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FOOD SECURITY IN KINSHASA, COPING WITH ADVERSITY

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1. Introduction

One would expect food security in Kinshasa, a city of nearly six million people, cut off since three years from its northern supply routes in Equator, Eastern and Kivu provinces, with virtually no all weather roads, and sitting almost on the hot and humid Equator, to be catastrophic. And indeed, one often hears reports of prevailing hunger and malnutrition in the city, with families only eating once a day or every other day. Particularly foreign aid organizations lobbying for funds for the Congo float such reports regularly, although a famine situation has never developed, even during the siege of Kinshasa in 1998. What does the evidence show? Is the situation indeed catastrophic as simple Western logic would indicate? How are people coping? This chapter presents evidence from a number of reliable sources in Kinshasa, showing that food security now is not much worse than in 1997 at the end of Mobutu's regime, and that, because of the war, important supply changes and innovations have taken place. Nutritional surveys show that less than 3 % of the children under five are severely malnourished, unacceptable, yes, but less than one would expect in such a dire situation. Total food imports, particularly wheat, fish (mpiodi), rice and chickens in aggregate are not less now than three years ago, despite the acute shortage of foreign exchange and foreign exchange restrictions (to finance the war). Peri-urban agriculture has exploded, and, because of the poor state of roads from Bandundu, the main supply province, transport by boat (wooden and metal boats) now accounts for morte than half of the food coming to Kinshasa. It is now estimated that at least 150-200 locally made wooden boats ply the Congo river from Kinshasa to Bandundu and Kasaï. This is a recent adaptation to the crisis.

By contrast, in the war occupied zones, the humanitarian crisis is described as one of the worst in the world. One international NGO[1] has recently estimated that up to 2.5 million people have died in eastern Congo since the war began, many of them as a result of malnutrition and preventable disease. An estimated 2,050,000 persones are internally displaced, of which 620,000 in North Kivu, 375,000 in South Kivu, 355,000 in Katanga, etc. with 328,000 having fled to neighboring countries. Close to the war front in the North and South Kivu and in northern Katanga, severe malnutrition of children under 5 exceeds 15 % and reaches even 25.8 % in Kiambi (N. Katanga) (Table 1). The situation in these areas is worse than one can imagine. In line with the focus of this book, emphasis will be on the food security situation in Kinshasa, the coping mechanisms, social innovations and institutions which have emerged in order to fill the void left by the formal private sector and the state.

2. Food security in Kinshasa

As Table 1 shows, global malnutrition rates among children under five range from about 10 to 20 % according to the commune. This indicates that there are serious nutritional problems, but this was already the case 5 or 10 years ago. Moreover, it is difficult to assess how mild malnutrition affects health, intelligence, vulnerability to diseases, etc. Therefore, the severe malnutrition rate is much more important because we know that it affects health and general well-being very seriously. Severe malnutrition among under five's in Kinshasa is less than 3 %, worrying but not alarming. One would expect the situation to be much worse. Obviously, Kinshasa residents seem te bo able to cope. How they do it is one of the enduring mysteries, which is often beyond Western rationale and logic. However, hereafter some light

[1] "Mortality in eastern Democratic Republic of Congo", International Red Cross, May 2001.

will be shed on the food security situation in Kinshasa, the factors affecting it and the coping mechanisms of people.

Table 1 Results of malnutrition surveys carried out in DRC

Province	Location	Age	Global	Severe	Date	Source
City of Kinshasa	Kimbanseke Commune	<5	12.2 %	2.6 %	Feb 2001	ACF-USA
	Selembao Commune	<5	12.0 %	2.6 %	Feb 2001	ACF-USA
	Kisenso Commune	<5	9.4 %		Feb 2001	ACF-USA
	Masina commune (Tshimungu)	<5	11.3 %		Apr 2001	SC UK
	Kimbanseke Commune (Lobiko)	<5	18.3 %		Apr 2001	SC UK
Bas Congo	Luozi	<5	4.6 %	1.3 %	Mar 2001	MSF-B
	Mangembo	<5	5 %	0.8 %	Mar 2001	MSF-B
Bandundu	No information available					
Kasaï Occidentale	Demba	<10	30 %	10 %	Dec 2000	Demba Hospital
Kasaï Oriental	No information available					
Equateur	No information available					
Province Oriental	Rimba (Ituri)	<5	8.57 %	2 %	Mar 2001	COOPI
		>5	3.2 %	1.28 %		
	Nioka	<5	10.4 %	15.12 %	Mar 2001	COOPI
		>5	12.6 %	22.78 %		
	Kisangani	<5	9.1 %	1.7 %	Unknown	MSF-H
North Kivu	Goma Health Zone	<5	9.3 %	0.9 %	Dec 2000	SC UK
	(6 Aires de Santé)		29.3 %	11.9 %		
	Kayna	<5	29.4 %	14.3 %	May June 2001	Solidarités
	Kibabi (Masisi)	<5	5.7 %	1.3 %	Sept 2000	SC UK
	Kirolirwe (Masisi)	<5	6.7 %	0.3 %	Nov 2000	SC UK
South Kivu	Bitobolo/Bunyakiri (*)	12-59 mths	41.1 %	17.1 %	Dec 2000 Jan 2001	SC UK
Maniema	Kalima	<5	14.1 %	8.1 %	Jan 2001	Merlin
N. Katanga	Kalemie town	<5	7 %	4 %	Aug 2000	Nuova Frontiera
	Nyunzu	<5	21.7 %	12.2 %	Sep 2000	Nuova Frontiera
	Kioko	<5	14 %	9.2 %	Sep 2000	Nuova Frontiera
	Manono	<5	23.23 %	19.87 %	Mar 2001	Nuova Frontiera
	Kiambi	<5	32.07 %	25.79 %	Mar 2001	Nuova Frontiera

N.B. This is the majority of the nutritional surveys conducted in DRC over the past year. It is possible that some nutritional surveys may have been excluded.

(*) Global malnutrition rate registered by SC UK during a vaccination campaign in Bunyakiri, South Kivu. The methodology used was a first screening using MUAC and oedema detection. No antrhopometric measurements were taken.

Source: "No End in Sight" - The human tragedy of the conflict in the Democratic Republic of Congo, Save the Children - Oxfam and Christian Aid, Kinshasa, August 2001.

Malnutrition surveys show the actual nutritional situation, as a snapshot, and do not provide information about vulnerability and the ability to cope against shocks. Nevertheless, the food security situation in Kinshasa over the last decade has been constantly poor, with some ups and downs but no real improvement. There has been no or negative economic growth and more than half of the population is considered poor, i.e. living on one US$ per day per person, or less, and spending more than 50 % of the meagre income on food (Luzolele and Tom De Herdt, 1999). The basic staple foods of the population, cassava and maize, have increased in US$ prices by an

average of 25 % since 1993/1994 (Bescoplan/GRET[2] (Annex 8, p. 89), September 2000). One can thus ascertain that the results of malnutrition surveys show a chronic, longer term situation, although the data are recorded at a particular point in time. Most of the surveys reported in Table 1 were done during the last two years, which one can describe as two terrible years of economic recession because of the war of agression.

In Dr. Banea-Mayambu J-P (in Kankonde & Tollens, 2001) words, food insecurity is a reality in Kinshasa, but somehow it does not show up in the food and nutritional situation of the population. There are maybe practices or mechanisms which allow Kinois to manage food insecurity without too much adverse consequences. Furthermore, he notes that mild, severe and acute malnutrition rates today in Kinshasa are basically unchanged over the last ten years. Thus, in light of the deteriorating economic situation, people today have better coping strategies and manage their food security more adequately than before. One can say that malnutrition rates do not adequately reflect the chronic food insecurity and food situation. Dr. Banea ends by stating … "for how long still can this situation endure?"

2.1. The food supply situation in Kinshasa - general observations

Cassava (roots and leaves) and, more and more, maize are the cornerstones of food security in Kinshasa. Cassava alone supplies more than an estimated 50 % of the calories in food for the population, but maize is growing because it supports much

[2] In this chapter, many references are made to the Bescoplan/GRET study. This study was made for the European Commission in 1999-2000 and involved original surveys and data collection. Its purpose was to evaluate the impact of road repairs/improvements in Bas-Congo and Bandundu financed by the European Commission.

better slow transport by boat over long distances and because it is nutritionally a more complete food. According to PNUD/UNOPS (1998) and based on qualitative surveys and observations in Kinshasa in May 1996, the part of each food item in the diet is as listed in Table 2.

Table 2 Contribution of food items in the diet of the Kinshasa population, 1996

	% in calories (out of 1.989 cal/day)	% in weight (out of 719 g/day)
cassava	50.0	39.0
white rice	9.5	7.4
palm oil	9.0	2.8
maize	6.9	5.5
bread	5.0	3.8
plantains	4.6	10.0
vegetables	1.0	7.6
fish	3.6	3.8
beans	3.4	3.0
	93.0	92.9

Source: PNUD/UNOPS, Monographie de la ville de Kinshasa, PNSAR 1997-2001, octobre 1998, p. 196

These data are from 1996. We believe that today on average much more than 50 % of calories come from cassava. Also, cassava leaves are the most important vegetable, and an important source of protein. Cassava flour and leaves together probably provide 60-65 % of all calories, with maize, rice and bread (wheat) each probably taking close to 5-10 % of the remaining calories.

According to Banea-Mayambu J-P (in Kankonde & Tollens, 2001), a survey in Kinshasa of 625 households showed that 82 % have cassava fufu (dough) as most frequent food, followed by fufu of cassava and maize (60 %). Fufu of maize only is only the most frequent staple for 11 % of the households. Maize flour is often added to cassava flour to improve the consistency and volume of the dough. Mixing of

cassava and maize flour in fufu is a relatively recent practice, facilitated by the economic crisis. Originally, only people originating from the southern savannahs (Kasaïs and Katanga) had maize as their major staple while people from forest origin had cassava as main food. The basic diet is thus almost totally vegetarian and monotonous.

Cassava is transported usually as cossettes (chips), but they are semi-perishable, absorb humidity and mold easily in a couple of days. They are dominant in the transport by trucks, because they are quicker than boats. If cassava arrives by boat in Kinshasa, it is usually as kimpuka (or bimpuka) paste, which is half wet, such as from Mai Ndombe, ready for processing into chikwangue (form of cassava bread). This form has been increasing in importance because of the growth in boat transport on the rivers. Most vegetables, especially those of the leafy type (Amaranthus sp., such as biteko-teko, ngai ngai) are grown in or near Kinshasa. But pricey vegetables-condiments such as fumbwa (Gnetum africanum), which only grows in the wild in Bandundu, is weekly flown in by large cargo plane from Kikwit. All this happens with very little or no state support. In fact, one of the main constraints is the state, which is very active in enforcing artificial price regulations, levying taxes and exercising "extractive" services. As a result, markets are now everywhere in Kinshasa - everywhere where a truck stops, and the truck moves on first sight of tax controllers. Thus, a lot of food trading, particularly wholesale or semi-wholesale, takes place at night and/or in private walled "parcelles" (compounds) of the traders. More or less the same happens with boat landings, which now extend as far as and beyond Maluku, outside the control of predatory state inspectors. There are now 48 recognized ports in Kinshasa (Bescoplan/GRET, September 2000), more than ever

before. The following government services are present at each port (landing): DGM, ANR, Force Navale, PIR, OFIDA, Hygiène, Police Fluviale (Source: ORGAMAN, oral communication).

2.2. The loss of Equator and East provinces - redirection of river trafic to Bandundu

Since September 1998 and facing the drying up of most of the trade flows from Equator and East provinces, Kinshasa has managed to avoid food crises of catastrophic dimensions thanks to a reorientation of its barge fleet from Equator to Bandundu. The following data support this fact on the basis of river boat transport documents registered at OFIDA and corrected for underreporting (by Bescoplan/GRET's methodology).

Compared to 1996 when 52 % of agricultural products arriving by boat in Kinshasa came from Equator province, in 1999, 2000 and 2001, 80 to 91 % now comes from Bandundu because most of Equator[3] and all of the East province are now in occupied territory and cut off from Kinshasa. But it is worth noting that the tonnage of food supply coming from Bandundu has more than tripled (x 3,2) since the second war. Tonnage went up from an average 3,500 t per month to about 11,000 t, and most of it as food as few other agricultural commodities are shipped to Kinshasa by boat from Bandundu (e.g. some coffee, no rubber). The redirection of river trafic from Equator and East provinces to Bandundu is remarkable and demonstrates how flexible and resilient river transporters are.

Table 3 Part (tonnage in %) of each province in the agricultural supply of Kinshasa via river boats

	Jan.-May 1996	Jan.-May 1999	Jan.-May 2001
East province	12	0	0
Equator province	52	13	5
Bandundu province	18	80	91
Kasaï	18	7	4

Source: Félix Kupay, GRET, 2001

Table 4 Total tonnage of agricultural supply[4] of Kinshasa from river transport, January-May 1996-2001

	January	February	March	April	May	Total
1996	24.887	13.297	16.109	18.920	23.077	96.290
1998	17.990	19.247	18.835	12.076	24.058	92.206
1999	7.940	9.828	14.839	20.517	15.683	68.807
2000	8.881	13.397	11.476	-	-	33.754
2001	8.488	10.855	10.263	16.427	14.361	60.394

Source: Félix Kupay, GRET, 2001

Table 5 Tonnage of food supply to Kinshasa from Bandundu, 1996-2001

1996	17.332
1998	54.538 (% of 1999 used)
1999	55.046
2000	(45.005) (% of 1999 used-extrapolated to 5 months)
2001	54.959

Source: Calculated from tables 3 and 4

Table 6 Number of boats registered at arrival in Kinshasa, 1996 and 1999

Provinces	1996	1999
Bandundu	130	246
Equateur	162	51
Kasaï	30	29
Province Orientale	42	0

Source: Bescoplan/GRET, September 2000, p. 63

P.S.: It is to be noted that 62 % of the tonnage was cassava from April 1999 to March 2000; maize represented 19 %, palm oil 5 %, and coffee 9 %.

[3] Unilever Congo has lost control of its Yaligimba plantation in Equator province and Lokutu plantation in the Eastern province but they still have control of the Boteka plantation in Equator province. This is now the main supply of palmoil in Kinshasa (source: Agrinfo, III N° V, Juillet 2001).

[4] Excluding timber

It should be remarked that maize exports from Bandundu to Kasaï provinces continue unabated, as the Kasaïs are a food deficit area and maize is the dominant staple food. Prices of maize in Kasaï are usually higher than in Kinshasa.

River traffic arriving in Kinshasa has doubled between 1990 (source: BEAU, 1991), and 1999/2000 (source: Bescoplan/GRET, 2000). The figure for 1990 was 107,000 t and 200,000 t for 1999/2000. In 1990, two-thirds of river traffic was by the parastatal ONATRA and only one-third private sector while in 1999/2000 95 % was private sector transport.

2.3. The emergence of "baleinières" (wooden boats)

About 100 to 120 wooden boats ("baleinières"), each transporting between 10 and 200 tons, with an average of about 40 tons, arrive in Kinshasa ports every month. GRET estimates the total number of wooden boats operating out of Kinshasa at 150 to 200. Boats are much larger and are made of iron and usually consist of a powerfull pusher boat to which several barges are attached. Their average cargo exceeds 100 tons.

Table 7 Arrivals of agricultural products in Kinshasa from local origin: parts of each province and mode of transport, April 1999-May 2000

Origin and mode	%	Products	%
River Equateur	7	Cassava	58
River Bandundu	43	Maize	17
River Kasaï	5	Other	25
			100
River ONATRA	3	Other: Palm oil	7,9
Railroad Bas-Congo	2	Beans	4,8
Road Bas-Congo	22	Vegetables	3,6
Road Bandundu	18	Fruit	3,3
	100	Coffee	3,7

Source: Bescoplan/GRET, September 2000

Cassava represents 55 % of tonnage of trucks arriving in Kinshasa from Bandundu, maize represents 20 %. For Bas-Congo, cassava represents 36 % of weight, followed by palm oil (16 %) and fruit and vegetables (10 %). According to Bescoplan/GRET, between April 1999 and March 2000, 350,000 tons of locally produced food products arrived in Kinshasa[5], varying between 21,000 and 39,000 tons monthly. Of these, Bandundu represents 62 % (43 % by river, 18 % by road), Bas-Congo only 24 %, Equator 7 % and Kasaï 5 %. The top months are April to July, just after the main harvest of season A, particularly for dried products such as maize, beans and groundnuts.

The importance of wooden boats ("baleinières") in river trafic from Bandundu and Kasaï is surprising and a response to poor road trafic conditions. The wooden boats barely existed in the 1980's. They are now made by craftsmen in wharfs at Eolo in Idiofa territory and in Nioki in Inongo territory (ex-Forescom site). The Nioki wharf already existed in colonial times but, as far as we know, the Eolo wharf is new. It must be the result of the wooden boat building project financed by USAID in the 1980's as part of their Bandundu agricultural marketing improvement project. An expatriate naval architect trained several local carpenters in the skills of wooden shipbuilding. We can only state in 2001, with surprise, that this project was probably very successful and results now in a steady supply of new wooden boats. It should be noted that the wooden shipbuilding project was, in the late 1980's, considered by many as a dead proposition, as transport by truck at that time seemed so much more logical and convenient.

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[5] We estimated (Goossens, Minten & Tollens, 1994, p. 203) in 1990 that about 275.000 t cassava flour arrives in Kinshasa from Bandundu and Bas-Congo, and 116,000 t maize per year. The Kinshasa population then was estimated at 3.23 million inhabitants.

2.4. Rehabilitation of roads the key

The PAR project (Projet d'Appui à la Réhabilitation), financed by the European Union has in 1998 and 1999 rehabilitated the main asfalt roads between Mbanza Ngungu and Kinshasa and between Kinshasa and Mbankana. In addition, many feeder roads, particularly in Bandundu province have been maintained and the roads leading to major embarcation points along the rivers in Bandundu (particularly in Idiofa zone), have been opened up and repaired. The Bescoplan/GRET September 2000 study provides a useful analysis of the effect of these roadsworks on the food supply situation in Kinshasa, and we draw on this study extensively, as it is the only recent one of its kind.

In 1998-1999, when supplies from Equator and the East province were largely cut off because of the war, cassava from Bandundu substituted largely for maize from Equator. Also, supplies of palm oil dwindled as well as locally produced rice (from the Bumba area) and groundnuts. Palm oil is still an expensive commodity in Kinshasa, sold in small plastic bags containing only 50 ml or 100 ml. At the same time, old natural palm oil plantations in Kwilu and Bas-Congo have been revived and put back into production. Soap, mainly derived from palm oil, is now also expensive and is sold in half or one-quarter bars.

Bescoplan/GRET (2000) reports that monthly maize shipments from Equateur by boat are normally around 10,000 t; after the war had started, they dropped quickly and leveled at 2,000 t.

2.5. Food imports

Food imports have always been important for the food security of Kinshasa since the 1980's (Goossens, Minten and Tollens, 1994), particularly cereals such as wheat and rice, and frozen products from animal origin (fish and meat). More products from animal origin were imported in 1999 as compared to 1998, when the war started. Mainly more frozen fish (mpiodi) was imported - on average monthly animal protein imports of 19,900 t in 1998 and 20,900 t in 1999. This amounts to over 200,000 t per year, a large quantity, but one should keep in mind that those imports are of low quality and very cheap, about US$ 1.00 per kg, and local production cannot compete with such cheap imports. Also, some of these imports are re-exported to Brazzaville and to the interior of both Congo's.

It is to be noted that repairs on the RN I (Kinshasa-Mbanza Ngungu road) financed by the PAR project have enabled these large imports by truck from the Matadi port. In 2000 and 2001, less animal products were imported, particularly less poultry because of more price controls in markets, shortage of foreign exchange and a rapidly deteriorating exchange rate. Particularly the largest importer, ORGAMAN, reduced its imports of frozen fish and meat. In 1999, they imported 67,648 t while in 2000 they imported only 62,655 t. But two competing importers from Lebanese origin and based in Antwerp, Belgium (Congo futur and Socimex) increased their imports and provide stiff competition to Orgaman. Over a comparable period January 1-June 30, in 2000, 70,235 t frozen animal products (fish, meat) were imported and only 56,778 t in 2001. Of these, 59,167 t were mpiodi in 2000 and 45,592 t in 2001.

Since the second war began in 1998, there is a sharp increase in the import of dry cereal based products, particularly wheat flour and rice. Lebanese companies are now very active in this trade, the same companies involved in frozen products from animal origin. Thus in 2000, over 100,000 t of wheat flour was imported, and more is being imported in 2001 despite the heavy (at 35,60 %) import duty protection on wheat flour. It is reported that a lot of these imports are fraudulous, benefitting from rapid removal procedures ("enlèvement d'urgence") at the Matadi port, with only part of the official duty being paid. Thus, MIDEMA, the traditional supplier of wheat flour in the D.R. Congo, with large flour mills at Matadi port, works only at about 40 % of its capacity (110,000 t in 2000) and is suffering. But bread is available everywhere in Kinshasa (and in the interior) at cheap prices. "Baguettes" of 150 g to 200 g sell everywhere for 25 to 30 F.C. (or bout 0.10 US$), a cheap food staple indeed[6]. The large bakeries (Quo Vadis, B.K.T.F., UPAK and Panico) have depots everywhere in Kinshasa, are large scale and efficient. Thus, bread has become a major food staple and competes with the local traditional food staples: cassava and maize. Travelers report that bread baguettes travel long distances and can be found far into the interior, even in small, remote villages.

MIDEMA has also imported recently small lots (2,000 t each) of maize for its mills, to cover its maize deficit (from Equator province). They also import soybeans from Bresil for their production of chicken feed and soybean milk (brand name SOJAGRI, a mixture of soybean milk and maize flour).

[6] Nothing is really cheap for a family if income is only 50 US$ per month. But 0.10 US$ for a meal (baguette) is a low threshold and moreover, a fairly balanced diet. Internationally speaking, the price for a baguette is very low.

As world prices for rice have been falling over the last years, due to good harvests in mainly Thailand and Vietnam, much more rice is being imported in the D.R. Congo. And there is a large choice of origins of rice: Vietnam, China, Pakistan, USA, etc.. Moreover, the rice is usually of good quality, with 5 to 10 % maximum brokens. Rice sells per 25 or 50 kg bag at around 0.50 US$/kg, and more when smaller quantities are bought.

MIDEMA, the main wheat importer in D.R. Congo recently opened a new feed mill in Kinshasa. Over the last two years, their sales of animal feed have increased 80 %. They sell mainly pig-and poultry feed for peri-urban agriculture. Small numbers of livestock are now kept everywhere in Kinshasa, even in the middle of the city, with the excrements serving as organic fertilizer in urban market gardening. Common types of fowl raised are chickens, ducks and pigeons. A 1999 CEPLANUT survey found that one family out of ten raises fowl.

2.6. Cassava diseases a major problem

What exacerbates the present food situation is the rapid spread and incidence of cassava mosaic disease (CMD). Although CMD is endemic to Congo and widespread, the invasion of the East African or Uganda type virus is new, and this is a much more lethal and devastating gemini virus than the existing (West African) type. Many cassava plants now are affected by both types of virus, in addition to other diseases/pests (cassava bacterial blight, cassava green spider mite, cassava mealybug) , resulting in very low or no yields. As cassava is planted everywhere in D.R. Congo, and is the main staple, the spread of the virus disease by the white fly is facilitated. Moreover, as cassava is propagated by cuttings, the CMD virus is mainly propagated

from planting diseased cuttings. Thus, in a couple of years, most cassava fields are affected, particularly on the poorer soils, which are predominant. But it is likely that farmers are now also planting cassava on their better soils, as a coping mechanism.

It is thus not surprising to find that the retail price of maize flour in Kinshasa markets is sometimes lower than that of cassava flour. Historically, cassava flour is always the cheapest staple. But low cassave yields in Bas-Congo and Bandundu, the major supply areas, and increased long-distance transport of maize by boats explain why maize flour is now occasionally cheaper. Even imported rice, usually from Vietnam or Thailand, is sometimes cheaper in Kinshasa markets than cassava flour. Historically, this is a new unprecedented situation, indicating clearly the cassava crisis which is hitting the country.

Table 8 Retail prices of basic food staples in Kinshasa, 2000

	March 2000		August 2000		22.12.2000	
	FC	$	FC	$	FC	$
Maize (kg)	12	0,34	25	0,36	90	0,69
Cassava (kg)	18	0,51	34	0,49	47,5	0,36
Rice (kg)	18	0,51	30	0,43	70	0,53

Source: Informations sur la sécurité alimentaire en RDC, No 20, 22.12.2000, Kinshasa

A multi-donor project on cassava pest and diseases, including the introduction and rapid dissemination of CMD resistant varieties, the release of predator mites to do battle with cassava green mite, monitoring, evaluation and impact assessment, and involving IITA, INERA, the South-East Consortium for International Development (SECID) from the USA and local NGO's is being elaborated. The FAO and USAID have in principle agreed to finance the project.

2.7. Changes in cropping patterns

There is anecdotal evidence that important changes in cropping patterns in Bandundu and Bas-Congo have taken place over the last decade. There is the notable increase in the area of cowpeas, a short season dry grain legume, very rich in protein, which has become an important source of vegetable protein. Cowpea is typically a crop of the semi-arid zone, such as northern Nigeria, but it is now common in the Kwango and on the dry sandy savannahs of the Plateau des Bateke. It is often grown as a second season crop which benefits from the residual moisture in the soil.

Also, more and more millet is found in the dry savannahs, a Sahel crop found everywhere in southern Bandundu. One also finds sesame in Kinshasa markets, again a crop of the dry savannah. In the inland valleys of Bas-Congo, such as around Mawunzi, and in the Kwilu region of Bandundu, more and more rice is grown.

With the "Pool Malebo" project, in collaboration with the National Rice Progam (PNR), and financing from Belgium, 5,000 rice growers are supported on 2,000 ha of marshlands/wetlands alongside the Congo river in Kinshasa. All indications are that this project is successful in promoting local irrigated rice production in Kinshasa. The Italian cooperation is doing the same by constructing dikes in the marshes in the Malebo pool and promoting irrigated rice production.

Particularly in Idiofa zone, where the PAR project has rehabilitated feeder roads, including these leading to river ports, there has been a sizeable increase in maize production, maize which is shipped to Kinshasa and to Kasaï provinces. In general, more maize is now produced in Bandundu to counter the loss of maize supplies from

Equator province. Midema, which sells improved seeds, reports an increasing demand for improved maize seed.

2.8. Food prices

Regarding food prices, expressed in US$ to compensate for erratic exchange rate movements, they have been rising from October 1994 when they were at their lowest over the last decade, to January 1999, an increase of about 30 %. Moreover, seasonal price fluctuations became more pronounced. From January 1999 on, prices started to fall to attain their October 1994 level again in early 2000, a drop of 30 %. Thus, 1999 can be considered a good year regarding food prices, in spite of the war. In 2000 and 2001, maize prices have been increasing rapidly, particularly in the second half of the year, while cassava prices have been more or less stable. The same can be said of imported rice and wheat prices which are historically at low levels (rice at about 0.50 US$/kg and wheat flour at US$ 0.40 to 0.50/kg).

However, the dampening effect of seasonal variation in prices because of alternating seasons North and South of the Equator has disappeared, as northern supplies are nearly shut out. Thus, seasonal fluctuations are now much more pronounced, with low seasonal prices during the main Bas-Congo and Bandundu harvests from January to May and higher seasonal prices in the second half of the year, with peak cassava prices in October (the wettest month, making the drying of cassava cossettes particularly difficult) and November.

On a positive note, because of repairs on the RN1 tarmac road to Kinshasa, pondu (fresh cassava leaves, a vegetable and main source of protein) prices in early 2000

were only one-third of those in early 1999. Pondu is a very perishable commodity which does not allow transport over long distances. It has to be consumed the two days after it is harvested. Pondu prices are thus back to their low 1993 level.

Maize prices in 1999 and 2000 in Kinshasa were higher than in 1997 before the war, with very large seasonal variations (from 0.30 US$/kg after harvest in February to 0.70 US$/kg in December before the harvest in Bandundu.

In May 2001, with the economic liberalization and a fourfold increase in fuel prices, food prices spiked up again, causing hardship on the population. By all international standards, retail food prices in Kinshasa markets are high, thus further eroding purchasing power and real income. Most staple foods such as cassava flour, maize flour and imported rice sell at retail prices of 0.50 US$/kg or more. Only bread prices ("baguettes") are really low, which also explains the upsurge in imports of wheat, and particularly wheat flour.

2.9. Poverty and purchasing power

Regarding incomes and purchasing power in Kinshasa, most families in Kinshasa communes, composed on average of 6-7 persons, have a monthly income that has not changed much between 1997 and 1999-2000. The poorest families dispose of around 50 US$/month, barely enough to cover the food bill. The very poorest have about 30 US$/month, not enough to have ends meet. They cannot attain at least 2,000 calories per day per person, as they skip meals and purchase very low quality food. How they cope exactly is not known, but it goes beyond logical, rational comprehension. This however, has not changed much over the last five years.

The poorest areas of Kinshasa, such as the overcrowded central areas of the commune of Selembao, and in the semi-rural peripheral areas such as the commune of Kimbanseke and Kisenso, show worrying levels of poverty and destitution, with chronic food insecurity as a result. These urban populations are living an extremely precarious existence and are vulnerable to any external shocks, monetary or otherwise such as illness or loss of employment. A survey conducted by Save to Children UK in the poorest parts of the commune of Kimbanseke in April 2001 found that 42 % of children are chronically malnourished, and that global malnutrition rates had reached 18.3 %. The severe malnutrition rate in these areas was also found to have tripled between September 1999 and January 2001 (No End in Sight, August 2001).

According to S. Marysse (Luzolele, De Herdt and Marysse, 1999), increases in malnutrition rates coïncide with macro-economic shocks, such as inflation or monetary reforms, which greatly influence the purchasing power of Kinois. This points to the importance of macro-economic stability and economic growth in combating malnutrition and poverty.

Ntoto M'vubu (in Kankonde & Tollens, 2001) did in 1999 household budget surveys in three poor communes of Kinshasa city: Kisenso, Kindele and Makala. Average monthly household income in Kisenso was the lowest, 71 US$, for an average 8 persons. They spent 39 % of their income on food, followed by 22 % on energy, water and soap, 12 % on transport and 11 % on housing, 8 % on education and 6 % on health. Expenses for energy are high because most of Kisenso is not connected to the electricity grid, requiring petrol lamps for lighting and cooking with charcoal or wood. They spent only 39 % of their income on food, but most families grow some

of their food, as they are in a semi-rural area, with the poorest households spending well over 50 % of their income on food. For more on household budget expenses in these three communes, we refer to Ntoto.

2.10. Innovations in Kinshasa food markets

There are several innovations in Kinshasa food markets which need to be mentioned, because they impact positively on the food security situation. These innovations all appear to have been introduced spontaneously, "sui generis", as people-based responses and adaptation to economic and political constraints and particularly the failing state and formal private sector in providing basic social, economic and administrative services.

L'agence commissionnaire. This is a formal sector commissioning agent which has four functions:

1. Bulking and grouping of goods to be sent to a particular destination. Traders contact them to expedite their goods.
2. Grouping of travelers for particular destinations and finding of a truck going to that direction.
3. Communication, usually by radio but also more and more by cellular telephone.
4. The sending and receiving of money, in lieu of the banking sector.

The commissioning agents are all located along avenue Kianza for Bandundu and along Kasavubu for Bas-Congo (Bas Fleuve). They have correspondents in the rural areas of Bandundu and Bas-Congo with whom they are in contact.

Regarding money matters, these agents also perform bank clearing, substituting for the bankrupt banking sector. It is thus possible to send or receive money to or from any small town in the interior in one day. But there is a hefty fee to be paid, usually 10 %. Such a social innovation fills a need, is based on trust and ethnicity (importance of social capital) and is a people-based response to a failing state-private sector interaction regarding the control of money flows.

What is particularly important is that these commissioning agents emerged sometimes in the nineties, in response to a felt need, and in order to reduce transaction costs. They did not exist in the eighties. They clearly indicate spontaneous social-economic innovation in the marketing of products, and they fulfill a tremendous facilitating function. It is the decline of the large scale banking and transportation sector which gave rise to these innovations.

Les "mamans-manoeuvres", "mamans-bipupula" or "mamans-kabola". It concerns certain services provided in food markets by the poorest of women which in this way ensure their survival. They provide facilitating services for the grouping of buyers and in the repartition of the produce among buyers. It is particularly popular for cassava cossettes but also exists for maize and even for frozen fish (mpiodi). Thus, one can always find "maman-kabola" in front of cold storage chambers in Kinshasa (there are more than 200!), ready to split-up big fish in smaller parts for a small fee (in fish). The women concerned collect sufficient funds among potential buyers to buy a lot, e.g. one sack of cassava cossettes, which they subsequently split up among the many buyers, which they have thus grouped. Each individual buyer is not able to buy a minimum unit, i.e. a sack of 50 kg, but via the intermediary "maman", who also

pools the money for the purchase, each buyer gets his share of the sack. The remuneration of the "maman-manoeuvre" consists of the cassava cossette broken fragments which remain in the sack and cannot be distributed, and other parts of cossettes given to the "maman" by the individual buyers. Out of a sack of 50 kg, she may thus receive 2 to 3 kg maximum. This innovation has become so successful with the economic crisis that the number of "maman-manoeuvres" has increased greatly. As a result, each "maman" only handles on average 2-3 sacks per day, thus collecting 4 to 9 kg of cossette fragments, part of which is sold for cash income.

Another innovation concerns the "*chayeurs or Kadhafi's*". They act as intermediaries between traders, large scale and small scale, find clients, propose deals and exchanges in natura (barter). He may propose a split of loads, in order to meet volume requirements of buyers. He may either buy the goods himselves or just act as a go-between or broker.

Then there are the "*groupeurs*" or "*commissionnaires*" which in the interior look for goods, reserve them for buyers, group them and store them. They are aided by "*éclaireurs*" which work for particular buyers or transporters and guide them to places where business is waiting. They essentially provide information about where food products are, at what price and under which conditions. "*Ngunda or ngundeurs*" are small-scale traders which during the main marketing campaign live in rural villages and look out for the cheapest prices and best deals. They may work on their own or on commission for a large scale trader. Then there are the "*drogadeurs*", informal sector dockers which load/unload boats in makeshift, occasional ports, outside the control of the official port authorities and official, formal sector dockers. Sometimes,

they may guide a boat to a particular port location where they can operate without the "*tracasseries*" usually encountered in the (official) port of Kinshasa.

An important coping strategy for Kinois are the remittances sent by family members living abroad. Relatives abroad, and particularly overseas, always have a moral obligation to send money to next of kin on a regular basis. The recent spread of Western Union branches in Kinshasa is witness to the growing importance of remittances as a means of survival.

The explosion of peri-urban and urban agriculture in Kinshasa can also be seen as an innovation, induced by poverty and food insecurity. Although several projects, and in particular NGO's now support it, its emergence and growth in the nineties is really a grassroots, bottom-up innovation, that needs more.support and study. It probably plays a vital role in poverty alleviation and food security. In any case, it greatly reduces vulnerability of poor households.

Another technology led innovation is the emergence and rapid spread of *cellular telephones*, which are now ubiquitous. Although Kinshasa was one of the first large cities in Africa to have cellular (analogous) telephones, i.e. Telecel in 1989-1990, there has been a recent explosion of cellular telephone companies, with at least eight companies (Oasis, Celtel, Comcel, Starcel, Celnet, Telecel[7], …) now competing in the market. It should be noted that many of these cellular telephone services are not compatible with each other, requiring important businessmen (or -women) to have

[7] Telecel started in Kinshasa in 1985, the first mobile telephone company in Africa and in most European countries.

several cellular phones. Such cellular phone services are widely available through cellular phoneboots where one can rent a phone by the minute (or impulsion). To some extent, several cities in the interior also have cellular phone services. This has facilitated the emergence of many types of informal services, which reduce transaction costs in marketing.

A last state-led and private sector implemented innovation which should be mentioned here is the construction of the huge "*Marché de la Liberté*", retail market in Ndjili, commune of Kinshasa, on the former site of General Motors. This retail market is under construction on a 21 ha site, and will presumably be the largest retail market in Africa. It will have 7,300 tables, with each table 2 m wide. In addition, it will have bank offices, cold storage facilities, parkings, storage chambers, etc. It will be managed by the city of Kinshasa and it is being constructed by the Katanga based mining and construction firm M. Forrest. The total cost is unknown, but is obviously large. Apparently, it is being constructed by M. Forrest company as royalty payment for the processing of mining refuse (terril heaps) in Lubumbashi, together with Union Minière Company (Umicore) of Belgium, in order to produce cobalt. Their factory in Lubumbashi is now the second largest of its kind in the world. Apparently, a similar although much smaller retail market is already constructed in Lubumbashi. It is rumoured that more of these large modern retail markets will be constructed in Kinshasa. What is amazing is that not much advance planning or study seems to precede such heavy investment which will be of very high social relevance.

3. Food security in the war zone

It is very difficult to obtain reliable information on the food security situation in the interior of the country, and particularly in the war zone. Most of the information available is purely anecdotal. One has to rely mainly on the information provided by OCHA (Office for the Coordination of Humanitarian Affairs of the UN), FAO (Coordination of Emergency Operations in R.D. Congo), ECHO (Office of Humanitarian Aid of the EU-Commission) and NGO's active in the war zone. This information is patchy but it points to an enormous human tragedy which is on-going and which does not elicit much concern in world opinion.

In the eastern part of the DRC, troops are slowly retreating from the frontlines, but are also often redeployed to mineral-rich areas. This has led to upsurges of fighting between different armed groups, as usual at the expense of the local population. One of the current driving forces behind the conflict, and which at the same time prolongs it, is a desire on the part of the warring factions to have access to, and control over, the vast mineral resources of the R.D. Congo (gold, diamonds, coltan). This greed is causing the suffering of millions of people. As none of the soldiers gets paid, or receives food supplies, they command the local population often at gunpoint, to supply them with food. The usual reaction of the local population is to flee, into the forest or the other areas, and thus to become internally displaced. Mainly the internally displaced population (over 2 million people) suffers from severe food insecurity. An estimated one million people are still hiding in the forest/bush, living a very uncertain life from hunting/gathering, devoid of any medical care or support. Their nutritional situation, particularly women and children, is particularly appalling.

We quote from "No End in Sight - The human tragedy in the R.D. Congo[8]"…"In rebel-held areas, the rates of global malnutrition among children under five reported in the past year have reached 41 %, with severe malnutrition rates of up to 26 %. These figures were recorded at the point at which the humanitarian community gained access to previously isolated communities. Consequently, it is reasonable to expect that in areas of the East, which continue to be too insecure to allow any form of assistance to be delivered, the situation is at least as bad, and possibly worse. Displaced populations inaccessible in the forests are in a particularly bad nutritional state, as illustrated by (World Food Program) WFP's figures for South Kivu, which show that 75 % of malnouriched children currently registered in feeding centres belong to families which have just emerged from the forests. When Manono and Kiambi (northern Katanga) became accessible in January 2001, Nuova Frontiera conducted a nutritional survey which found a global malnutrition rate among under fives of 32.07 % and a severe malnutrition rate of 25.79 %."

The large number of people displaced to the forests almost exclusively eat cassava, cassava leaves and wild fruits, an unbalanced diet which results in poor nutritional status and susceptibility to diseases.

Displaced persons in particular lack simple farming tools, seeds and planting material. They often steal food and planting material on their flight, further adding to tensions and conflict.

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[8] Source: From "No End in Sight - The human tragedy of the conflict in the R.D. Congo", "Save the Children - Oxfam - Christian Aid", August 2001, p. 25.

The humanitarian aid organizations active in the D.R. Congo, particularly OCHA, ECHO and several NGO's, seem to be well organized and efficient. However, they lack funds because the cost of reaching displaced and vulnerable populations is very high, because of the long distances, poor road network and risks involved. In fact, gaining access to the vulnerable population at risk is the main problem. Many displaced persons are so afraid of any foreigners that at first sight they flee again, a reaction they know all too well. Many have almost no more clothes and are afraid to show up because they are indecent. Thus, one of the first acts of humanitarian organizations is usually to distribute clothes, followed by the distribution of emergency food and then seeds, planting material and farm tools. And the war is far from being over ... One can wonder how much social capital and social institutions, the backbone of survival in Kinshasa, has been destroyed and what it will take to rebuild it.

4. Conclusions

Eating in Kinshasa represents a hardship, more now than ever before. But it is more a problem of inadequate income (poverty) or purchasing power than one of failing supply. And the hardship does not really show up in nutritional indicators. Kinois obviously have developed sophisticated coping mechanisms over the last decade. Despite tremendous adversity in infrastructure, supporting state services and formal private sector operations, nearly enough food is produced and imported for the Kinshasa megapolis, it gets transported and distributed, providing in the process employment and income for thousands of poor people, particularly women farmers and traders. But it also provides rents for state officials and some revenue for the central government. This miracle happens every day, on the surface in utter chaos, but according to its own logic, based on social kinship, community, religious and commercial networks, sometimes spanning thousands of kilometers, defying state control and predatory tactics by those supposed to ensure safety and a facilitating environment.

Cassava and some maize supplies from Bandundu, mainly transported by river boats, have nearly fully compensated the loss of staple food (mainly maize) from Equator and the East provinces. This is very remarkable: boat transport (tonnage) has **more than tripled** in the postwar period as compared to the pre-war period (1996-1997). The rehabilitation of many feeder roads in Bandundu by the PAR project, including those in Idiofa zone leading to river ports, and the emergence of wooden boats ("baleinières") has greatly facilitated this switching of supplies. This is a miracle that has come true and that helps to explain why the food security situation in Kinshasa is better than expected.

Because of the near collapse of the formal sector, including the bankrupt banking sector, bank clearing and the sending of money now takes place in the informal sector, making it possible to send or receive money to or from any small town in the interior in one day. Bulking of goods and transport to any destination now takes place on a routine basis. Such a social innovation via the "agence commissionnaire" fills a need, is based on trust and ethnicity and is a people based response to a failing state-private sector interaction. The same is true regarding cellular telephone communications which are now ubiquitous and which make te state-run telephone service (ONPTC) totally redundant. The "mamans-manoeuvre", "mamans-bipupula" or "mamans-kabola" make the buying of small quantities possible while still benefitting from economies of large volume (a sack), at a small cost. Intermediaries exist for everything, such as the "chayeurs or kadhafi's" which act as brokers and information providers. In the interior, "groupeurs" or "commissionnaires" collect goods for buyers-transporters and "éclaireurs" guide buyers and transporters to places where business is waiting, all for a small fee. Ngunda and ngundeurs are traders which spent most of their time in rural areas always on the outlook for cheap merchandise. Finally, drogadeurs are informal sector dockers which operate in makeshift or occasional ports in Kinshasa for the loading and unloading of boats. All these "operators" did not really exist a decade ago.

What all this shows, and the picture is probably far from complete, is that the Kinois have responded to the challenges of daily survival by developing their own appropriate, people based, ad hoc solutions. They are not always very efficient or low cost, but they work and almost always employ large numbers of people and are based on trust, kinship and social capital. One can consider them as informal sector

operators, but the line between formal and informal has become blurred. Moreover, nowadays, formal and informal usually work in tandem, in symbiosis, complementing each other, beating the predatory state system wherever possible. Many informal operations may have a formal "front", such as the "agences commissionnaires", which are commercially registered, but operate outside the formal banking and trading system. And there is evidence that large, formal sector operators are operating more and more informally or fraudulously if you like, importing for instance wheat flour, rice, mpiodi, chickens etc. partly offical, partly unofficial. In the end, the poor Kinois usually benefits. How else can one understand that a 150-200 g "baguette (bread) costs only 0.10 US$ and is ubiquitous all over Kinshasa and in the interior. And that mpiodi (fish) sells for say, one US$/kg.

In conclusion, the food security situation in Kinshasa is precarious, in a dire state, and one would expect a very poor nutritional situation, widespread severe and acute malnutrition. But malnutrition rates today are not really worse than ten years ago. Coping strategies have been developed and honed with great skill and creativity over the last decade. And Kinois seem to be able to cope, le "miracle kinois"! The question then is how long this poor situation will persist? And once peace returns, and economic growth becomes a reality, what needs to be done to turn this social capital, capacity for social innovation and adaptation into powerfull levers for economic and social development?

On food security in the interior, and the war zone in particular, which is not really the focus of this chapter, the picture that emerges is that the food security situation is worse than one could imagine. Once social capital is destroyed, when people are

uprooted and displaced, survival of the fittest becomes the norm as normal coping stategies become ineffective and redundant. Much more humanitarian aid should go to these "victims" and the real fallacy is to assume that the robustness, resilience and coping strategies at work in Kinshasa extend to people in the war zone. But in a war situation, social capital breaks down, people get displaced, isolated and cut-off from kin and community, and social innovation becomes an empty concept.

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