Dietary changes in African urban households in response to currency devaluation: foreseeable risks for health and nutrition

Thierry Fouéré[1], Bernard Maire[1], Francis Delpeuch[1,*], Yves Martin-Prével[1], Félicité Tchibindat[2] and Guy Adoua-Oyila[3]

[1]Nutrition Unit, WHO Collaborating Centre for Nutrition, Institut de Recherche pour le Développement, 911 Avenue d'Agropolis, 34032 Montpellier Cedex 1, France: [2]Unité de Recherche en Nutrition et Alimentation Humaines, BP 15238, Brazzaville, Congo: [3]Bureau d'Etudes et Enquêtes, BP 9146, Talangaï, Brazzaville, Congo

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Abstract

Objective: To investigate the effects of currency devaluation on dietary change and nutritional vulnerability of poor households in two African capital cities.
Design: A qualitative study based on 120 semistructured individual interviews and four focus group discussions in each city.
Setting: Dakar, Senegal (western Africa) and Brazzaville, Congo (central Africa).
Subjects: All of the subjects were randomly selected women from modest or poor households, who spoke the local common language and were responsible for household meal preparation. Only those likely to restrict the dynamic of focus group discussions (because of language, age or education) were excluded.
Results: Changes were found in meal preparation characteristics (frequency, sharing pattern) and meal composition. There was frequent depletion of fat and vegetable contents in meals, frequent elimination of desserts and even the elimination of one daily meal. These changes specifically affected economically disadvantaged and socially isolated households, and those headed by women. Other changes were the reduction in the size of consumption units and the development of neighbourhood-specific street food – which has been a growing trend in Brazzaville since the outset of the economic crisis but is more recent in Dakar.
Conclusions: If lasting, these changes pose a dual health risk, i.e. reducing dietary diversity and altering the bacteriological quality of prepared meals. In addition, attempts to reduce the consumption units were found to upset community ties that bind these societies.

Keywords
Dietary changes
Devaluation
Urban households
Qualitative study
Nutrition
Vulnerable groups
Africa

The 50% devaluation of the CFA (African Financial Community) franc that took place in January 1994 had a far-reaching impact on the domestic economies of concerned African countries. This currency adjustment added to the effects of the structural adjustment programmes already implemented in response to the economic crisis in many of these countries since the 1980s. On a macroeconomic scale, the devaluation helped shore up the balance of payments by boosting export markets[1]. However, the magnitude of this devaluation, its sudden implementation and the announcement effect have had a profound impact on household behaviour and living conditions, especially in urban centres; these households have been obliged to address the increase of prices of imported products and the overall decrease in their purchasing power[2]. This has seriously upset the food sector[3]. City dwellers were thus forced to reorganize food distribution by inventing new food preparation and consumption practices, while modifying food-taking patterns[4]. Very few studies have focused on forecasting or determining the nature of these dietary changes, or on documenting subsequent health risks for vulnerable people, preschool children and pregnant or breast-feeding women[5].

While it is common to relate nutritional status or food consumption data to socioeconomic variables, it is less common to consider behaviour, which is an intermediary and explanatory link between income and diet[6]. In the case of the devaluation, it was important to get a clear picture of household food consumption habits before and after the devaluation in order to understand the sense of these changes. These habits are a reflection of the progressively acquired family experience underlying specific dietary choices that are generally made on the basis of evolving social conditions, long-standing economic constraints and a close attachment to profound cultural values[7]. These choices are also the result of how households view their own situation and plan to deal with future difficulties[8]; they are at the root of the household 'production of nutrition'[9].

*Corresponding author: Email delpeuch@mpl.ird.fr

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We therefore decided to undertake a qualitative participatory investigation with individual interviews and group discussions. This approach, which involves discussion analysis, is effective as it prompts interviewees to express their opinions on the household food consumption habits, the underlying sociocultural conditions and to explain why they are changing. A deeper insight into the reasons and workings of these changes helps to assess to what extent they lead to a sustainable adaptation and at what health/nutrition cost. It also allows the establishment of what might be done to secure the nutritional quality of diets in spite of the new constraints placed upon poor households.

The individual interviews and group discussions involved women as they are traditionally responsible for preparing and serving the household meals. We paid special attention to women head of families, a growing category in African cities, of whom rather little is yet known. The study was carried out in Dakar and Brazzaville, the capitals of two different African countries, Senegal and Congo, 3 years after the devaluation of the CFA franc, as we thought it would be interesting to observe similar versus specific changes.

Senegal is an urbanized, politically stable West African country where there is very little industrial production, especially in the agrifood sector, because of the harsh climatic conditions with low rainfall. Fishing, groundnut production and tourism are the prime mainstays of the Senegalese economy. In contrast, the Congo, in central Africa, is a very politically unstable and highly urbanized country with many natural resources (oil, wood and mines). However, the country is burdened by an unequal distribution of profits from these resources. The situation in each country reflects circumstances which are widespread in western and central Africa, respectively.

In the present study, the nature of changes induced by the crisis and adjustments in household dietary habits are first defined for each urban setting. The risks for health and nutrition triggered by these dietary changes are then discussed.

Methods

Study subjects and locations

This study was based on a subsample of households that previously had been involved in representative nutritional surveys as part of a larger scale project to analyse and monitor the nutritional situations of two urban settings, in Brazzaville, capital of the Congo, and in Pikine, a large city bordering Dakar, the capital city of Senegal[10,11]. It was carried out in two districts, chosen by drawing lots. For individual interviews, 60 households were then selected at random, in each district, from the previous list (roughly one in 10 of the randomly chosen households in the 1996 survey in Brazzaville, and one in five in Pikine). In this study a household is defined as a group of people who share at least one main meal daily. Interviewees were women responsible for preparing the household meals. They all spoke the local common language, so they could be questioned without an interpreter. A few women who were not from central Africa in the Brazzaville survey or from West Africa in the Dakar survey were excluded to ensure that representative family situations would be assessed in each case. Another exclusion criterion was households with a rather high socioeconomic status, as measured by a summary index constructed locally[12].

Two other samples of 12 households were selected in each surveyed district for participation in group discussions along the same lines. As stringent sociocultural homogeneity was essential for the group discussions, women who might not dare to speak or women who might take over the discussion, due to age (too young or old) or personality (excessive shyness or strong personality), or a high level of education (over mid-secondary school in Dakar, or having been to the university in Brazzaville), were not considered. Final participants were those volunteers who, after explanations about the course of the study, were available at the day and time chosen by the majority for the group discussion.

Data collection techniques

The four focus group discussions and around 120 semistructured individual interviews were conducted in each city, in 1997. No participating individuals and groups were restricted in their discussions during the interviews. Individual interviews aimed at understanding the family's behaviour changes and motivations in greater detail, while group discussions, based on group dynamic principles, allowed a fairly quick assessment of the range of changes and the social process through which they were generated[13–15]. However, private compromises or intrahousehold conflicts were not easily expressed in collective discussions.

Technicians were trained in the interview and discussion techniques. Data were collected on the following topics: meal sharing patterns, meal composition and consumption unit membership. Participants were interviewed on these subjects about the situation prevailing immediately before the devaluation and about the changes in their household since. The interview guides and field manuals were pretested and adapted to each urban setting. The semistructured individual interviews were conducted at home, in a private place, to preserve confidentiality for sensitive questions. Focus group discussions took place in local dispensaries, as is normally the case in these communities for any exchanges on health matters. Interviews and discussions lasted about 1 hour each, and were conducted in the local language. Seven to 10 people participated in each group discussion, which was tape-recorded.

All the information (questions, answers, notes on attitudes of the respondents taken during the interviews,

tape-recordings and observations made during the group discussions) was then translated into French and transferred onto computer for word processing. The original material in the local language was kept as reference material for later discussions about interpretation. The principal investigator controlled personally the quality of the data collected in each city.

Data analysis and validity check

Textual analysis was used to assess the information collected during the individual interviews and the focus group discussions. All interviews were first submitted to a careful and repeated reading by the principal investigator for data reduction; then they were discussed with the field interviewers and with a social worker able to put the women's opinions back into the precise social and cultural context of each country. These discussions aimed basically at: (i) identifying and understanding the problems encountered by individual households in daily food management; (ii) identifying their coping strategies set up in answer to the devaluation consequences; and (iii) identifying the changes which occurred in the relationships between household members and with external relatives or neighbours, as this item emerged strongly from interviews. Standard statistical analysis was also used for individual interview data, as a supplement to the textual analysis results. General trends concerning meal preparation, composition and service were revealed by a simple frequency analysis performed with the Epi-info software[16] after coding the data.

Consensual opinions were identified by comparison of the textual and frequency analysis results from the individual interviews. They were then confronted with the major opinions, perceptions or attitudes expressed in each of the focus group discussions. As interviews and group discussions involved separate participants, and as the participants were also different in each group discussion, it provided a kind of validity check of these consensual answers. The conclusions drawn were then shown to other co-authors, who all know the local contexts well, and who discussed the material extensively and critically assessed the choice of items, sentences and conclusions to avoid any single author's bias[17]. Only verified consensual opinions are further presented and discussed here. It should be clearly understood, however, that the findings relate to what people expressed as the changes connected with the devaluation – we did not undertake an extensive observation of the true behaviour of the informants. (Illustrating sentences or quotes are taken from individual interviews, if not credited otherwise.)

Although the two countries are different, they have both undergone a nutritional transition[18]; moreover the devaluation took place at the same time and in both cases was equally unexpected, which enables us to make comparisons[5]. To further strengthen comparability, the methodology employed was strictly similar and supervised by the principal investigator.

Results

Clear differences were perceptible between the surveyed households in the two cities (individual interviews samples). Table 1 describes them on the basis of household size and occupation of the household heads. In Brazzaville, there were both a higher proportion of salaried employees and of unemployed or low-earning workers. In Dakar, a craftsman or merchant headed more than one-third of households, and a significant part were headed by retired workers. Households were smaller on average in Brazzaville (about 50% with less than six people) than in Dakar (93.6% with six or more). In each of these urban centres, about one-third of the households were run by a woman.

Analysis of group discussions and individual interviews showed that households offset the reduction in their food purchasing power via two main strategies, either isolated or in combination: reducing meal preparation costs and limiting the size of consumption units. For each strategy, we present the measures taken and their impacts on household dietary patterns.

Lowering the cost of family meals

Meal preparation and sharing frequency

The basic strategy used by households faced with economic difficulties is firstly the reducing of meal preparation frequency and, in case of failure, secondly, the reducing of meal sharing. Only one main daily meal was prepared in around nine out of 10 households in Brazzaville; this has, however, been an increasing trend since long before the currency devaluation. In contrast, around four out of five households in Dakar still prepared two main daily meals. They systematically refused to cut out one meal, and even more to halt meal sharing, which is a critical factor with

Table 1 Characteristics of interviewed households

	Dakar (n=125) (%)	Brazzaville (n=120) (%)
Occupation of head of household		
Salaried employee	20.8	31.7
Craftspeople/tradespeople	36.8	18.3
Housewife	14.4	15.8
Small retailer/student /unemployed worker	11.2	29.2
Retired	16.8	5.0
Household size		
2–5 household members	6.4	50.0
6–9 household members	24.0	35.8
10–16 household members	48.0	13.4
17–38 household members	21.6	0.8

respect to the household's reputation: 'I prepare three meals a day. For dinner I make *couscous* or *mbakhal* [boiled rice with a sauce]', 'We the *Toucouleurs* [an ethnic group largely present in this part of Dakar] refuse to serve noon-meal leftovers in the evening'.

Breakfast, often considered as an optional meal, is generally the first meal preparation to be eliminated, if necessary, because of the high price of the imported products frequently required for its preparation. If breakfast is normally served, this indicates that the household is able to fulfil the feeding requirements of its members. When households are obliged to stop preparing one main meal, it is usually the evening meal; but in such cases leftovers from the noon meal are often kept for the evening as positively stated by this woman from Brazzaville: 'Now I prepare one dish a day, but we still have two meals because I keep part of the noon meal to be eaten in the evening'.

These modifications generally concern financially disadvantaged households or those that are isolated because of social integration problems. One woman, referring to her 15-member household headed by a retiree, said for instance: 'We were obliged to reduce the number of prepared meals from two to one. The retirement benefits have not increased, and we sometimes have barely enough to eat'.

These households, and the few that had even cut off their evening meal, had a late noon meal to stave off their hunger. This bears two advantages: it overcomes the need to prepare (or even serve) an evening meal, which represents a considerable financial saving for households; it also leaves more time for households to find potential contributors, who might not have been available in the morning, to help cover daily expenditure: 'We don't have any set time for serving meals because the amount I am given is not enough to cover food expenditure; so I wait for contributions before preparing the meal'.

Households in a highly unstable economic position often adjust the preparation frequency or the meal frequency on a daily basis. Again, a woman belonging to a household headed by a 66-year-old man not receiving retirement benefits stated: 'I prepare two meals when I have money, but sometimes I have no money and therefore have nothing to prepare. When my provisions are low, I just prepare one dish that is shared in two meals'.

Breakfast and two main meal preparations are, however, specifically maintained for young children and pregnant or lactating women, especially in Dakar, as declared by almost all of the households surveyed in this city. This strategy was also adopted in slightly more than half of those surveyed in Brazzaville. As an explanation, one Senegalese woman in the discussion stated: 'Young children have to have three meals a day, which is the custom in Senegal'. Another one said: 'We all have breakfast when there is money available. Otherwise only the young children and I have breakfast, as I am breastfeeding my 10-month-old infant'. The evening meal, however, was often only a nutritional supplement for young children, not an actual meal: 'We only have one main meal a day, and the young children have milk in the evening'.

All these dietary changes described by interviewed women had occurred progressively with the increase of the economic crisis in both Dakar and Brazzaville, but have been suddenly amplified by the devaluation.

Meal composition

Breakfast again, if not eliminated, is the first to be modified: 'Since the devaluation, we generally have *quinqueliba* [a traditional plant infusion], and dry bread. We have stopped having coffee and milk'.

An African main meal generally includes a sauce and a staple food (cereal or root/tuber). The sauce ingredients are fats, condiments, vegetables, legumes and meat/fish. The survey revealed, both in group discussions and individual interviews, that women modify the composition of sauces or their preparation frequency as a common means of reducing the cost of meals.

Since the devaluation, lean sauces were prepared in about one surveyed household in six in Dakar, whereas before the devaluation lean sauces were prepared in less than 5% of households (Table 2). In Brazzaville, around half of all households surveyed mentioned the sauce composition. When the point was raised, sauces more often had lower oil and tomato contents than before the devaluation (34.2% vs 18.5%, respectively). This measure is a direct consequence of higher food prices after the

Table 2 Composition of sauces before and after the devaluation of the CFA franc, as reported by interviewed women

	Dakar ($n=125$)		Brazzaville ($n=120$)	
	Pre-devaluation (% hh)	Post-devaluation (% hh)	Pre-devaluation (% hh)	Post-devaluation (% hh)
Vegetable, oil and condiment content				
Low	3.2	17.6	18.3	34.2
High	78.4	64.0	33.3	18.3
Not discussed	18.4	18.4	48.4	47.5

% hh, percentage of households.

devaluation: 'Since the devaluation, tomatoes and tomato concentrates are expensive and therefore I no longer add them to my sauces', 'The composition of our sauces has changed; we no longer buy carrots or cabbages, and we have reduced the fresh tomato and tomato concentrate contents'.

But more generally, the financial hardship experienced by some households forces them to modify the way their monetary resources are allocated for different daily expenditures: 'Before I had money problems associated with my sister-in-law's situation, I prepared my sauces with tomatoes, oil and condiments, but now I make them without oil', 'I love red, tomato-based, sauces, but I was obliged to switch to white sauces, with low tomato and high water contents, because of expenditure incurred by my daughter's illness'.

While some women decided to stop preparing certain sauces, if unable to afford them ('We do our utmost to maintain the quality of the one family meal prepared daily'), others were found to have modified both the preparation frequency and composition of sauces used in their meals, especially in Brazzaville: 'We eat sauces once every 15 days, whereas we used to consume them 2–3 times a week. The sauce composition has also changed: there is less oil and more boiled water'. In Senegal, women attempt to camouflage the altered composition of their sauces by skilfully adapting their preparations to give the impression that nothing has changed: 'Very little has changed in the composition of our sauces: we have simply reduced the tomato content while increasing the *fel-fel* [a red seasoning powder] content'.

The quality of a sauce also depends on the accompanying foodstuffs, e.g. meat or fish. Broth and vegetable- or legume-based dishes are sometimes substituted for these staples: 'Frozen beef was replaced by *saka-saka* [a traditional Congolese dish of cooked cassava leaves mixed with a meat- or fish-based sauce], which is considered to be more nourishing', 'Due to high meat prices, we use cowpea-based sauces such as *Ndambé*, rather than meat sauces'. More subtle changes were also noted, for instance fish cooked in sauce or in broth was sometimes substituted for meat. Moreover, lower quality fish is sometimes used instead of better quality traditional types: 'Now the household consumes more salted or smoked sea fish than fresh fish'. However, the quality of dishes prepared for festive occasions does not seem to have diminished in terms of meat or lower quality fish content, especially in Dakar.

Changes affecting the staple food composition of meals occurred more progressively than the sauce modifications, and mainly with respect to the evening meal. While households readily changed the means of cooking staple foods, using the same accompanying sauce at all meals ('I keep part of the sauce from the noon meal for the evening, which we serve with white rice'), substitution of one staple food for another was found to be a last resort solution. Such substitutions inevitably involved changes in the accompanying sauces: 'In the evening, I now often prepare *thiebou kethiakh*, which is a rice and smoked fish dish served with cowpea sauce', 'We now eat *couscous* or *fondé* [made of millet flour dumplings], instead of sauce-based dishes for the evening meal'.

Apart from young children, most people who ate desserts before the devaluation of the CFA franc stopped after this measure was implemented: 'I often bought mangoes and oranges for the family before the devaluation, but I stopped buying them after, except to give to the young children'.

Limiting the size of consumption units

In Africa, families traditionally share their meals with regular and transient guests, and disadvantaged people. Therefore traditional food consumption units are kin-based meal-sharing groups that can also include outsiders. However, during the economic crisis and particularly after the devaluation, urban households, according to group discussions, tried to reduce the size of these consumption units to ensure that each family member will get an adequate portion of food daily. This was achieved in particular by increasing the use of street foods and by reducing food donations.

Increased use of street food

In Brazzaville, street food was being eaten long before the devaluation in 48% of the households surveyed, but this proportion has increased since, up to 57%. In Dakar, the situation has remained constant despite the economic change, with slightly less than one-third of the surveyed households (30%) using street food. There has, however, been a shift in the way this street food trend has developed in Dakar. Street food is most often an urban phenomenon and initially only concerned salaried workers and students: 'At noon my husband buys sandwiches close to his workplace'. At first, street food could be procured along the main streets, but now it is even sold in residential neighbourhoods, offering a direct alternative to home-cooked food: 'Close to my house, I buy *fonde*, *lakh* and *thiacri*, especially for the evening meal. In fact, the household does not always like the meals I prepare'. This trend is partly developing because household heads are often unable to give the women enough money to buy the ingredients needed to prepare the meals. Household meal management on a daily basis, or sometimes on a per meal basis, creates a favourable environment for buying street food: 'When you only have 500 CFA francs available, it's not enough to cover daily market expenditure. You therefore buy street food in your neighbourhood; this type of food can now be purchased along all streets'. However, the high overall cost and low sanitary quality of street food is frowned upon by other households, thus hampering its full adoption: 'We do not buy precooked foods because they are expensive, which is the main reason; I prefer to

buy food at the market. But I'm also wary about the sanitary aspect of street food'.

Also, as street food is now available, women responsible for preparing meals are no longer obliged to give food to disadvantaged people, guests and even some household members. Some people are given a daily allowance to buy meals away from home, but they are carefully and discretely chosen. This allowance then has to be very carefully managed by the members to whom it is offered: 'I give 100 CFA francs to the youngest children who go to school for their breakfast, but the others have to manage on their own'.

Donation of food

In Africa, mutual aid involving donations of food to the least fortunate people is generally systematic, i.e. a portion of every dish and leftovers are kept for poor people begging for food. However, this practice is starting to be questioned, as highlighted in the discussions: 'When we are eating and a beggar shows up, we give him one or two handfuls of rice. But often there are no leftovers, nothing'. With the hardening of the economic situation, household meal leftovers are given to the most vulnerable next-of-kin rather than to unrelated disadvantaged people: 'In the past, we gave our leftovers to *talibés* [the marabout followers who receive coranic education], but we now give them to children as they no longer have an afternoon bread-and-butter snack'.

Households headed by women

In Brazzaville, there was little difference between households run by women and those headed by men. In Dakar, on the other hand, households run by women currently have a harder time feeding their members. The strategies used were similar, but more often used in these households than in those run by men.

Discussion

Economic crisis and adjustment programmes have progressively brought about marked dietary changes in the two cities investigated; however, according to the women interviewed, these changes became clearly more pronounced after the devaluation of the CFA franc.

Households' adaptive or coping strategies have been studied mainly for seasonal food shortage in less favoured rural areas, in Africa or elsewhere[19–23]. But rather fewer studies have dealt with strategies to alleviate short- to mid-term food stress in urban areas, in relation to increasing economic difficulties of poor households[3,24].

Usual coping strategies include the following dietary and consumption pattern changes: reduced diversity and shift to less preferred, cheaper foods; cutting back on the number of meals or rationing the amount of food apportioned; and modifying intrahousehold distribution or social cooperation[21,25]. These strategies may differ somewhat between rural and urban communities and are also mediated by the socioeconomic status or the family structure.

Interviewed women in our study also reported similar changes. The patterns of these changes, however, differed in some aspects in the two settings. In Senegal, for instance, where a family's social reputation is closely dependent on the ability to maintain traditional dietary habits[26], households resisted cutting out one meal preparation. Only those with rather low economic or social resources and those headed by women finally came round to it. In Brazzaville, the situation is quite different since many women were preparing a single daily meal long before the devaluation. The Congolese society is matrilineal and women, more commonly there than in Senegal, have an economic function beyond their maternal role. Women, therefore, are actively involved in helping household members meet their essential health and nutritional needs. They fulfil their function by developing economic activities, mainly in informal small-scale food sectors[27]. Because of these outside activities, women are less available to carry out domestic chores such as preparing meals. It is thus easier for these women to prepare a single meal daily.

In both settings major dietary changes became more widespread, either in the use of different staple foods or the use of altered sauces, as a reflection of the households' lower economic potential. Again, it was already the case for about 20% of interviewed households in Brazzaville before devaluation, while this is relatively new in Dakar.

These differences between the two cities can be explained by the cultural context: in West Africa, meal quality is evaluated on the basis of sauce richness[28]. A household will be seen as having a good socioeconomic status if the meals served are plentiful and tasty due to the presence of spicy colourful sauces with high oil, tomato and condiment contents. Women often try to camouflage, to some extent, the poor quality of their sauces so as not to jeopardize their social status. Sauce composition also reflects a family's cultural and ethnic origins. The fact that some women refuse to modify the composition of their sauces highlights the importance that they attribute to maintaining some highly traditional preparations. This traditional aspect is enforced when the average number of persons gathering at each meal is high, as is frequently the case in Senegal rather than in Brazzaville. Eating rituals are deeply rooted in a complex cultural base of rights and obligations, which contributes to its preservation, as has already been observed in the long run in another West African setting (Ivory Coast) despite active changes in the urban way of life[29].

It was also found that many members of households that stopped preparing or even serving one meal, or those that modified the composition of prepared meals, tended to dine outside the compound. The street food phenomenon has existed for a long time[30] and reflects the adoption of

an urban lifestyle by some social groups. Many active people, for instance, buy street food close to their workplaces – this is a long-standing trend, particularly in Brazzaville. But in response to the economic crisis, inactive people living in compounds have more recently also adopted this habit, in both cities. While in theory one would think that foods or dishes cooked outside of the household have a high cost, women declared this to be unfounded as there is a substantial added value in terms of savings on the cost of the food ingredients or cooking fuel and preparation time, as also demonstrated by Akindes in the Ivory Coast[4]. Ag Bendech *et al.*[31], in Mali, have observed that despite an apparently higher cost, street food is an essential strategy to remedy the dietary insufficiencies of family meals for all members in poor families.

What could be the consequences of these changes in food intake and of the switch to a relatively monotonous food diet as acknowledged by women from both cities? The nutritional value of household meals has been altered in two ways. First, by reducing the diversity of food ingredients while eliminating breakfasts and desserts, if not a main meal, or by serving leftovers from preceding meals. Second, by reducing the nutrient value since the meat, fish, vegetable and legume contents of sauces have been decreased or frequently been substituted with other ingredients of lower quality. Food variety and diversity are clearly associated with nutritional adequacy, as demonstrated recently in urban Mali[32], and such changes can increase the frequency and severity of nutritional disorders, which are already prevalent in these countries.

Some of these measures have generally not been fully applied to young children, leaving them access to breakfast or desserts, or setting aside potential meal leftovers preferentially for them as a replacement for between-meal snacks which used to be given previously. However, it probably does not protect them completely from a reduction in the nutritional value of their feeding, at least in the poorer households. As a matter of fact, some deterioration of the nutritional situation has also been noticed since the devaluation, in Brazzaville for instance, regarding maternal and child anthropometry and low birth weight prevalence[10]. Households seem also to have overlooked the fact that school-age children should have a regular healthy diet. The nutritional status of this age group should, indeed, be carefully monitored: a study in Cotonou (Benin) recently warned that when families for instance rely on having breakfast out of home, up to 23% of school children do not eat anything before school[33].

Besides children, those most affected by these changes are disadvantaged people, traditionally depending on mutual food aid. Strategies aiming at limiting food portions and reducing the size of consumption units as well as preferentially redirecting potential leftovers to next-of-kin affect the most underprivileged among the traditional family guests.

Eliminating one meal preparation raises another health risk, even for urban dwellers, i.e. bacteriological problems could arise when lunch leftovers are served in the evening, or even the next morning, because of the lack of modern food storage facilities[34]. The increased use of local street food may also contribute to contamination problems[35], as has been the case wherever this type of food has developed[36,37].

On a more general basis, these changes have far-reaching social consequences. Attempts by households to reduce consumption units, as a means to better adapt their economic resources to their food needs, have upset community ties that bind these societies. There is now a trend towards maintaining meal-based social links with next-of-kin or kin-based social groups. In Senegal, to maintain family solidarity, households uphold the high quality of meals prepared for festive occasions; while, in contrast, interviewees in Brazzaville expressed very little interest in festive meals. In the unstable political setting that prevailed at this time in the Congo, people strove to meet the needs of their small nuclear family units rather than developing extended social networks. Street food may therefore be seen more as a kind of replacement for festive food in Brazzaville, i.e. bringing groups of people together and facilitating the development of new social networks.

Street food is more socially and culturally accepted in Brazzaville than in West Africa. In Senegal, street food has a relatively poor reputation in traditional family settings, as it is representative of individualized eating habits. This attitude goes against the socialization trend that binds ties between household members around a family meal, sometimes accompanied by rituals such as meal sharing[38]. However, it is more and more used by middle- or low-income families to secure their daily energy and nutrient requirements, as shown also in Mali[31].

In conclusion, while economic reforms may prove beneficial in the long term, specific measures such as currency devaluation may have deleterious effects on the nutritional situation of poor families in the short term by increasing the cost of family meals. Therefore, compensatory measures targeting poor households or neighbourhoods are certainly worthwhile, as are presently being operated on a large scale in Senegal[39]. Besides these classic projects focusing on food aid, food for work and nutrition education, it would also be interesting to develop small-scale food industries to produce precooked staple foods that are ready to serve with home-cooked meals. This would certainly help women save time in preparing household meals while having to work outside for supplementary income. Moreover, it would not upset the traditional system whereby household members dine together at home, and would help maintain stable ties within the consumption units. In addition, it is essential to control the sanitary quality of outdoor foods by developing or

improving quality control systems, while educating consumers and vendors to food safety matters[40].

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References

1 Alibert J. An account after the devaluation of the African Financial Community franc [in French]. *Afr. Contempor.* 1996; **179**: 16–26.
2 Kelly V, Reardon T, Diagana B, Fall A. Impacts of devaluation on Senegalese households: policy implications. *Food Policy* 1995; **20**: 299–313.
3 Ag Bendech M, Chauliac M, Gerbouin-Rerolle P, Kante N, Malvy D. Devaluation of the CFA franc and feeding strategies of families in Bamako, Mali [in French]. *Santé.* 1997; **7**: 361–71.
4 Akindes F. Devaluation and feeding in Abidjan, Ivory Coast [in French]. *Cah. Rech. Dev.* 1995; **40**: 24–42.
5 Delpeuch F, Martin-Prevel Y, Fouéré T, *et al*. Complementary nutrition for the young child following the devaluation of the CFA franc (African Financial Community): two case studies in the Congo and Senegal urban environment [in French]. *Bull. World Health Organ.* 1996; **74**: 67–75.
6 Dufour DL, Staten LK, Reina JC, Spurr GB. Understanding the nutrition of poor urban women: ethnographic and biological approaches. *Coll. Anthropol.* 1997; **21**: 29–39.
7 De Castro JM. Socio-cultural determinants of meal size and frequency. *Br. J. Nutr.* 1997; **77**: S39–55.
8 Locoh T. *African Families, Population, and the Quality of Life* [in French]. Dossiers du CEPED No. 31. Paris: CEPED, 1995.
9 Bentley ME, Pelto GH. The household production of nutrition. Introduction. *Soc. Sci. Med.* 1991; **33**: 1101–2.
10 Martin-Prével Y, Delpeuch F, Traissac P, *et al*. Deterioration in the nutritional status of young children and their mothers in Brazzaville, Congo, following the 1994 devaluation of the CFA franc. *Bull. World Health Organ.* 2000; **78**(1): 108–18.
11 Orstom, Sanas. Results of the nutrition survey conducted in Pikine, May–June 1996 [in French]. Dakar: Nutrition Unit, Orstom, 1997.
12 Traissac P, Delpeuch F, Maire B, Martin-Prével Y, Cornu A, Trèche S. Construction of a synthetic index of the socio-economic level of households within the context of nutritional surveys. Example in the Congo [in French]. *Rev. Epidemiol. Sante Publique* 1997; **45** (Suppl. 1): 114–15.
13 Scrimshaw SCM, Hurtado E. *Rapid Assessment Procedures for Nutrition and Primary Health Care. Anthropological Approaches to Improving Programme Effectiveness*. Tokyo: United Nations University, 1987.
14 Dawson S, Manderson L, Tallo V. *A Manual for the Use of Focus Groups*. Boston: International Nutrition Foundation for Developing Countries, 1993.
15 Smith PG, Morrow RH, eds. *Field Trials of Health Interventions in Developing Countries: a Toolbox*, 2nd edn. London: McMillan Education Ltd, 1996.
16 Dean AG, Dean JA, Coulombier D, *et al*. *Epi Info, Version 6: a Word Processing, Database, and Statistics Program for Epidemiology on Microcomputers*. Atlanta, Georgia: Centers for Disease Control and Prevention, 1995.
17 Miles MB, Huberman AM. *Qualitative Data Analysis. An Expanded Sourcebook*, 2nd edn. Thousand Oaks: Sage Publications, 1994.
18 Maire B, Delpeuch F, Cornu A, *et al*. Urbanization and nutritional transition in subsaharan Africa: exemplified by Congo and Senegal [in French]. *Rev. Epidemiol. Sante Publique* 1992; **40**(4): 252–8.
19 Longhurst R. Household food strategies in response to seasonality and famine. *IDS Bull.* 1986; **17**: 25–35.
20 Corbett JEM. Famine and household coping strategies. *World Dev.* 1988; **16**: 1009–112.
21 Thomas RB, Leatherman TL. Household coping strategies and contradictions in response to seasonal food shortage. *Eur. J. Clin. Nutr.* 1990; **44** (Suppl. 1): 103–11.
22 Neumann C, Trostle R, Baksh M, Ngare D, Bwibo N. Household response to the impact of drought in Kenya. *Food Nutr. Bull.* 1989; **11**(2): 21–33.
23 Bentley GR, Aunger R, Harrigan AM, Jenike M, Bailey RC, Ellison PT. Women' s strategies to alleviate nutritional stress in a rural African society. *Soc. Sci. Med.* 1999; **48**(2): 149–62.
24 Dufour DL, Staten LK, Reina JC, Spurr GB. Living on the edge: dietary strategies of economically impoverished women in Cali, Colombia. *Am. J. Phys. Anthropol.* 1997; **102**(1): 5–15.
25 Ruel MT, Garrett JL, Morris SS, *et al*. *Urban Challenges to Food and Nutrition Security: a Review of Food Security, Health, and Caregiving in the Cities*. FCND Discussion Paper No. 51. Washington, DC: IFPRI, 1998.
26 Ndione ES. Dakar, a society in clusters [in French]. Paris: Karthala and Enda-Graf Sahel, 1993.
27 De Suremain CE. There is only one step from the compound to the street: a socio-anthropological approach of precariousness in Brazzaville (Congo) [in French]. *Autrepart* 1998; **7**: 43–62.
28 Bricas N, Sauvinet R. *La Diversification de la Consommation: une Tendance d' Évolution des Styles Alimentaires au Sahel*. Bamako: CILSS, 1989.
29 Mahieu FR, Odounfana A. Contraintes communautaires et consommation alimentaire. In: *Alimentation, Techniques et Innovations dans les Régions Tropicales*. Muchnik Ed. Paris: L'harmattan, 1993; 93–126.
30 Nago MC. L'alimentation de rue en milieu urbain africain. In: Nago MC, Hounhouigan JD, de Koning F, Gross R, eds. *La Situation Alimentaire et Nutritionnelle dans les Zones Urbaines en Afrique*. Porto Novo: CNPMS, 1996; 290–304.
31 Ag Bendech M, Chauliac M, Malvy D. Assessment of dietary intake at home and outside the home in Bamako (Mali). *Ecol. Food Nutr.* 1998; **37**: 135–62.
32 Hatloy A, Torheim LE, Oshaug A. Food variety – a good indicator of nutritional adequacy of the diet? A case study from an urban area in Mali, West Africa. *Eur. J. Clin. Nutr.* 1998; **52**: 891–8.
33 Chauliac M, Bricas N, Ategbo E, Amoussa W, Zohoun I. Food habits outside the home by school children in Cotonou [in French]. *Sante* 1998; **8**(2): 101–8.
34 Molbak K, Hojlyng N, Jepsen S, Gaarlsev K. Bacterial contamination of stored water and stored food: a potential source of diarrhoeal disease in West Africa. *Epidemiol. Infect.* 1989; **102**: 309–16.
35 Faye O, Fofana P, Correa J, *et al*. Intestinal parasites in the vendors and consumers of street food. A study conducted in the Dakar area [in French]. *Bull. Soc. Pathol. Exot.* 1998; **91**: 169–72.
36 Ashenafi M. Bacteriological profile and holding temperatures of ready-to-serve food items in an open market in Assawa, Ethiopia. *Trop. Geogr. Med.* 1995; **47**: 244–7.

37 Arambulo P III, Almeida CR, Cuellar J, Belotto AJ. Street food vending in Latin America. *Bull. Pan Am. Health Organ.* 1994; **28**: 344–54.
38 Beckerleg S. Food bowl division and social change. *Ecol. Food Nutr.* 1995; **34**: 89–104.
39 *Community Nutrition Project*. Republic of Senegal. Staff Appraisal Report No. 14004-SE. Dakar: AGETIP and Washington, DC: World Bank, 1995.
40 Ekanem ED. The street food trade in Africa: safety and socio-environmental issues. *Food Control* 1998; **9**: 211–15.