



THE MINING ECONOMY IN THE KIVU AND ITS REGIONAL IMPLICATIONS

draft version

Roland Pourtier

Report following a mission to North Kivu, South Kivu and Rwanda
17 April - 9 May 2004

Initiative for Central Africa
INICA
Initiative pour l'Afrique Centrale

Initiative for Central Africa 


OECD  OCDE 2 rue André-Pascal, 75775 Paris Cedex 16, France, www.inica.org

TABLE OF CONTENTS

SUMMARY AND KEY FINDINGS	3
INTRODUCTION	6
I - THE MINING ECONOMY IN THE CONTEXT OF THE GREAT LAKES REGION.....	8
<i>A – THE OVERALL CONTEXT.....</i>	8
1. The global perspective.....	8
2. Heritage from the past: substituting artisanal mining for industrial operations.....	8
3. The situation in Rwanda	9
4. Gold and tin: different logistical constraints	9
5. Coltan between highs and lows	10
<i>B – THE NATIONAL CONTEXT.....</i>	11
1. Congo: a sick giant	11
2. Rwanda: a structured society in a restricted territory	12
3. North and South Kivu: coveted highlands	13
<i>C- THE REGIONAL CONTEXT: “LANDLOCKED” AND DOUBLY “LANDLOCKED”</i>	13
II – ARTISANAL MINING.....	14
<i>A – FROM THE MINE TO PURCHASING AGENTS.....</i>	14
1. Production : the miners.....	14
2. Marketing: traders and purchasing agents	16
3. Income from mining operations	19
<i>B – MINING RIGHTS, LAND RIGHTS.....</i>	21
1. The Congolese legal imbroglio	21
2. The new mining code and its applicability	22
3. The ambiguity of land rights.....	24
4. The question of taxes and reunified rates	25
<i>C -TRANSPORT: A CRUCIAL QUESTION FOR KIVU</i>	26
1. From the mine to the purchasing agents	27
III - CONCLUSION: CONSTRAINTS AND CHALLENGES	34
1. Roads first.....	34
2. Security as an absolute necessity	34
3. Miners’ organisations.....	35
4. Informed action	37
5. Cross-border trade at the heart of peace-building.....	37
BIBLIOGRAPHY	39
MAPS AND DIAGRAMS.....	40

SUMMARY AND KEY FINDINGS

This study focuses on the mining economy which is inextricably linked to other sectors. The constraints faced are often the same as those impeding agricultural development: accessibility, transport and security. At the bottom mining is part of a multiple activity system inherent in survival economies (several simultaneous occupations) and based on a complementary division of labour between women and men. As a result, a holistic approach integrating social, spatial, and political dimensions is crucial for analysing the mining economy.

This approach is even more essential for the Kivu which is emerging from a long troubled period marked by a succession of conflicts, followed by a four-year transitional phase involving various local powers and only the recent withdrawal of Rwandan and Ugandan troops. Transition in this particular border area is more complex than anywhere else in the DRC. It is not surprising that Kinshasa is still facing resistance and has difficulties asserting its legitimacy here. These years of crisis have had a strong impact on the regional economy. The UN experts' panel reports have highlighted the extent to which Kivu has suffered from looting. Much attention was given to the climax symbolised by coltan fever, but the underlying structural factors behind difficulties were not sufficiently taken into account. Analysis from different perspectives and at different levels helps to understand the mining sector.

At the international level, prices of raw materials are set in markets dominated by developed countries: the London Metals Exchange, for instance, sets the price of tantalum and consequently of colombite-tantalite, the raw material. Neither the DRC nor Rwanda has any leverage on export prices which depend on world supply and demand. The collapse of tin prices, for example, destroyed industrial mining in this area. Informal, artisanal mining activities were built on former industrial or semi-industrial mines. The "coltan fever" was just a passing affliction. It illustrated perfectly the cycle of dependency which has kept mine workers from escaping absolute poverty.

Analysis of the national level highlights major differences between the DRC and Rwanda. In Rwanda, space is limited and people are closely supervised by local government. Rapid population growth (due to the lack of a family planning policy) threatens the regional demographic balance in the medium and long term. With few natural resources, Rwanda benefits from its position as a transit country. The DRC, although the "eldorado" dream has faded, does have abundant mineral resources, but extraction is limited by various constraints: deteriorated transport infrastructure, weak governance and corruption, the so called 'Zairian disease'.

Located at the eastern edge of the DRC, Kivu is one of the most problematic areas of Central Africa. Successive waves of migration from Rwanda have exacerbated the relations between "natives" and "foreigners". The issue of granting Congolese nationality to people of Rwandan descent is a "time bomb". The way in which electoral roles will be handled for elections scheduled in 2005 is critical to the region's future.

Another cause of concern is FDLR soldiers and uncontrolled armed groups who from the Kivu forests continue to fuel insecurity in the region. Moreover, hopes for sustainable peace are undermined by the reticence of RCD-Goma soldiers, in particular those from the Banyamulenge, to integrate into the new Congolese army.

The regional context is crucial. Cross-border networks between Hutus and Tutsis could play a very positive role in favouring cross-border enterprises; they could also heighten regional tensions. Managing cross-border ethnic alliances and rivalries will always be a challenge for politicians. In comparison to the landlocked states along the Nile-Congo ridge, Kivu is even more isolated.

A range of actors are involved in the mining sector. Diggers have very few tools and so must rely mainly on muscle power. Their earnings are just as low as their productivity. Team leaders are the only ones to earn enough to live exclusively from mining activities. Diggers use artisanal methods to sort and concentrate minerals: the small-scale miners first break up the material with hammers. In a second step, they wash the materials to sort out the heavier elements. Access to water is essential; motor driven water pumps could save human energy wasted carrying-water. The working conditions of artisanal mining activities in Kivu and Rwanda are much the same.

Traders, who act as middlemen between miners and exporters, do better. However, they are exposed to illicit taxation and predation by armed groups. Their profits are eroded by the cost of air freight. Due to the lack of roads, most minerals are transported by small aircraft. Purchasing agents who prepare minerals for export are mainly based in cities such as Goma, Bukavu and Kigali. They operate with political support (given their location and based on personal relationships). This is where the political and the business worlds meet.

Both traders and purchasing agents are harassed by the high level of government taxes. The new DRC mining code increased taxes thus encouraging smuggling to Rwanda. Rwanda exports three to four times as much coltan and cassiterite as it produces. The difference comes from Kivu. The number of taxes on formal sector activities would need to be reduced to limit fraud. Taxation is also an issue for transport companies, particularly for lake transport subjected to double taxation in North and South Kivu.

Transport is the weak link in the value chain. The situation in Kivu is catastrophic: there is virtually no infrastructure with the exception of a few roads close to the border. Air freighting minerals to Goma and Bukavu certainly does not promote local development. On the other hand, road transport to the Indian Ocean ports via the Northern and Southern corridors and the railway, work well. Import and export trade links eastern Congo to East African transport networks. Since the DRC's reunification, flights between Goma, Bukavu and Kinshasa are operating, but mainly for passengers.

A number of priorities for action are clear from the above analysis:

Restoring roads in Kivu is an absolute priority. It would help revive all economic sectors, especially agriculture and mining as well as being essential for functional government services such as health, education and security. Security conditions the return to social interactions without fear, agricultural production for export (without looting) and foreign direct investment. The MONUC's programmes for disarmament, demobilisation and repatriation (DDR) have been notably insufficient. Sustainable peace and security in the eastern DRC is not possible without strong commitment from the international community.

Legal measures designed to strengthen miners' co-operatives are already being implemented in Rwanda. Legal texts have been adopted in the DRC, but the new mining code seems to be difficult to apply without taking into account conditions in Kivu following a decade of disruption. With improved prospects for peace many initiatives are being led by traditional chiefs or businessmen, the two often being one in the same, or launched by NGOs.

There is a positive dynamic for local action that with only modest financial or technical support could impact positively on working conditions.

Access to information – new information technologies such as mobile phones, available in most urban areas, will help improve miners' access to information on coltan, cassiterite and gold prices. Economic information and knowledge of workers' rights under the law are key to building effective co-operatives that are truly capable of improving working and living conditions (as opposed to show cases designed to maintain elite privileges).

Using the mining sector as an entry point, this report highlights cross-border dynamics and the regional dimension. Almost all Kivu's trade is with partners from the eastern basin. Rehabilitating one or two road links to the West, thus opening up new markets for Kivu's agricultural and dairy and meat products, could help shift the balance. Nevertheless, regional integration in the Great Lakes region, including Kivu, Uganda, Rwanda and Burundi, is a fact of life based on cross-border trading, inter-personal relationships and cross-border ethnic networks. Several neighbouring states attracted by the prospect of developing potential energy sources (a new dam on the Ruzizi, methane gas from Lake Kivu, for example) have much to gain from re-establishing and strengthening co-operation.

The existence of cross-border markets has been vividly illustrated by recent difficulties following the closing of the border between Rwanda and the DRC (with civilians such as teachers and students unable to cross). Increasing cross-border trade is a critical aspect of restoring a peace economy.

In conclusion, there is no doubt that resolving political problems and tensions between Rwanda and the DRC will involve a regional approach. The line between the Congo and Nile basins is not sufficient to dissociate these inextricably linked areas that share challenges, actors, interests, economic complementarity, cultural affinities and even mutual fears.

INTRODUCTION

The aim of the following study is to contribute to reflection on the conditions for moving from a predatory war economy to a peace economy. Kivu is no doubt the most problematic region of the DRC, especially the border regions in the provinces of North and South Kivu. Identifying conditions for a sustainable solution to conflicts which have torn the country apart for more than a decade could provide inspiration for the country. It would not be overstating the case to say that the Congo's future depends, to a large extent, on resolving the Kivu crisis.

Kivu is where the tensions which have long affected Congo-Zaire are concentrated. This huge country has fallen into a downward spiral of underdevelopment unprecedented in Africa: it is widely accepted that Congolese living standards have considerably deteriorated since independence. Only a few years ago people began saying that Zairians, given the statistics, are supposed to be "dead". The passage from Zaire to Congo does not appear to have "resurrected" them in statistical terms.

Informal, so-called survival activities continue to be essential to the daily economy. While such activities are certainly not a panacea, they partly compensate for dysfunctions in the so-called formal economy. They are also likely to weigh heavily in the economy for a long time to come. They can neither be ignored nor disavowed.

The Kivu paradox lies in the fact that development has centred around its agro-pastoral potential whereas recent stakes focus on mining resources. Local economic actors play on both registers: "coltan fever" has not eliminated the bond to the soil and especially to cattle. Thus Masisi land owners use a part of their mining income to purchase cattle (from Rwanda) to regenerate the herds repeatedly decimated by wars. This explains why a study of the artisanal mining economy must look at the full range of local actors and their multiple activities.

This approach is even more necessary because the UN experts' panel on illegal natural resources exploitation in the DRC focused on the mining sector. Too much attention on mining alone skews analysis of economic dynamics in the Great Lakes region, causing the reader to overlook the most sensitive area of the "Congo-Nile ridge". So without rejecting the experts panel's various reports, mining needs to be integrated into a broader context. Similarly, it is necessary to examine the structural basis for artisanal mining beyond the war's short term implications. In order to assess the economic, social and political implications of an extremely serious crisis rooted in historical precedents much before the last decade's conflict, a longer time horizon is required. This type of perspective allows for a diagnosis based not only on the present situation but also for forward looking recommendations drawn from an understanding of the past.

Artisanal mining provides income to tens of thousands of miners and traders in many regions of the DRC, especially Eastern Kasai and Katanga, the two pillars of the Congolese economy. By comparison, mineral resources from the three provinces of the former Kivu region (North Kivu, South Kivu, Maniema) are relatively modest. Nevertheless, extractive activities in eastern Congo, – Ituri has the same type of problems as the Kivu, are crucial for the region's and Central Africa's future, for two reasons:

Firstly, **mining activities are focused on an area still suffering from the after-effects of the war** and the Ugandan and Rwandan military occupations. The rising tensions near the Rwandan border since April 2004 and fighting beginning in June in South Kivu, particularly in Bukavu are evidence that the Kivu is not yet entirely pacified.

Integrating Banyamulenge militias into the Congolese National Army turns out to be difficult. The intentions and military capacities of Colonel Jules Mutebusi, the principal instigator of fighting in South Kivu, and of General Laurent Nkunda who still controls RCD-Goma militia are unclear.

Since the signing of peace agreements, the various militias operating in eastern DRC have yet to be fully merged. Mai Mai militia have, however, been satisfactorily incorporated in the Congolese army. The same cannot be said for RCD-Goma forces who are mostly Banyarwanda or Banyamulenge. **The Achilles heel of the peace agreements is how to deal with Congolese of Rwandan descent.**

In addition, there are uncertainties linked to the forest region operations of the FDLR (Democratic Forces for the Liberation of Rwanda), hutu militias from the former FAR (Rwandan Armed Forces) and the interahamwé. With an estimated 15,000 men, they are a real threat to peace. **The Banyamulenge issue linked to the question of the FDLR can only be solved through a regional settlement** with strong international backing, something that has been lacking so far. It is not easy to revitalise the economy in such a climate of tension. And yet, jump starting productive activities and rehabilitating infrastructure are essential to long term peace-building. Roads, in particular, will allow access to areas not yet controlled by the state and where the FDLR and others have their camps.

Secondly, **mining is part of cross-border trade networks in a symbiotic link between production areas (East of Congo) and transit areas (Rwanda, Uganda).** The extractive economy in Kivu must be viewed in a regional context. Mining is economically and strategically a part of the multidimensional decade-long regional conflict and so also critical to building regional peace.

I - THE MINING ECONOMY IN THE CONTEXT OF THE GREAT LAKES REGION

A – The overall context

1. The global perspective

In order to understand the way the mining economy responds to regional constraints a global perspective is required. **Difficulties are linked to macroeconomic developments.** Under-regulated world markets subject to wide price fluctuations generate high levels of uncertainty for the mining sector. The effects of price instability are felt at all levels, but particularly on the ground where artisanal miners suffer most, given their extremely precarious living conditions.

2. Heritage from the past: substituting artisanal mining for industrial operations

SOMINKI (Mining company in the Kivu), the result of a 1976 merger between several colonial-era companies had a monopoly on mining activities in Kivu for a long time. It did not weather the world tin crisis. Artisanal operations that developed following SOMINKI's decline can be viewed as an informal substitute to industrial operations.

With the crash of tin prices in October 1985, SOMINKI ceased its activities. **These low prices were the structural cause of the bankruptcy of industrial operations in Kivu.** While gold could have kept SOMINKI solvent, the industrial plant was pillaged in November 1996 by Laurent Désiré Kabila's AFDL (Democratic Forces Alliance for the Liberation of Congo-Zaire). This event dealt the death blow to industrial mining.

Tin prices in pounds per ton

1970	1,500	1986	4,300
1975	3,000	1990	3,500
1980	7,200	1994	3,500
1985	9,200	High in Feb. 1985	10,446

SOMINKI Production (Sn O2 + associated metals) in tons

1976	5,400	1990	2,500
1980	3,000	1995	1,000
1985	4,000		

The above diagram shows the gradual fall in tin production ending in 1995, after the AFDL pillaging brutally completed the inevitable decline. The employment impact has been considerable:

Changes in SOMINKI staff (1978-1995)

Year	Expatriates	Zairian managers	Mid-level staff	Workers
1978	110	38	175	16,500
1985	80	73	210	11,500
1990	24	67	208	8,500
1995	13	71	150	5,700

Artisanal mining operations in Kivu, as in the rest of Zaire, began informally in the 1970's before a law adopted in 1982 (November 5 1982 law n° 82/039) provided a legal framework. It developed even further after SOMINKI's remaining assets were sold off in March 1997. With the company's demise laid-off miners decided to try artisanal operations. Intense alluvial digging for gold sprung up, particularly at Kamituga.

Elsewhere, cassiterite and coltan artisanal operations developed at sites either formerly mined or just identified by SOMINKI. Artisanal mining is largely a substitute or survival activity to partially compensate for the collapse of the industrial sector.

3. The situation in Rwanda

Rwanda has faced the same type of problems. Since 1985 – when the tin price decline led to SOMIRWA's (Rwandan mining company) bankruptcy – the government prevented pillaging of mining installations and then established REDEMI (Mining Operations and Development Centre), while waiting for a more sustainable solution. Unlike Kivu, Rwanda does not have abundant identified reserves. This is why prospecting is important but there is a lack of trained staff in the country. In May 2004, a Belgian geologist from Tervuren announced that the University of Kigali's geology department would be strengthened.

REDEMI mainly produces cassiterite, wolfram and only some coltan. The latter, an artisanal activity since SOMIRWA's bankruptcy has gradually restructured around co-operatives (COPIMAR - Co-operatives for Artisanal Mining Industry Promotion).

Rwanda's mining production in 2003

	Cassiterite (tons)	Coltan (tons)	Wolfram (tons)	Gold (kg)
REDEMI	168	9	66	
COPIMAR	106	89	25	
Others	9	20	18	1,9
Total	283	118	109	1,9

4. Gold and tin: different logistical constraints

There are two different categories of mining activities even if both use artisanal production techniques, limited equipment and substantial labour: Gold, diamonds, and tourmaline on the one hand and cassiterite, colombite-tantalite (coltan), and wolfram on the other. The value per unit of weight of gold, diamonds, precious or semi-precious stones is far higher than for other minerals. In the first category, miners work in the hope of – even if it is statistically marginal - of discovering a nugget or a stone which would suddenly make them rich. The possibility of a lucky strike has always driven gold and diamond prospectors. It makes the heavy work of sifting through tons of earth more bearable. Extracting lower value ores, even when prices are high leaves no scope for dreams to escape the drudgery.

Marketing aspects of these two categories also differs considerably. Unlike lower value ores, **transportation costs for gold and diamonds are marginal**. In addition, the volumes produced – the gram and the carat being the units of measure – do not require heavy transport infrastructure. **Constraints are mainly linked to security rather than transport**.

For cassiterite and coltan, transport costs are an essential parameter. In Eastern Congo, the lack of access roads to most operating sites means that ore has to be hand carried or air-freighted when prices are high enough to cover the costs. **The importance of spatial aspects, especially transport infrastructure depends on the type of mineral.**

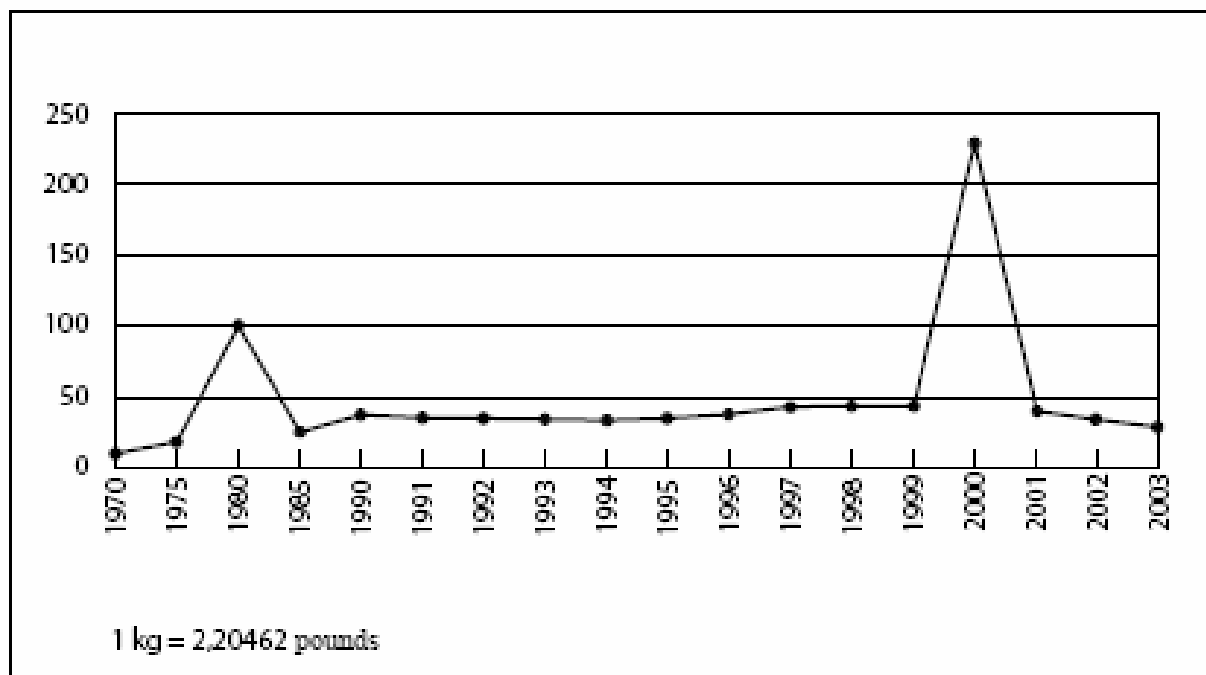
5. Coltan between highs and lows

Coltan (a shortened-version of colombite-tantalite) suddenly became a notorious symbol of Congo's pillaged natural resources, denounced by an UN experts' panel. Strong media interest in an ore which had previously only concerned specialists, was generated by two events: the Rwandan and Ugandan military occupation of Eastern Congo and the soaring price of tantalite extracted from colombite-tantalite. **The experts' panel produced reports in April and November 2001, just the time when coltan prices were booming.**

Tantalite prices, stable at around US\$ 30 a pound in the 1990's, jumped to US \$ 180 a pound in 2000. Rapid increases were directly linked to the information technology "bubble" with the cell phone boom and demand for play stations exerting this upward pressure. Tantalite is used in condensers for mobile phones, game consoles and laptops. High coltan prices slumped along with electronic and information technology companies on the Nasdaq stock exchange.

The impact of this speculative collapse was immediately reflected in the tantalite market, illustrating once again **the extreme vulnerability of small producers who are price takers.** After reaching a peak of US\$ 230 a pound, coltan rates plummeted in 2001. In May 2004, rates were around US\$ 23, a tenth of the peak reached three years earlier.

Average price per pound of tantalum (US\$)



Source: Patrick Martheau "Commercial route for Congolese coltan". GRAMA 2003.

The current situation is very different from the one prevailing at the time of the UN experts' panel. Coltan "fever" is only a memory. Rwandan and Ugandan troops withdrew from the DRC in the spring of 2003. The 2000-2001 overheating has turned into a depression. Finally, the gradual return of Kinshasa's control of mining services and the promulgation of the new mining code, have changed the context.

Coltan is a text book case of the extreme vulnerability of primary commodity dependency. The conflict aggravated the situation by facilitating unchecked pillaging. Today we appear to be at the tail end of the regional crisis around the 1996-2002 Congolese conflict. Although reverses are still possible, the situation today seems to be more consistent with longer-term patterns of change agents subject to sociological constraints.

B – The national context

1. Congo: a sick giant

The decline and collapse of the state explains much about the economic, political and social context surrounding the Kivu's mining economy. Its collapse has weighed heavily on daily living conditions, especially in two respects:

a) Territorial upheaval

Road conditions are a strong indicator of the state's collapse. In the three Kivu provinces, only a segment of paved road still exists between Goma and Saké. Elsewhere, formerly paved roads show more or less severe signs of wear (Goma-Rutshuru). Travel in roughly normal conditions is only possible along the meridian axis of Goma-Béni and Bukavu-Uvira. The link from Goma to Bukavu has only been rehabilitated as far as Nyabibwé. Towards the interior, road access is possible up to Masisi on one side, Bunyakiri on the other side. The central segment of the Bukavu-Kisangani road is also inaccessible. Most roads that appear on Congo-Zaire road maps are only accessible with considerable difficulty to four-wheel drive vehicles and in many cases only during the dry season. Several routes are inaccessible because many bridges have been destroyed.

The poor state of roads hampers all economic activities. Inaccessibility is the primary cause of the large numbers of civilian casualties during the conflict. The 3 million casualties figure in Eastern DRC, put forward by some non-governmental organisations and confirmed by Colette Braeckman is perhaps excessive. It at least draws attention to the fact that civilians have suffered more from physical isolation preventing access to health systems and commerce for basic necessities, than from military attacks.

As a result, the territory has been fragmented bringing with it a spatial contraction to "local areas", characterised by physical and social isolation. These conditions constrain development dynamics that need to be built on open and frequent rural-urban connections. Without viable roads the state can not play its regulatory role. The country's natural resources which are continually designated as "wealth" can only be considered as a future possibility. **Without roads, Congo's "potential wealth" - is as much a myth as its "geological scandal", basically a mirage.**

b) Phantom state – the reign of the informal sector

During the final years of Mobutu's reign the state continued to decline and lose effective control of its territory. Kinshasa's authority only tenuously extended to peripheral areas. The ease with which rebellions distanced themselves from the capital city is evidence of this. It is true that **the country's large size tends to promote de facto autonomy in spaces that are so difficult to reach** and whose precise contours are difficult to define. But state collapse has largely been the result of the "governance" practices of those holding power whose predation has taken precedence over people's socio-economic development. A political class connected with the head of state misused natural resources, thereby plunging Zaire into a downward spiral of under-development. The elite's conspicuous consumption and tendency to place funds in developed countries' banks rather than investing in productive sectors explains why Congo-Zaire has no powerful corporate class. At the heart of the state and society is the "Zairian illness" or corruption.

With the state's failure to assume its basic functions such as paying civil servants and the military, new rules of the game have emerged at all levels of economic activity and social life. **The reign of the informal sector is a consequence of the failures of a phantom state.** The informal economy far from being a panacea or an alternative development model is the outcome of failed economic policies which now permeates all social practices. For most people the informal economy means survival activities and for entrepreneurs, it means coping strategies to circumvent public sector authority, avoid paying taxes and managing administrative hurdles. **The spread of the informal economy in Congo, which is both the cause and consequence of a collapsed state, is based on negotiating skills and anchored in national culture and behaviour.**

Consolidating Congo's territory and rebuilding the state are one in the same. This backdrop is essential for understanding the Kivu.

2. Rwanda: a structured society in a restricted territory

Rwanda is the mirror image of Congo. With every square meter of territory both measured and important, there is neither leeway for negotiating nor any uncertainty about the contours. Tradition based on respect for hierarchy means that order and discipline are highly valued. During the 1994 genocide the impact of obedience to local officials and the elite was dramatic. Such behaviour appears to be common to both Hutus and Tutsis.

The fundamental structural factor is the scarcity of natural resources per capita. The main challenge lies in Rwanda's capacity to meet basic needs of its rapidly growing population without the necessary land. In this context, even the likely agricultural productivity gains will not be able to prevent saturation. As a result, economic diversification is absolutely vital. An updated inventory of natural resources is required.

There will be no medium or long-term resolution to the Great Lakes-Central African crisis without a response to overpopulation which will increase in the absence of a proactive family planning policy. However, the threat of interethnic slaughters is not conducive to such a policy with each group consciously or unconsciously competing demographically as a way of recovering from genocide.

3. North and South Kivu: coveted highlands

The Kivu Mountains are the most problematic space in Central Africa. Rwandan migrations to these less occupied but never entirely empty areas, have reached a saturation point where peaceful coexistence between natives and Rwandan immigrants is difficult, if not conflictual. Tension is particularly high in the Masisi where immigrants are now the majority and have seized economic power. The privileges and interests of traditional native chiefs are threatened and farmers see the amount of available land for their progeny disappearing. **Conflicts between natives and immigrants began with independence and have since that time, been expressed in ethnic terms, with the question of nationality as a never-ending point of contention.**

Laws adopted on March 26, 1971 and January 5, 1972 did collectively give citizenship to immigrants of Burundi and Rwandan descent thanks to the influence of the president's chief of staff from 1967 to 1977, Bisengimana, himself a Banyarwanda. However, the June 29, 1981 law reversed this by stipulating that citizenship could only be granted on an individual basis. The interrelated question of citizenship and land access has fuelled conflict between natives and immigrants. All the more so because some immigrants of "dubious nationality" have two identity cards which they use to obtain the maximum benefits from either Congolese or Rwandan citizenship. The inter-ethnic slaughters of the early nineties broke out due to conflicts regarding land.

The recurring inter-ethnic violence during the 1992-1993 Masisi massacres were caused by conflicts over land in the Kivu highlands where the large-scale Tutsi herders came up against small-scale native farmers. Mining is also linked to land access since opening a new mining site involves land rights. A lasting solution to the Kivu's latent conflicts must revolve around the thorny issue of citizenship. At the moment, the slightest tension fuels fear and hatred between communities resulting from previous violence. The matter is all the more complex since identities are complicated by the fact that Banyarwanda and Banyamulenge can take refuge across the border in Rwanda. These realities cannot be ignored because they provide the backdrop to all events affecting Kivu and cross-border areas.

C- The regional context: "landlocked" and doubly "landlocked"

The Great Lakes is one of the most landlocked areas on the continent, not only are there three "landlocked states" - Rwanda, Burundi and Uganda, but also **the eastern Congo which is even more isolated from the sea could be considered "doubly landlocked"**. Here the term "landlocked" is used in the sense of accessibility. With this meaning, the three officially landlocked countries are relatively accessible. The northern (via Nairobi and Kampala) and southern corridors (through Tanzania) both by road and railway ensure access to the Indian Ocean. There are no particular technical difficulties impeding traffic between Mombasa or Dar Es Salaam at one end, Kigali or Bujumbura, and beyond Goma, Bukavu and Uvira at the other end. The real problems begin a few kilometres west of these Congolese cities.

The three landlocked countries of the Congo-Nile ridge benefit from their position as inevitable transit corridors between eastern Congo and the Kenyan and Tanzanian ports. In Kigali, all international transport vehicles must clear customs through MIGERWA (Rwandan warehouses). International transit services also generate significant income.

The Kivu is more isolated as it is at the end point of the trading corridor. This geographic handicap is combined with the fact that the circulation of people and goods given the lack of roads depends on walking and hand-carrying goods. **The eastern Congo as a doubly landlocked area is facing a major constraint.**

II – ARTISANAL MINING

Coltan as an emblem of pillaging has received much attention. Didier de Faily's study "*Coltan: pour comprendre*", published in 2001, is still the main reference. In September 2002, the Pole Institute published "*Le coltan et les populations du Nord-Kivu*" in the journal "Regards croisés" which looks at the impact of mining activity in rural areas. Patrick Martineau from GRAMA (research institute on mining activities in Africa), published a survey on "*La route commerciale du coltan congolais*" in April 2003. An excellent bibliography is now available and provides a "state of knowledge" on coltan related issues.

Minerals such as gold and cassiterite which are very important to the regional economy have not attracted as much attention. Constraints related to extraction, marketing and other aspects are largely the same. This study covers the entire mining sector to better identify the main problems.

The mining sector is quite visible in Kivu but much less so, in Rwanda and Burundi, even though marketing is done on a regional scale. In the Congo, mineral deposits are quite diverse with: pegmatites containing differing proportions of cassiterite, coltan, wolfram; niobium and other rare earths; gold, tourmaline or even diamonds. Unlike Katanga or East Kasai, mining sites are geographically scattered. As a result, **transporting ore from production to marketing sites is a main constraint**. Rwanda has much fewer mineral deposits but transport problems are minimal.

A – From the mine to purchasing agents

1. Production: the miners

The first step involves selecting a mining site. Prospecting is done by farmers who know the area or former employees of industrial companies. It takes some expertise and experience to choose a site. If the initial test digs are promising, the digger-pro prospector puts together a team of about ten men from among his acquaintances. Then permission from the "owner" of the site is essential before commencing operations. Thus Modeste Bagalwa explains that based on information that the area around Bukavu had promise, he began prospecting alluvial deposits in Kitamuna, in the Punia area in 1984. The gold seekers comprised of a team of nine men set out on a two-week walk in the forest before reaching the site. The "local chief" who has customary rights to the land granted permission to prospect in a defined perimeter in exchange for a weekly and previously agreed share of gold. A team is the basis of all prospecting whether it is gold, cassiterite or coltan. The team leader is required to have an official "miner's card".

a) Tools

No matter what the ore, work is done manually with only very basic tools. The tools depend on the type of rock.

- Hard rocks, cassiterite veins and rock quarries require the use of a "**crow bar**" to break up the rock in blocks that can be carried manually. In the narrow cassiterite galleries miners use a chisel and a hammer. The hammer is also used to crush the rock to the necessary size.
- **Shovels and picks** are used to work soft rock. Washing takes place in containers of water, either **plastic basins** or **jerry cans** cut in half. Jerry cans are also useful for carrying water.

“Human” power is by and large the only type available for artisanal operations. Extraction, crushing and washing are tasks performed manually. Men do the hardest physical work, especially in the galleries and the quarries. Women wash ore but especially carry ore on their backs from mining sites to purchasing points and water on their backs from springs or streams to the sites. As in agriculture, women are the “beasts of burden” of Africa as noted by early explorers to Central Africa. In the Kamituga gold prospecting area, these women are nicknamed “hilux” which is a widely-known Toyota vehicle. In this area, women also do the “crushing”. Called “twangeuses” (from the verb kutwanga = to grind), they use transmission shafts from abandoned vehicles to crush with a movement reminiscent of grinding grain or plantain bananas.

These tasks involve considerable muscle power with ridiculously low productivity and minimal gain. A gold prospecting team of 70 people spent 8 months close to Luhwinja on the Lulimbohwe River clearing one side of a hill before reaching sand. From this perspective, the situation is very similar in the Kivu and Rwanda. A mining site visited by the author in the Gitarama region is illustrative of artisanal coltan operations. The layer containing minerals is at the top of the hill while water is available at the bottom of the slope. Since there are no pumps, young women in the mining co-operative carry water in jerry cans.

These operations are risky. Coltan miners must move significant quantities of earth to reach the ore. The site ends up looking like a funnel with the upper layers threatening to collapse, because stripped of their vegetation; they are subject to water erosion. Several mud slides have occurred causing death to miners buried under tons of earth. This is how 20 miners lost their lives in the Bukumbiri quarry, about a hundred km, from Goma last February.

b) Water : an essential part of the production process

Water is essential for mining:

- First, for **removing surface layers**. Hydraulic operations require huge quantities of water and an energy source to power a high-pressure water jet. Although too costly for artisanal miners it is used in semi-industrial operations, for example in MH International’s Masisi sites. In 2001, this method was outlawed in Rwanda due to its damaging environmental effects.
- Especially for **washing ore** to obtain the high-density elements. When large quantities of water are not available a hole is dug and filled with water. One of the team members “washes” the ore in the hole and uses a basin to scoop out the gangue. Heavy elements fall to the bottom of the basin and a rotating motion makes sorting easier.

If the head of operations has some cash available, he uses motorised pumps to bring water above the site and a gravitational method where water flows from one small water encatchment to another while miners sift out the heavier elements with shovels. A stream of water can also be used for this kind of operation. These techniques are derived from the concept of “sluices”- wooden or metal sheet ditches, designed to concentrate minerals. Subsequently a plate or “karaï” is used for panning. These “karaïs” are made from the bottom of a metal barrel. Another cleaning process used to further concentrate ore following a second crushing involves plunging a box or gig with a bottom made of a small-holed sieve in a tub filled with water. The gig is vibrated in the water causing the sand and other impurities to rise to the surface, while the heavy elements are concentrated at the bottom. This final process, often done by small traders, produces a cleaner product ready to be purchased for export.

These various steps were observed at the Kalimbi cassiterite mine near Nyabibwé (South Kivu). As is frequently the case, artisanal mining has replaced an industrial company experiencing difficulties, SMDG (Goma mining company). With the company's closing in 1984, laid-off miners established a co-operative, the "Combecka" (Kalehe Miners' Welfare Community) which is still fielding twelve teams. The owner of the mining perimeter, Placide Chirimwami Havu Bami's brother is also president of the co-operative: an example of how a traditional figure can become an entrepreneur.

Equipment at the MH International coltan site uses both gravitational and centrifugal forces to separate water-suspended material. Moving in a vertical spiral, lighter particles are projected outwards, leaving only the heavier elements. Investment costs are limited to a motorised pump which is necessary to pump the water to the top of the site.

Diggers working in alluvial sites use water from the rivers to separate lighter particles from the gold sands. A local method consists of sifting gold sands in alluvial deposits using the small cells in banana tree bark. Fine gold particles stay in these cells.

Water has a crucial function for the various steps involved in sifting and concentrating ore. For the small teams of diggers without the capital to purchase motorised pumps the amount of muscle power required to bring water on-site is considerable.

2. Marketing: traders and purchasing agents

a) Traders

In his coltan study, D. De Faily distinguishes between small traders working close to mining sites, and larger traders operating from mining centres and selling to purchasing agents. A major distinguishing feature involves the trader's use of equipment necessary to assess the tantalite concentration in the ore. This process is complex because the different types of minerals pegmatites are in fact compounds. Cassiterite is found with either coltan or wolfram. The basic equipment - a zinc sheet for testing the ore's reaction to potassium hydroxyde and chlorehydric acid, and a scale - are used to distinguish cassiterite from coltan and provide a rough estimate of the coltan-ore content. Greater precision is possible by using an electronic scale after finely grinding the ore. Determining the coltan's tantalite content, even if approximately, is essential because it determines the purchase price.

Trading is not particularly well organised. All that is required to obtain a card is Congolese citizenship and the funds necessary for its purchase. There are several hundred traders working independently with their own networks and customer base. They are mainly from the towns but have remained in contact with villages in production areas and act as middlemen between diggers or small traders and purchasing agents based in Bukavu, Goma and sometimes in Rwanda.

In Rwanda, such traders are virtually extinct: producers organised in co-operatives transport ore and sell it to purchasing agents in Kigali which is easily accessible given the short distance and good-quality roads.

b) Purchasing agents

The final link in the marketing chain is the purchasing agent. Their numbers fluctuate with coltan prices and policy changes.

Purchasing agents in Kivu

- **In Bukavu**, there are about half a dozen purchasing agents:
 - MDM (Mudekereza-Defays-Mundenge)
 - SOCOMI (Ore Marketing Company from the Kotecha group)
 - Shenimed which took over part of Mme Gulamali's business
 - WMC (World Mining Company)
 - Panju and Co.
- **In Goma**, MPC (Metal Processing Congo), a subsidiary of a South African company Metal Processing Association (MPA), is operating out of the nearby city of Gisenyi with a cassiterite processing, tin smelting and refining plant, and may be the only purchasing agent in compliance with the new Congolese mining code. The other purchasing agents include both the long-established - CLANAB, ORFAP, MUNSAD, COMETEX - and the more recent ones such as J.C. Kivu trading and SODEXMINES. MHI (Mwangachuchu Hizi International) only exports its own production.

The business has suffered from the effects of conflict. Mining has provided a significant source of revenue for RDC Goma. When coltan prices were at their peak, it granted export monopoly rights to Mrs. Aziz Gulamali's SOMIGL (Great Lakes Mining Company). SOMIGL had to pay one million US dollars a month in fees, calculated on the basis of 10 dollars per kg on average exports of 100 tons per month. This monopoly ended abruptly with a return to more normal price levels but many still recall the arrangement and the people who benefited from it.

There are close links between Kivu and Rwanda purchasing agents. Since the SOMIGL episode, a new marketing unit, CHDC (Congo Holding Development Company), based in Goma and Rwanda, established itself in diversified cross-border trade (minerals, concrete, mineral water). A key person in the CHDC, Gertrude Kitembo, was appointed governor of the Maniema province in April 2000. She was also appointed to the Postal and Telecommunications Ministry as part of the transition government. Now, according to the Antwerp-based International Peace Information Service and in a French translation, recently published in the journal "Politique africaine", CHDC was established like SOMIGL, to finance RCD-Goma and may have been involved in arms trafficking. The UN expert panel's report of October 23, 2003, headed by Mahmoud Kassem, pointed this out. Let's just say that the kind of DRC-Rwanda face off presented by the media is belied by international business networks operating in Great Lakes cross-border areas. A move towards a peace economy should clarify the networks involved in building a cross-border economic area. Clandestinity encourages rumours: **improved transparency is essential for developing cross-border trade.**

Purchasing agents in Rwanda

There are roughly ten purchasing agents exporting minerals from Kigali. Rwanda Metal, close to the military is currently the largest one. Until March 2003 Eagle Wings Resources, a joint subsidiary of US Trinitech and the Dutch Chemie Pharmacie, was the largest exporter, but the company (whose Rwanda sales agent was Alfred Rwigema, President Kagame's brother-in-law) ceased its activities following denunciations from US non-governmental organisations conveying a "satanic" image of bloody coltan.

Other purchasing agents include:

- Pyramide
- HFR (Harelimana Froduald Entreprises)
- Mbanzabugabo and Co.
- NMC (Niobium Mining Company)

Also involved in exporting are:

- REDEMI (Mining Operations and Development Centre)
- COPIMAR (Co-operative for the Promotion of Artisanal Mining Industries)

These purchasing agents prepare ore for shipping, through in some cases, concentration, measuring densities and packing. Only few have the necessary equipment to refine analysis of the ore content with a spectrometer. In Kigali, several purchasing agents further concentrate the ore to increase its value. Ore is ground into even finer particles and shaking tables are used for gravimetric separation. Magnetic separators isolate secondary substances such as iron or wolfram. The aim is to increase tantalite or tin concentration to add value prior to export. For coltan, a tantalite content of between 25 and 30% is targeted. Only one company in Bukavu, MDM (Mudekerezza-Defays-Mundenge) is still active in this sector but concentrates mainly cassiterite and not coltan because prices are low and most of the coltan is exported through Rwanda, and perhaps also in response to citations in the April 2001 expert panel's report.

Industrial value added is limited to niobium and cassiterite but smelting operations are experiencing difficulties. SOMIKIVU's politico-legal problems have not helped the pyrochlore plant in Lueshe. Since closure of the Manono installations in Katanga, there is no tin smelting in DRC. Cassiterite from Manono, which used to be the largest stanniferous centre in the country, is now sent to Goma. Gisenyi has the only active smelting plant which was bought by the South African company Metal Processing Association (MPA). Given its outdated technology which is both polluting and uses too much electricity, the factory is unlikely to survive completion of an international class hotel currently under construction.

In Kigali, the main centre for coltan and cassiterite re-exports, the British certification company Alfred H. Knight International Ltd, specialising in non-iron metals, assesses ore content using spectrometer analysis. Samples are sent to laboratories in the UK, barrels are sealed and quality certificates, issued along with documents guaranteeing compliance with international norms. Such strict rules avoid disputes between buyers and sellers. The material is then ready to be shipped.

c) Brokers

Clients, or brokers, serve as middlemen between exporters and industrial processors. Ore is marketed through Belgian companies such as Sogem, Cogecom and Trademet. The SOGEM's UMICORE (ex-mining union) subsidiary is quite experienced in the Congolese mining sector. It stopped coltan purchases after being cited in the expert panel's report. COPIMAR deals only with final buyers such as SMC, Speciality Metals Company, from Brussels, Afrimex Ltd from the UK or Masingiro GMBH in Germany. Brokers sell ore to industries that process it into metals. There are eight such companies, according to Grama's survey; the main ones include:

- H.C. Starck, a subsidiary of the German Bayer Group
- Cabott Inc. (USA)
- Ningxia (China)

Industries supply companies that manufacture condensers with tantalite for use in mobile telephones, computers, game consoles, etc. The value chain from the miner to the end user is quite long and complex. **Globalisation is based on a pyramid of actors. Those at the bottom barely receive enough from their labour to survive.**

3. Income from mining operations

It is very difficult to assess what income artisanal mining generates for each category. D. De Faily tried to assess this in his 2001 coltan study, but prices were at their peak and Kivu was still under Rwandan occupation. In-depth surveys would be required to find accurate figures. This short term mission limited to only some areas was not sufficient. In the informal sector it is even more difficult to find out how much people earn. Information is often anecdotal.

a) Miners' earnings

With the exception of the team leader, earnings are shared equally. Based on quick surveys, daily income seems to be less than one dollar. Earnings depend on the amount of ore extracted and improvements made through washing, sorting and grinding. It takes a lot of time to get a marketable product. According to D. De Faily, a team of roughly ten men produce on average 4 to 5 kg per week. In Rwanda's Muhanga mine 1 to 5 kg are extracted per day amounting to daily earnings of about 500 Rwandan francs. In Nyabibwé, some miners claim that several days are required to earn about one dollar. In a quarry near Bukavu, rock breakers take two days to fill a barrel of gravel sold for 300 Congolese francs. In rural areas earnings are definitely low. Without more surveys it is safe to say that **miners get only minimal returns to their labour.**

Even minimal amounts, however, are important given the extreme poverty. The velocity of money in the Kivu, cut off from the agricultural markets of major urban centres is very low. **Rural communities have reverted to a subsistence economy. Mining is often the only possibility for men to earn cash to supplement subsistence agricultural production.** Agriculture is still the domestic economic base, largely due to women's work. The latter ensure that daily needs are met, freeing up men for other tasks. **Artisanal mining must be analysed as one of a household's multiple activities.**

During the short-lived coltan euphoria, the mirage of higher gains disrupted traditional division of work. Studies describe situations where both women and men left farming to seek adventure – or were coerced into working for the military. This resulted in a food shortage which forced workers to purchase food air-freighted from Goma or Bukavu at prohibitive prices. This is a relatively frequent occurrence in gold-producing regions like Kamituga. The fall in coltan prices should correct the situation but according to some eye-witness accounts, this has not happened.

A text recently made available online by Syfia, entitled "*The rush to coltan kills agriculture*" reports that "*despite the risks and the low coltan yields for miners, entire families have moved to mining sites*" in the Masisi and Walikale areas. As emphasised in earlier accounts, money, alcohol, drugs and sex make for an explosive combination on mining sites. Priests condemn moral depravation, prostitution, child rape, and the spreading of HIV/AIDS. However, since many sites are hard to reach and so have not been surveyed, it would be unwise to generalise from anecdotal evidence. Nevertheless, it is not surprising that given the isolation and insecurity, deviant behaviour has developed.

In Kivu, on the assumption that the situation returns to normal, **mining is closely tied to agriculture at the household level.** Young people are attracted to mining, not due to a lack of land but to make some cash. Rural areas are often so isolated that they have dropped out of the monetary economy. For young men, digging is a rare opportunity to accumulate small savings to purchase the dozen goats for a dowry to marry.

The situation in Rwanda is different: young people, boys and girls work in the mines because there is no available land. Here constraints are quite different than in Kivu, but in both cases survival activities hardly offer an escape from poverty.

b) Traders' and exporters' income

- Traders do fairly well. One of them, a former head of a school, explains that he purchased cassiterite in Nyabibwé for US\$ 2.00 per kilo and sells it to purchasing agents for US\$ 2.80. In Walikale prices are lower, about US\$ 1.50, but air transport adds on between US\$ 0.70 and US\$ 0.80 per kilo. Of course a traders' card whose price increased from US\$ 50 in 2003 to US\$ 345 in 2004 must be purchased and provincial and EAD (Decentralised Administrative Bodies) taxes must be paid. Taking into account these expenditures between US\$ 0.30 and US\$ 0.40 per kilo is left. Given his solid customer network, this trader also deals in coffee which yields a couple hundred dollars a month.

Lack of security is the major constraint to trading. Operating far away from urban centres and accessible roads entails high risks. The key is “negotiating” with those who have the weapons. Such practices which in peaceful times were part of social regulation are well-rooted in Congolese tradition. During the foreign military occupation, strained relations between traders and armed groups discouraged commerce. The situation has gradually improved but latent insecurity and violent outbursts are still hindering commercial activity by increasing the risks.

The traders' motto is simple: rehabilitated, safe roads and moderate taxes are preconditions for more trade and economic revival. A tacit condition is the smuggling of minerals through Rwanda. Lake Kivu is easy to cross and borders are still porous.

- Purchasing agents are in a different position as they are more dependent on downstream activities (export) than the upstream side, dealt with by traders. They find it difficult to operate informally given their very limited numbers and the scrutiny of administrative officials. While traders work on their own, relying on networks, purchasing agents hire personnel and so must comply with labour laws. Despite the weak Congolese state, officials are on the job and never fail to defend their interests. With little or no salaries, they actually rely on “informal” payments from purchasing agents.

Traders – rather than purchasing agents – are probably the real winners in the mining sector, at least for coltan. Purchasing agents complain about high taxes, annual fees, purchasing agents' cards or customs duties. Smuggling also reduces their turnover. In fact, profits from exporting minerals are minimal compared to those earned by the half-dozen brokers acting as middlemen between exporters and buyers from industrialised countries.

B – Mining rights, land rights

1. The Congolese legal imbroglio

The industrial mining sector was not able to survive a combination of external factors (plummeting cassiterite prices) and internal ones (poor management and looting). The current legal confusion due to the impact of conflict is hindering the possible return of investors and perpetuating informal practices.

a) From SOMINKI to BANRO

SOMINKI was liquidated during the height of confusion generated by war and political uncertainties. The company had 47 mining concessions, including six for gold: Kamituga (3), Lugushwa, Namoya, Twangitza. In total, concessions covered 1,003,372 ha or about 10,000 km². Most were due to expire between 1998 and 2000 and five in 2014. The private sector (subsidiaries of the Empain-Schneider Group) had a majority of SOMINKI's capital and the Congolese state 28%. In 1995, the Canadian holding Banro expressed interest in taking over the company. Negotiations through 1996 led to an agreement whereby Banro, interested mainly in the gold concessions, established SAKIMA (Maniema and Kivu gold company). With SOMINKI's sale, a May 6, 1997 decree issued 10 days before Mobutu's fall, authorised the establishment of the new company.

It looks as if Banro was hoping to unload SOMINKI's cassiterite concessions. Lawyer Mario Fiocchi, appointed SAKIMA administrator and chair of the SOMINKI liquidation committee, according to certain sources, gave it a try but met with hostile reactions from those with vested interests in SOMINKI. In October 1997, SAKIMA spun-off ex-SOMINKI's cassiterite concessions to a new company, RMA (African Mineral Resources), managed by Victor Ngezayo, a prominent figure in Goma.

Laurent-Désiré Kabila issued a decree on July 29, 1998, repealing the May 6, 1997 decree, just a few days before a new conflict erupted. The same day, a new company was established, SOMICO (Congo Mines Company), managed by Philemon Naluhwindja Mukuba, the "Mwami" of Luhwinja who had always claimed customary rights to the land. On July 31, 1998, the Congolese state revoked all Banro's concessions.

Banro had submitted the case to international arbitration in Washington, claiming a billion dollars in damages. Action was delayed during the Congo war but since the peace agreements Joseph Kabila proposed a negotiated settlement and an April 2003 decree reinstated Banro's rights to the concessions. The company opted for the gold concessions, leaving the others to the Congolese state. On November 20, 2003, an official ceremony in Bukavu marked the opening of Banro's activities.

Those involved in the allegedly dissolved SOMINCO resisted. SOMINKI was looted in the fall of 2003. In Twangitza, prominent citizens, mainly traditional chiefs who profited from previous gold operations call upon miners to protest Banro's establishment. The political situation which further deteriorated by spring 2004, does not bode well for normalisation. **This legal-political imbroglio shows that artisanal mining is never neutral but rather part of complex rivalries that need to be taken into account when looking for ways to improve the efficiency of the sector.**

b) SOMIKIVU

SOMIKIVU (Kivu Mining Company), specialising in niobium extraction and niobium pyrochlore production, like SOMINKI, has been caught up in a political game which has nothing to do with the technical aspects of industrial production. Set up in 1982 (November 5th legal order) based on an alliance between several mining companies and with 20% state capital, SOMIKIVU was granted the Lueshe concession (the Bwisho commune in the Rutshuru area) which was controlled by GFE, a German company. Due to fighting between 1993 and 2000, operations ceased and expatriate personnel were evacuated. Since then the UK based NMC (Niobium Mining Company Limited) has been providing technical assistance.

The state of mining in North Kivu has become more opaque during the four years of RCD-Goma's "reign". SOMIKIVU, managed by Karl-Heinz Albers, resumed mining and smelting operations at Lueshe with more than 200 employees paying substantial "fees" to RCD-Goma. SOMIKIVU rights were upheld by a legal order, dated January 25, 2003 but the question is now who owns them. A Congolese company, Krall Metal Congo (KMC), set up in Kinshasa in 1999 with the Austrian, Michael Krall, and the Congolese state, claimed them. According to an agreement (April 6, 1999 legal order) Krall Metal recuperated GFE's rights to the Lueshe concession. However, with RCD-Goma support SOMIKIVU has continued to operate under Karl-Heinz Albers. Since "reunification", Krall Metal, has managed to stop a pyrochlore shipment in transit through Kampala in March 2004.

This conflict is obviously linked to Kinshasa's desire to regain control in Kivu. SOMIKIVU, accused of illegally extracting natural resources in conjunction with regional partners would be heavily fined. Its director, Karl-Heinz Albers, was sued by Krall Metal Congo for illicit operations forcing him to relinquish his position at the end of March 2004. According to an article in the May 14, 2004 issue of a newspaper called "Le Soft", Albers delegated authority to Julien Boillot, Niobium Mining Company's administrator (NMC) who, in turn, allegedly delegated authority to Modeste Makabuza. Mr. Makabuza is one of the region's largest businessmen and according to UN expert panel's report of April 2001 is on excellent terms with the President Kagame. His company, Jumbo Safari, initially involved in tourism, is, along with TMK (Kivu Transport and Handling) one of the two major transport companies in North Kivu today. He is also interested in minerals transport. Jambo Safari and TMK are among SOMIKIVU's creditors. The affair, complex enough as it was, became regional with NMC's purchase from REDEMI of Kigali's tin smelting plant in 2003.

SOMIKIVU developments show that there are still quite a few after-effects from the conflict. Political and economic stakes are constantly interfering with business in a way reminiscent of the Mafia. **Disputes are not entirely resolved, since the transition from RCD-Goma "reign" to control of national institutions faces diverging interests between Kinshasa and the eastern provinces heavily influenced by their neighbours.** In addition, personalities have diverging interests involving personal wealth. Legal confusion weighs heavily on mining companies and the sector, including artisanal mining which is subject to a new mining code. There is likely to be strong resistance to applying the mining code's restrictive measures unless the status of industrial companies' is clarified.

2. The new mining code and its applicability

The 1981 mining code has been replaced by the July 11, 2002 law n° 007/2002 on the mining code and the March 26, 2003 decree n° 038 regulating land rights. The new code was drafted during the initial period of the country's reconstruction in 2001 and at the same time as the inter-Congolese dialogue process culminating in the March 2003 Sun City agreements.

Following ten-year's absence, the World Bank and the IMF re-opened offices in Kinshasa in 2001, as a sign of their commitment to the Congo. The World Bank and the UNDP started working together in 2002 on a PRSP (Poverty Reduction Strategy Paper). The mining code reform was part of the EMRP (Emergency Multi-sector Reconstruction Programme) which served as the World Bank's transition assistance strategy. **World Bank experts played a crucial role in drafting the new code** which combines a liberalised approach with governance and environmental concerns.

The state's role is minimised although its ownership of mineral resources is confirmed. The code also states that (section 1, chapter II): "*While the private sector is responsible for developing minerals, the state plays an essential but limited role in promoting and regulating the mining sector.*" Compared to the 1981 law which simply restates the gist of the 1967 law on mines and hydrocarbons, **the 2002 mining code does not emphasise companies' national development responsibilities or community level social investments** (schools, hospital, sport centres, etc.).

By contrast, **the new code introduces environmental issues**: "all operations are subject to an environmental impact study (Article 407 of the mining code)." Such obligations comply with environmental and sustainable development norms advocated by international institutions. Their applicability in Congo is doubtful and equally so are stipulations whereby responsibility for prior damage is shifted to those with new mining permits: "*in the event that mining rights are transferred, responsibility for harm caused by work prior to transfer falls upon the former and the new holder*" (Article 280). If applied, these measures would discourage investors, who would be unwilling to take responsibility for environmental clean-up, - especially since former owners would not be particularly committed.

Unrealistic environmental measures do not seem to be applicable. More generally, the code, drafted on the initiative of international financial institutions, reflects their views but does not sufficiently take into account the DRC's post-conflict uncertainties.

The mining code nonetheless gives special attention to artisanal mining, thus acknowledging its importance in the national economy. It is one of three operational categories:

- **Industrial operations**: permits replace the former concessions: exploration permits, operating permits and waste processing permits. The code outlines the requirements for obtaining each of these permits involving cadastral units of square-shaped perimeters covering 84,956 ha each covering the national territory. They are transcribed on maps to the 200 000^e making up the mining land register. Depending on the type of permit an annual tax per square is levied.
- **Small scale mining perimeter operations**: the small mine operating permit is issued to small-scale industrial or semi-industrial operations. Potential reserves do not last more than six years and the investment somewhere between 100,000 and 2,000,000 US dollars.
- **Artisanal operations**: defined as "*any activity by a Congolese physical entity to extract minerals in a limited perimeter and depth of up to 30 metres, and concentrate ore using non-industrial tools, methods and procedures*". Section IV concerning exploitation of mines states that: "*whenever certain gold, diamond or other mineral deposits because of various technical and economic factors cannot be exploited industrially or semi-industrially, then the minister of mines can approve such sites in a geographically circumscribed area as an artisanal mining area.*"

Official recognition of the artisanal mining sector is not new. Artisanal mining sprung up in the early seventies. The 1973 “zaireanisation” measures encouraged de facto illicit practices condoned by political authorities since they were done at the expense of colonial-era companies and bolstered the MPR’s (Popular Movement for Revolution) and Mobutu’s popularity. The November 5, 1982 law n° 82/039 began legalising the sector and authorised purchasing agents for minerals. To be sure, artisanal miners were forbidden to operate within mining concessions but, in the case of the Kivu, SOMINKI could no longer enforce its rights and had to abandon a number of sites to which it still had the mining rights. In addition, administrative authorities and the police earned extra money protecting illicit activity. This state of confusion persisted until 1996 looting dealt the final blow to the industrial sector.

The three categories of mining operations are subject to approval and annual tax payments: the provincial Head of Mines issues the **artisanal mining cards**. The Governor of the province issues **traders’ cards**. A permit for being a purchasing agent must be obtained at the Ministry of Mines. The Kivu faces special difficulties in applying the mining code, due to practices developed during the RCD-Goma years whereby rules were adapted to changes in the political situation and demands from allied powers. **Reunification and the ensuing changes will compromise certain interests.**

SAKIMA is jeopardised by mining sites located on SOMINKI’s former gold concessions. Political uncertainty in South Kivu will hinder Banro’s establishment. It is not clear whether a return to peace will be sufficient to settle conflicts of interest between the company with the mining rights and alluvial diggers. Banro’s lack of interest in cassiterite extraction leaves, by contrast, the field open to artisanal workers.

3. The ambiguity of land rights

The new code recalls the need to distinguish between mining rights and land rights. According to the spirit of the code, the mining register overrules the land register. Those with the land rights and the customary rights are nonetheless taken into account. **Here as elsewhere in Africa, modern and customary laws overlap and intertwine generating ambiguities that require negotiation.** Those holding land rights under one or the other regimes have always sought compensation in exchange for accepting mining sites. Discrepancies between legal prescriptions and actual practice often lead to conflict. This is particularly true in densely populated regions like eastern Congo where the land issue is combined with the burning question of citizenship.

a) Modern land tenure

There are a few basic post-independence laws that define the system:

- The June 7, 1966 or so-called Bakajika law reverts to the Congolese state all forest and mining land rights granted before 1960
- The July 20, 1973 law defines rules and procedures regulating recent land rights which is based on a few principles. The state owns both land and what is under the land but may grant access to persons or legal entities in the form of concessions. Zairian (Congolese) nationals are eligible for “permanent” concessions as long as land is used productively. Foreigners and foreign-owned legal entities are granted “ordinary” concessions.

Customary lands become state-owned with access rights granted by legal order. However, this has never occurred which means customary rights are exercised in a permanent “state of confusion”.

Most farmers do not have the financial, social and cultural capital necessary to request a “permanent concession”. The 1973 law was applied in the context of “zaireanisation” whereby foreigners’ assets were redistributed to the regime’s inner circle. The result was the creation of a landed bourgeoisie.

In Kivu, zaireanisation provided a boost to people of Rwandan descent who had just been granted Zairian citizenship. These “naturalised citizens” purchased most of the colonial plantations, particularly in the Masisi and Rutshuru areas. Most lands in Masisi were granted to these “foreigners”, sometimes under questionable legal circumstances, and always in connivance with easily corrupted officials. Heightened land-related tensions burst into the inter-ethnic massacres of the early nineties.

b) Customary law

While land concessions were recorded in a land register and the relevant titles issued customary land rights are still strongly rooted in social practice even if not recorded. **Mwami base their authority on their control of land.** They are guarantors and trustees of communal lands whose management is delegated to local chiefs. Usage rights are granted to farmers. Codified land taxes paid to local chiefs are evidence of their political power largely derived from their control of land-related issues. During the colonial era customary chiefs were delegated considerable responsibilities thus reinforcing their power base while maintaining a certain ambivalence between the two sources of authority. Given the weakness of the Congolese state, the Mwami and other traditional chiefs who at one point threatened to be marginalised by state mechanisms and social management, maintained their status. They are still key local actors and are involved notably in mining.

In order to work on a site, miners need more than just a card. Agreement from the local chief is also required. In Nyabibwé, the Bami is also the president of the cassiterite workers’ co-operative, example of the blending of tradition, modernity and business. Artisanal mining is still subject to informal relations between miners and traditional land owners in isolated areas not under state control, provided that armed bands do not intervene to “extort” their share of the production. To normalise relations, the state must regain control of mining sites.

The mining code has taken into account traditional land rights. Article 281 stipulates that land owners should be compensated. In 2003, the Ministry of Mines set up SAESSCAM (Small Scale Mining Assistance and Supervisory Service). The small-scale and artisanal mining manual includes a sample contract for working with private companies. Compensation to customary land users is provided for with 25 % to be paid by SAESSCAM and 75% by the company, based on 1% - 2% of gross revenue. Recognising customary rights is a significant step forward in dealing with political and economic issues.

4. The question of taxes and reunified rates

The rates for taxes and various fees applicable nationally are decided in Kinshasa and turn out to be higher than those applied during RCD-Goma’s “reign”. Tax rates, duties and annual fees for artisanal mining were established by a May 4, 2001 inter-ministerial decree and appear in the following table.

Annual tax fees (US dollars)

(Ministry of Mines and Hydrocarbons, Ministry of Economy, Finance and Budget)

	Cassiterite	Coltan	Gold	Diamond
Miner	20	20	25	25
Trader/purchasing agent	300	300	250	500
Annual fee	6,000	20,000	50,000	200,000
Guarantee	3,000	10,000	25,000	50,000
Purchaser's card			3,000	3,000
Supplementary purchaser's (from the 11 th card on card)			7,500	15,000

In 2004, rates increased. For example, the cost of a cassiterite trader's card increased to 345 US dollars. To which must be added:

- Taxes to cover the costs of decentralised administrative bodies (i.e. province, mayor's office, commune, district, local community) in principle up to 1 % of the purchase price of ore
- Taxes to cover costs of different government services (Congolese Inspection Office, customs, income tax, etc.) of 1% of export values.

These taxes are far too high for local businesses. Under RCD-Goma control taxes varied substantially but seem to have been lower. For example, a January 15, 2001 decree set US\$ 10.00 fees for the coltan miner's card, US\$ 1,000 fees for a trader's card and US\$ 15,000 fees for purchasing agents. A fall in prices should have led to reduced fees of US\$ 3,000 for purchasing agents or US\$ 5,000 at the most. **With coltan prices being so low, current taxes are considered unbearably high.** In May 2004 people in the sector demonstrated against the application of these "reunified" rates.

The tax issue is essential to the future of the mining sector. High rates encourage fraud and smuggling to Rwanda while as taxing mining turnover would be more advantageous. Besides these levels discourage reunification with many players preferring RCD-Goma's administration.

C -Transport: a crucial question for Kivu

There are two steps for transporting ore:

- From the mine to the purchasing agents
- From purchasing agents to shipping points, ports and airports

1. From the mine to the purchasing agents

Getting ore to purchasing agents is a major constraint in DRC where sites are scattered over a large area and there are virtually no roads, not to mention insecurity due to armed groups since 1996. Transport is a combination of human muscle power and air planes. Road and lake transport play only a secondary role.

a) Human muscle power

Women traditionally carry loads on their backs: everywhere in Kivu, as in Africa's forests, the same sight of women carrying heavy loads on their backs can be seen. In rural areas they produce and prepare food and carry loads. The carrying function is particularly crucial, given the current state of roads, for market activities and rural-urban linkages. Men rarely hand-carry loads but they take part as soon as it involves mechanical means, the most common being **the bicycle and the "tchukudu"**, a hand-made wheel barrow that carries loads of over 100 kilos. **However, these devices work only on roads and smooth tracks.** Every morning on the paved road between Saké and Goma, you can see bicycles piled high with manioc leaves. "Tchukudus" crushed under bags of manioc, cabbages and bunches of bananas move towards Goma via the North road. The most common type of transport is on human backs even though wheels can multiply muscle power efficiency. It is one of the main constraints to development. Men and women share the burden of hand-carrying minerals which is not against tradition, if it does not involve food crops. Distances between mining sites and air strips, roads or towns are variable. Travelling times range from a few hours to several days. It all depends on the value of the product and the presumed level of security along the chosen itinerary. Even if not merchants themselves, porters are exposed to a number of predators. In areas where there is conflict or under military occupation "tollgates" have sprung-up everywhere. In FDLR areas insecurity makes transport a high risk activity.

b) Air transport

Small aircraft transport minerals except in the rare event such as in Nyabibwé or Mwenga when sites are accessible by road. Old Antonov planes with eastern European crews leased by many different, if not dubious companies, shuttle between Goma and Kavumu (Bukavu airport) and interior air strips. When charter companies are notified that sufficient quantities of quality merchandise are at the air strips (one to two tons) then planes depart. Co-ordinating take-offs is facilitated by cell phones where there is network coverage. The business is based on trust and a network of reliable agents. Good traders are those with networks of producers, transport companies, purchasing agents but also of officials and security agents.

2. Export

From purchasing agents through several transport corridors

a) Air freight

During the Rwandan military occupation, small carriers loaded with coltan flew directly to Kigali. From there barrels of ore were air freighted to Europe (Sabena Cargo was active). Air freight by small carriers is now used only between interior air strips and Goma or Kavumu. The main problem is the high cost of air freight – between 1 and 2 dollars per kilo according to distance – given the current context of low coltan prices. For this reason, Kigali-based coltan exports via air, frequent during the 2000-2001 euphoria have practically stopped. Only gold can now afford the air freight costs.

b) Roads: two routes to the Indian Ocean

If infrastructure is disastrous in Congo, it is fortunately quite good as we move towards the Indian Ocean. As a result, Kivu's cross-border areas are linked to the East African transport basin.

Most minerals are transported by road from purchasing agents to the Indian Ocean ports of Mombasa and Dar es Salaam. The northern corridor via Kampala and Nairobi is the most efficient route with paved roads now completed between Mombasa and Kigali, and beyond to Goma and Bukavu. Some transporters from Goma go directly to Uganda, through Bunangana, or Ishasa to Kabale, avoiding Rwanda even though there are dirt tracks. This eliminates a border post and reduces administrative hassles. Trucks through Rwanda must stop at the MAGERWA (Rwandan warehouse) in Kigali, where they are inspected and pay transit taxes as well as parking fees.

South Kivu transporters have a choice:

- Rwanda, via Cyangugu and Kigali to the northern corridor,
- Burundi via Bujumbura to the southern corridor,
- Tanzania via Kigoma after crossing Lake Tanganyika from Kalundu, the Uvira port.

The Rwandan itinerary is less attractive because of the cost and waiting in MAGERWA. The Tanzanian option requires only a single border crossing. The southern corridor is less efficient than the northern one but the railroad is possible. Although slow, it is less costly and suitable for heavy, non perishable products.

Lake transport has resumed since the end of the conflict and has helped increase possible itineraries for imports and exports. Merchandise can move between corridors by lake between Bukavu and Goma. Lake Tanganyika transport provides access to road and railway networks in Tanzania and southern Africa.

c) Regional organisation of road transport

Many actors are involved in road transport. Some large companies have a fleet of trucks and proven logistical capacity. In Goma, **TMK (Kivu Transport and Handling)**, associated with Interfreight, is a main player. Its fleet of about sixty trucks circulates between Goma, its base and Beni in the interior and especially along the northern corridor with company agents in Kampala, Nairobi and Mombasa to provide logistical support across more than 1,500 kilometres. Esselen, a family-owned company weathered all the regional crises, despite losses due to the wars. It only has one plane left for service from Goma to a few cities in the Kivu (Bukavu, Béni, Butembo) and Bujumbura. The mission was not able to visit Butembo because the plane was out of service for a week in May, a vivid reminder of transport uncertainties in eastern DRC. **Jambo Safari**, which started its business in gasoline distribution, is now one of the major international transporters in Goma, along with TMK.

Internationally based transit and transport companies are also established in the region. In Kigali, SDV Transami from the Bolloré group mobilises a fleet of about 120 trucks partly through sub-contracting. The Bolloré group also operates in Bukavu with its SDV Agretraf subsidiary. SDV, despite its tracking operations, is most active in transit, customs and storage services for road, air and sea transport.

The East African Community has adopted common regulations for international road transport which apply to the transport corridors. Weight per axle, a norm first applied in Kenya and extended to Uganda and Tanzania, is limited to 7 tons thus reducing road deterioration. Containers must comply with this limitation. Inspections are frequent at weighting stations along the way. The DRC where there are no roads does not apply such norms. Transporters load trucks even beyond full capacity to maximise earnings. For instance, large tank trucks loading fuel at the Eldoret depots cannot be filled to capacity to comply with weight limitations.

The DRC should be harmonising its rules with those of its neighbours to the extent that trade to and from eastern Congo uses EAC infrastructure.

The high cost of international transport is linked to imbalances between exports and imports. With insufficient return freight prices remain high. Economic depression in eastern Congo has limited exports. Mineral exports are less than 2500 tons a year which means that at 25 tons per truck, only one hundred rotations would be required. To lower transport costs agricultural exports, especially coffee and timber would need to rise. This is another example of why **the mining economy must be viewed as part of a global economy.**

Moving from international to local transport requires off-loading merchandise, since trailer trucks cannot circulate in the Kivu along the Uvira-Bukavu and Goma-Béni roads or on the access roads to Uganda between Rutshuru and Bunangana or Ishasa. The Bukavu-Goma road is only passable for trucks south of Nyabibwé. Trade between the two Kivus uses lake transport. Only small 5 to 7 ton trucks, usually old and often in disrepair can use secondary roads to the interior and then with difficult and limited to the dry season. When road conditions permit access to mining sites, these trucks can load six to seven 200-litre barrels, each containing 750 to 800 kilos of cassiterite or coltan.

Small transporters from South Kivu are organised in associations, like, for example, ATM (The Mwenga Transporters' Association) with three trailer trucks and about fifty seven-ton trucks for local transport. Mutual assistance is crucial in this risky business where travel is precarious. So the Bukavu-Kamituga-Bukavu rotation of about 100 km takes a week in the dry season and as much as a month during the rainy season.

These associations can also help resolve the spare parts problem given their scarcity. There are limits to what can be done recycling parts from broken down vehicles. Dubai, a centre for East African used car imports also provides solutions. Used spare parts are imported from Europe by the container. For really old models there is often no other solution but to repair damaged parts through do-it-yourself techniques, but these require mechanical expertise. The war has also taken its toll in this area where quality of training for young people has fallen, due to virtually unpaid teachers. **Rebuilding roads, a key condition for reviving business, is not enough; human capital must also be restored.**

ATPELM (the Association of Transporters owning Heavy and Mid-weight vehicles) was established in September 2002 to preserve what road transport was left in South Kivu, given poor road conditions and the over 20-year old trucks, there were 20 trucks at the inception. Financing is being sought for renewal of the fleet. Another objective is road maintenance and rebuilding small bridges.

Its president also represents South Kivu transporters' for **toll roads** (CPPER). Transporters have established toll booths along the main roads. Maintenance teams are to be paid from the revenue collected. All labour intensive works such as repairing road surfaces after heavy rains, cleaning drainage ditches, filling-in holes are done with shovels and picks. Villagers can earn about one dollar a day.

Difficulties faced by **lake transport** are similar to those for road transport: old ships, extremely scarce spare parts. Bukavu ship owners claim to lack information on sources of supply. They are organised in associations like road transporters. ASSALAK (The Lake Kivu Ship Owners' Association) tries to find solutions to common problems. Members complain, for example, about having to pay too many taxes, especially when taxed twice in Bukavu and Goma. In a memorandum dated April 4, 2004 to the Transport Minister and to the head of RVF (the public corporation for water transport), ASSALA objects to double taxation in Goma and Bukavu and denounces the heavy burden imposed by a total of 45 taxes that must be paid to different government services. Fees charged by RVF are felt to be both high and unjustified since the company provides no service in return (i.e. dredging, cleaning the ports, beaconage, signalling).

These taxes need to be completely reviewed given the current situation where private companies are heavily taxed to maintain highly inefficient public officials. It should be a priority for administrative reform during the transition to effective reunification at all levels.

d) A cross-border economic area

Mining is part of a regional economic system which includes production, marketing, transit and transport. Identifying the direction of cross-border flows is not too difficult, but estimating quantities is. In Congo, information is partial and difficult to find. Several services are involved: mines, customs (OFIDA), the OCC (Congolese control office). According to the Goma mining administration, 2003 production and exports from North Kivu were as follows:

	Production	Exports (in tons)
Pyrochlore (Lueshe factory)	800	669
Cassiterite	150	938
Coltan	17	26

There are differences between coltan and especially cassiterite production and exports because part of South Kivu's production from the Numbi and Nyabibwé area is exported through Goma, which is more accessible.

The situation is complicated by the fact that production in the Béni Lubéro area, under the RCD-ML's control, especially the current minister of regional co-operation, Mr. Mbusa Nyamwisi, is not supervised by Goma's administrative services. At least a part of the production and exports has been smuggled to Rwanda. Rwandan statistics on production and exports are probably the best estimates of regional figures, in particular the Rwandan Commercial Bank's export numbers and the Rwandan mines directorate's production numbers.

Rwandan production and exports of minerals in 2003

	Production (in tons)	Exports (in tons)	Exports in million Rwandan Francs
Cassiterite	283	1,458	2,450
Coltan	128	732	3,700

The table below provides a breakdown by company or co-operative:

Rwandan minerals production in 2003 in tons

	Cassiterite	Colombite-tantalite	Wolfram	Gold (kg)
Redemi	168	9.1	66	
Copimar	106	89	25	
Sogermi	3	4.7		
RDA Metals	3	4.2		
Pyramid International		3		
Abaharanira Amajyambere			3,4	
Sugira		3,1		
Ndolimana				1.4
Others	3	14,9	14,6	0.5
Total	283	128	109	1.9
Exports	1,458	732	120	44

Source: Kigali, Mines and Geology Directorate

Figures since 1995 (see diagram) show that Rwandan exports far exceed national production. The difference could correspond to amounts from Kivu. If this holds true, then Congolese production sold to Rwanda in 2003 would have been: 1,175 tons of cassiterite; 604 tons of colombite-tantalite; 42 kg of gold (which is not necessarily restricted to the Kivu but could come from other provinces such as Eastern Province).

Official production figures for Rwanda correspond roughly to those provided by Redemi, Copimar and Abaharanira Amajyambere. There's no particular reason to question their reliability for previous years and yet they differ considerably from statistics provided by the April 2001 expert panel's report for 1995-2000.

Rwandan cassiterite and colombite-tantalite production, 1995-2000 (in tons)

Year	Cassiterite		Colombite-Tantalite	
	Official	Experts panel	Official	Experts panel
1995	198	247	72	54
1996	208	330	99	97
1997	155	327	268	224
1998	440	330	378	224
1999	359	309	147	122
2000	400	437	561	83

Source: Rwanda Official Statistics and the UN experts' panel report

Statistical data is problematic. Figures from the experts' panel report for coltan are very low for 1999 and especially for 2000, a period where coltan prices surged. All this confirms that due to technical data collection problems and opportunities for statistical manipulation, they are not entirely reliable. Given the predominance of the informal sector, especially in the Congo, qualitative analysis becomes extremely important.

Whatever their statistical reliability, numbers show that Rwanda is a strategic exporter of between 3/4 and 4/5 of the Kivu's production. **Rwanda, Uganda and Burundi are the hinge where Central Africa meets East Africa. Rwanda is the middle state par excellence, giving it advantages in the context of economic development based on regional trade.**

e) Environmental impact of mining

Whole sections of hills are torn apart during mineral extraction. Fertile top soil disappears during digging to reach mineral deposits, with a negative impact in high density areas. This was true with SOMINKI, but since its liquidation there has been a sharp increase in the number of artisanal diggers and mining sites. Nevertheless, it is important not to exaggerate the scale of environmental damage, even if there has been no detailed survey of the number of sites, given the vast expanses over which the sites are scattered (the Maniema, North and South Kivu provinces cover 256,880 km² or close to half of the size of France). There have been no vast areas of land excavated such as in the Shaba. **In Kivu the hills are pock-marked but surrounded by expanses of land used for agriculture, livestock or covered with forests.**

However, uncontrolled digging for coltan has caused significant damage in the Kahuzi Bieza National Park. This is reflected in the N° 4 (1st quarter 2001) issue of the newsletter "The Gorilla", published by the Congolese Institute for the Conversation of Nature (ICCN), with support from GTZ. It claims that in early 2001 there were more than 12,000 native and foreign diggers in the low part of the park. This invasion triggered by surging coltan prices in 2000, was encouraged by occupation forces and included a fair share of adventurers. According to a mapping study done by the non-governmental organisation "Green Vision", there were about 70 sites by the end of 2001. Damage caused by diggers in the previously protected area (cutting down trees, removing top soil) is relatively minor and should have no serious long-term impact. Animal life, on the other hand, has paid a heavy price since the miners' arrival. **Given the lack of food, miners have resorted to poaching which has affected just about every species** from antelopes and buffaloes to elephants and apes. Even if coltan has become less attractive and so many illegal miners have now left the park, according to ICCN sources, poaching is still thriving.

The Congolese mining code includes environmental aspects. It stipulates that **miners must restore sites where digging is finished**. Decree n°038/2003 of March 26, 2003 on mining regulations includes several articles dealing with the environment. All mining projects must now have an environmental plan comprised of a mitigation and rehabilitation plan, an environmental impact study, an environmental management plan and an environmental adjustment plan. Although actions are unlikely to follow suit, at least theoretically everything is planned to limit the environmental damages of mining.

In Rwanda a similar policy is already in place. Gold production has declined with the outlawing of mining in the protected Nyungwe forest. Environmental repair has started. At the time of the mission's visit to Muhiga (Association Abaharanina Amajyambere), family members of the association were doing excavation and land fill work as part of their community duties requiring one unpaid day of labour per month. Such conservation efforts are effective in Rwanda due to the land scarcity. Mining areas in Kivu have not benefited from similar constraints.

III - CONCLUSION: CONSTRAINTS AND CHALLENGES

Improving the mining sector still depends on world prices over which African private or state producers have no control. Central Africa (Kivu-Rwanda) is only the third largest coltan producer, far behind Australia (the Sons of Gwalia company accounts for about half of world production) and Brazil. Coltan is at the heart of the regional conflict more as a result of the Kivu's political specificity than due to international economics. Looking ahead, reunification is under way, even if there may still be violence coming from active armed groups.

1. Roads first

Priority must be given to restoring both movement and security, which are of course inter-dependent. Miners' earnings should increase with the associated decline in transport and marketing costs. Road rehabilitation is at the heart of all development strategies and poverty reduction. As everywhere in the Congo, the Kivu has untapped agricultural potential which could respond quickly to urban demand, if the infrastructure was in place. Rural development depends on market access and urban-rural linkages. "Let people move" - as the Physiocrats of Enlightenment Europe used to say, aware that free movement of cereals would eliminate famine. And yet, for this to be possible, roads had to be built first. "Make roads" - people would say today: the rest will follow, stimulating all sectors of the economy. **Improvements in the mining sector are an integral part of the whole economy.**

Since 2001 and with international financing from USAID, WFP (World Food Programme), and, more recently, the EU, some roads have been rehabilitated. In North Kivu, the project manager is AAA (German Agro-Action) a non-governmental organisation based in Goma, Butembo and Bunia in Ituri. The Minova-Nyabibwé segments of the Goma-Bukavu road and the Saké-Masisi road were rehabilitated. The Masisi-Walikale segment is under way. AAA is not using labour-intensive techniques but rather large machines to improve the durability of the roads, provided that proper maintenance follows. This NGO has understood that building roads is the most effective way of boosting incomes in the fight against hunger.

The World Bank is financing roads, looking more at a national rather than a local scale: the Bukavu-Mbuji Mayi connection should be the first step in linking the Kivu up with the west. The Bukavu-Kisangani road also deserves immediate attention. Given the disastrous impact of the Mobutu era and the war where eastern DRC paid a high price, the challenge is considerable. This is what is required for Congo to restore security and development.

2. Security as an absolute necessity

It is widely known that economic growth requires sustainable peace which is why identifying the factors hindering peace is so important. The region's future is threatened by two main issues.

a) The question of ethnic and national identities

The specific problem involves attitudes of Banyamulenge soldiers and militias but more generally, it involves general those of all people of Rwandan descent. Colonel Mutebesi with about a hundred men fled to Rwanda. The actions and whereabouts of General Nkunda are not clear, which opens the door to all sorts of rumours. Congolese media are discussing the possibility of a third war in eastern Congo. The Congolese army has begun deployment in eastern Congo, but there may be no military solution to a fundamentally political crisis.

The heart of the controversy is the future status of people generically and incorrectly being labelled “Banyamulenge”. People of Rwandan descent in the Rutshuru area, called Banyarwanda by Moulin are mostly Congolese-born Hutus and are considered Congolese. The Banyarwanda in the Masisi area are Tutsis and more recent immigrants, considered foreigners by traditional authorities. The Banyamulenge, Tutsi herders long established in the Itumbwé Mountains, maintained their Rwandan identity through inter-marriage and cultural links with Tutsis from Rwanda. Since 1996, when the Banyamulenge played an active role in the outbreak of war, many Congolese considers them as infiltrators working for Rwanda.

Peace cannot be restored unless the question of nationality is resolved. Drawing-up electoral lists will bring this to a head. With election still programmed for 2005, finding a solution is urgent. Solutions must be regional as borders are porous and the concept of “nationality” in these areas rather blurred. This requires real dialogue between Rwanda and the DRC, and the building of much compromised mutual trust.

b) The presence of uncontrolled armed groups

According to MONUC, there are 14,000 men from the ex-FAR and Interahamwé now known as the FDLR (Democratic Front for the Liberation of Rwanda), previously labelled by Rwanda as the “negative forces” in North Kivu in the Lubéro, Walikale and Masisi areas. Rwanda claims there are many more (up to 35,000 men). The results from the DDRRR programme (Disarmament, Demobilisation, Return, Resettlement and Reintegration) based on voluntary return to Rwanda have been disappointing. As of November 3, 2003, MONUC recorded only 2,760 repatriated volunteers with 1,197 former fighters, 997 family members and 566 others assisted by the UNHCR. It is easy to understand why these former combatants, likely to be accused of war crimes against humanity from the 1994 genocide, are in no hurry to return to Rwanda.

Other armed groups with the Maï Maï militias in the lead, are more responsive. The DDR programme (Demobilisation, Disarmament and Reintegration) has had some success in demobilising young people, many of whom were forced to become child soldiers. However, without alternative incomes and sufficient compensation, it is difficult for combatants to give up arms that symbolise prestige and a way of acquiring cash. **These two major issues require support and involvement from the international community.**

3. Miners’ organisations

Miners’ in Kivu are organised very differently than their counterparts in Rwanda, especially in terms of actual practice more than of legal texts. In Rwanda, artisanal miners are encouraged by the regulatory framework to organise themselves in associations which is currently underway. As early as 1988, the Rwandan government, with support from the European Community promoted miners’ co-operatives for producers not under the semi-public REDEMI. COPIMAR, (Co-operative for the Promotion of the Artisanal Mining Industry), was established to provide technical support and facilitate access to basic supplies. Its main role is to export minerals directly and so cut out the purchasing agents which means the miners’ share of proceeds is larger. COPIMAR is a federation of mining co-operatives active in the Gitarama, Kigali Rural and Ruhengeri provinces. It is currently comprised of 14 registered co-operatives and 6 pre-co-operative arrangements with 3,000 members, of which 800 permanent miners and the rest daily labourers. In 2001, the Abaharanira Amajyambere Association, literally “those who work for development” was established with about a hundred members, not including unskilled girls and boys working in their family units. It, however, is too small to export directly and so sells through purchasing agents in Kigali.

Co-operatives in Kivu are much less widespread and effective, partly due to the impact of the war. In the context of economic reconstruction, several mining co-operatives projects are being proposed not so much by miners, who probably lack capacity but by community leaders, traditional chiefs, entrepreneurs, or non-governmental organisations. For example, the FEC (Congolese Enterprise Federation) examined two proposals for co-operatives in the Walikale area during a meeting in their Bukavu headquarters:

- Establishing a sales and purchasing centre for coltan and cassiterite from the Kakalo forest and Walikale mining sites, to be based in Itebero, the main town in the Bakano zone. Before the war, there would have been about 5,000 artisanal miners in this centre but today there are less than 100, given the lack of financing to boost production.
- Ore marketing for the forest concession of the Union of Nkuba/Walikale mining sites; it would be located in Itebero, like the previous project.

The two projects have the same objectives to centralise mining production by establishing purchasing centres on the main Walikale mining sites, distributing of basic necessities to the population, facilitating tax payments and supporting unemployed youth. Projects are estimated to cost about 61,000 and 34,000 US dollars, respectively. The projects are presented by two traditional chiefs who refer to themselves as "**chief owner of the Nkuba hill and Kakelo hill**". They present their own contribution to the project as being their land rights to the mining concessions. Both projects illustrate how traditional chiefs are attempting to convert land rights into economic power via the establishment of a union or co-operative. The projects are based in the capital city of South Kivu, although the Bakano area and Itebero are in North Kivu, because there is a road connection to Bukavu (about 150 km away) but not to Goma (about 250 km away), which is only accessible by plane. In addition, traditional chiefs, from the large Lega ethnic group responsible for mining most coltan, are trying to assert their position in the marketing area which is largely dominated by Bashi traders from Bukavu.

Businessmen are also interested in managing mining co-operatives. For example, in October 2003, Mr. Mudekereza Namegabe, head of the Bukavu Company Olive, proposed **an agricultural and mining investment project in Kivu to increase agricultural and artisanal mining production**. The objectives are as follows:

Promoting and protecting the interests of artisanal miners by:

- Providing equipment and basic tools to miners free of charge (example: spectrometer, crusher, separator to measure ore quality (grade) thus limiting cheating by traders)
- Collecting and buying minerals from artisanal miners at a fair price, published by the industry and international purchasing agents.
- The pilot project is to start with artisanal mining to develop long-term revenue-generating activities.
- For the Congolese government to encourage moving from a war to a peace economy with support from the international community so that economic operators working in the agricultural and mining sectors can have access to financing that could generate employment for the reintegration of ex-combatants.

The project is to cost about US\$ 2 million with the largest share allocated to agriculture. It is an investment project and not a simple request for financial aid. The most dynamic traditional chiefs and the entrepreneurs are driving a number of local initiatives. They are both at different levels, part of the local elite. They do not represent field-level actors but can actors really voice their opinions directly? Support to artisanal miners will have to involve their representatives or non-governmental organisations which may not be any more altruistic. Every player's strategy must be clearly identified; reinforcing the status quo or mobilising energies for development are not quite the same.

4. Informed action

Artisanal miners lack essential information. At the sites, miners know little about mineral prices and their fluctuations. They rely on the team leader who rarely has access to reliable information. Traders themselves only have a partial picture of the market. Measuring equipment is necessary to assay the tantalite content of coltan and those with the capacity often keep the information to themselves. **The use of cell phones has generated fundamental changes in information access.** It is hard to measure the precise impact. Obviously in Kivu, there is a good deal of competition among mobile phone companies. During the Rwandan occupation Rwandacel set up its Télécel network and the 250 country code became the most frequently dialled number. After the Pretoria agreements, companies under Kinshasa control, Celtel and Vodaphone, improved their market share in Kivu and now the 243 country code is a symbol of “reunification”. With the rapid expansion of network coverage inter-city communication is possible and partly compensates for the lack of land transport.

Even if communications are developing rapidly, the quality of information has not necessarily followed suit. In DRC the administration tends to jealously guard information which is perceived as being power or a potential source of revenue. In the Kivu which despite the transition still has parallel authorities, access to information is even more difficult than elsewhere. This is especially true if it could expose certain private or public operators’ information, on export values, for example. Lack of transparency is still corruption’s number one ally. Secrecy around information is not only a local problem. Focusing on local practices is only a way of detracting attention from other issues such as the huge imbalances between revenue to producing countries and revenue to importing countries. Within the coltan sector, for example, earnings are measured in dollars for miners, in hundreds or thousands of dollars for purchasing agents and in millions of dollars for international brokers. Applying the “publish what you pay” recommendation would improve transparency.

Information access is key not only to mining but to all sectors where prices of various products, the level of stocks and demand, especially in cross-border areas, is important. The border is often a frontier between differences in potential and prices of goods and services.

5. Cross-border trade at the heart of peace-building

This report, using mining as an entry point, shows the importance of cross-border trade, whether legal or illicit. Even before conflict cut off most economic links with western DRC, the Kivu’s trade had been more active with the eastern basin towards the Indian Ocean ports. Eastern Congo’s imports must transit through one, two, or three states. The dependency could be somewhat reduced with the reopening of the road to Mbuji Mayi and the rehabilitation of the Bukavu-Kisangani road. This could open up new markets for the Kivu’s agricultural and meat products.

In particular, if strategic products such as oil were imported by railway from Matadi to Kinshasa and then via the Congo river to Kisangani, and on to Bukavu, this would reduce dependency on eastern and southern neighbours. Integration of the Great Lakes region including Kivu, Uganda, Rwanda and Burundi is a reality given the geography, economic channels, cross-border ethnic networks and interpersonal connections. The CEPGL (Economic Community of the Great Lakes Countries) including the DRC, Rwanda and Burundi has been weakened by conflict and tenacious rivalry between Kinshasa and Kigali. Nonetheless, the region’s future is in closer regional co-operation. Joint management of energy resources (new dams on the Ruzizi river, Lake Kivu’s methane reserves, for example) could help meet these countries’ combined needs as is still the case with electricity generated by the Ruzizi power stations. The course of history runs in favour of replacing conflict with partnership.

The recent closing of the Rwandan/Congolese border demonstrated the relative size of local regional trade and markets. Food supplies plummeted and cross-border activities suffered as teachers living in Congo but working in Rwanda, or conversely students living in Cyangugu but studying in Bukavu, could not cross the border. Restoring a peace economy would intensify cross-border movement of goods and people within complementary spaces.

There is no question that regional solutions must be found to the political problems fuelling tensions between Rwanda and DRC. With shared challenges, actors, interests, economic interdependencies, cultural affinities, and even fears, these areas, separated only by the line dividing the Congo and Nile river basins, are inextricably linked.

BIBLIOGRAPHY

BRAECKMAN Colette, *Les nouveaux prédateurs. Politique des puissances en Afrique centrale*, Fayard, 2003.

CUVELIER Jeroen, *Réseaux de l'ombre et configurations régionales : le cas du commerce du coltan en République Démocratique du Congo*, traduction d'une publication de l'International Peace Information Service, Anvers, Politique africaine n° 93, mars 2004, pp 82-92.

DE FAILLY Didier, *L'économie du Sud-Kivu 1990-2000 : mutations profondes cachées par une panne*, in *L'Afrique des Grands Lacs*, annuaire 1999-2000, Centre d'étude de la région des Grands Lacs, Anvers, L'Harmattan, Paris, pp 161-188.

DE FAILLY Didier, *Coltan : pour comprendre...*, in *L'Afrique des Grands Lacs*, annuaire 2000-2001, Centre d'étude de la région des Grands Lacs, Anvers, L'Harmattan, Paris, pp 280-306.

KAFARHIRE Murhula Toussaint, *L'autre visage du conflit dans la crise des Grands Lacs. Mémoire historique sur la crise de la citoyenneté au Kivu*, Congo-Afrique n° 374, avril 2003, pp 221-240

KENNES Eric, *Le secteur minier au Congo : « deconnexion » et descente aux enfers*, in *L'Afrique des Grands Lacs*, annuaire 1999-2000, Centre d'étude de la région des Grands Lacs, Anvers, L'Harmattan, Paris, pp 299-342.

MARTINEAU Patrick, *La route commerciale du coltan congolais : une enquête*, GRAMA, Université du Québec à Montréal, avril 2003.

MATHIEU Paul et MAFIKIRI TSONGO, *Enjeux fonciers, déplacements de population et escalades conflictuelles (1930-1995)*, in *Conflits et guerres au Kivu et dans la région des Grands Lacs*.

MATHIEU Paul et WILLAME Jean –Claude (sous la direction de), *Conflits et guerres au Kivu et dans la région des Grands Lacs*, Institut Africain-CEDAF, L'Harmattan, 1999.

POURTIER Roland, *“Le Congo (RDC) entre guerre et pillage”*, in *“Géopolitiques africaines”* (R. Pourtier dir.) Bull. de l'Association de Géographes Français, Géographies, n° 2, juin 2002, pp 251-263.

POURTIER Roland, *L'Afrique centrale dans la tourmente. Les enjeux de la guerre et de la paix au Congo et alentour*, Hérodote n° 111, 4^{ème} trimestre 2003, pp 11-39.

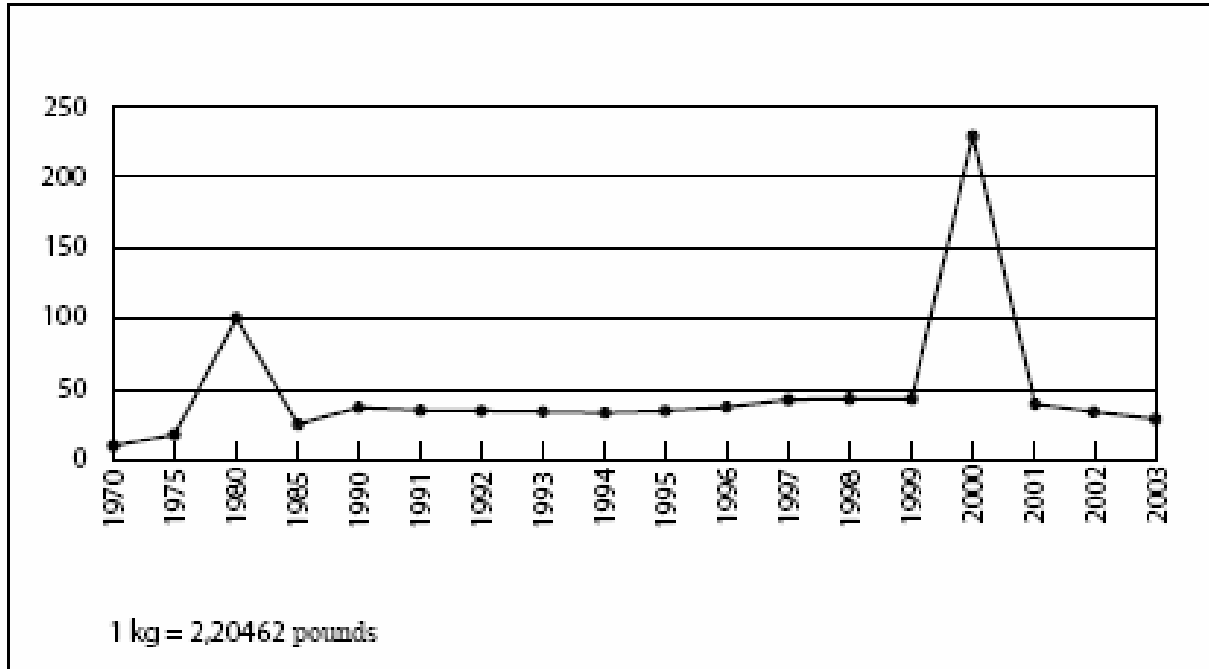
SAINT MOULIN (de) Léon, *Conscience nationale et identités ethniques. Contribution à une culture de la paix*, Congo-Afrique n° 372, février 2003, pp 93-128.

TEGERA Aloys (dir.) *Le coltan et les populations du Sud-Kivu*, Pole Institute/CREDAP, Regards croisés n° 007, septembre 2002.

WILLAME Jean-Claude, Banyarwanda et Banyamulenge. *Violences ethniques et gestion de l'identitaire au Kivu*, Institut africain-CEDAF, L'Harmattan, 1997.

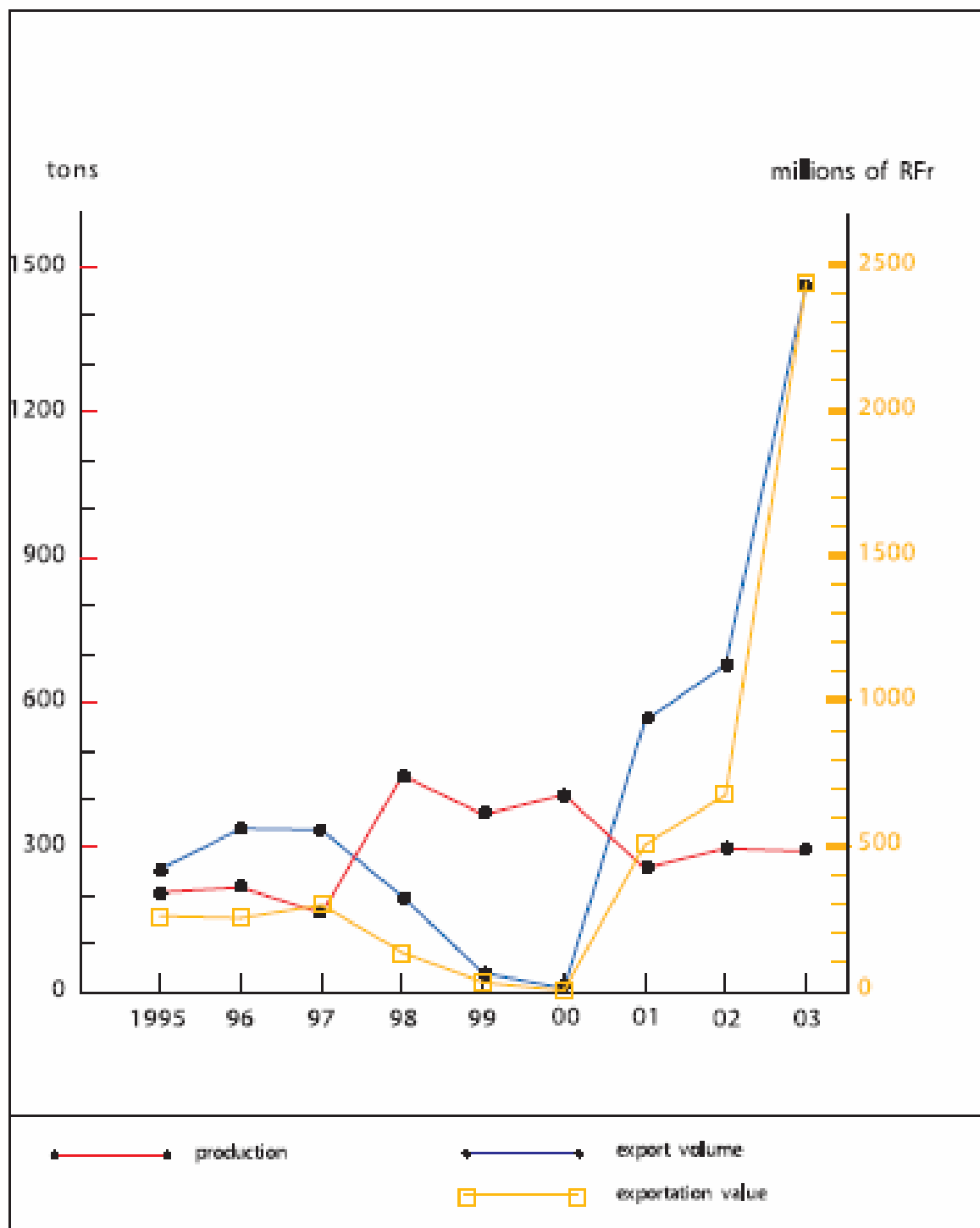
MAPS AND DIAGRAMS

AVERAGE PRICE PER POUND OF TANTALUM (US\$)



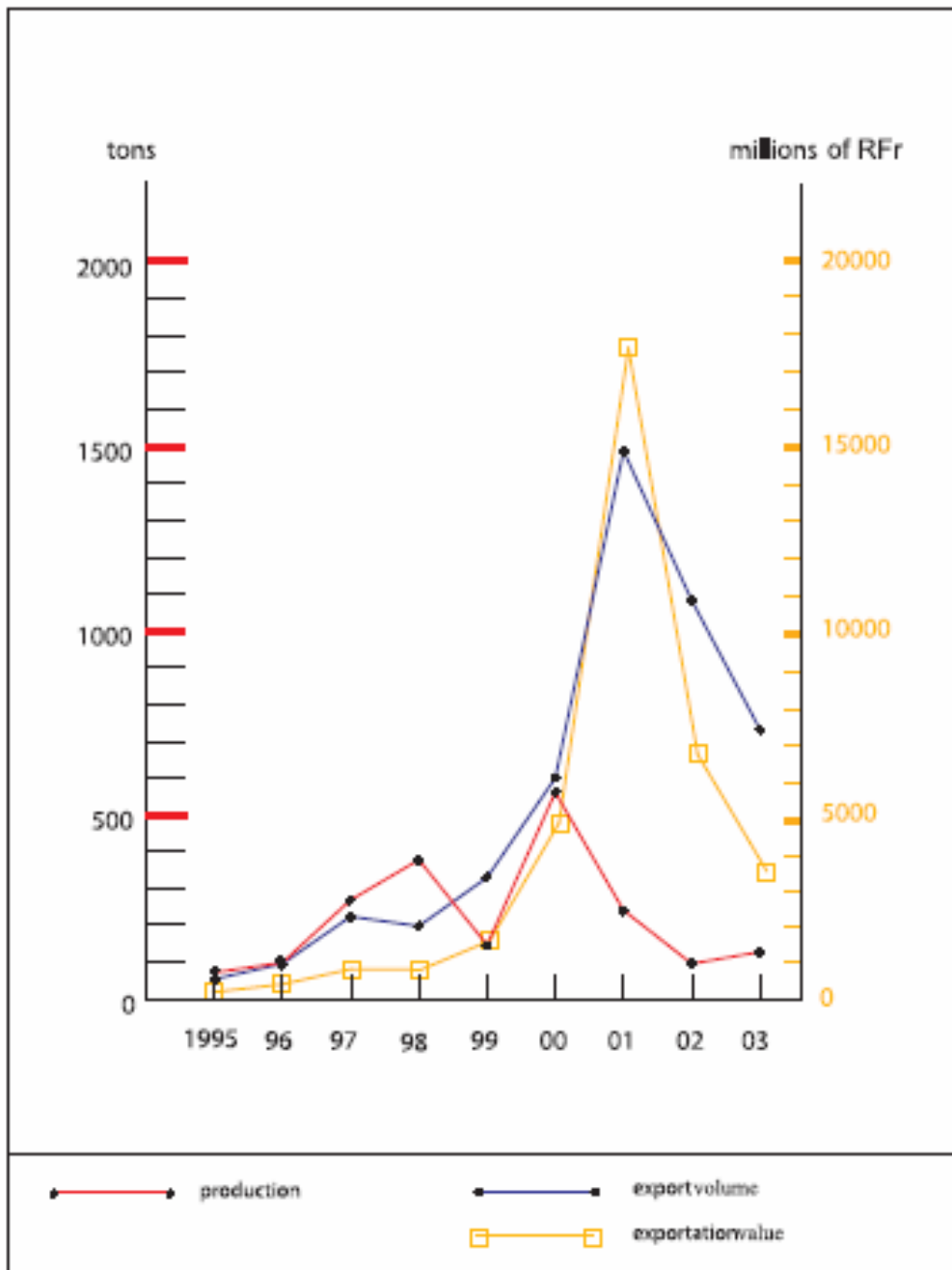
Source: Patrick Martineau "Commercial route for Congolese coltan", GRAMA 2003.

CASSITERITE: RWANDA'S PRODUCTION AND EXPORTS



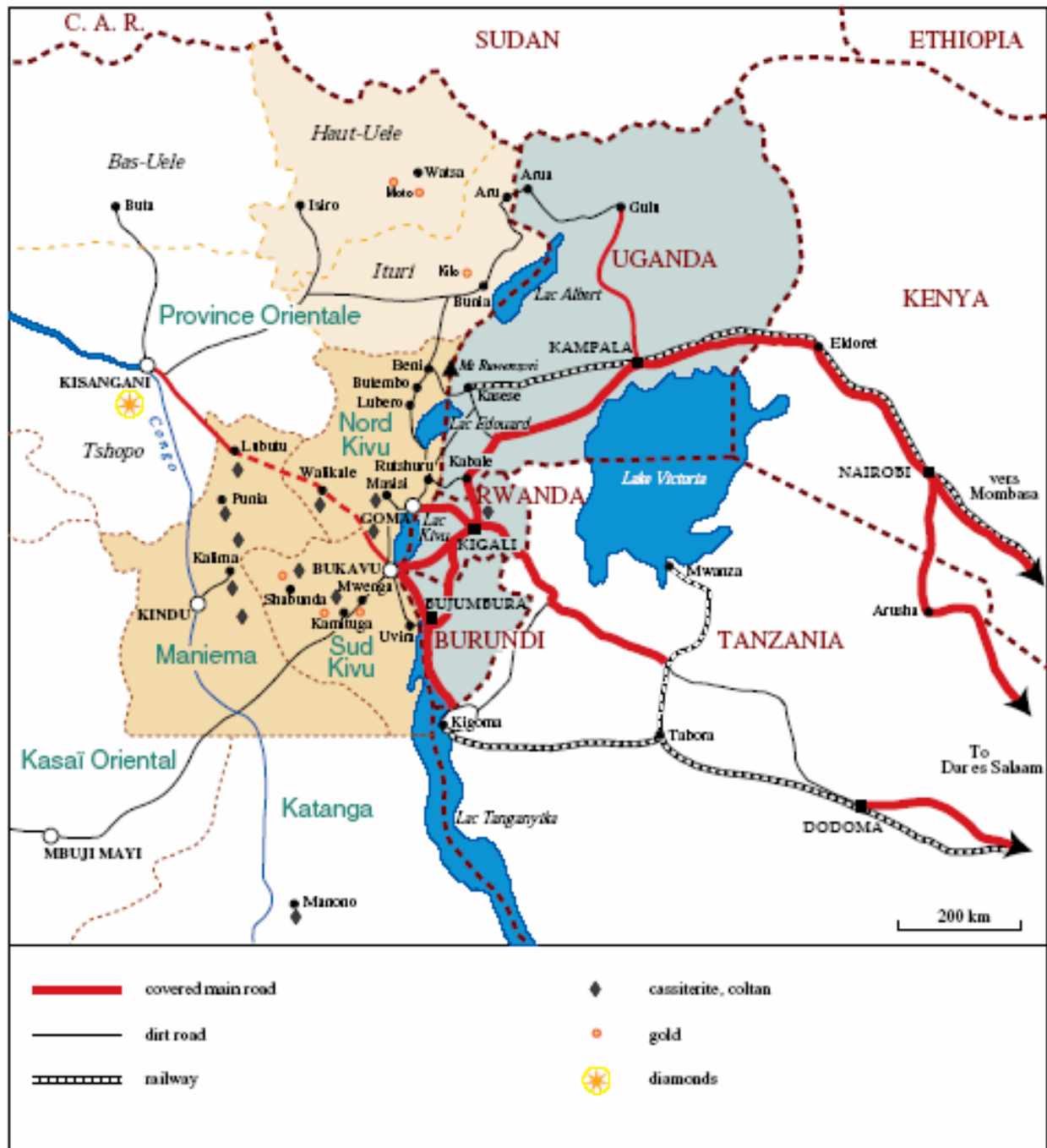
Source: Commercial Bank of Rwanda

COLOMBITE-TANTALITE: RWANDA'S PRODUCTION AND EXPORTS

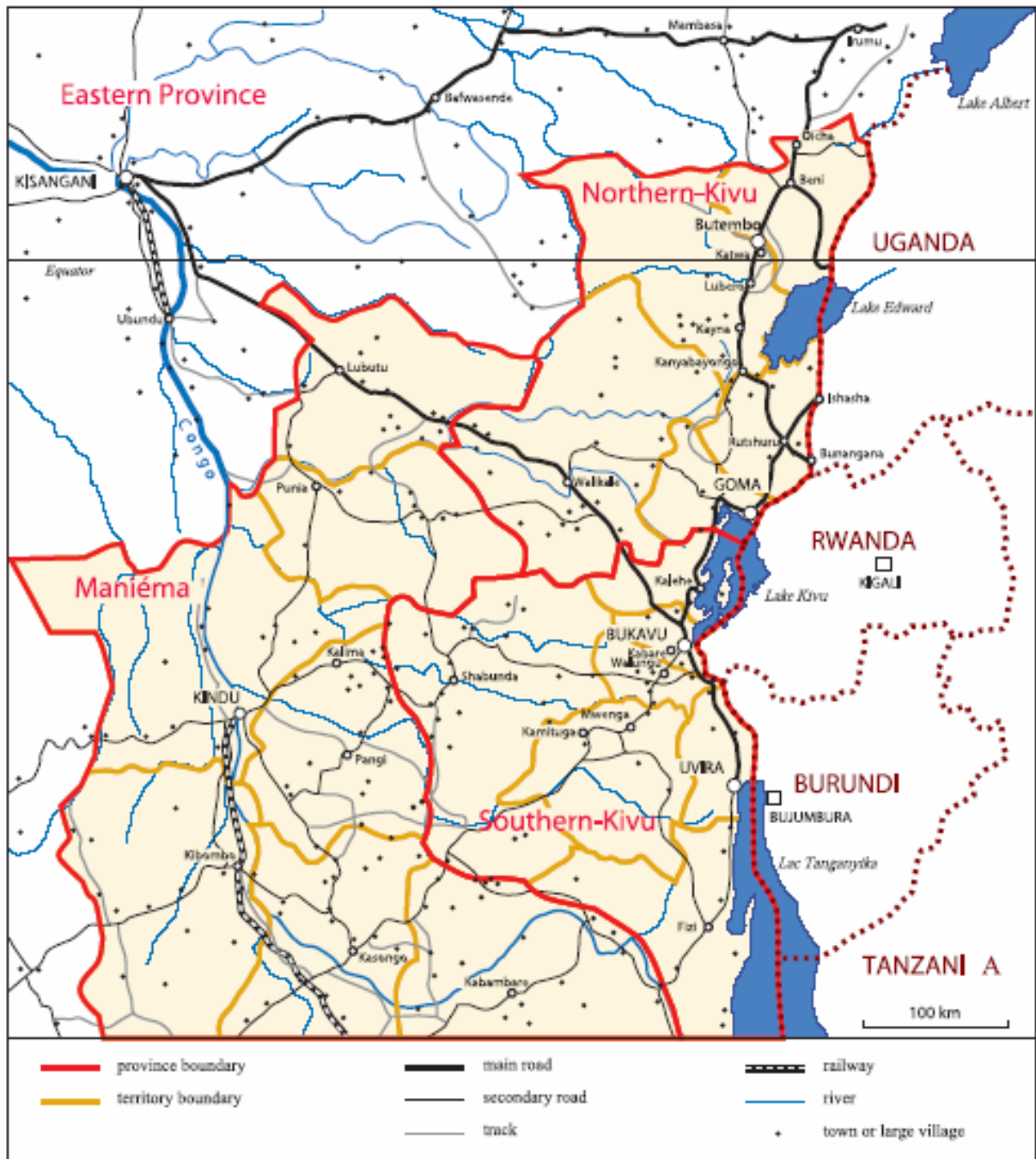


Source: Commercial Bank of Rwanda

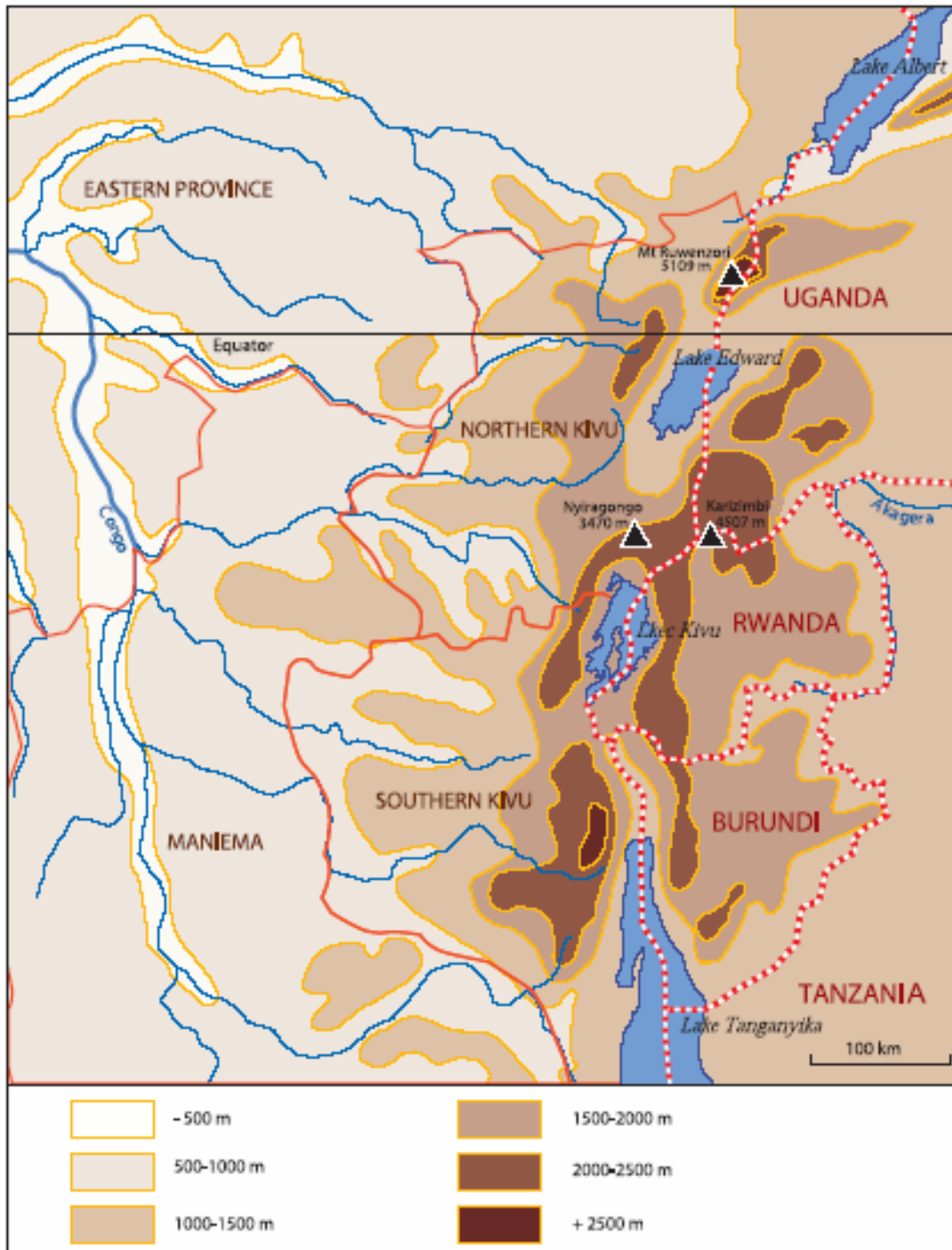
THE EASTERN BASIN: OPENING ON EAST AFRICA



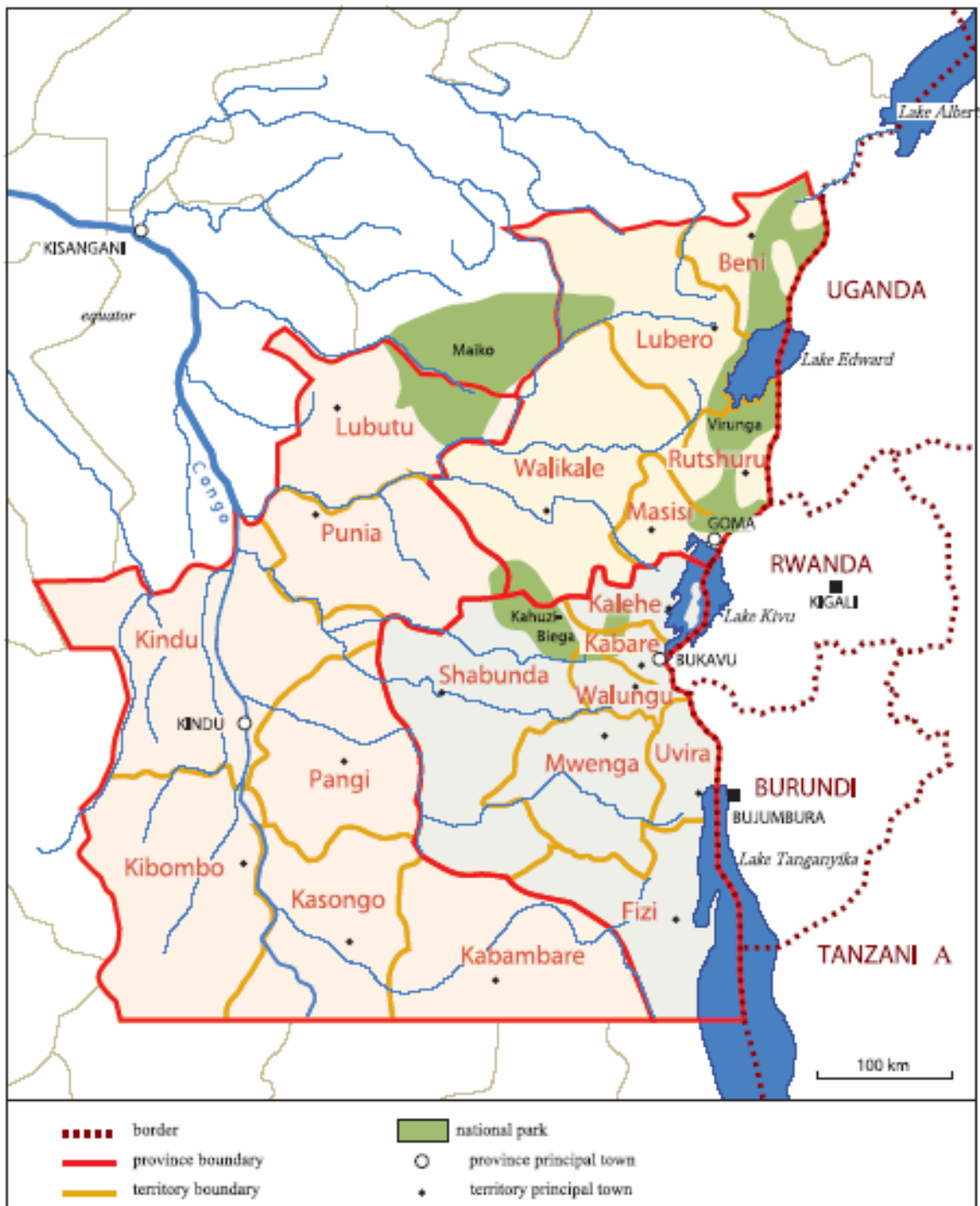
THE KIVU AND ITS NEIGHBOUR COUNTRIES



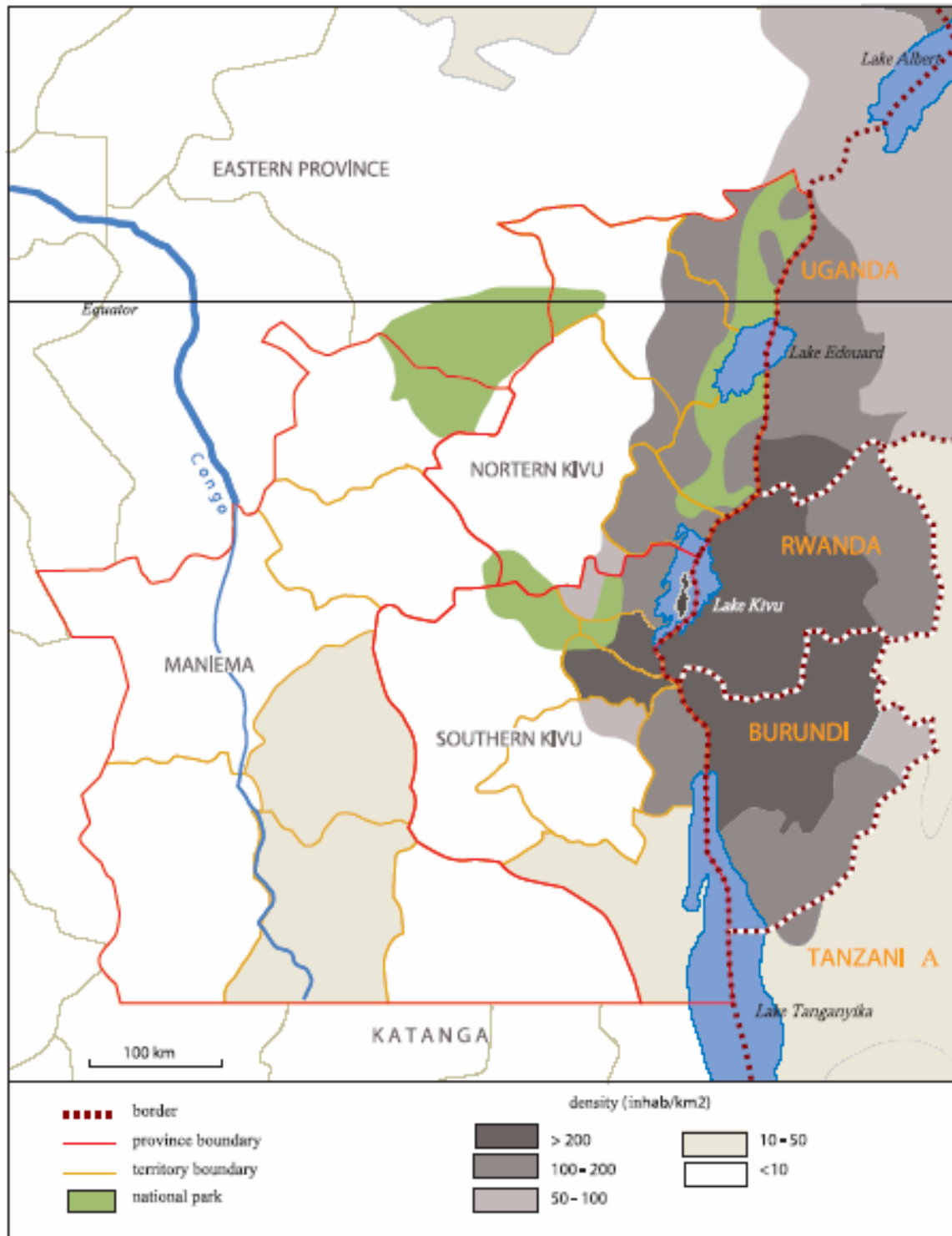
THE KIVU: PLATEAUS AND HIGHLANDS



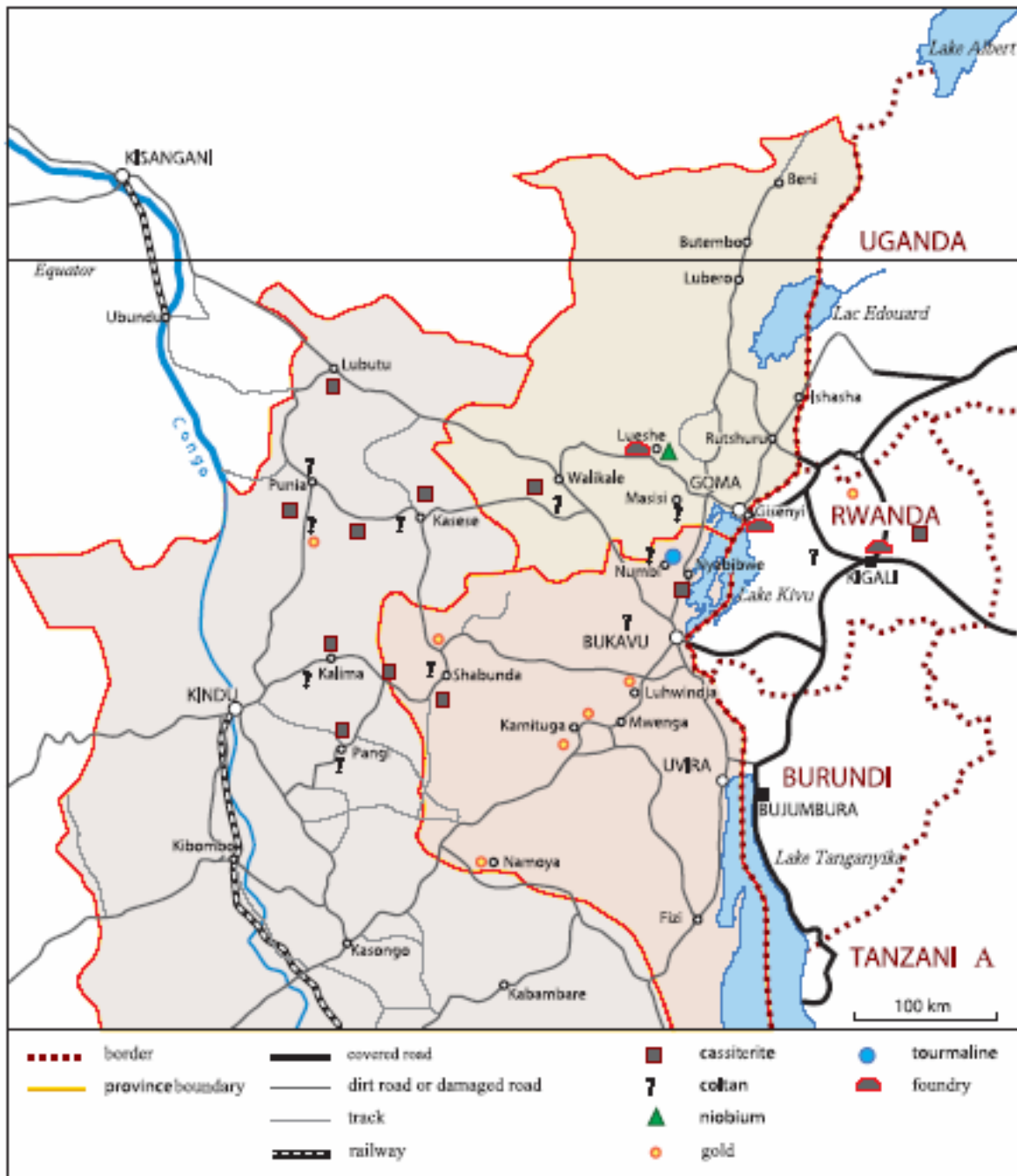
ADMINISTRATIVE BOUNDARIES



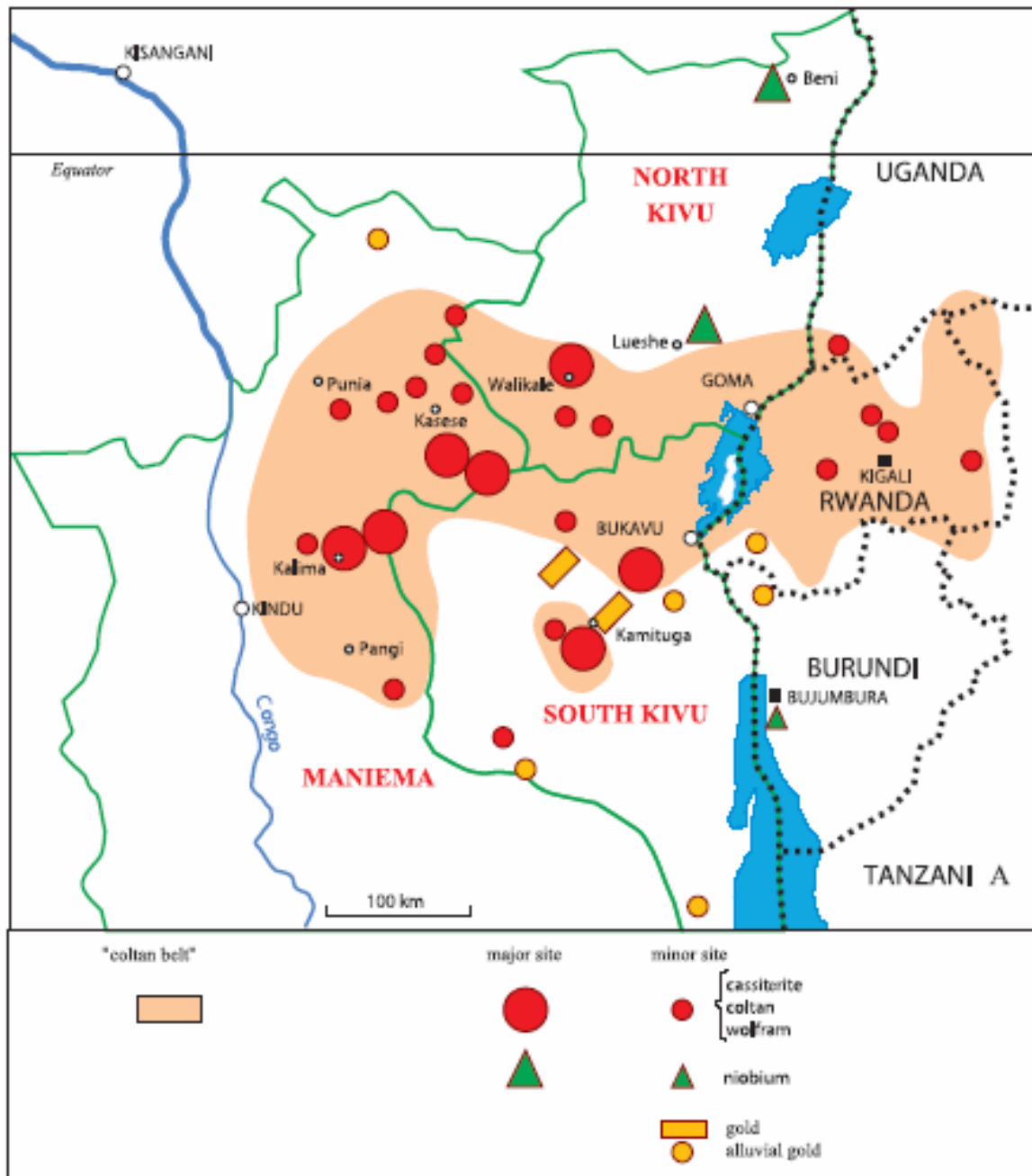
HIGH POPULATION DENSITY IN THE HIGHLANDS



MINING IN THE KIVU



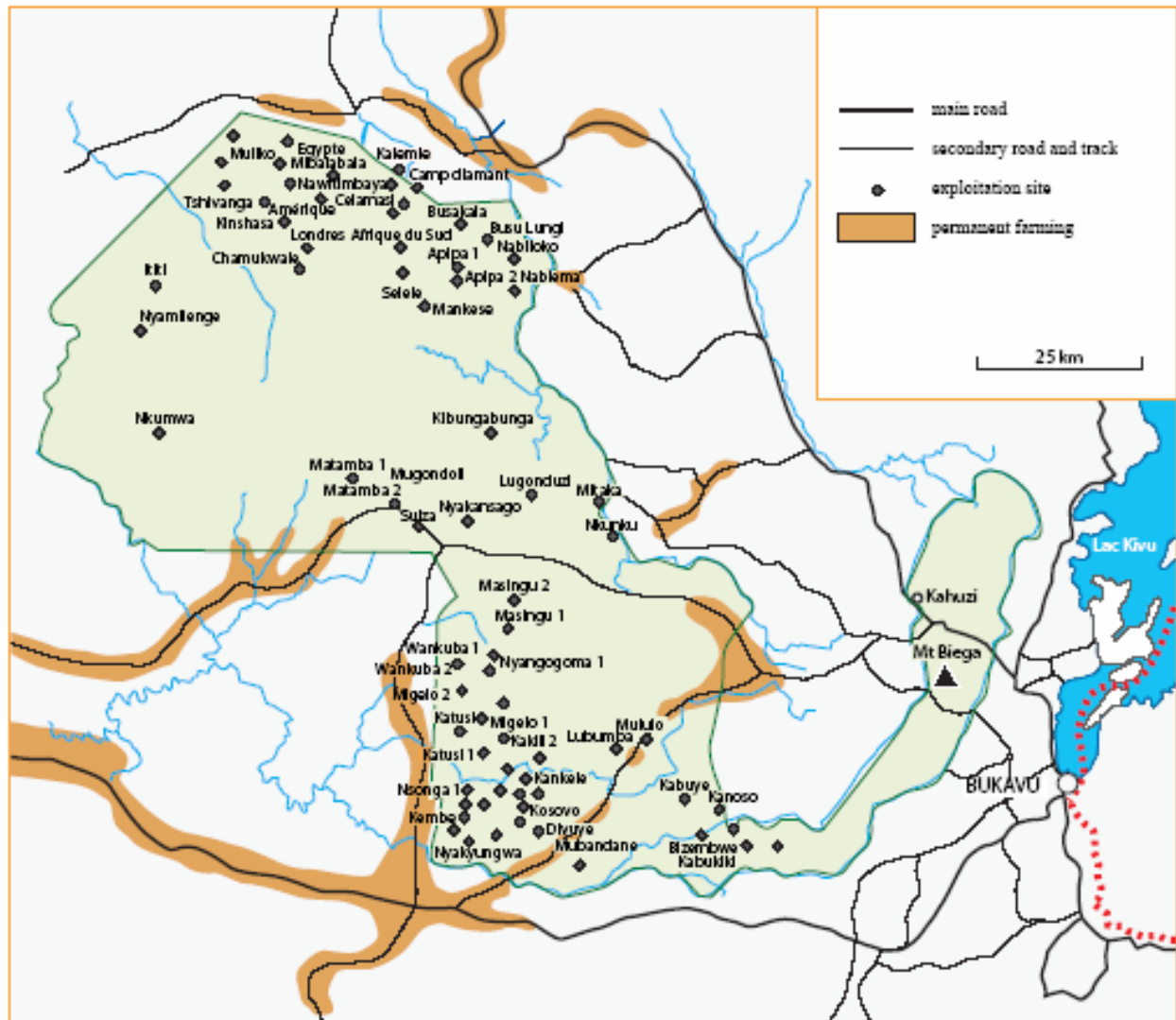
MINERAL DEPOSITS



Source : " Map of Rwanda's mineral sites" B.R.G.M.

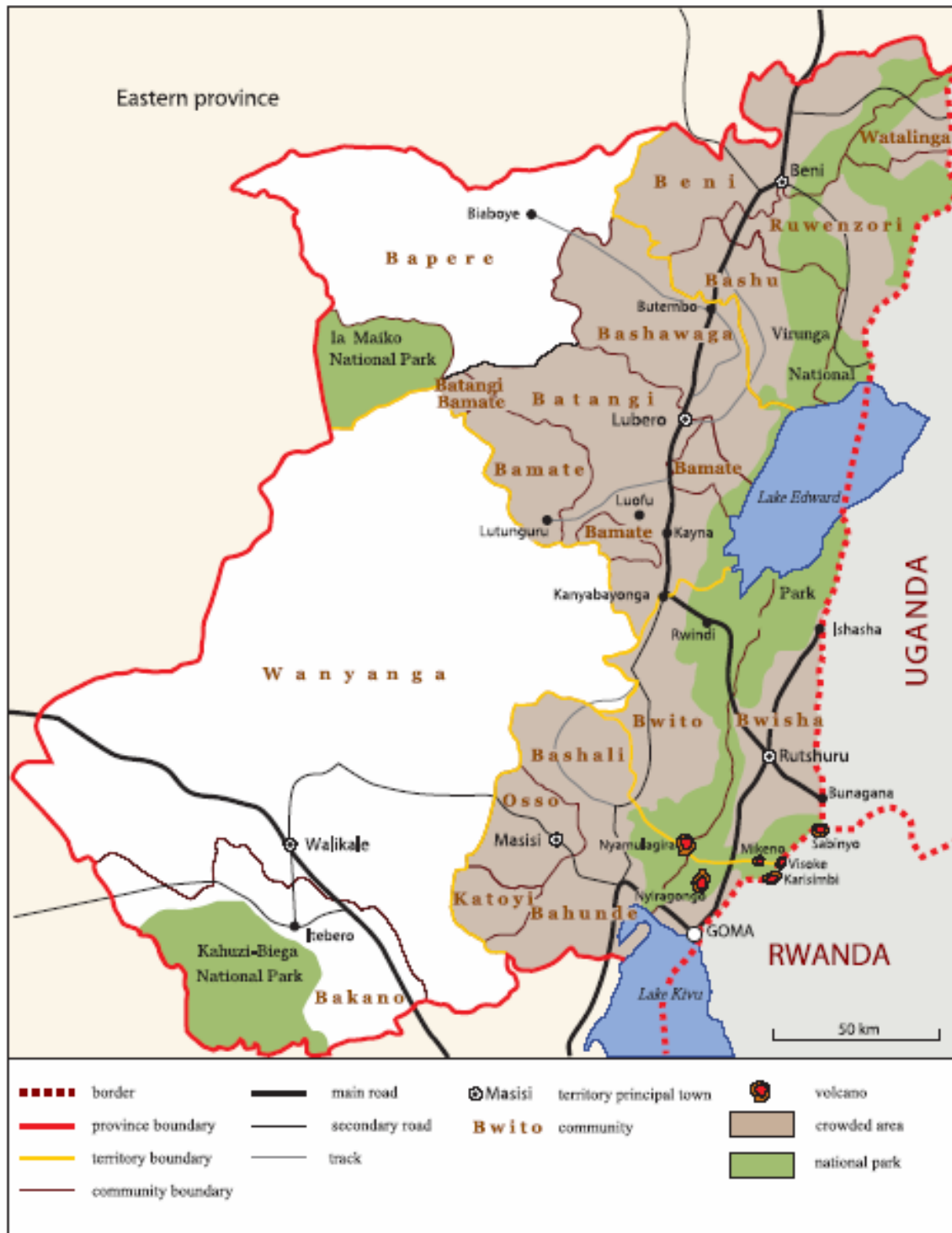
COLTAN MINING IN THE KAHUZI BIEZA PARC

(end 2001)

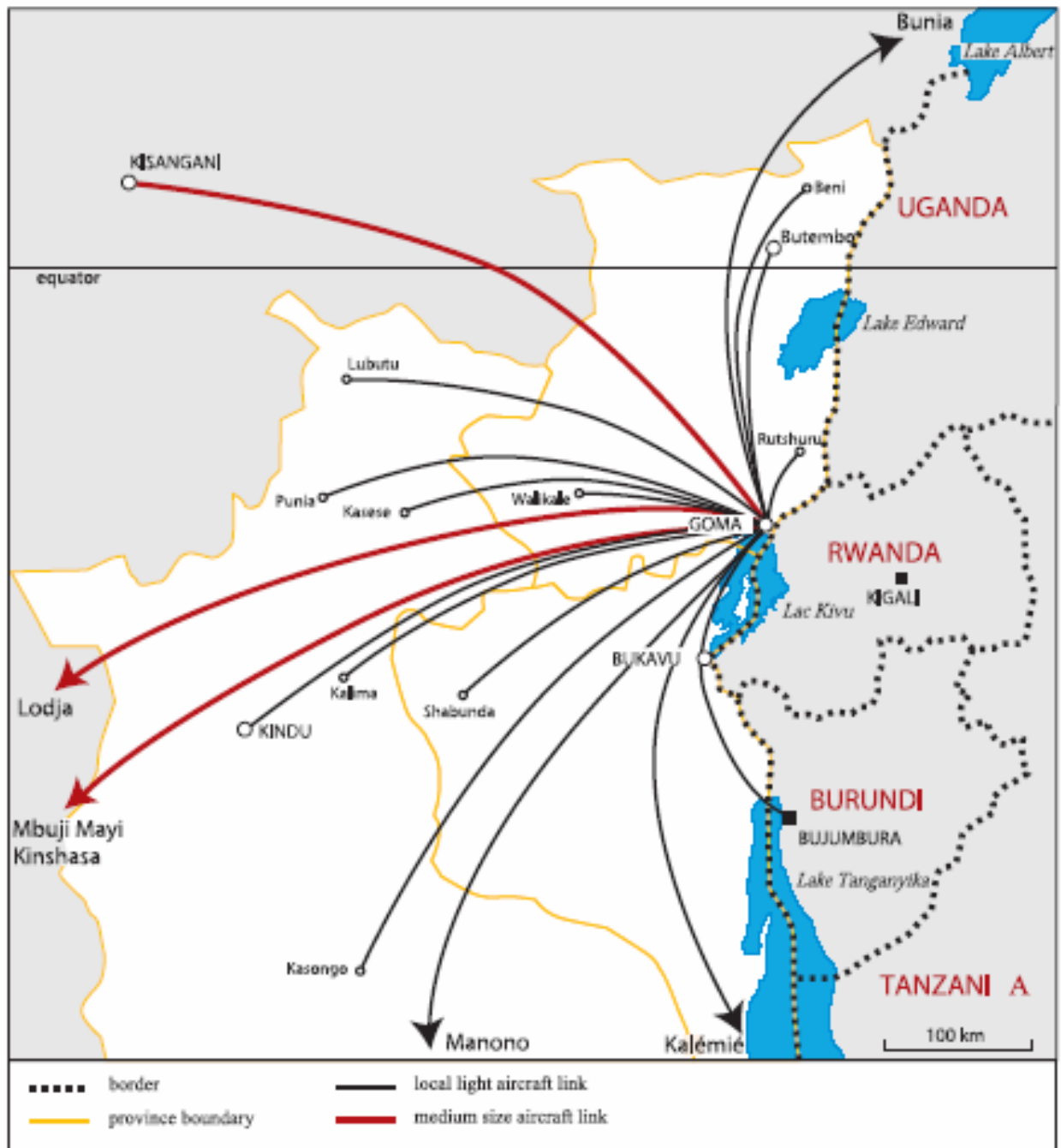


Source : Vision verte and GTZ

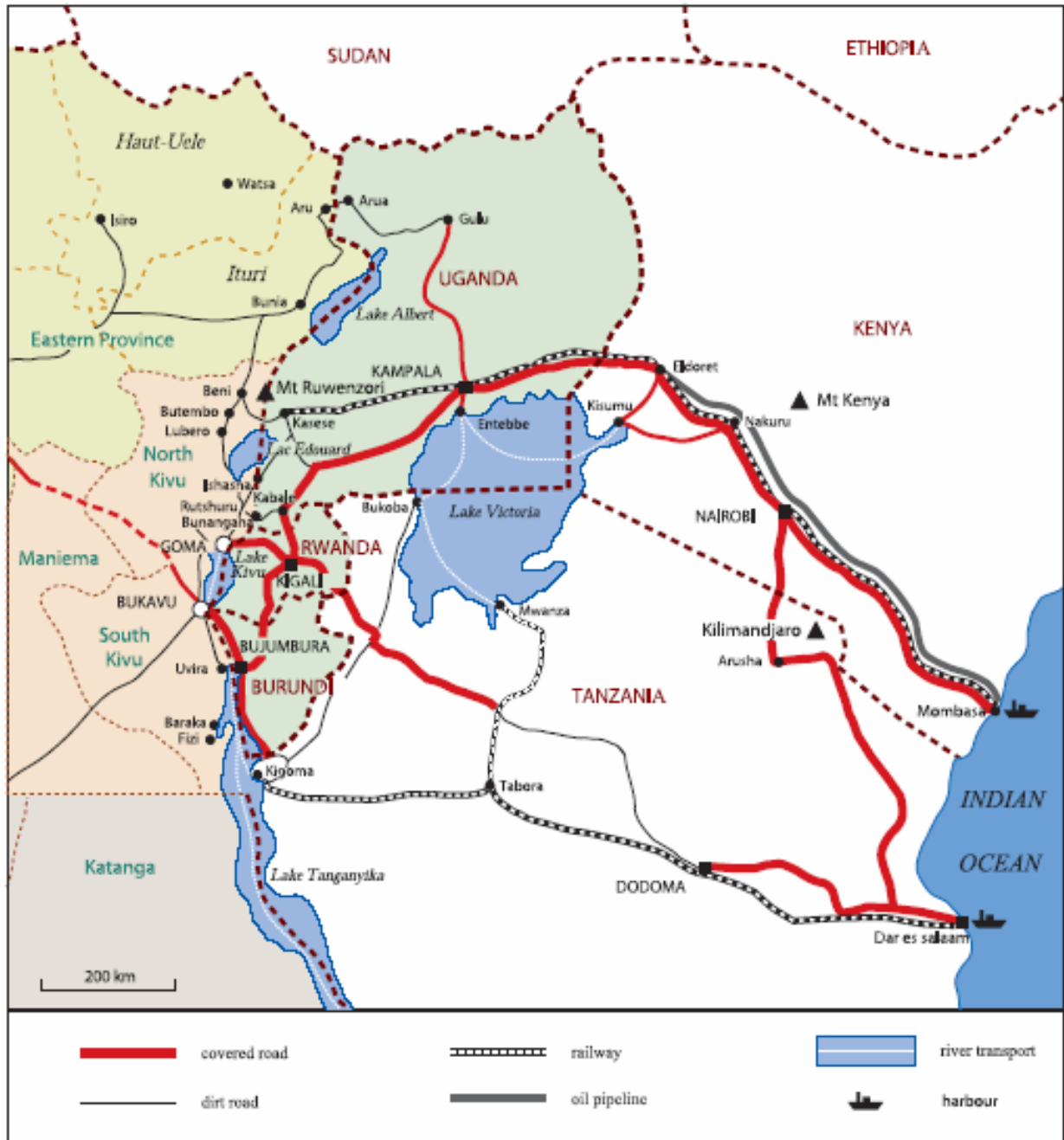
“CROWDED” AND “EMPTY” SPACES IN NORTH KIVU



AIRLINES LEAVING GOMA



TRADING ROADS IN THE EASTERN BASIN



SCHEME: MINING AREAS

