Journal of Food Security, 2015, Vol. 3, No. 6, 137-144
Available online at http://pubs.sciepub.com/jfs/3/6/1

DOI:10.12691/jfs-3-6-1

Food Security and Health in the Caribbean *Imperatives for Policy Implementation*

Ballayram[1,*], Beverly Lawrence[1], Fitzroy Henry[2]

[1]International Consultant
[2]College of Health Sciences, University of Technology, Jamaica
*Corresponding author: Ramballay@yahoo.com

Abstract This article discusses the food and nutrition security situation in CARICOM countries through the lens of a conceptual model that links food, nutrition and health. Based upon a review of relevant literature and judicious use of country-level official data, the authors make the case for policy makers to take a more proactive approach to the implementation of their respective national food and nutrition security policies. This recommendation is made in light of the increasing acuity of key food and nutrition security problems that continue to plague these countries, including high food import-dependence, and the prevalence of obesity and overweight, which are risk factors in the increasing prevalence of chronic, non-communicable diseases, the main public health problems in the region. These, and related food and nutrition security problems, continue to exist despite progress made by CARICOM countries at the policy level with the formulation of regional and national food and nutrition security policies, and associated action plans. Within these policies and action plans, food and nutrition security is conceptualized in terms of food availability, access, nutritional adequacy and the stability of these three components. Moreover, they stipulated food, nutrition and health goals for the agricultural and the entire food systems. Despite these achievements, the implementation of food and nutrition security policies and action plans in the region has not proceeded with the same urgency that motivated their formulation, namely to address the pressing food and nutrition problems in the countries of this region.

Keywords: *food security, health, policy, caribbean*

Cite This Article: Ballayram, Beverly Lawrence, and Fitzroy Henry, "Food Security and Health in the Caribbean *Imperatives for Policy Implementation*." *Journal of Food Security*, vol. 3, no. 6 (2015): 137-144. doi: 10.12691/jfs-3-6-1.

1. Introduction

Over the past 15 years policy makers in the Caribbean Common Market (CARICOM)[1] countries have changed their conceptualization of food and nutrition security. Both at the regional and national levels, food and nutrition security is defined to include four components, namely, food availability, food access, nutritional adequacy and the stability of these three components. Moreover, these components constitute the organizational structure of regional and national level food and nutrition security policies and action plans that were developed to address key food and nutrition security challenges of these countries. Despite this progress in policy formulation, policy implementation has not proceeded with much urgency at the national level. At the same time, most countries in the region are facing critical food and nutrition problems, including (i) A high food import bill; (ii) Struggling traditional farming systems; and (iii) A prevalence of nutrition-related public-health problems, obesity and its co-morbidities, viz., non-communicable chronic diseases (NCDs)—stroke, hypertension, diabetes (and its complications such as amputations, blindness, etc.), heart diseases, and some forms of cancers [1]. This article seeks to impress upon policy makers in CARICOM countries on the utility of their respective food and nutrition security policies and associated action plans, and the urgency to implement them in light of the continuing escalation of the critical food and nutrition problems in these countries.

2. Material and Methods

The information presented in this article draws heavily from published literature on food and nutrition security, and from polices and reports on the subject in CARICOM countries. The food availability data are taken from the Food and Agriculture Organization's (FAO) FAOSTAT food balance sheets [2]. The analytical approach was a rigorous analysis of relevant data on food and nutrition security through the lens of a conceptual model that links food, nutrition and health. The model was developed and used extensively in research, conferences and policy

[1]The focus of this study is on the regional trading block of CARICOM countries: Antigua & Barbuda, Barbados, The Bahamas, Belize, Dominica, Grenada, Guyana, Haiti, Jamaica, St. Kitts and Nevis, St. Lucia, St. Vincent & the Grenadines, Suriname and Trinidad & Tobago. Because of lack of data, Montserrat, a CARICOM country, is not included in this study. Any references to other Caribbean countries would be for comparative and analytical conveniences only.

meetings by the authors, former professional staff members of the Caribbean Food and Nutrition Institute/Pan American Health Organization (CFNI/PAHO)[2].

2.1. The Conceptual Model

Figure 1, which focuses on the food-health path and public policy, is a useful way of disentangling the interplay of some of the complex factors that contribute to the critical food and nutrition security challenges in CARICOM countries. Three important aspects of this model should be emphasized. First, many factors, seemingly disparate and unrelated, impact on nutritional and health status of the population. For example, foods that are consumed are first made available through domestic and import sources. However, households' accessibility is a function of income, prices, marketing, distribution, etc. Second, good nutrition depends on access to adequate and nutritious foods, which in turn depends on the quality of diets, food preparation practices, educational levels, and age and gender distribution within the households.

Finally, any conceptualization of food security must be cognizant of the inter-relationship between food, health and nutrition and other sectors. Given the food and nutrition problems that CARICOM countries are currently experiencing, it is obvious food security must embody health and nutritional issues [3]. Moreover, the solution to these problems cannot be the remit of any one government ministry or sector but rather a multi-sectoral approach to the issues [4,5].

3. Results

3.1. Key Food and Nutrition Challenges in CARICOM

Nutrition related chronic diseases such as obesity, diabetes, high blood pressure, stroke, heart diseases, and cancer have replaced malnutrition and infectious diseases as the major public health problems in CARICOM countries [4,6]. The burden of disease, disability, and premature death has shifted from young children to adults in the productive years of their life. Unbalanced diets and a sedentary lifestyle have increased the prevalence of chronic non-communicable diseases, even among the poor. For the past two and a half decades there has been an increase in the prevalence of obesity throughout the region, principally in adults, but also to some extent in adolescents. Associated with obesity is the concomitant increase in NCDs (Table 1) [6,7,8].

It is important to note that the costs, in terms of lost productivity and the share of healthcare system costs attributable to non-communicable diseases (NCDs), increase in tandem with the shift in mortality patterns. Additionally, non-communicable diseases are shown to be more costly to treat than communicable ones [9]. Studies done for the Caribbean region [10] and elsewhere [11] on NCDs and obesity show that these diseases involve significant economic costs to patients, the health system and the overall society.

The aggregate Caribbean urban population has increased continuously over the past four decades and has overtaken rural population levels since the early 1980s. As people move to urban areas several factors combine to create different patterns of food supply and demand. These include, *inter alia*, urban occupations, population concentrations, transportation networks, food marketing systems, etc. Consequently, food supplies, diets and body composition change.

Table 1. Main Causes of Death in the Caribbean, 1980, 2000's

MAIN CAUSES OF DEATH IN THE CARIBBEAN			
1980 (%)		2000's (%)	
Heart Disease*	20	Heart Disease*	16
Cancer*	12	Cancer*	15
Stroke*	11	Stroke*	10
Injuries	8	Diabetes*	10
Hypertension*	6	Injuries &Violence	7
Acute Respiratory Infections(ARI)	5	HIV/AIDS	6
Diabetes*	4	Hypertension*	6
*Nutrition Related = 53 %		*Nutrition Related > 60 %	

Source: [6].

Empirical evidence on diet, chronic disease and lifestyle practices has led to the development of Population Nutrient Goals for the Caribbean. Nutritionists recommend that 55-65 percent of dietary energy should come from complex carbohydrates (food from plant origin except sugar and oil), and sugar be limited to less than 10 percent of energy, protein about 10 percent and fat less that 25 percent [12]. Data from Food Balance Sheets can be used to as a proxy for food consumption data to examine trends in food availability/consumption patterns in a country or region. These food balance sheets derive estimates of the food available for human consumption by adjusting total food availability (local production plus imports), by subtracting exports and adjusting for uses in animal feed and planting material and losses from post-harvest and processing.

At the aggregate level, food balance sheet data show that for CARICOM countries, availability of total food energy and macronutrients (carbohydrates, protein, and fats energy), have exceeded recommended population food goals from as early as the 1960s and has increased consistently over the years (Figure 2). Food balance sheet also show that the availability of sugars and sweeteners exceeds recommended population goals and have been increasing over the years (Figure 3). While the contribution of fruits and vegetables has been increasing since the 1960s, consumption remains well below the recommended population goals [4]. In addition the contribution of imports continues to outstrip that of local production. This pattern of consumption of fats, sugars and fruits and vegetables, with very slight variations, hold for most of the individual countries in the Caribbean.

[2] CFNI/PAHO was a Caribbean Regional Public Health Agency and a specialized center of the Pan American Health Organization. It was formally merged into the Caribbean Public Health Agency (CARPHA), in 2013.

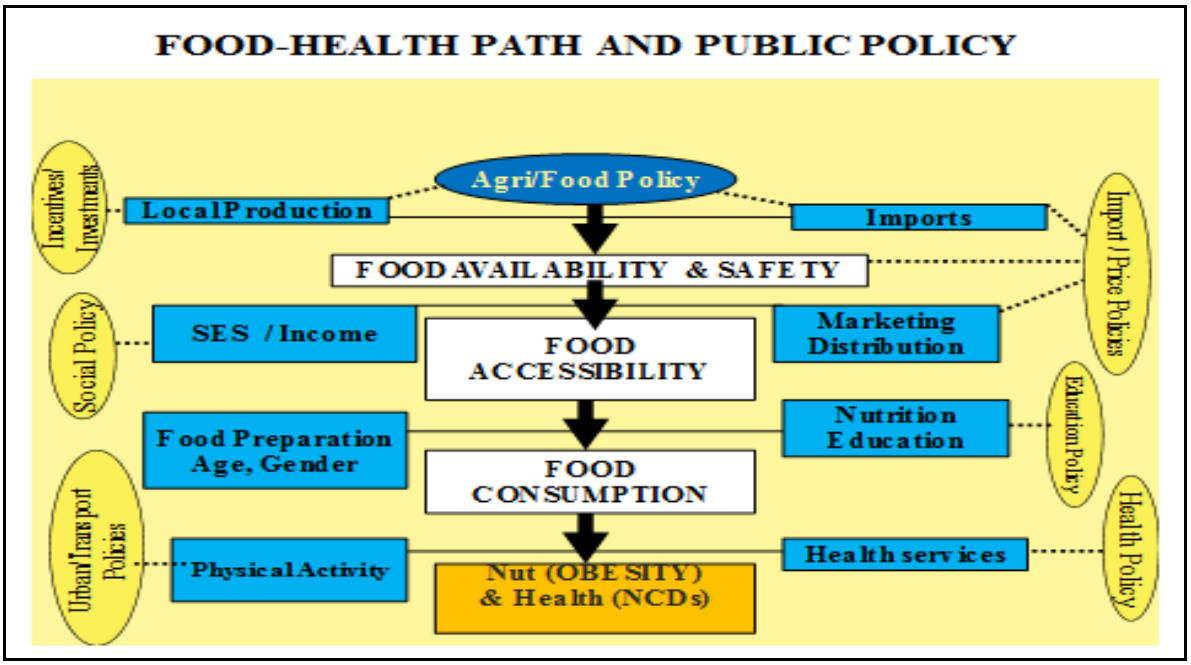

Figure 1. The food-health path and public policy (Source: Authors' construct)

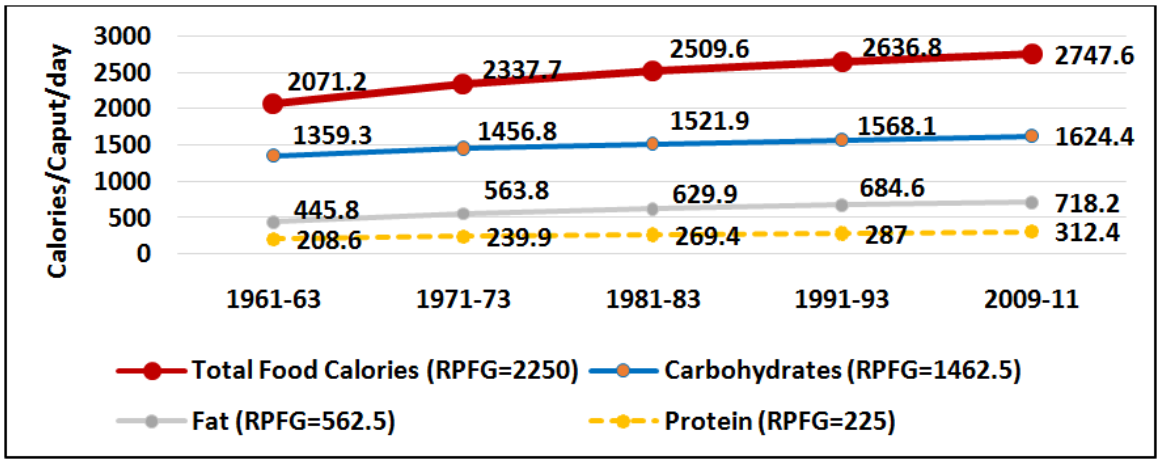

Figure 2. Food Energy, Protein, and Fats Availability in CARICOM Countries (RPFG=Recommended Population FoodGoals. Source: [2]. (Accessed November, 2015))

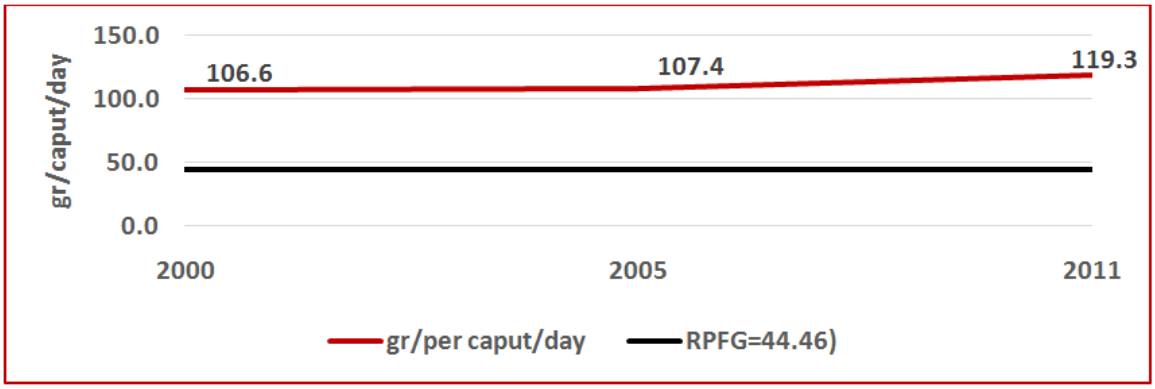

Figure 3. Sugars/Sweeteners Availability in CARICOM Countries (Gr/Caput/Day) (RPFG=Recommended Population Food Goal. Source: [2]. (Accessed November, 2015))

There are three important observations that must be made with respect food balance sheet data presented in Figure 2 and Figure 3. First, the data demonstrate a major element of food insecurity in the region, namely the failure of the food system to meet the nutritional and health requirements of the population. Indeed, these graphs show how health and nutritional concerns are an integral part of, and can guide policies to achieve food security. It is for this reason that food and nutritional goals that have been established in the regional and national food and nutrition security policies and action plans in the Caribbean must be pursued so that the region's agricultural

and food systems can deliver adequate and nutritionally appropriate quantities of food, especially to the poor and marginalized groups of the society.

Second, the data presented underline the importance of an efficient surveillance system as a critical element in decision-making. The achievement of food and nutrition security is not an automatic process but depends on conscious, deliberate and focused policies designed specifically to the task. The information-needs to conduct this kind of intervention are not trivial, and entail knowing *who* are the most vulnerable to food insecurity, and *how many* are they, *where* are they located, *why* are they food insecure, and *what* can be done to address this food insecurity problem.

Third, currently, as in the past, the emphasis in the region with respect to food security is on the supply side. This is understandable. The litany of constraints to production and distribution that farmers face in the region appears to be insurmountable [1]. Additionally, the uncertainty of food supplies from foreign sources occasioned by events such as terrorist attacks (e.g. September 11, 2001, in the USA), and the food-fuel-financial crisis in 2007-08, has opened up the debate in the region on reducing import food dependency, reducing the food deficit, increasing food production and improving competitiveness and quality of produce. However, on the demand side there is an urgency to improve economic and social access to, and distribution of, adequate, safe and nutrition food, and promote healthy food choices among individuals and households. The current disproportionate focus by regional policy makers on the supply side of the food security equation must be corrected in light of the prevalence and negative impact of nutrition-related chronic diseases in terms of quality of life and loss of labor productivity in the region. At the household level, income inequality and poverty are major factors that impact negatively on food security. Although substantial advances have been made in economic and social development in CARICOM countries over the years, poverty is still pervasive in several countries, which is compounded by high and extreme income inequality [1]. These have been made worst in recent years following economic reforms and globalization.

Caribbean countries are food import-dependent. Since 1971, the Caribbean region has been a net food importer, and currently spends well over $US 4.5 billion annually on food imports to close the gap between food consumption and domestic food production [1]. Figure 4 shows that, with the exceptions of Guyana and Belize, CARICOM countries import in excess of 50 percent of their food and seven of the countries import over 80 percent of the food they consume. Much of this food is calorie-dense, high in fats and oils, sweeteners and sodium, which is linked to the overweight/obesity epidemic and increasing prevalence of NCDs in the region [1].

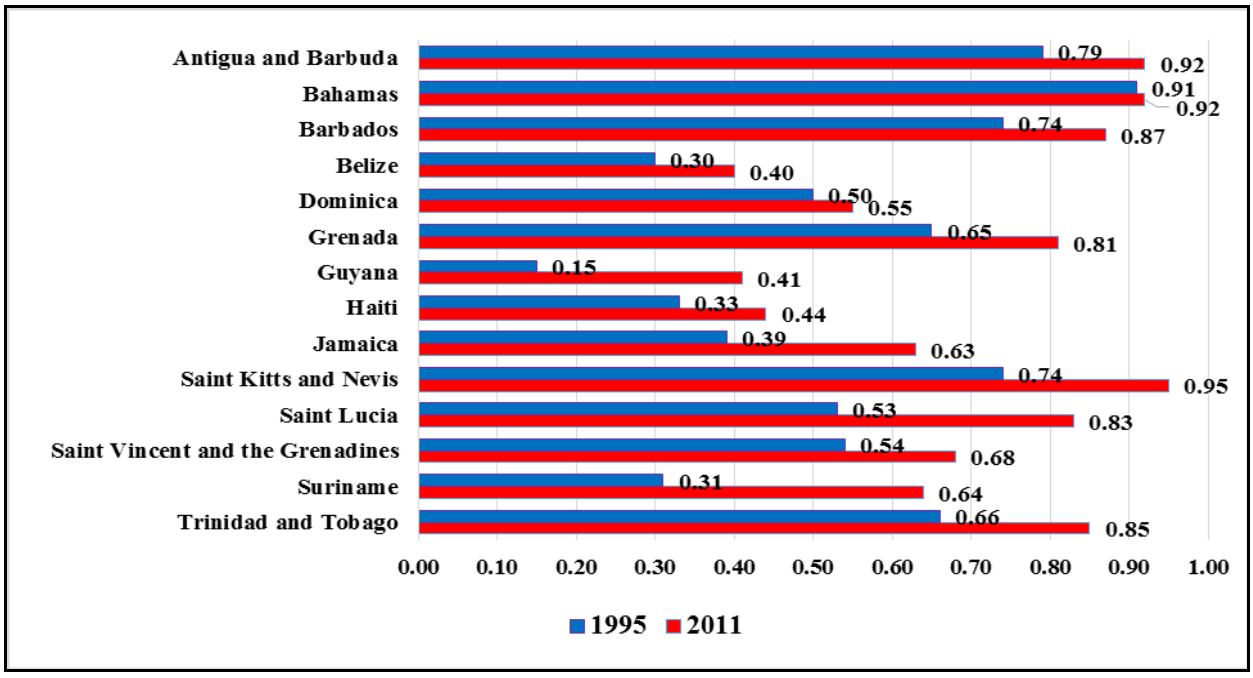

Figure 4. Food Dependency Ratio in CARICOM Countries, 1995 and 2011 (Source: [1])

In summary, food balance sheet data indicate that food availability is above recommended levels for the Caribbean. However, this is not a cause for complacency. First, the data clearly demonstrate that food insecurity can exist side by side with ample availability of food. Second, scholars who have compared actual household and individual food intake data with food balance sheet data, estimate that the latter over-estimate food availability by 20-27 percent over actual consumption levels [9]. Third, food balance sheet data do not measure food distribution across geographic regions or even among members of the same households. Finally, trade liberalization, and its attendant reduction of trade barriers, accent on competitiveness, and removal of preferential quotas, all with possible negative impacts on Caribbean agriculture, poses major concern to policy makers throughout the region. As these events and changes unfold, productivity, efficiency and prices will become increasingly important issues likely to impact on food security. So although national food availability may be above the recommended population food goals, the threat of food insecurity is lurking in the background and may erupt as a serious

problem under these fragile economic systems. Moreover, food security is compromised because of poverty, income inequality, and unhealthy food choices that drive the increasing prevalence overweight, obesity and NCDs.

3.2. Policy Development

In the decades before 2001, food security in the CARICOM countries was seen essentially in terms of quantitative production targets set for the agricultural and trade sectors, the main sources of national food availability. There was also some recognition that households needed resources to access this food, which was facilitated by maintaining a basic set of social programs, and a national minimum wage, which was periodically adjusted in line with the movements of the food-price index. However, in 2001 the CARICOM Secretariat in partnership with the Food and Agriculture Organization (FAO) of the United Nations, and other regional agencies[3] began to develop a Caribbean Special Program for Food Security (CSPFS). By this time, the 1996 World Food Summit definition of food security began to increasingly appear at policy dialogues, conferences and planning meetings in the region. According to this definition, "Food security exists when all people, at all times, have physical and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life" [13]. In operationalization terms, this definition encompasses four components, viz., food availability, food access, food consumption/utilization, and the stability of these three components. More recent additions to this definition include social access to food (e.g. though social protection and safety nets), governance and right to food [1,14,15].

This concept of food and nutrition security transcends the narrow vision of both food sufficiency and the physical availability of food supplies over time and space, to include the socio-economic and nutritional aspects of having adequate economic and physical access to safe and nutritious food supplies (i.e., both external food entitlements, that is, prior to dietary intake, and the body's physiological or internal entitlements to food). From this perspective, therefore, food security is an integral part of a process of nutrition and health development and embodies several major components—food availability, household access, nutritional adequacy, sustainability, and vulnerability. This view provides an entry point for nutritionists and others who are interested in food security, and also facilitates the search for synergies between and among the food, health and other subsectors. This perspective therefore strengthens the need for a multi-sectoral approach to addressing issues of food security in the region, since food security overlaps with many sectors—health, trade, agriculture, environment, and marketing.

Significantly also, the Caribbean Food and Nutrition Institute (CFNI), was drawing attention to the nutritional and epidemiological transitions that were taking place in the region. The nutritional transition is characterized by a shift away from diets based on locally grown indigenous staples (grains, starchy roots), locally grown fruits, vegetables, legumes, and limited foods from animal origin, to diets that are more varied and energy-dense, consisting of foods that are more processed (including processed beverages), more of animal origin, more added sugars and fats, and often more alcohol. Unbalanced diets and sedentary lifestyles led to the epidemiological transition whereby infectious and communicable diseases have been replaced by chronic non-communicable (nutrition-related) diseases, which had become the main public health problem in the region. These observations motivated policy makers to focus more directly on both the supply and demand sides of food and nutrition security. Additionally, the cross-cutting issue of stability became a useful construct given the frequency of natural disasters and external shocks and their adverse impacts on the other three dimensions of food security.

It is against this background that the publication of the Caribbean Regional Food and Nutrition Security Policy [16], and its Action Plan [17], signaled a major advance at the policy level to improve health and the quality of life in the Caribbean. Additionally, most of the CARICOM countries have aligned their respective food and nutrition policies and action plans with those at the regional level. Within these national policies and action plans, are food and nutritional goals for the countries' agriculture and food systems to deliver adequate and nutritionally appropriate quantities of food, especially to low-income and vulnerable groups. Moreover, these policies and action plans contain a rich and varied set of prescriptions, derived from extensive inputs from national consultations and key technical persons, for addressing the key food and nutrition security challenges in the countries.

4. Discussion

4.1. Imperatives for Policy Implementation

Despite the important achievements at the policy level, there is little evidence that these policies are being systematically implemented at the national level. Instead, with the possible exception of Guyana and Belize, food imports still constitute the largest proportion of food availability in the region. At the same time nutrition-related chronic non-communicable diseases have emerged as the major causes of death and morbidity in the region, which make it imperative for policy makers to reassess the role of agriculture and its relationship with other sectors in the economy. These chronic non-communicable diseases cut across socio-economic, spatial and demographic lines, and are associated with a sedentary life style, and changes in diets which can be linked to domestic and import food policies. These nutritional and epidemiological transitions provide strong arguments for developing programs based on their food and nutrition security action plans, and especially forging links among agriculture, health and nutrition. This interaction between food security, nutrition and health status, remains to be fully appreciated and exploited by policy makers at the national level. This needs to be corrected in light of the prevailing nutritionally related health problems and other food and nutrition security challenges in the region. It is also is an urgent task in light of the globalization process that is currently transforming world economic relationships, which makes nations, hitherto local, national and regional, an integral part of a common unifying global system.

[3] The Caribbean Food and Nutrition Institute (CFNI), The Inter-American Institute for Cooperation in Agriculture (IICA), and the Caribbean Agricultural Research Institute (CARDI).

4.1.1. Paradigm Change in Agriculture

The food, health and nutritional concerns which have been raised in this article present basic and incontestable reasons upon which to argue for a new paradigm in agriculture and the food systems, building upon the production/sustainability orientation that already exists, but incorporating issues related to diets, health and nutrition. This new paradigm must begin with a change in the mind-set of policy makers. The conceptualization captured in Figure 1 suggests a systems approach, and also clearly demonstrates that health issues cannot be mere appendages to agricultural, trade and other policies but must be an integral part of policies and strategies of several sectors of the economy. In the past, the issues of health status, food security, diets, and agricultural trade, have been approached in the region as originating from disparate, unrelated sectors of the economy. However, there are strong links between and among these sectors, and recognizing and acting upon them can contribute to the sustainability of development and to the enhancement of health status in the Caribbean [18].

4.1.2. Forging Synergies in Food and Health

A useful way of conceptualizing the links and interactions mentioned above, is to view the sectors as opportunities for finding common grounds in order to maximize mutual benefits. This is tantamount to policy coherence, that is, efforts directed at seeking synergies between policies of different sectors that support their common goals. This requires frequent dialogues, constructive engagement and coordinated action among policy makers from all the sectors in order to achieve the right balance among the various objectives and goals of the sectors. In effect, this supports the need for a multisectoral approach to address the problems of food security, health status and sustainable development in Caribbean countries.

The synergy between food availability, consumption and health has long been recognized by CFNI [3]. Inadequate quantity or quality of food consumed deprives the body of nutrients that help to protect it from diseases, and the quality of diets influences the body's immune response capacity. This information is particularly useful to CARICOM countries where, although malnutrition and infectious diseases have been on the decline, pockets of these health problems still exist, especially in rural and inner-city communities [1,5]. Equally important, as real incomes fall, and relatively cheaper imported foods that are high in fats and calories but low in complex carbohydrates become more available, traditional diets (high in complex carbohydrates) have been largely supplanted by diets that are high in fats and sugars and red meats, predisposing consumers in the region to obesity and its related diseases [6,8,11]. Consequently, this observation motivates the need for comprehensive studies on productivity and competitiveness, since ultimately, the rational consumer demands products whose prices compare well with close substitutes, whether domestic or imported. In other words, people consume less-healthy foods because of cost and availability (i.e. they make economically rational, but nutritionally detrimental decision to consume foods). A recent study has shown that for commonly consumed foods in Jamaica, healthy foods cost US$ 0.78 more than less healthy options [19]. Further, studies in 27 other countries show the comparable difference was US$ 1.47 [20]. Hence, poor diet is as much a health-education issue as it is an economic one.

5. Conclusion

The major health problems in the Caribbean region are strongly related to changes in diets resulting from the interplay of several complex factors associated with development and modernization. The developed countries are currently addressing similar health problems, but they are at a stage when their traditional agricultural and food systems have been completely transformed by the international food market. This has led to a shift away from diets based on complex carbohydrates and low in calories to diets that are more varied and energy-dense, consisting of foods that are more processed (including processed beverages), more of animal origin, more added sugars and fats. The consequence has been an increase in diet-related chronic diseases such as obesity, hypertension, non-insulin dependent diabetes, stroke, cardiovascular diseases, and some forms of cancers.

Several countries in the region still have farming systems that produce significant amounts of food to sustain traditional diets based on fruits, vegetables and roots/tubers. However, the processes of globalization and economic reforms are rapidly displacing these traditional diets and leading to health problems that impact significantly in terms of costs on the health system.

CARICOM countries currently have food and nutrition security policies and action plans that have been designed to enhance their food and nutrition security status. Moreover, they have made significant adjustments over the past 15 years in their conceptualization of food and nutrition security by paying attention to both supply, demand, nutrition and governance issues. However, the implementation of these new approaches lags behind the enthusiasm and urgency that generated them. While international and regional developmental agencies can provide technical assistance and other resources that add value to national efforts, national governments have the ultimate responsibility for advancing their food and nutrition security agenda.

References

[1] Food and Agriculture Organization (FAO). *State of Food Insecurity in CARICOM Caribbean*. Sub-regional Office for the Caribbean, Food and Agriculture Organization of the United Nations, Bridgetown, Barbados, 2015.

[2] FAO. FAOSTAT. [Online]. www.fao.org. [Accessed September, 2015].

[3] Sinha, D. *Food, Nutrition and Health in the Caribbean*. Caribbean Food and Nutrition Institute. Kingston. Kingston. Jamaica, 1997.

[4] Henry, F. "Agriculture and Food Policies to Control Obesity and Chronic Diseases in the Caribbean", in *Food and Agriculture Policies and Obesity. Prevention of Non-Communicable Diseases in the Caribbean*. Caribbean Food and Nutrition Institute. Kingston. Jamaica. 27-35. 2006.

[5] Henry, F., A. Morris and S. Anderson. "Food and Nutrition", in Health Conditions in the Caribbean. Pan American Health Organization. Regional Office of the World Health Organization. Washington.190-203, 2001.

[6] IICA. *The agriculture, food and health challenge: critical issues, perspectives and options*. Orange Publishers. Trinidad and Tobago. 2009.

[7] CFNI/PAHO. *Food and Agriculture Policies and Obesity. Prevention of Non-Communicable Diseases in the Caribbean.* Caribbean Food and Nutrition Institute. Kingston. Jamaica. 2006.

[8] Hopedale's, J., T. Samuels, R. Cummings, G. Gallop, and F. Greene. "Raising the priority of chronic non-communicable diseases in the Caribbean". Rev Panam Salud Publica:30(4):393–400. 2011.

[9] Popkin, B., S. Horton and S. Kim. *The Nutritional Transition and Diet-Related Chronic Diseases in Asia: Implications for Prevention*. International Food Policy Research Institute. Washington, D.C.2001.

[10] Abdulkadri, A., C. Cunningham-Myrie and T. Forrester. "Economic Burden of Diabetes and Hypertension in CARICOM States" *Social and Economic Studies* 58: 3 & 4: 175-197. 2009.

[11] Wolf, A. and G. Colditz. "Current Estimates of the Economic Cost of Obesity in the United States". *Obesity Research*. 6:97-106. 1998.

[12] Caribbean Food and Nutrition Institute. *The Contribution of CFNI to Caribbean Development* 2001–2010. *CFNI/PAHO*. Kingston. Jamaica. 2011.

[13] FAO. Rome Declaration on World Food Security and World Food Summit Plan of Action. World Food Summit, 13-17 November 1996. Rome. 1996. www.fao.org/wfs/index_en.htm.[Accessed December, 2015].

[14] FAO. *Governance for Food and Nutrition Security in Latin America and the Caribbean*. www.fao.org (LARC/14/INF/13). 2014. [Accessed September, 2015].

[15] FAO (2014). *The Current Status of the Right to Adequate Food in Food and Nutrition Policy Designs*. (Prepared by Maartin Immink). FAO. Rome. 2014.

[16] CARICOM Secretariat. *CARICOM Region: CARICOM Regional Food and Nutrition Security Policy*. Georgetown. Guyana. 2010.

[17] CARICOM Secretariat. *CARICOM Region: Regional Food and Nutrition Security Action Plan*. Georgetown. Guyana. 2011.

[18] Henry, F. "Obesity prevention: The key to non-communicable disease control". *West Indian Medical Journal*.60: (4) 446-451. 2011.

[19] Henry, F., D. Caines, S. Eyre. Healthy eating in Jamaica: The cost factor. *West Indian Medical Journal*, 64; (2) 181-185.2015.

[20] Rao, M., A. Singh, D. Mozaffarian. "Do healthier foods and diet patterns cost more than less healthy options? A systematic Review and meta-analysis". *British Medical Journal*.[Open Access]. http://bmjopen.bmj.com/content/3/12/e004277.full. 2013. [Assessed December, 2015].