



C3P FOOD SECURITY BRIEF NO. 5

FOOD SECURITY IN RWANDA

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BACKGROUND

One of C3P's activities is to assess and document the status of food security in the regions' households, and the relationship between food security and the C3P mandate crops, East African Highland banana and cassava.

This brief describes three indicators of food security in Rwanda 'Food security I' contains the actual calorie intake per caput per day from own production. 'Food security II' depicts the total cal/cap/day capacity of households from own production (both consumed and sold), whereas 'Food security III' describes the capacity of households to purchase food from off-farm income.

The survey on which this brief is based covers Rwanda as a whole.

Food security in Rwanda

Introduction

In contrast to the other three countries assessed in the Food Security Briefs 1-4 (Abele et al. 2006), Rwanda is definitely on the edge of food insecurity. FAO (2007) reports an average per capita calorie intake in the years from 2002-2004 of around 2,100, which is just the minimum of intake for humans, and does certainly not allow any downward variation or distributional biases without jeopardizing food security.

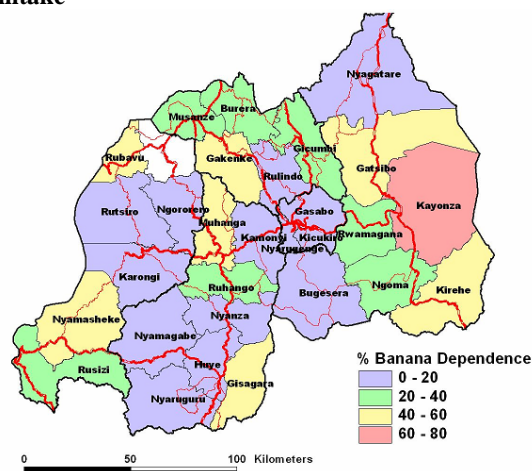
Rwanda has a series of issues to be considered when talking about the origin of these food security problems. High population density, small farms and a hilly landscape which makes agriculture prone to erosion and hence low soil fertility are the major contributors to the problems. Recently, diseases like banana bacterial wilt and cassava mosaic disease, but also abiotic stresses like droughts have further contributed to the instability of food security.

The role of banana and cassava in the region's food security

Bananas and cassava play an important role in Rwanda's diets. Together, they make up more than 90 percent of the diets in some areas. Bananas contribute from 12 to almost 80 percent of the diet, depending on the district (Map 1). The highest

banana dependence is found in the East, near Lake Victoria in Tanzania, whereas the lowest diet share is in the central corridor.

Map 1: Contribution of bananas to daily calorie intake

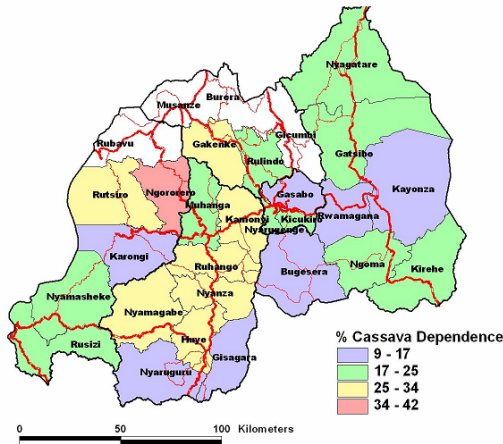


Source: Own data.

The cassava dependency range is from twelve to 42 percent (Map 2). It is highest in a kind of corridor running through the middle of Rwanda and lower in the West and East. It thus looks like bananas and cassava are substituting each other in Rwanda.

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Map 2: Contribution of cassava to daily calorie intake

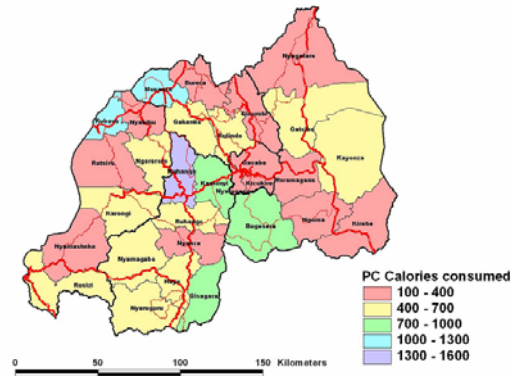


Source: Own data.

Food security I: Daily calorie intake from subsistence production

Daily calorie intake from subsistence production is seriously low. The variation per district ranges from 128 to 1,600 calories per capita per day from own production. This means that most of the households have to cover their food requirements from the market. There is – again – a kind of corridor of relatively high calorie intake from own production in the middle of Rwanda, whereas the more remote areas seem to struggle with their agricultural subsistence production.

Map 3: Daily calorie intake from subsistence production

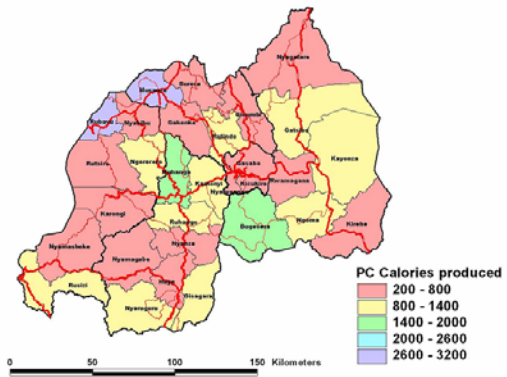


Source: Own data.

Food security II: Daily calorie capacity from total crop production

The daily calorie potential from total crop production ranges from 200 to 2,800 kcal per capita per day (Map 4). This again implies that the majority of Rwandan households are not in a position to cover their food needs from own agricultural production. The geographical distribution matches with the intake from subsistence production.

Map 4: Daily calorie capacity from total crop production



Source: Own data.

Food security III: Off-farm income

Official sources (CIA 2007) report a per capita income of about 60 US cents per day. The survey found a range from 0.3 to 1.2 US \$ per capita per day (the latter in Kigali). Of this amount, between 40 and 80 percent are available for food expenditures. Map 5 shows the spatial distribution of available cash per capita and month (in Rwandese Francs, exchange rate FRw/US \$ = 550). Income is expectedly highest in the Kigali area with no clear pattern otherwise across the country.

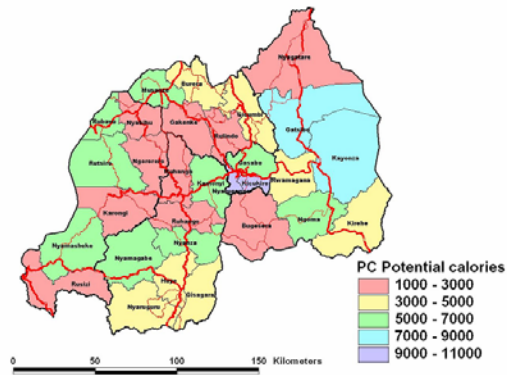
Map 6: Per capita monthly income for food purchases



Source: Own data.

This translates in a potential daily per capita intake from cash income through maize as depicted in Map 7. The range is from 1,000 kcal per capita per month to 11,000 kcal per capita per month, following the same patterns as the per capita income.

Map 7: Per capita daily calorie potential from income



Source: Own data.

CONCLUSIONS

The above data clearly show that Rwandan households, although in total food sufficient, live at the edge of food security. They are clearly susceptible to yield losses and price fluctuations. This implies that improved production technologies, including disease resistant varieties from banana and cassava, can significantly improve food security in Rwanda.

References

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Editorial

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Annex: Food security data by district

Province	District	Av per capita daily calorie intake from crop output consumed (kcal)	Av per capita daily calorie availability from total crop output (kcal)	Monthly p.c. income available for food purchases	kcal per caput per day from cash income	Bananas % of diet	Cassava % of diet
Western	Karongi	474	790	4,209	3,096	15.7	12.4
	Rutsiro	129	211	7,583	5,577	24.5	31.5
	Rubavu	1,172	2,785	9,972	7,335	60.8	unknown
	Nyabihu	364	647	3,885	2,857	unknown	unknown
	Ngororero	684	916	3,948	2,904	12.4	42.0
	Rusizi	530	894	1,682	1,237	35.0	23.4
	Nyamasheke	434	712	8,022	5,901	46.2	24.8
Eastern	Nyagatare	356	585	3,756	2,763	5.6	21.8
	Gatsibo	585	1,324	10,290	7,569	49.1	22.9
	Kayonza	557	1,303	11,272	8,291	79.2	14.8
	Rwamagana	443	752	5,499	4,045	31.6	10.6
	Bugesera	898	1,791	2,846	2,094	4.9	15.7
	Kirehe	403	790	6,492	4,775	50.0	18.7
	Ngoma	403	885	8,595	6,322	44.5	22.0
North	Rulindo	596	1,277	3,667	2,698	18.4	21.9
	Gakenke	526	817	3,840	2,824	46.0	25.6
	Musanze	1,290	3,185	7,519	5,530	41.4	unknown
	Burera	408	659	5,209	3,832	31.4	unknown
	Gicumbi	398	596	5,735	4,218	37.0	unknown
South	Nyanza	225	291	8,467	6,228	21.5	34.4
	Gisagara	868	1,158	5,384	3,960	46.7	8.5
	Nyaruguru	626	932	5,225	3,844	20.0	11.0
	Huye	452	634	5,231	3,848	7.7	32.3
	Nyamagabe	459	662	7,961	5,856	15.3	30.5
	Ruhango	652	1,131	4,397	3,234	36.4	30.0
	Muhanga	1,632	2,031	3,792	2,789	52.2	18.0
	Kamonyi	787	1,214	7,807	5,742	19.7	28.3
Kigali city	Nyarugenge	156	319	13,344	9,815	14.0	24.8
	Gasabo	335	813	9,823	7,225	19.6	14.0
	Kicukiro	283	543	15,121	11,122	13.6	20.6