Food Security: A Neglected Dimension of Caribbean Agriculture Policy

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Abstract

At the World Food Summit in 1996, 186 countries including those of CARICOM adopted the "Rome Declaration", which among other things expressed the:

> *"Commitment to achieving food security for all and to an ongoing effort to eradicate hunger in all countries, with an immediate view to reducing the number of undernourished people to half their present level no later than 2015".*

The number of such persons was then estimated at 840 million and the target of 400 million persons was set for 2015. Five years later the Summit recently re-convened in (June 2002) to evaluate the progress or lack of it in meeting this target. Despite the unprecedented character of these conferences and the undoubted political weight attached to them, they have barely found echoes in public debates in the Caribbean.

This paper explores issues of food security as they concern the Region. It does so from two vantage points namely, (1) by reconnoitering global efforts and targets aimed at reducing food insecurity and (2) by drawing attention to the prevailing conditions and policy responses to agricultural decline and stagnation along with the persistence of strong pockets of poverty, high levels of inequality and the consequent impact on the state of hunger, nutrition, and food insecurity.

INTRODUCTION

At the 1996 World Food Summit, 186 countries adopted the "Rome Declaration", which, among other things, expressed the:

> *"Commitment to achieving food security for all and to an ongoing effort to eradicate hunger in all countries, with an immediate view to reducing the number of undernourished people to half their present level no later than 2015."*

The number of such persons was then estimated at 840 million. Five years later the Summit re-convened (June 2002) to evaluate the progress made regarding this commitment. Just prior to this summit, at the 27th FAO, Regional Conference for Latin America and the Caribbean (April 2002) representatives committed to: (1) making food security the first priority of the FAO; and (2) tabling a proposal at the June 2002 meeting for an Inter-Governmental Working Group to draw up a Voluntary Code of Conduct on the Right to Food. Despite the unprecedented character of these conferences, and the obvious political weight attached to them, they have barely found echoes in the Caribbean.

This paper explores issues of food security as they concern the Region, from two standpoints namely, global efforts at meeting targets to reduce this scourge, and the impact of regional agricultural decline and stagnation, together with the persistence of strong pockets of poverty, and high sustained levels of inequality on food insecurity.

THE GLOBAL CONTEXT

McCalla and Revoredo (2001) reported that there have been at least 30 quantitative estimates of future global food security during the past 50 years. The most regular producers of these estimates are the United Nations Food and Agriculture Organisation (FAO) and the United States Department of Agriculture (USDA), but other agencies like the OECD and the International Food Policy Research Institute (IFPRI) have done so occasionally. All these agencies agree that, since the early 1990s, trends do not indicate that the 2015 target will be met. Indeed, the Economic Research Service/United States Department of Agriculture (ERS/USDA) (2002) reported that only one in three countries has reduced the number of hungry persons in their population. In the case of the 67 low-income countries that it monitors annually, it found deterioration for 2001 relative to 2000. Its global projections for the next decade indicate an annual decline of 1.6% for the total number of hungry people. This amount falls well short of the targeted 3.5% annual decline needed to meet the commitment in the Rome Declaration. The FAO's projections show an even slower rate of annual decline in the number of hungry people worldwide.

At present, 800 million people worldwide are severely malnourished and over 2 billion live with micro-nutrient deficiencies. Underscoring this is the fact that: (1) about three-quarters of the malnourished live in rural areas, relying on farming for their livelihoods; (2) diseases due to inadequate, unbalanced, and unsafe food are prevalent; and (3) children, female headed households, the homeless, and other such vulnerable persons bear the brunt of food insecurity and its related hunger and disease. Unfortunately, these trends are expected to persist as global population growth takes place and pressures on material resources continue unabated.

The paradox is that this is occurring at a time when the world has never grown so much food and when food has never been cheaper. The food stocks have never been so high. Since the early 1960s, world grain output has doubled and livestock production trebled. The result is that, on a worldwide basis, per capita food availability has risen to over 2700 calories per day. This is of course an average figure and as such does not take into account the distribution of food at the individual household level, where ultimately, food security has to be established.

There are two types of models used to project global food security: trend projections and world trade models. Of the 50 models they have examined, McCalla and Revoredo (2001) found wide differences in data sources, model specifications, time frames, and commodity coverage. As a result they concluded that this makes:

> *...controlled cross-country comparisons virtually impossible at the global level [and] the heterogeneity in models reduce their usefulness to policymakers in general, even though the models may serve the purposes of their specific agencies* (Mc Calla and Revoredo, 2001: p.1).

The authors have also concluded that global projections are more accurate than the disaggregated regional ones. Indeed they found that the smaller the country and the region, the higher is the error in projection. Significantly, the size of the error in projections for developed countries is large when compared to the situation in developing countries, although data problems are not a major issue there. Projections for shorter periods (5-10 years) have also been found to be more accurate than longer ones (15-30 years), no doubt because of the weight of historical trends in the series. Of note also, they found that the long-standing regular surveys conducted by the FAO and the USDA are biased toward under-estimation of both food output and consumption.

It would be useful to observe from the later statement how global food security is evaluated; the USDA will be used as an example. The USDA proceeds by estimating and projecting the gaps between actual food consumption and two different consumption targets set over the next decade. The procedure is summarised in Schedule 1 below.

The 1996 World Food Summit had emphasized availability, affordability, and stability of physical and economic access as the key dimensions of food security. Based on this, the main obstacles identified as preventing progress in achieving food security include:

- Natural disasters
- Political conflicts
- High production variability
- Population growth in some areas
- Weakening import capacity/external debt burden
- Economic shocks
- Variable global growth
- Natural resource degradation
- Distribution/equity concerns
- Declining ODA
- Weak safety nets
- Variability of food aid.

Schedule 1: Global Food Security: Gap Between Food Consumption and Stated Targets

1. Food Consumption = Domestic production *plus* Commercial *minus* Non-Food Use
2. Targets: A) Status Quo (SQ) = Maintaining consumption at the 1998-2000 level (consumption stability) B) Nutritional requirements (NR) = Meeting recommended nutrition
3. Distribution Gap = Amount of food needed to raise food consumption for each income group to the level required to meet nutritional requirements.

Notes: 1) Food aid is excluded from these projections

2) Only the gap in calorie consumption is measured, not other factors such as poor use of food, absence of micro-nutrients, etc.

GLOBAL FOOD SECURITY STRATEGIES

In this Section we will examine the global approach to food security. In my recent work, attention was drawn to the evolution of thinking and practice in this area. A summary of this is represented schematically below:

Schedule 2: Steps in the Evolution of Global Thinking on Food Security

Steps	Focus on:
1. The period of the 1970s food crisis in Africa and the World Food Conference, 1974	Inadequacy of food supplies and measures to improve these at the global, regional, and national levels.
2. Late 1970s to mid-1980s. The period of the Re-emergence of severe food crises, despite substantial expansion of output based on earlier efforts.	Sen's seminal work on Poverty and Famines (1991); the "household entitlements" approach; the crucial roles of household's coping and survival strategies; and food and production systems in the supply/ income chain.
3. Mid 1980s to early 1990s	Food supply as one element, albeit very important, in determining nutritional as well as food security; This brought in such concerns as the environment, cultural practices, education and health status.
4. Early 1990s onwards	Food and nutritional security within an array of household objectives in pursuing "households livelihood security". This includes issues of politics, hunger, malnutrition and poverty.
5. Late 1990s	Linking the household livelihood security model to the potential of biotechnology and the treatment of malnutrition as an intergenerational matter.
6. Current period	Development strategies are broadly conceived as the basic approach to food security, including here human resources development, social capital, environmental balance, governance, and accountability.

Practice is now based on four hubs of activities as shown schematically in Schedule 3 below:

Schedule 3. Evolution of Global Practice Towards Food Security

Hub 1	The presumption of a continuum, and not separate discrete stages of (1) targeting immediate relief from food distress, (2) rehabilitation and mitigation measures and, (3) longer term development measures to ensure sustainable food security. [This is the organizing principle that drives policies, initiatives, agencies, and activities engaged in controlling food insecurity.]
Hub 2	Liberalisation of trade in food mainly through the WTO (AOA) and regional trading blocs operating under the canopy of this new structure of trade relations. [This is the driving factor in creating a new liberal trade order that encompasses trade in food]
Hub 3	Bio-solutions or the application of modern science (especially biotechnology) to food security and nutritional requirements. [This is focused on genetically modified and micronutrient rich foods.]
Hub 4	At the IFPRI Conference on Sustainable Food Security, (September 2001) participants voted three top priorities for tackling food insecurity: (1) investing in human resources; 2) promoting good governance; and 3) improving markets, institutions, and infrastructure. [This reveals the consensus among activists, policy makers, the poor, and academia.]

FOOD SECURITY IN THE CARIBBEAN

The global focus on food security has not found strong echoes in the Caribbean. In the 1960s and 1970s, when state-led efforts to promote development were in vogue and Independence was a new experience, food security was a leading concern for the Region's agriculture. Three decades later no CARICOM Head of Government attended the recent follow up World Food Summit (2002) despite the fact that CARICOM governments had contributed to the Rome Declaration of 1996. One reason for the present situation might well be attributed to the diversification, economic growth, and improvement in living conditions and social progress, which have been achieved in the region over the past two decades. Compared to other developing regions, CARICOM has achieved high levels of performance in all the UNDP human development indicators (HDI, GEM, GDI and HPI); a health transition, in the sense that the Alma Ata goals of Health For All by year 2000 have been met; and, a demographic transition, in that longevity, fertility, population size, infant and child mortality data all rank it very close to (and in a few instances above) those of the developed economies. It also has safety net provisions, facilities for recreation, youth programmes, communication infrastructure, and levels of governance and the rule of law, which rank it well above other developing regions.

These achievements, however, coexist alongside two sets of disturbing conditions, while the interconnections among these and the threat they pose to these achievements are not fully acknowledged. One of these is the sheer persistence of significant social and economic gaps, shortfalls, and policy deficits, along with the emergence of fundamental challenges in many of the existing areas of social progress, and unstable growth patterns. To mention a few, there are: (1) significant pockets of poverty ranging from 12% to 40% of the regional population, (2) high unemployment and under-employment levels (particularly among young persons), (3) high Gini coefficients ranging from 0.4 to 0.6, (4) serious health challenges, including HIV-AIDS, and (5) a host of social pathologies, including drug abuse, production and trading, prostitution, crime, and violence, both domestic and social. Growth patterns have shown considerable variability, with the coefficient of variation approaching 0.6–1.0 for most countries. The other disturbing condition is the constant stagnation and ruin of agriculture and the rural decline and destruction of the small farmer this has occasioned over the past two decades. This situation has exacerbated the poverty and poverty-related conditions indicated above.

At the policy level, while there have been government responses to the scourge of poverty and poverty-related circumstances, these have not been complemented with strong focused efforts to halt the agricultural stagnation, destruction of small farmers, and general rural decline. The broad approach to poverty has been reliance on a menu of measures targeted at improving the conditions of poor household/families without linkage to national programmes for agricultural revitalisation. In order to determine who the poor are and the causes and circumstances of their poverty, much

reliance has been placed on poverty and living standards surveys at the national and local/district levels. These are now undertaken in almost all the countries of CARICOM, but vary in their regularity (Jamaica is the most regular with annual surveys commencing from as far back as 1989). There are also a number of related studies, such as labour force surveys, household income and expenditure surveys, national human development reports (HDRs), and of course the ten-year interval population censuses.

Regrettably, none of these surveys monitor food insecurity and hunger as explicit features of Caribbean societies, although the poverty studies focus on the three FGT classes of poverty; namely: the head-count index, the poverty gap index, and the $FGTP_2$ measure (Thomas 2002). This is surprising considering that several of these surveys provide information and data in one form or another on such items as: the extent to which households/families basic needs are met or unmet, the characteristics and composition of households, consumption levels and patterns by income deciles, income inequality, and households' access to social services like education and health.

It should be noted that poverty is not the only, nor indeed the primary, cause of undernourishment, food insecurity, and hunger. Surveys in developed economies have established this. Thus Nord and Andrews (2002) made the following observation:

> *Undernourishment as a result of poverty is rare within the United States, but food security – assured access by all people at all times to enough food for active healthy lives – has not been achieved* (Nord and Andrews, 2000).

They went on to note that "food insecurity is a less severe condition than undernourishment, the condition addressed in the specific objectives of the Rome Declaration" (ibid: p.1)

Measuring Food Security

The successful fulfillment of the Rome Declaration in the region has to start with the provision of accurate and regular data for monitoring the state of food security among the population. A useful model for doing this is provided by the US Census Bureau, which, since 1995, has conducted, on behalf of the USDA, surveys on food security, as an annual supplement to its Current Monthly Population Survey. The surveys are done annually and utilize the same survey that provides unemployment and poverty data for the USA. A nationally representative sample of 40,000 households is used to assess food security over the previous 12 months, on the basis of 18 questions focused on the "behaviours and experiences known to characterize households that are having difficulty meeting their food needs". These difficulties span a wide range of circumstances and respondents are classed, based on their responses, as either food secure, food insecure without hunger, or food insecure with hunger.

Food security requires as a minimum (1) the steady availability of nutritionally adequate and safe foods, and (2) an assured ability to acquire acceptable food in socially acceptable ways, i.e., not by stealing, scavenging, or by reliance on food

aid etc. Food insecurity requires three minimum conditions: (1) the household worries that food can run out before it can afford to buy more; (2) the household's food purchases have ran out before it could afford to buy more; and (3) the household is unable to afford balanced meals. Food insecurity with hunger requires in addition, that the household ate less than they felt they should and that adults cut the size of meals or skipped meals in 3 or more months. These households are sometimes further classified as to whether both children and adults are hungry or adults alone. Of course it goes without saying that hunger here refers to involuntary hunger, not voluntary hunger due to dieting, fasting, or being too busy to eat.

There is also a 6-item short form module for establishing the households' food security scale. This is recommended as "reasonably reliable" and is a sub-set of the 18-item questionnaire. Its main limitations are that it does not cover the more severe forms of food insecurity and hunger, nor does it cover the circumstances of children separately.

FOOD SECURITY: WHOSE RESPONSIBILITY?

The question is now frequently asked, where does the responsibility for ensuring food security lie? Is it at the international or national jurisdiction? If the latter, then should it be at the governmental, private business, or non-governmental level? Clearly at this stage of global development the responsibility primarily falls on national governments. It is they who should assure that their citizens have a right to food and so enjoy food security as an essential public good. The international community and external agencies along with domestic business and non-profit agencies should be expected to complement, but not to replace, this responsibility. The reason for my saying this is that food security should be viewed as a basic right and entitlement of all citizens. In this sense therefore, there exists a linkage between the entitlement to food security and the provision of other public goods such as good governance, peace, participation, the rule of law and so on.

Recognising the primary role of national governments in ensuring food security does not, however, reduce the importance that should be attached to finding ways of integrating the right to food security into international trade rules. The bias of the WTO rules is in favour of trade liberalisation. The standard expectation is that freer trade would contribute to food security by filling the gap between domestic production and consumption, reducing supply variability, promoting economic growth, improving global allocation of resources, and widening consumer choice and food availability. In practice, such reliance poses several risks. Chief among these are adverse movements in the terms-of-trade, market instability, the displacement of domestic producers with subsidised exports from the developed economies, and specialisation in export cash crops to the detriment of domestic food supply. Unfortunately, the global playing field for agricultural trade is far from level at present. Further, under the WTO rules, the developed countries are better placed than the developing ones to provide food security for their citizens in terms of the AOA commitments to market access, subsidies

and domestic support (Thomas 2000). Moreover, because agriculture plays a multi-functional role in societies, this makes it extremely difficult to regulate it on purely commercial criteria.

FOOD SECURITY: INTRA-HOUSEHOLD ALLOCATION, CHILD NUTRITION AND MICRONUTRIENT DEFICIENCY

In this sub-section, brief attention is drawn to a number of crucial household issues as they pertain to food security, namely: intra-household food/nutrition allocation, child nutrition, and micronutrient concerns.

Intra-household allocation refers to how household decisions are made to earn, save, dis-save, and to spend time, money and other resources. The focus of market-based economic policies is on the well-being of individuals, ignoring, for the most part, the fact that these individuals are dynamically located within their family/household structures. This reality can either frustrate or help policies, and this holds true for food security.

There have been many theories of household decision making over the years. Haddad et al (1997) highlight two broad varieties, the "unitary" and "collective" theories. The former assumes that either all household members have the same preference function and therefore act in unison or that there is a simple decision-making member with whom all the others voluntary concur. To the contrary, the latter theory recognises diversities and conflicts, but see them as being harmonized in a singular manner, with household members contributing with varying "weights" to the decision outcomes.

Clearly the policy implications of these approaches differ. Thus, under the unitary model, it is in a real sense "immaterial" as to who within the household is targeted for food relief, as the benefits are supposedly distributed in a unitary fashion. In the collective model, the weights, and hence identity, of the beneficiaries are crucial to the outcomes. Men differ from women, adults from teenagers, old and young alike from children, and seniors from the others, in decision-making. It is therefore vital to the household's collective well being to determine through whom the benefits are to be distributed.

The above suggests that in order to influence access and availability of nutrition to all members of all households there is need for a better understanding of intra-household dynamics in the Region. Studies also indicate that while food security efforts could be undermined by a lack of understanding of intra-household dynamics, such an understanding, however, needs to be cautioned by the recognition that household behaviour changes over time and very often in direct response to policy measures. Thus, for example, the provision of school meals to reduce child food insecurity could paradoxically lead to reduced access to food at home for children and thereby a net reduction in calorie intake for them.

The issue raised here is directly related to child nutrition concerns. Research indicates that dietary intake and health are the proximate determinants of a child's nutritional status. But, as Smith and Haddad

(2000) reported, these are influenced by three household-level underlying determinants: food security, level of care, and the health environment of the household. In turn, these underlying determinants are influenced by a number of basic determinants including the income and wealth of the country and community, political, cultural, and social factors. Their study focused on the underlying determinants of these and established the factors in the following manner:

- National food availability (as a proxy for food security)
- Women's education (as a proxy for child care and food security)
- Women's status relative to men (as a proxy for child care and food security)
- Access to safe water (as a proxy for the health environment of the household).

They found that while all four underlying determinants contributed substantially to the reduction in the prevalence of child malnutrition during the period 1970-1995, improvement in women's education accounted for as much as 43% of the total reduction; the increase in per capita food availability accounted for 26%; the improvement in the health environment for 19%; and, improved women's status for the remaining 12%.

Of course, these underlying determinants are themselves influenced by the basic determinants as expressed above, so that these (e.g., income and wealth of the country and community) do play a major role in the final outcomes. The importance of education and women, however, asserts itself in a striking way, and in so doing reminds us of the crucial role it will play in providing food security for the region's population.

The linkage between specific micronutrient deficiency and food security has been well established. In developed economies the fortification of foods with micronutrients is a widespread practice, which goes far towards eliminating these deficiencies in households. Recent scientific efforts have been directed at the development of micronutrient dense staples such as wheat, maize, rice, beans and cassava rich in such nutrients as vitamin A, iron, iodine and zinc, because it is expected that, with the millions of poor persons involved, in the long-run, this could be a cheaper means of eliminating micronutrient deficiency than traditional food fortification supplements and pills. World Bank estimates indicate that deficiencies in vitamin A, iodine and iron alone result in economic losses, through their impact on health and productivity, of as much as 5% of GDP in South Asia. The World Bank also estimates that the returns to investments in nutrition are as high as 84:1

The USDA surveys indicate that, since 1995, about one-half of the reduction in hunger in the US can be accounted for by rising incomes. Other factors like employability, labour mobility, and family circumstances also play a role. Coping mechanisms ensure that about two-thirds of the food insecure households avoided hunger. In the region, in the absence of survey data, the factors listed in Schedule 4 below represent intuitively established primary factors in

deterring the food security status of households.

Schedule 4. Intuitive Determinants of Household Food Security in the Region

Household Level	Macro Conditions
• Household income and wealth	• Economic Growth
• Production variability	• Level of Employment
• Employability (skills, age. etc.)	• Labour market mobility
• Household situations	• Inflation
• Household size	• Safety nets
• Household composition	• Macroeconomic Stability
• Household education	• External trade and investment
• Status of women	• Environment
• Health environment	• Socio-economic conditions
• Geographic location	• Health and nutrition awareness
• Occupational structure	
• Household health	

R & D AND BIOSOLUTIONS

Rapid technical advances are being made in the field of molecular biology- commercial farming in the North and large-scale farming in the South, while the latter has concentrated on reducing costs of processing, storing and transmitting information on agriculture. These developments are believed to hold out the hope of "bio-solutions" to the difficulties in achieving food security for all. This line of development favours advances along two major fronts, namely, the development of micronutrient dense staples already referred to, and the production of genetically modified foods (new plant seeds) and new strains of livestock. Already it is estimated that at the end of 1998, 28 million hectares worldwide were already planted with 40 transgenic crops, the main ones being cotton, corn, soybean and rapeseed. About 15% of this cultivation was located in developing countries. Despite the above, it seems to be the consensus that biotechnology applications in agriculture are still at an early stage, but the potential is enormous (Persley and Doyle 1995).

Pardey and Beintema (2001) have calculated that between 1976 and 1995, public funding for agricultural R&D doubled in real terms to $22 billion, at 1993 international prices. Of this amount developing countries contributed 56%. However, spending on agricultural R&D relative to the value of agricultural output showed that the gap between rich and poor countries has widened. In 1995 the rich countries spent $2.64 per $100 of agricultural output and the poor countries 62 cents per $100 - a ratio of 1:4.3. Two decades earlier, the similar gap was still large, but smaller - 1:3.5. It is estimated that the private sector spent about one-half ($11.5 billion) the amount spent by the public sector, but 94% of this private research was conducted in developed countries, where just over one-half of research spending was from the private sector.

Persley and Doyle (1999), referred to four policy issues that should be addressed if modern biotechnology is to make significant inroads with food insecurity. These are:

- More public sector R&D investment directed at the particular concerns of agriculture in developing countries.
- More bio-safety mechanisms to inform/ protect the public against abuses of genetically modified foods.

- A framework for intellectual property rights management that allows for the rights of local inventors in developing countries to be recognized and also does not create barriers for developing countries' access to new technologies developed elsewhere.
- Better regulation of public and private research in order to secure the interests of consumers everywhere and poor small farmers predominately located in the developing countries.

In light of the foregoing, it would be naïve to expect modern biotechnology to be a cure-all for food insecurity. If, however, the policy measures indicated above are pursued, technical advances can be expected to make a significant contribution to the war against food insecurity.

CONCLUSION

The significant level of household food insecurity found in the USA raises alarm bells as to whether, in the absence of monitoring, a far worse situation may not be endemic to the Caribbean. This uncertainty should not continue, given the Region's unqualified commitment to the Rome Declaration and its support for the commitments made at the 27th FAO Regional Conference for Latin America and the Caribbean. As indicated, to monitor food security in the Region would require a very modest increase in resources for this purpose, as it can be routinely appended to other on-going economic and social surveys. An effective surveillance system is therefore an obvious priority for policy.

There is also the wider issue of Caribbean governments honouring international obligations, particularly in situations where these are designed to bring benefit to their populations.[1] As has been shown, food security is a dynamic, complex, multi-dimensional and multi-sectoral policy issue, which could add an important developmental dimension to Caribbean agriculture, particularly in the case of low income and resource-poor farmers.

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[1]*Post-script: At the Conference, a Resolution was passed supporting the re-commitment to the Rome Declaration given at the June 2002 Summit and the undertaking given by the Representation to the 27th FAO Regional Conference for Latin America and the Caribbean to support food security as the first priority of the FAO and in support for an Inter-governmental Working Group to draw up a Voluntary Code of Conduct on the Right to Food*

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Notes:

1. The recent explosive growth of biotechnology has opened up enormous potential in key areas. These have been identified as:

   "Genomics: the molecular characterization of all species. Bioinfomatics: the assembly of data from genomic analysis into accessible forms. Transformation: the introduction of single genes conferring potentially useful traits into plant, livestock, fish, and tree species. Molecular Breeding: the identification and evaluation of desirable traits in breeding programs with the use of marker-assisted selection. Diagnostics: the use of molecular characterization to provide more accurate and quicker identification of pathogens. Vaccine technology: the use of modern immunology to develop recombinants DNA vaccines for improving control of lethal diseases." (Persley and Doyle, 1999).

2. Post-script: At the Conference, a Resolution was passed supporting the re-commitment to the Rome Declaration given at the June 2002 Summit and the undertaking given by the Representation to the 27th FAO Regional Conference for Latin America and the Caribbean to support food security as the first priority of the FAO and in support for an Inter-governmental Working Group to draw up a Voluntary Code of Conduct on the Right to Food.