walikale (Kaleko), Mwenga (salamabila), kalehe (bushushu), lulingu (inside Kahuzi-Biega National Park), lubero, Likasi, and Kolwezi • GPS set • Colouring pencils
1.2 Map the land use in and around the artisanal mining production areas	Mapping other land uses demonstrates existing and possible alternative livelihood activities for community members • Outline the main economic activities in the community. • Map the land use according to, for example, the following categories (modify these with the focus group based on the main economic activities identified): o Plantation/cash crop agriculture (identify crops) o Subsistence agriculture o Grazing o Forestry (timber & other forest products) o Commerce (make-shift market & shops in buildings) o Mining sites o Residential (village & mining camp) o Peacekeeping forces o Etc. • Profile existing social services in the community, i.e. number of schools, health centres, wells, religious institutions etc. Assess the quality of these services.	• Base maps for mapping exercises • Data sheet and map (to be completed by researchers) to identify and profile the social services. • Focus groups with community leaders for drawing up maps
1.3 Profile the demography of the mining community and gather information on migrancy.	• Do a population profile of the mine (number of inhabitants, proportion of women, children >10), youths (10-18), main ethnic groups, migrants; main employment activities etc.) • Do a population profile of the surrounding community. • Examine the issue of migrancy, refugees and displacement.	• Mine census questionnaire. • Individual Census questionnaires. • Community census questionnaire • Qualitative questionnaires with migrant miners • Interviews with local authorities and MONUC (migrancy)

Principal Activities (Research aims)	Notes, research questions and activities	Inputs (Research tools)
2. Political Economy of Mining		
2.1 Map the theoretical and actual supply chains for each mineral coming from each site. Analyse how and why the theoretical and actual supply chains differ.	The theoretical supply chain is what the law dictates should happen. ▪ Determine how, where and by whom (actors) the minerals are mined, processed, transported and traded. ▪ Identify, quantify, and demographically profile the principal actors involved in each point of the chain, i.e.: 1. the actual exploitation of the minerals (i.e. the miner and financier) 2. the minerals trade (e.g. financiers, négociants, comptoirs) 3. the governance of production and trade (i.e. local and national authorities, security bodies)	▪ Census questionnaires with each actor in the chain ▪ SSIs with a sample of each actor in the chain (chefs de colines, chef de carrés, miners, carriers, cleaners etc). ▪ SSIs with women, children, and merchants at the site. ▪ SSIs with local authorities ▪ Workshop with local authorities?
2.2 Categorise the main methods and practices of production and trading for artisanally-mined minerals	▪ How is mining, processing and trading done for each mineral? What is the procedure? What type of mining is it? Alluvial or hard-rock? Surface or underground? ▪ How are mining, processing and trading organised? i.e. How are tasks allocated according to gender, age, ethnicity etc. ▪ What determines access to the different jobs? ▪ What tools and equipment are used in exploitation, transportation and trading? According to the relevant actors, which tools and equipment would make their jobs easier and/or more productive? ▪ How do the chefs de collines acquire land to mine and how do they protect access to that land and its proceeds? ▪ How is the mining financed? How is the trading financed?	▪ SSIs with chefs de collines (foreman), supervisor (mining leader), miners, traders.

Principal Activities (Research aims)	Notes, research questions and activities	Inputs (Research tools)
2.3 Identify and analyse the roles, responsibilities and rewards of the various operators in the chain, including governance.	▪ What are the roles and responsibilities of each actor in the chain? (This ties in with aim 2.2. ▪ Identify the authorities in the area which govern (have a degree of control over) minerals production, transport, and trade ▪ Ascertain who owns the mineral at each point of the chain and who receives payment from the owner and what for. ▪ REWARDS: 1. PAYMENT: How are labourers and others paid? How are proceeds shared? o Are the diggers, miners, transporters, paid for their labour? (i.e. is it forced/bonded labour ?) o Are they independent or employed by someone else? On what terms ? o What are they paid, when, and how (proportions cash, food, portion of the mineral etc.)? o What are the different ways someone can be employed in the chain? Why does it work this way? Is there a better way it could work in terms of bringing greater benefits to the people at the bottom of the chain? o If the diggers and miners are independent, who do they sell to and why? 2. PROFIT: Gather information on pricing and revenue flows, and thus determine the profit margin at each point of the chain. o Calculate the cost of mining one acre of land or one ton of ore. Consider all inputs (labour [wages and other support, e.g. food, health, shelter], machinery, fuel, tools, taxes, security, etc.) The profitability of mining in this area can be determined if you know the average yield for the area. Try to find this out (it may be impossible). o Identify the price paid for each mineral at each trading point of the chain. Ascertain how this price is determined. o Ascertain the other costs in the chain, i.e. in trading and transportation. Costs may include formal, informal taxes, income, royalties, commissions, bribes) and who these benefit. ▪ Consider what determines when people choose to sell and who they choose to sell to. E.g. do miners stockpile or sell immediately? Why? Are traders always present at the mine or only at particular times? Are miners / diggers obliged to sell to their financier? [This indicates the level of vulnerability and freedom of miners]	▪ SSIs with each actor in the chain, local authorities and NGOs. ▪ SSIs with miners, chefs de colline (to calculate costs, revenues, profits)

Principal Activities (Research aims)	Notes, research questions and activities	Inputs (Research tools)
2.4 Determine who controls mineral production, transport and trade and therefore identify the networks operating out of the main sites.	▪ Analyse the different types of control (traditional vs. national authorities ; military vs. civilian) and the interaction between these. ▪ Ascertain the ultimate destination of the mineral and determine who effectively controls the mineral production and trade, i.e. who are the bosses? ▪ Consider how the different networks compete for access to the minerals and their revenues.	▪ SSIs with each actor in the chain and local authorities
3. The Vulnerability Context		
3.1 Identify and analyse the risk environment for each operator in the chain.	▪ Gather information on the principal physical, economic, and political risks (problems, uncertainties) faced by each operator in the chain, e.g. o Are there any circumstances in which a miner might lose access to the land he has been mining or have the proceeds confiscated? o What types of harm/violence can happen when mining, trading, transporting etc.? o Construct a mining calendar and explore implications of seasonality on risks to miners and the cost of mining o What proportion of the operators is indebted to someone else in the chain? What is the size of this debt? What are the terms of this debt?	▪ Seasonal Calendar ▪ Workshops with each group of operators, separately (miners, chefs de colines, transporters, traders) OR Risk Profiling questionnaire
4. Livelihoods Assets and Strategies		
4.1 Assess how miners and foresters in the hinterland of border areas use resource exploitation as livelihood and survival strategies to secure their households; and **4.2** Determine which changes in the structure of trade and the mechanisms of resource exploitation mining and	Do a livelihood assessment of the various actors in the chain and their families. ▪ Why did the individual choose to do this livelihood activity? (e.g. mining, transporting, forestry etc.) ▪ How does mining/trading/transporting/forestry help the individual build their resiliency? (i.e. reduce their poverty)? (e.g. what assets does it help them build?) ▪ How does mining/ trading/ transporting/ forestry make the individual more vulnerable? (i.e. how does it make them poorer? Which assets does it erode?) ▪ What other things prevent the individual from improving their resiliency (i.e. reducing their poverty)? (Think of structural issues) ▪ If they could improve one thing to make life better, what would it be, "more money" not withstanding.. ▪ What other livelihood activities does each operator do daily, weekly,	A. Livelihoods questionnaire.

Principal Activities (Research aims)	Notes, research questions and activities	Inputs (Research tools)
forestry do families perceive as priorities for helping them improve their livelihood and income security.	seasonally to make a living? And their families? How do they combine these activities? Why do they combine these activities? ▪ Etc. [NB many of these and other relevant questions are broken down into smaller pieces in the livelihoods questionnaire]	
5. Opportunities for Sustainable Development		
5.1 In what ways does mining help contribute to longer-term economic growth and sustainability in each community, and in the region?	▪ RENTS: To what extent are mineral rents invested in physical and social infrastructure in the community and region? ▪ INFRASTRUCTURE: How does the infrastructure built and used for the minerals trade (transport, energy, etc.) support other economic activities? And not? What potential exists for this infrastructure to catalyse other economic activities (agriculture, forestry, tourism, etc.)? ▪ FEEDSTOCK: What downstream industries exist for adding value to these minerals? What potential is there for developing these? ▪ MARKET: Identify the support industries which exist to supply the mining industry. What potential is there to increase their productivity? ▪ TECHNICAL MIGRATION: Can technology be shared across sectors? What potential for introducing extraction tech from other sectors?	▪ SSIs with women, children, and other actors involved in support services (i.e. food suppliers, cooks, water carriers) ▪ SSIs with local authorities, business leaders and chefs de collines relative to infrastructure, feedstock.

Main Research Tools[16]

A. Mapping

Tool 1: Mapping Exercises question sheet for base maps showing topography and administrative features for mapping exercises (mining, land use, social services)

B. Census

Tool 2: Mine Profile Sheet and Census questionnaire
Tool 3: Community Profile Sheet and Census questionnaire
Tool 5: Individual demographic questionnaire

C. Livelihoods assets and strategies, Risk Profile, Structures and Processes

Tool 6a: Interview questions for migrants
Tool 6b: Interview questions for authorities on the issue of migrancy
Tool 7a: Semi-structured interview sheets on the political economy of ASM
Tool 7b: Semi-structured interview sheets on value chains
Tool 8: Livelihoods questionnaire
Tool 9: Workshop procedural notes for generating seasonal calendar
Tool 10: Risk Profile Questionnaire

D. Opportunities for Sustainable Development

Tool 11: Semi-structured interview sheets on opportunities for sustainable development

Proposed Research Team

Research Managers	Ms. Estelle Levin, INICA Professor Cyril Musila, INICA
Principal Researchers	Professor Mutabazi, University of Bukavu Professor Lunda Ilunga, University of Lubumbashi Professor Lubala Toto Ms. Yvonne Sanganyi-Nyassa, ISDR – UCB, Bukavu Mr. Alphonse Muhindo, Réseau CREF Nord-Kivu Mr. Bernard Kasongo, Réseau CREF Nord-Kivu Mr. Alain Chishugi, INICA Mr. Nicholas Garrett, Freie Universität Berlin

Draft Timetable

This timetable is yet to be finalised with the research team, but is presented to indicate the minimum amount of time necessary from start to finish of the project.

Month	**October**				**November**				**December**				**January**				**February**			
Week	**1**	**2**	**3**	**4**	**1**	**2**	**3**	**4**	**1**	**2**	**3**	**4**	**1**	**2**	**3**	**4**	**1**	**2**	**3**	**4**
Preparatory workshops (Kigali or Goma)																				
Finalisation of Methodology																				
Field Research																				
Submission of Field Reports																				
Workshop to discuss findings and recommendations																				
Submission of final report																				

[16] These have already been developed, but need to be translated and modified to suit local conditions.

Some Observations to Date and Additional Research Questions Based on Learning So Far

North Kivu

Observations below are compiled from the research conducted by INICA on mineral exploitation in North Kivu and the Katanga. Both groups of researchers are in the process of expounding on findings so more information for publication will be available in the coming months.

A. Coltan Mining in Masisi

1. *Researchers estimated that the artisanal miners earn an average of $167 per month, and the cost of mining is $33, leaving an income of $134 a month. This is comparatively a very good wage locally.*
    a) If miners earn a relatively high wage and if the community is comprised mostly of artisanal miners, and those providing services to artisanal miners, why is there no evidence of development?
        i. Is this related to the high cost of living locally or some other factor? If so, how could the cost of living be reduced?
            (1) How could mining sites be linked to sites of local agricultural production?
            (2) How could the cost of food imports be managed and reduced?
    b) Would miner empowerment come from higher wages or reducing the cost of living? Is it miners who need to be empowered, or others in the community, in terms of stimulating economic diversification and growth?

2. *The négociants, who the miners sell to, also import food, clothes, beer, matches and other goods to the mining site. They therefore control the sale of goods to the miners, and the purchase of the miners' product. To a certain extent, they are the masters of the local economy.*
    a) What evidence is there of négociants cheating miners, e.g. by inflating the cost of food, and deflating the purchase price of coltan? Is this the only way they can make a living?
    b) How could these markets (food imports, coltan purchases) be made to be more competitive in the interests of the miners and other local people?

3. *The négociants often advance consumables to miners on a credit basis.*
    a) What are the terms and conditions of credit?
        i. What is the rate of repayment? How much coltan for 1 day's meal on a credit basis, and how much on an upfront basis?
        ii. What happens if a miner cannot get out of debt?
        iii. Is there evidence of debt bondage? How prevalent is it?

4. *The "exploitants" pay miners half the local market rate (the price paid by négociants) for their coltan.*

a) How much of the coltan bought by local négociants is bought directly from miners?

5. *The "exploitants" ensure miners cannot steal coltan by employing "surveilleurs" (watchers) and police. The monthly salary of a surveilleur is $104, while a policeman's is $100.*
   a) Why are these people paid less than the miners if their job is to supervise the miners to prevent theft?
   b) Besides supervising, what else does their job entail? How do they use violence in the mine? What do miners do to work around police and surveilleurs control? How do they avoid violence?
   c) If miners are paid more, do the policemen and surveilleurs aim to become miners? If not, why not? Do they get side payments in some way that makes their income actually higher than those of miners?

6. *The négociants earn a monthly average of $397 profit. This is three times the profit of a miner.*
   a) How does a miner get to become a négociant?
   b) Can a surveilleur or policeman become a négociant? How?

7. *The artisanal miner's card tends to be bought by a group leader, who then requires miners to pay him for the privilege of working under the protection of the card.*
   a) What and to whom do miners (diggers) have to pay on a monthly basis to ensure their access to the site?

<u>B. Cassiterite Mining in Mpama/Bisiye, Walikale</u>

There is a lot of relevant information for the livelihoods study in Nicholas Garrett's report, attached as Annex V. Some highlights and questions for expanding our understanding of livelihood strategies are set out here.

1. *Of a population of 10,000, 3,000 are women. Of these, one third are unmarried, "free women", who prostitute themselves as part of their livelihood strategy. Furthermore, women are not allowed on the mine.*
   a) What other livelihood activities do women in the community do, besides prostitution? How do they combine these with their prostitution?
   b) How does the prostitution work? Is it organised? How do women protect themselves from abuse?
   c) What other livelihood activities would the women want to do? What needs to change so they can do these?
   d) Is there a basic level of organisation among the women that could be built on to enable women to engage in additional or alternative livelihood activities?
   e) Why are women not allowed in the mine?

2. *There are over 1100 men, including children and youths, working on the four mining sites. Of these, the majority work directly for the landowner. Between 5 and 10% work independently.*

a) Why do some workers work independently? How do they get away with this?

3. *The majority of people living in the mining community are migrants.*

   a) See the questions set out in the methodology under 1.3.

4. *In the mines, people work as creuseurs (miners), résponsables (supervisors for the mine owner), pelleteurs (clear the mining site of rocks, vegetation and overburden), and boiseurs (line the mine shafts with wooden supports). "Comptoirs" also employ people to process and concentrate the ore on site.*

   a) What determines which job people do?

   b) How do these jobs rank in terms of financial returns, physical risk, and social status? Which is most/least desirable?

   c) Which job is harder/easier to get? (access)

5. *The different mining sites are associated with different mining techniques and social statuses. The underground tunnels are the most productive sites and therefore have the highest social status. They are also the most dangerous production sites. Socially unconnected, new arrivals have to "work their way up" to be allowed to work in the tunnels. This process includes bribing, proving skill, becoming friends with the right people, doing the political bidding of people and proving manliness. Further sub-divisions exist within each mine. Socially well-connected and skilled miners work in the tunnels. Socially less connected new arrivals do alluvial and open pit mining.*

6. *There is no cash economy. All are paid in cassiterite.*

   a) Why is this?

   b) What are the drawbacks and advantages of this in terms of strengthening resiliency and alleviating poverty?

   c) Is it possible to introduce a cash economy? What would be the advantages?

7. *Porters carry bags of 50kgs of cassiterite over 40km to the Walikale-Kisangani road. They work for the small négociants, receive US$ 25 per journey from Manoiré to Ndjingala in cash or cassiterite; and they receive US$ 10 per journey from Ndjingala to Manoiré, for bringing back food and goods. They can exchange their cassiterite at the regular rate in Ndjingala and so are able to earn cash, unlike miners at the site. This is a well paid job though physically extremely demanding and damaging. A porter can theoretically earn US$350 per month, if he is able to conduct 10 round trips in a month.*

   a) Why do people choose to be porters rather than miners, and vice versa?

   b) How do people make the jump from miner to porter? What are the access issues?

   c) What is the average monthly income of the porters?

8. *The exploration company which owns the concession is seeking to replace porter transport with helicopters, as they attest the working conditions of the porters are in breach of commonly accepted labour standards. They intend to employ the porters in the mining site.*

   a) What do the porters think about this?

9. *The négociants weigh goods by hand at the mine. In the towns on the main road, they use mechanical scales.*

   a) Would there be an advantage to introducing mechanical scales for public use to the mining site? How could this work? Who would benefit/lose?

10. *Tools are sold to the miners by the "commerçants" at prices up to 10 times higher than in the territorial capital, Walikale.*

    a) Would miners benefit from organising and forming associations so they could bulk-buy these goods on a daily or weekly basis? How would this work locally? Would storage and security be an issue?

11. *The workers trade cassiterite for food and other necessities with local commerçants, who operate on hyperinflated margins. 90% of the creuseurs are indebted to commerçants. When they operate on a credit basis, margins increase.*

    a) See A.1 and A.2.

    b) Do commerçants make more money than miners?

    c) What does the job of commerçant involve? Who does it? How do you get to be a commerçant?

12. *Since the local market for consumables charges extortive prices and is controlled by the cassiterite traders who tend to be based in the major towns, value added tends to leave the local economy. Even where people purchase locally produced goods and services, e.g. prostitution, wood, meat, the currency is cassiterite, which will eventually be sold to a local trader who will take the profits away with him. Miners thus clearly dig to survive and opportunities for advancement are slim beyond graduating to a more senior position in the supply chain or gaining political favour.*

    a) What needs to change so that a greater proportion of profits derived from mining remain in the local community? How to make cassiterite mining *productive* in terms of poverty alleviation?

13. *Mining sites are teeming with health issues. 95% of people suffer from Vermiosis (worms), HIV/Aids is prevalent with a high number of HIV positive, and malaria is the most common serious disease.*

    a) Is there some way of introducing mobile health services (e.g. education campaigns, vaccinations, distribution of contraceptives and sensitisation to their use, a mobile pharmacy) to tour the mining regions?

14. *At present, there are few cassiterite mining-specific support industries. Tools used, such as hammers and chisels, are predominantly Chinese imports. Miners reported a lack of know-how as to how to manufacture these goods on the Congolese side.*

    a) What is impeding the development of a local industry in the manufacture of mining tools, e.g. shovels, picks, pans, and so on? Is it only know-how?

    b) How can the development of a local tool-making industry be encouraged? Could this be an opportunity for miner exchange to communities elsewhere in the region where tool making is commonplace?

15. *Of the interviewed mining population, 35% indicated they originally started the activity as an income generator of last resort. 55% of interviewees indicated they originally started the activity because of the prospect of "quick money". Of the interviewees, 55% were from so-called peripheral socio-economic groups, such as ex-combatants, internally displaced people and orphans.*

    a) Why is mining "an income generator of last resort"? Why are these people unable to start agriculture locally in order to compete with the food imports? Is it a question of will or external factors?

16. *Mining seems to erode people's livelihood assets, rather than building on them. Surviving on mining dilapidates material assets through debt repayments; e.g. there are up to 10 pawnshops. It also corrodes social assets, such as linkages to the person's community of origin and family ties. Health is at risk through exposure to disease and arduous working conditions. A majority of interviewees reported that mining destroys people's dignity, given low return on their labour and adverse living conditions.*

    a) A complete risk profile assessment will elaborate on the ways by which mining and its socio-political context erode people's assets.

17. *Every interviewee stated they would welcome, if not a higher, then a predictable income.*

    a) Given that cassiterite is not as easily converted into cash as, say, gold or diamonds, would the organisation of miners into associations/unions of employed labourers with a steady salary be welcomed by miners and financiers? If so, how could this be made possible?

18. *The miners are not unfamiliar with saving systems not unlike the osusu system in Sierra Leone. They use a "roving savings system" to build assets whereby everybody donates the maximum possible share of their income to a fund. The fund goes to a different team member each month, helping them, for example, to buy more expensive gear, such as Wellington boots.*

    a) Since the concept of saving exists, would microfinance be an option in these communities? Cash could be used to buy gear, tools or food and cassiterite could be sold to the microfinance bank as repayment.

19. *The livelihoods profile of people living in the community is simple. The "creuseurs", "boiseurs", "pelleteurs", "commerçants" and small "négociants" do not seem to carry out parallel income generating activities. The rest of the population, including their dependents, carry out livelihood activities limited to trade in food and general products. Subsistence agriculture is limited to about 10 very small fields for the entire population, where bananas and pineapples are grown. Fishing is very limited. Porters bring in 95% of food consumed from Ndjingala.*

    a) What is the major impediment to more food being grown or sourced locally? How can local food production be expanded? How can local agricultural productivity be improved?

C. Copper and Cobalt Mining in Katanga

Fieldwork to date:

1. There are at least 120,000 people working in the copper and cobalt mines of Katanga, of which about 50,000 are children. There are about 10,000 négociants of which 90 are known by the Division of Mines.

2. Unlike in Walikale:
   a) the creuseurs tend to be organised into cooperatives
   b) women are active in the mines at Manono. They also work as négociants at the site.
   c) the miners often work on corporate concessions, usually illegally
   d) there is a cash economy in many of the sites.

3. The creuseurs earn an average of $40 per week, but owe a large part of this to négociants who have advanced them money for purchasing food.
   a) Are miners working a state tantamount to debt bondage? If so, what can be done about this?

4. *Mota et al. (2006) report:*

5. People working in support industries, such as welders, mechanics, iron mongers, and farmers, earn less than FC10,000 (~$18) per day owing to the poor purchasing power of their clients. This is likely to discourage people from pursuing these livelihoods. Well paid professions include bakers, millers, car salesmen, real estate agents, cabinet makers, and tailors, who can earn over $100 a day. Daily expenditures could not be calculated.

6. The collapse of the economy has forced people to diversify their livelihoods and rely upon social networks (i.e. patronage and patrimonialism) in order to be able to cope with changes in the feasibility and returns of specific jobs. Ongoing and occasional supplementary livelihoods, which people combine with mining, include dismantling infrastructure of former industrial mines and factories to sell materials and parts, harvesting ore from tailings, petty commerce, crafts, and becoming a church pastor. These secondary livelihoods often provide the income for paying rent and school fees, as well as diverse general household needs, and is sometimes used for savings and investing in other livelihood activities.

7. The collapse of the economy has increased the importance of women and children's contributions to the household income.

8. Most of the women (77%) do commercial activities to contribute to household income: selling goods at their homes, in the market or along roads. Goods sold in homes include charcoal, flour, oil, fish, sweet drinks, clothes, and sunglasses. Daily income is about $2. Women hawkers sell agricultural produce walking up and down roads, while men sell charcoal. Market saleswomen sell used clothes, food, and luxury items which come from Kinshasa or Dubai. They tend to have greater capital than other traders, hence more income security, bringing in an average $50 a month.

9. Subsistence agriculture, hairdressing, and restaurants/cantines are the next most common livelihood activity of spouses.

10. A major challenge locally is access to credit for developing alternative livelihoods.

D. General observations

1. Mineral profits are more likely to be invested in the main trading towns, where the négociants and comptoirs reside, than at mining sites. In Bukavu, for example, relatively modest individual homes are popping up all over. This is one positive sign that, with greater stability, traders are reinvesting some of their profits into building. The traders say they invest in buildings because this is a secure investment: even during the war very few buildings were actually destroyed and though they may be temporarily occupied, the owner gets it back. This is more secure than having stocks of cash or valuables, e.g. precious minerals / metals.
   - Why are people reluctant to invest in the mining sites? Is this related to stability mainly or are there other issues?

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Conflict Prevention partnership www.conflictprevention.net
Enviro Security www.envirosecurity.org
Fair Trade www.transfair.usa
FAO www.fao.org
FITA www.fita.org
Flora and Fauna Intl www.fauna-flora.org
Forest Peoples Programme www.forestpeoples.org
IBRD www.worldbank.org
IGAD www.igad.dj
INICA www.inica.org
Institute for Agric Trade www.iatp.org
Institute for Environmental Security www.envirosecurity.org/espa
International Alert www.international-alert.org
Mbendi www.mbendi.co.za
Oxfam www.oxfam.org.uk
Pole Institute www.pole-institute.org
Regional Agric Trade Expansion www.ratescenter.org
Statistics www.data.org
Trade Hubs: www.satradehub.org
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Transboundary Conservation www.tbpa.net
UN News www.irinnews.info
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