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FOOD SYSTEMS PROFILE - BELIZE

Catalysing the sustainable and inclusive
transformation of food systems



Belize



FOOD SYSTEMS PROFILE - BELIZE

Catalysing the sustainable and inclusive transformation of food systems

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FOOD SYSTEMS PROFILE BELIZE

Key messages

Belize is located along the eastern coast of Central America; the shoreline in the East is on the Caribbean Sea. Offshore are hundreds of low-lying islands called cayes, which are rich in marine life. The land size of Belize is 22 810 km², which is inhabited by a population of 399 600 (2020). Fifty-six percent of its land is forested and 7 percent is used for agriculture. Belize has a small and vulnerable economy with a gross domestic product (GDP) of USD 3.2 billion and a per capita income of USD 4 281 (2021). The agrifood sector is a major contributor to the country's economy, accounting for 14 percent of its GDP, dominating commodity exports and underpinning rural livelihoods. Although Belize produces more than 80 percent of the cereals it consumes, approximately 40 percent of the total food consumed is imported. Belize has a subtropical climate, with a well-marked dry season from late February to May and a wet season that extends from June to August and September to November. It has another dry season from August to September. The mean annual rainfall ranges widely from approximately 1 270 mm in the town of Corozal on the northern frontier to 4 445 mm at the city of Punta Gorda in the South, while the annual mean for Belize City is approximately 1 905 mm. There are, however, considerable yearly variations.

Belize has a stable agrifood sector:

- agricultural production and processing enterprises of the country's food systems supply diversified food products, which fulfil approximately 60 percent of the national food consumption needs;
- smallholders account for more than 75 percent of the farming population. They produce a wide variety of food crops, such as corn, rice, beans, vegetables and roots, and livestock, such as poultry and beef products;
- food producers are spread across the six districts of Belize, with a greater concentration of commercial producers in Cayo and Orange Walk districts;
- the tourism and agrifood sectors drive the Belizean economy and its food security. The two sectors generate 28 and 17 percent of national employment, contributing 21 and 14 percent to the GDP, respectively;
- the agricultural export sector, consisting of such products as sugar, citrus and bananas, is an important driver of export earnings, and is central to local livelihoods in the North (Corozal and Orange Walk) and South (Stann Creek and Toledo) districts (four of six districts) of the country; and.
- food availability, measured purely as daily food energy availability (kcal/per capita), is considered adequate, as the country's daily average of nearly 3 000 kcal/person exceeds the average recommended level by 30 percent.



Belize continues to face specific food security and agrifood systems challenges;

- access to good quality and safe food is a challenge as the country's relatively high-income per capita hides a high level of income inequality and disparity across its six districts, with territorial inequality being most pronounced in the northern (Corozal) and southern (Toledo) districts.
- high cost of nutritious foods and increasing unemployment and poverty resulting from the COVID-19 pandemic has further pushed healthy diets out of the reach to a large section of the population;
- the high rates of poverty (more than 50 percent) and unemployment, which is even higher among young people and women, contribute to food insecurity and vulnerable livelihoods;
- use of traditional methods of production by most farmers result in low productivity and an inadequate and inconsistent supply of food products. Weak transportation, storage and marketing systems reduce the share of national production in food consumption;
- Belize has not made progress in addressing its diet-related non-communicable disease (NCD) targets. Obesity and diabetes remain high, especially among women, at 34.6 percent and 17.4 percent, respectively; and
- Natural disasters, climate change and poor environmental management increase the vulnerability of the country's food systems.

Effective implementation of improved policies and programmes is critical for the transformation of the agrifood systems in Belize:

- poverty, vulnerability and inequalities should be addressed with targeted policies, including social protection, which create income opportunities, while promoting healthy and sustainable consumption trends;
- key to building more sustainable and resilient agrifood systems is the implementation of integrated and decentralized, climate-smart food and agricultural policies and strategies, including scaling up digital economy tools and equipment;
- public and private sector collaboration on credit for investment and promotion of consumption of quality food, supporting increased domestic and regional market opportunities, is essential for greater economic inclusion and territorial balance;
- increased collaboration between the public and private (including agriculture and agroprocessing cooperatives) sectors is essential to achieving the food security and nutrition goals of Belize; and
- improved governance at the national, district and community levels is essential for implementing the integrated and multi-sectoral approaches required for sustainable food and agriculture systems transformation.

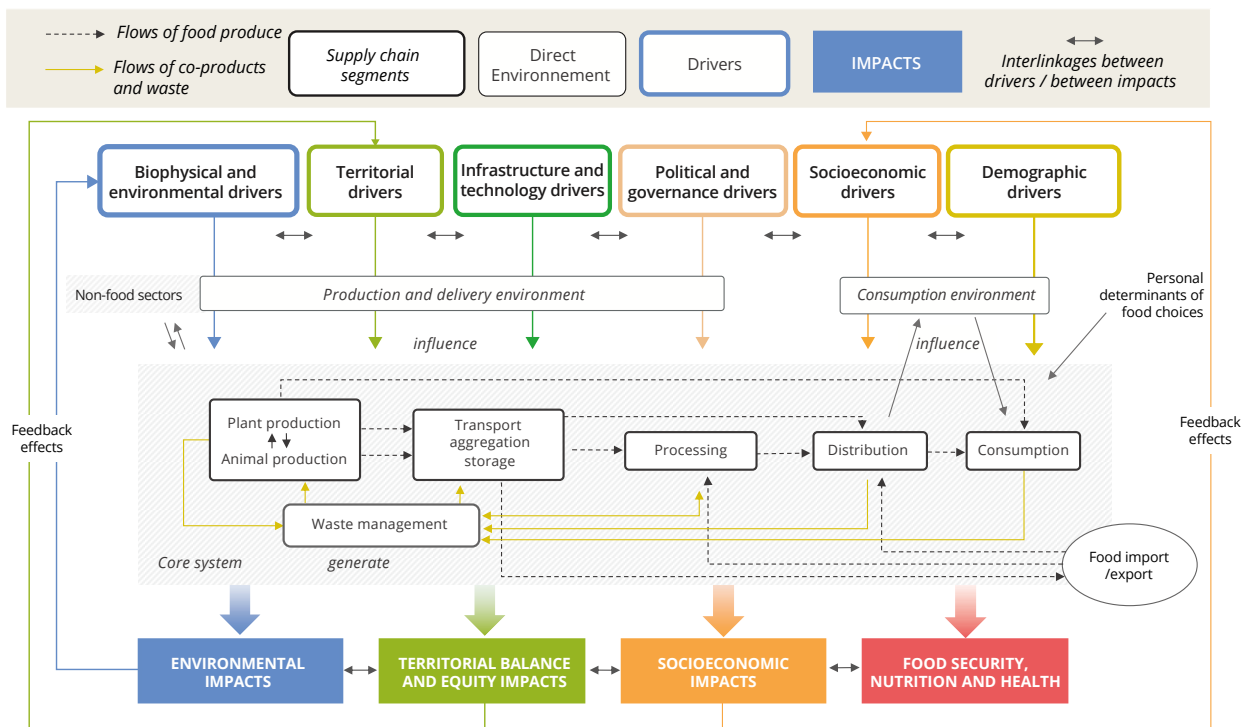


Country-level methodology and process

This brief is the result of a collaboration between the Government of Belize, the Food and Agriculture Organization of the United Nations (FAO) and the European Union, in close consultation with national and international experts. Research for it was conducted in Belize from July to September 2021. The methodology used for preparing this brief is the result of a global initiative of the European Union, FAO and CIRAD to **support the sustainable and inclusive transformation of food systems**. This assessment methodology is described in detail in the joint publication entitled, *Conceptual framework and method for national and territorial assessments: Catalysing the sustainable and inclusive transformation of food systems*. (David-Benz et al., 2022).

The assessment integrates qualitative and quantitative data analysis with participatory processes by mobilizing public, private and civil society stakeholders. The approach includes interviews with key stakeholders and a consultation workshop to refine systemic understanding of food systems and discuss potential levers to improve its sustainability. The assessment process thus initiates participatory analysis and stakeholder discussion on the strategic opportunities and constraints to sustainable transformation of food systems. The approach assesses the actors and their activities at the core of the system, together with their interactions along the food chain as well as the environments directly influencing their behaviour. Conditioned by long-term drivers, these actors generate impacts in different dimensions that in turn influence drivers via a number of feedback loops (see **Figure 1**).

Figure 1. Analytical representation of the food system



Source: David-Benz, H., Sirdey, N., Deshons, A., Orbell C. & Herlant, P. 2022. *Conceptual framework and method for national and territorial assessments: Catalysing the sustainable and inclusive transformation of food systems*. Rome, Brussels and Montpellier, France. FAO, European Union and CIRAD.



The approach involves a detailed understanding of the key challenges along the four dimensions of sustainable and inclusive food systems: (i) food security, nutrition and health; (ii) inclusive economic growth, jobs and livelihoods; (iii) sustainable natural resource use and environment; and (iv) territorial balance and equity. Aimed at identifying critical issues affecting the sustainability and inclusivity of food systems, the assessment is both qualitative and quantitative in nature. Critical challenges and key food systems dynamics are specified in the form

of **Key Sustainability Questions (KSQs)**, whose answers (see schematic representations for all KSQs) help identify **systemic levers** and areas of action that are essential to bring about desired transformations in food systems.

This approach is designed as a preliminary rapid assessment for food systems and can be implemented over a period of 8 to 12 weeks. The methodology has been applied in more than 50 countries as a first step to support the transition towards sustainable and resilient food systems.

National context: key figures

Belize, formerly a British colony (British Honduras), which gained its independence in 1981, is the only English-speaking country in Central America. While it is a member of the Caribbean Community (CARICOM), Belize has increasingly established stronger ties with its Spanish-speaking Central American neighbours. The country's key plantation agricultural exports (sugar, bananas and citrus) reflect its British colonial history, while rice, corn (tortillas) and beans, a critical part of its basic food consumption, reflect its culture as a Central American country. With a significant coastline and small islands in the Caribbean Sea, Belize remains highly vulnerable to weather impacts and climate change.

The economy of Belize has undergone a significant transformation over the past two decades, mainly supported by the growing tourism industry, which now contributes 21 percent to its GDP. The country's poverty rate, at approximately 52 percent in 2018, accounts for the inaccessibility of good quality and safe food for a significant proportion of the population. This has led to a high incidence of NCDs. Youth unemployment, at more than 15 percent, presents policymakers with a major challenge to build a more inclusive and dynamic economy. Women in general, but especially among those living in the poorer southern districts and of Mayan origin, are relatively more economically and socially disenfranchised. **Table 1** presents selected indicators for Belize over the past two decades.



**Table 1. Selected Indicators for Belize**

Indicators	2000	2010	2020	Comments
Population growth rate (%)	3.43	2.45	1.85	Declining trend for the past 2 decades
Rural population (%)	54.6	54.8	54	Since 2000, the rural population had been increasing, reflecting a stable percentage of the overall population, but in the past few years, a marginal declining trend has occurred, despite population growth.
Urban population growth rate (%)	3.02	2.41	2.19	Urban population is increasing, but at a slower growth rate over the past two decades
GDP/capita	USD 3 364	USD 4 271	USD 5 079 (2019)	Increasing trend since the 1970s, with a dip in 2020 to USD 4 436
Access to electricity (%)	79	89.9	92.7 (2019)	Increase of about 14 percentage points in the last 20 years
Access to safe drinking water				Declining disparity between rural and urban area, almost universal coverage now
Urban (%)	91.2	96.6	98.9	
Rural (%)	84.3	91.8	98	
School enrolment primary (gross %)	116	113	110 (2019)	Many children over primary age group still in primary school
Forest coverage (%)	64	61	56	Declining forest cover

Source: World Bank. 2021. Data. In: *Belize* [online] Washington, DC. Cited 11 January 2022. <https://data.worldbank.org/country/belize>

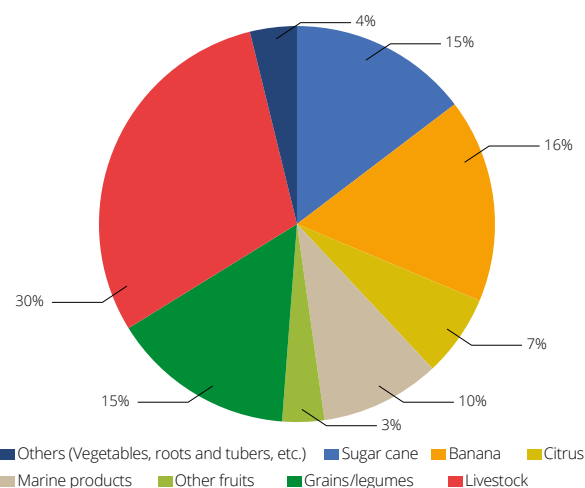




Key figures and trends in food production, consumption and trade

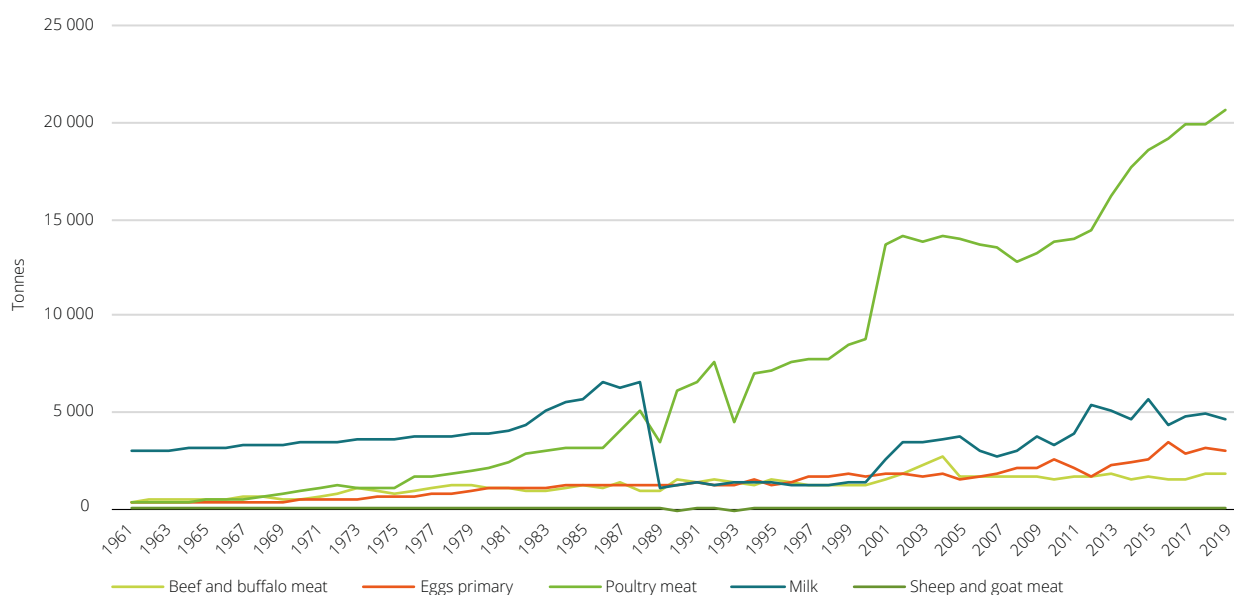
The agrifood sector contributes 14 percent to the GDP¹ (Statistical Institute of Belize, 2020a) and 17 percent to national employment (Statistical Institute of Belize, 2020b). Regarding the contribution to employment, 26 percent is comprised of women working primarily in the agroprocessing sector, while the male workforce is concentrated in the main traditional crops. **Figure 2** shows the structure of production in the country based on the value of commodities. Livestock accounts for 30 percent of the total value of production, followed by banana and sugar cane, at 16 percent and 15 percent, respectively. Together with citrus, these four commodities account for two-thirds of the crop and livestock production in the country. In terms of volume, sugar and poultry are the main crop and livestock products (see **Figures 3 and 4**).

Figure 2. Structure of production (% of value, 2019)



Source: Unpublished data from Ministry of Agriculture, Food Security, and Enterprise of the Government of Belize, Policy Analysis and Economics Unit, 2021.

Figure 3. Livestock commodities production volume (1961–2019)

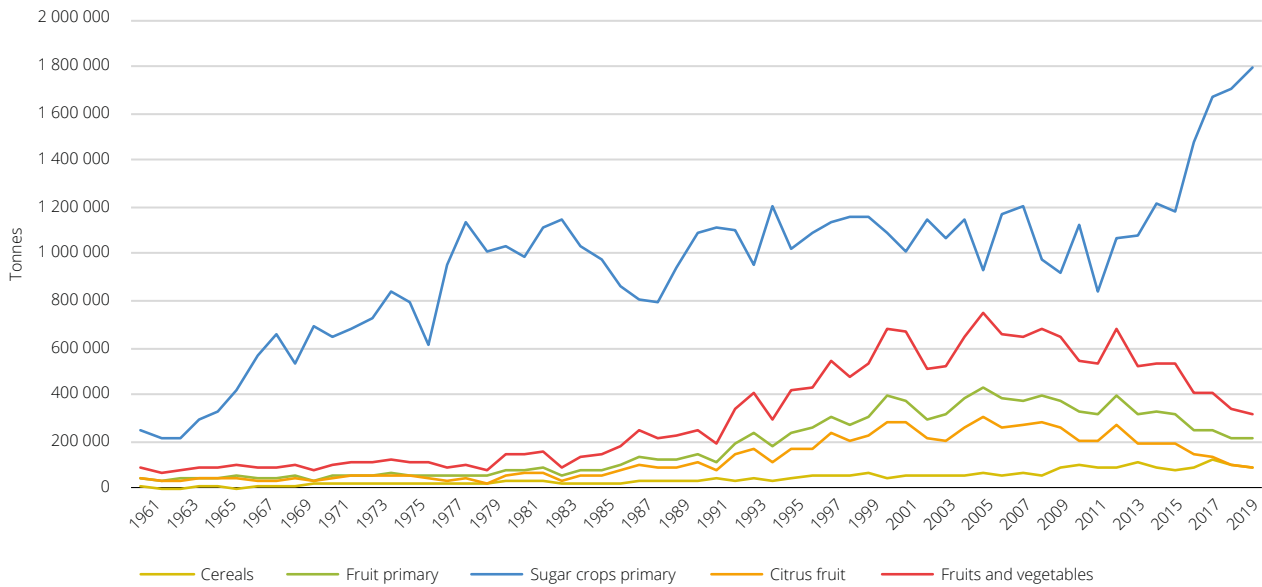


Source: FAOSTAT, Selected Indicators. In: *Belize* [online] Rome. Cited 11 January 2022. <https://www.fao.org/faostat/en/#country/23>

¹ This includes agriculture and forestry (growing of crops, horticulture, livestock farming, forestry and logging), fishing, and manufacturing of food products and beverages.



Figure 4. Agricultural commodities production volume (1961–2019)

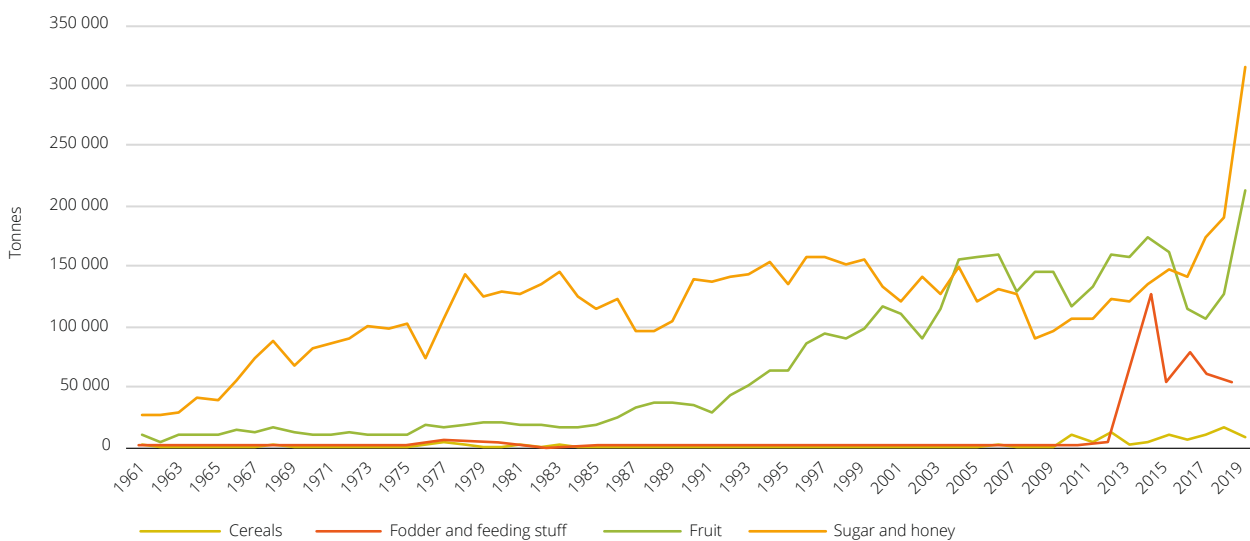


Source: FAO. 2022. FAOSTAT, Selected Indicators. In: *Belize* [online] Rome. Cited 10 February 2022. <https://www.fao.org/faostat/en/#country/23>

Over the past decade, the country's top three agricultural export commodities of sugar, citrus and bananas (see **Figure 5**) fared differently. Sugar exports declined in the early years of the decade, but recovered starting in 2018. A decline in fruit production is reflected in the

26 percent decrease in citrus production due to substantial reductions in grapefruit production and lime exports, despite an increase in banana exports by 9 percent (Belize, Ministry of Agriculture, Food Security and Enterprise, 2020).

Figure 5. Trends in exports of key commodities (volume, in tonnes)



Source: FAO. 2022. FAOSTAT, Selected Indicators. In: *Belize* [online] Rome. Cited 15 February 2022. <https://www.fao.org/faostat/en/#country/23>



Even though Guatemala and Mexico share borders with Belize, a low proportion of domestic exports are sent to these two countries. In 2015, Mexico received 4.1 percent and the Central America received only 1.7 percent of the exports from Belize, and more than half of its exports to Central America went to Guatemala. It is assumed that the unrecorded export trade with Mexico is extensive, as there is no trade agreement between the two countries.

Belize and Guatemala signed the Partial Scope Agreement in 2010, which went into force in 2014. It is estimated that the value of unrecorded exports was approximately BZD 6–7 million (USD 2.9–3.4 million) in 2015 (Bulmer-Thomas, 2017). Cattle and basic grains are among the most important unrecorded exports between the two countries. Basic grains are exported by the Mennonite community in Spanish Lookout to Guatemala, while other agriculture goods are exported through Arenal Village in Cayo district and Jalacte in Toledo district (Bulmer-Thomas, 2017). **Figure 6**² shows the bilateral trade data between the two countries.



Although Mexico and Guatemala account for a relatively small proportion of the total exports of goods and services of Belize, research suggests that there is strong potential for growth and diversification from the country's small and narrow base. Even when unrecorded trade in goods is included, export volumes are still lower than the potential amount (Bulmer-Thomas, 2017).

Figure 6. Belizean exports to Guatemala, 2010–2014



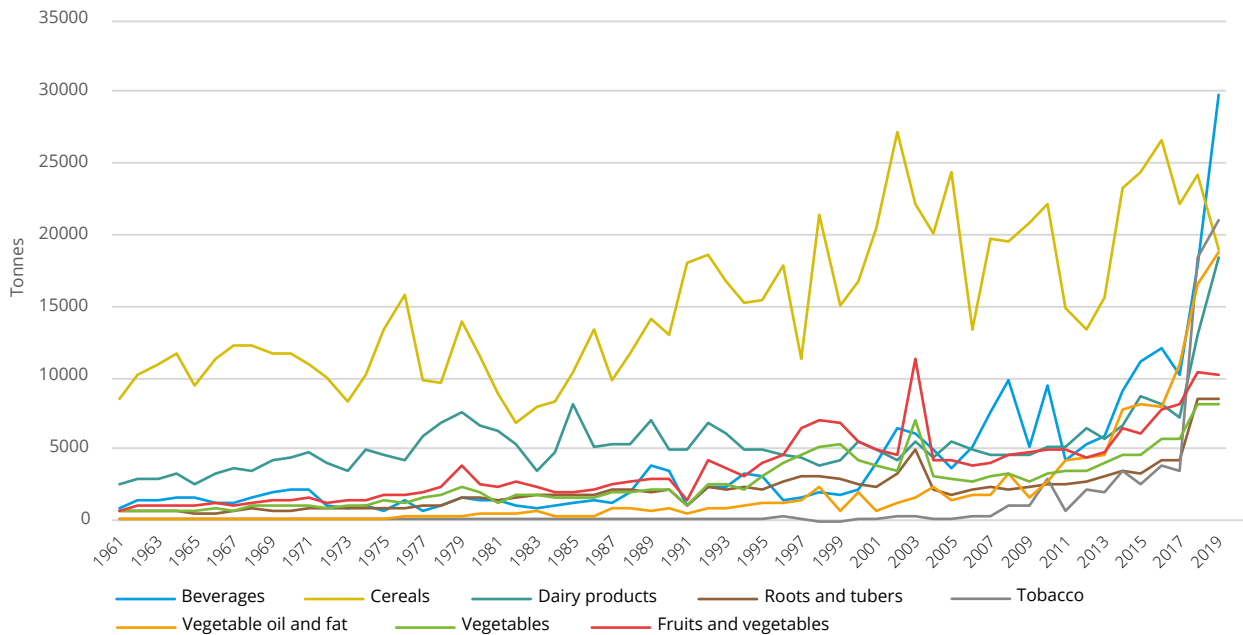
Source: Bulmer-Thomas, V. 2017. *Belize regional integration options: Guatemala and Mexico*. IDB Technical Note, 1278. <https://publications.iadb.org/publications/english/document/Belize-Regional-Integration-Options-Guatemala-and-Mexico.pdf>

Despite having a vibrant agricultural export and domestic food crops sector, food imports to Belize have been expanding and currently account for 40 percent of the country's total food consumption. Imports of almost all commodities have increased over the years. Notably, imports of cereals have risen steadily since the 1960s, while, in recent years, there has been a particularly steep rise in the imports of beverages, dairy products, tobacco, vegetable oils and fats. Among agrifood products, in addition to cereals, imports of fruits and vegetables and beverage have also increased (see **Figure 7**). Production in these food sectors could expand significantly in Belize. These sectors are also critical for increasing healthy eating and food self-reliance in the country.

² Figure 6 also shows discrepancies in Belizean exports to Guatemala and Guatemalan imports from Belize between 2010 and 2014, due to the use of sources from Belize and Guatemala (UNCTAD data refer to total merchandise trade, therefore, they do not distinguish between domestic exports and re-exports).



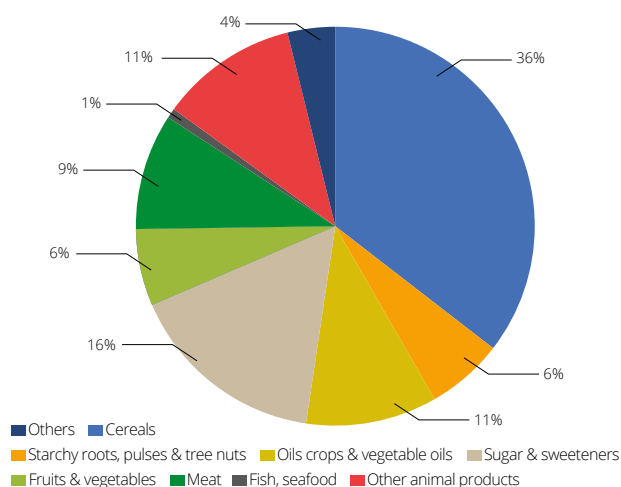
Figure 7. Trends in imports of key commodities (volume, in tonnes)



Source: FAO. 2022. FAOSTAT, Selected Indicators. In: *Belize* [online] Rome. Cited 23 February 2022. <https://www.fao.org/faostat/en/#country/23>

The Belizean diet mainly consists of rice, corn, beans and chicken, which are the foods most accessible in the country (see **Figure 8**). Cereals and livestock products account for 36 percent and 21 percent, respectively, of the daily calories available to its population.

Figure 8. Daily food supply (kcal/capita)



Source: FAO. 2022. FAOSTAT, Selected Indicators. In: *Belize* [online] Rome. Cited 12 March 2022. <https://www.fao.org/faostat/en/#country/23>

In general, Belize may not be considered a chronically food insecure country, however, it has severe pockets of poverty and faces malnutrition challenges and associated food-related diseases. Poor food choices and limited access to quality food are leading to increasing concerns of food insecurity and malnutrition in the country. In the recent World Food Programme (WFP) Caribbean COVID-19 survey (May 2020), half of the respondents from Belize had shifted their eating behaviour by skipping meals, eating less than usual and eating less preferred foods (WFP, 2020).

One manifestation of this challenge is that approximately 40 percent of all deaths in the country is linked to diet-related NCDs. The prevalence of obesity, assessed at 34.6 percent among adult women and 19 percent among adult men, is higher than the regional average, while 7.3 percent of children under five years are overweight. Furthermore, diabetes is affecting approximately 17.4 percent of the adult women and 11.3 percent of the adult men population (Global Nutrition Report, 2022).



Characterization of the dominant actors of the food system

Food systems in Belize are very diversified in terms of production structure and participants, but very concentrated in terms of food processing and consumption patterns. The Ministry of Agriculture, Food Security and Enterprise is the main governmental agency responsible for driving the transformation of the country's food systems. Agriculture in Belize is characterized by three main subsectors: (a) a well-organized export-oriented commercial subsector specializing mainly in banana, citrus and sugar; (b) a highly diverse and subsistence small-holder subsector producing a wide range of food crops, especially vegetables, mainly for local consumption; and (c) a vertically integrated, medium and large-scale commercial subsector (dominated by Mennonites) producing cereals and livestock products for local and export markets.

- about 38 percent of the land area is suitable for agriculture, while approximately 20 percent of it is actively being used for agriculture;
- food crop (corn, rice, beans, vegetables and roots) and livestock (poultry and beef) production are heavily concentrated among small and medium-sized producers;
- small farmers account for more than 75 percent of the farming population. They are spread across the six districts in Belize with a greater concentration of commercial producers in the Cayo and Orange Walk districts;
- Belizean milpa farms and small-scale cash crop farms account for the highest number of farmers, who produce a substantial amount of the food consumed;
- the Mennonite community, mainly from the Cayo and Orange Walk districts, is an important player in Belizean food systems, especially in terms of poultry, corn, rice and dairy products;
- marine products also form a part of the Belizean diet (fresh fish) and contribute to the country's export earnings (lobster, conch and shrimp). Given that most fisherfolk belong to export-oriented fishing cooperatives, the fishing sector's share in food security has been less than what is expected for a country with a significant coastline;
- food crops are generally sold as fresh and unprocessed products, mainly distributed through municipal markets and supermarkets;
- agroindustrial processing is minimal and mostly limited to slaughtering, packaging and freezing of livestock products (poultry and beef) and manufacturing of some sauces, jams and jellies;
- according to the 2011 agriculture census, 19 236 people identified themselves as farmers. Of these, about a quarter owned fewer than five acres; one-third owned 5 to 20 acres; and the remaining owned more than 20 acres;
- approximately 30 cooperative enterprises are involved in the agricultural sector. Most of their members are small-scale farmers. However, there are only three agroprocessing enterprises, with 31 members, registered with the Department of Cooperatives.
- the agroprocessing and food production sector, a high priority of the Government of Belize, is in a developmental phase. It is supported by a number of fiscal incentives to encourage commercialization and value addition; and
- according to the fourth quarter GDP report of the Statistical Institute of Belize, the hotel and restaurant sector expanded by 7.4 percent, receiving a boost from a 9.6 percent increase in tourist arrivals due to the addition of more direct flights to Belize (2017–2018). This sector presents a market for locally produced fruits and vegetables for local consumption and processed foods as souvenir products (Statistical Institute of Belize, 2019). The growing tourism sector in Belize drives its GDP (21 percent), while its agriculture and food sector is a major contributor to the tourism sector, mainly through sales of produce to hotels and restaurants (Belize, Ministry of Agriculture, 2015).



Key challenges to the achievement of core sustainable food systems goals

In recent years, global crises, especially those related to the COVID-19 pandemic and international and multilateral economic changes, have affected the food systems of Belize. These factors, which include attention to underlying health conditions, shorter value chains, more balanced economic structures, adoption of digital technology innovations and adjustment to climate and energy transitions, all provide lessons and challenges for the transformations of food systems.

Belizean food systems need to provide healthy food that is accessible to all its citizens. This entails promoting healthy consumption patterns focused on tackling nutrition problems, attaining greater socioeconomic inclusion and reducing territorial inequities. The transformation of the food and agricultural system in Belize will take place under the increasingly alarming circumstance of extreme vulnerability to climate change and climate-related hazards, which threatens most sectors of the economy, especially tourism, agriculture and fisheries. Livelihood systems are also threatened, as more than 50 percent of the population resides in coastal areas that are directly affected by climate change.

There are also serious issues related to natural resource degradation. Belize faces water pollution, marine area contamination and loss of biodiversity, resulting from unsustainable production, consumption, and related agricultural practices and economic activities. These challenges need to be addressed to achieve a more inclusive and sustainable transformation of the country's food systems.

In the context of green and blue economy initiatives, Belize has long been committed to implementing sustainable agriculture programmes. The food and agriculture policy and planning trajectory for Belize is well reflected in the commitments of the current Government of Belize, which was elected in November 2020. Under Plan Belize (2020–2025), the Government is committed to promoting transformative changes to make the agriculture sector highly productive, profitable, gender-responsive, attractive to young people and environmentally sustainable. In addition, the Government has pledged to address food security and rural development by creating 30 000 jobs in the agricultural sector through the introduction of climate-smart technologies and policies, and public and private sector investments (Belize, 2020)







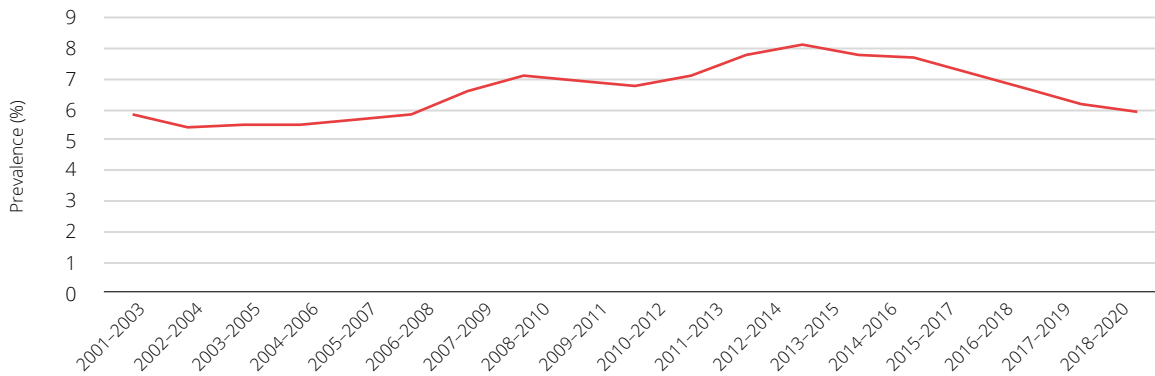
Key Sustainability Question 1: Why does malnutrition, NCDs and inaccessibility to healthy, safe and affordable food remain persistent problems in Belize?

Despite efforts and interventions taken by the countries' ministries of agriculture, education, health and other national institutions, and non-governmental organizations (NGOs) and private sector and international donors, inaccessibility to healthy, safe and affordable food continues to foster a high incidence of malnutrition and NCDs in Belize. The most important reasons for this situation are poverty and urbanization, low agriculture productivity and reliance on imported food, limited nutritional knowledge, and limited development of and access to appropriate food and agriculture systems technology (see **Figure 10**).

In 2017, 17.9 percent of children were stunted, of which a 45 percent occurrence rate was noted in the poorest district of Toledo. The national

stunting rate is higher than the average for the Latin America and the Caribbean region. In addition, 1.8 percent of children under five years are still affected by wasting, which is higher than the average for the region (1.3 percent). **Figure 9** shows a slight increase in the prevalence of undernourishment, estimated at 5.9 percent. Nearly 52 percent of the population is anaemic, suggesting a lack of iron in average household diets, while 12 percent of infants are estimated to weigh less than 2 500 grams at birth, which is indicative of poor diets of gestating mothers (Statistical Institute of Belize and UNICEF, 2017). These low birth weights have long-lasting health effects on children into their adulthood, such as greater chances of contracting diabetes and hypertension (Statistical Institute of Belize and UNICEF, 2017).

Figure 9. Prevalence of undernourishment (% , three-year average)



Source: FAO. 2022. FAOSTAT, Selected Indicators. In: *Belize* [online] Rome. Cited 15 March 2022. <https://www.fao.org/faostat/en/#country/23>

The most common NCDs in Belize are diabetes, high blood pressure and high cholesterol, which mainly are the result of poor food consumption patterns and low physical activity (see **Table 2**). The Multiple Indicator Cluster Survey 2015–2016 (Statistical Institute of Belize and UNICEF, 2017) indicated that 40 percent of estimated deaths in the country was linked to diet-related NCDs, specifically diabetes and hypertension. The high rate of NCDs is correlated with a high prevalence

of overweight and obesity. An estimated 34.6 percent of adult women (18 years and above) and 19 percent of adult men are living with obesity. Obesity prevalence in the country is higher than the regional average of 31 percent for women, but it is lower than the regional average of 23 percent for men. Meanwhile, diabetes is estimated to affect 17.4 percent of adult women and 11.3 percent of adult men (Global Nutrition Report, 2022).



Table 2. Prevalence of selected non-communicable disease risk factors in Belize

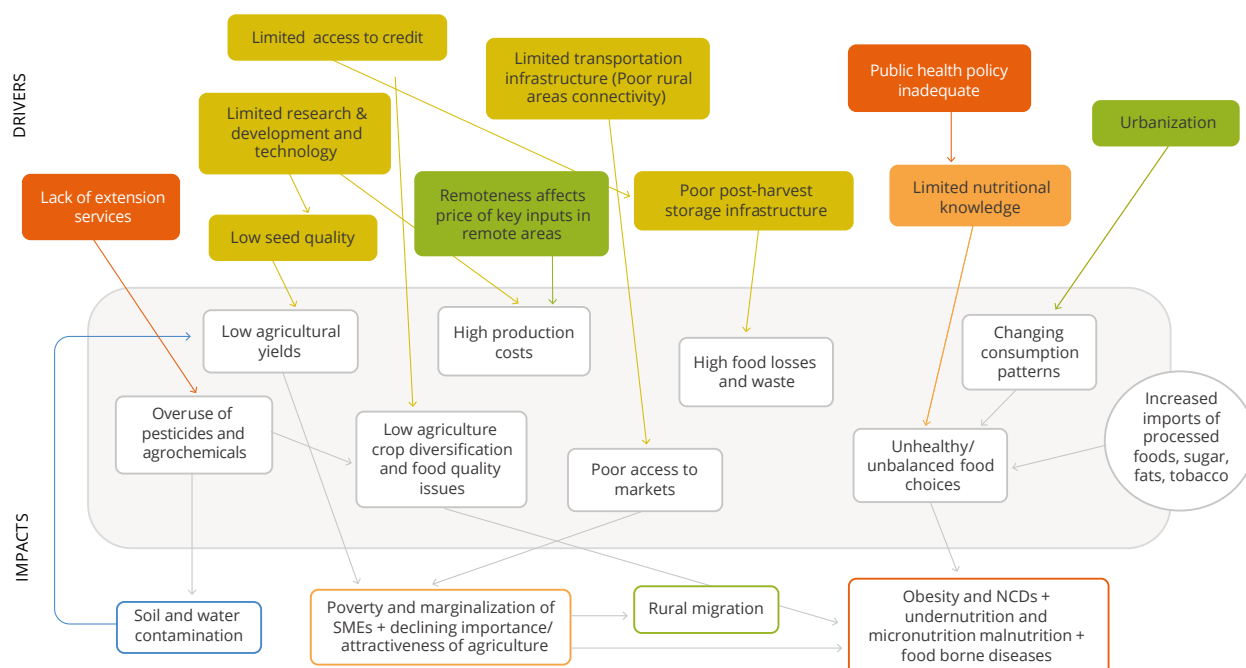
Prevalence (%) of adults with	Total	Males	Females
High blood pressure	28.7	28.6	24.4
High cholesterol (> 200 mg/dl)	5.1	4.1	6.0
Low physical activity in adults	77.7	75.4	80.4

Source: Belize, Ministry of Health, Pan American Health Organization and WHO. 2012. The Belize National Plan of Action for the Prevention and Control of Non-communicable Diseases 2013–2023. <https://www.iccp-portal.org/sites/default/files/plans/Belize%20NCD%20Strategic%20Plan%20-2013-2023.pdf>

From a food safety standpoint, 60 percent of the adult population is affected at some time by parasitic infections resulting from unsanitary living conditions, including contaminated water and food. Lack of affordable sanitation facilities and public

health education along with traditional living conditions and practices are the key factors supporting this adversity. A typical Mayan homestead, for example, has an earthen floor, which increases the risk of deterioration and contamination of stored food.

Figure 10. Reasons behind the persistence of malnutrition, non-communicable diseases and inaccessibility to healthy, safe and affordable food in Belize



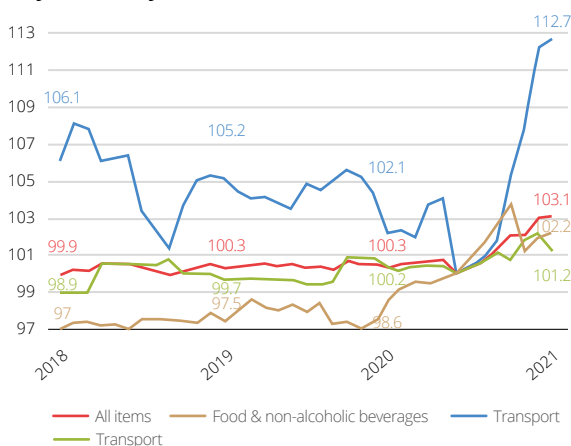
Source: Authors, 2022.



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According to the Statistical Institute of Belize, the national poverty rate was 52 percent in 2018, as compared to 41 percent in 2009, while the urban poverty level increased more significantly from 28 percent in 2009 to 43 percent in 2018 (Statistical Institute of Belize, 2021b). In addition, the consumer price index (CPI) survey for the past year showed a year-on-year rise in the food and non-alcoholic beverages category by 3.6 percentage points in May 2021 (see **Figure 11**) (Statistical Institute of Belize, 2021a). Food consumption trends of poor households have also been affected by urbanization and changing lifestyles.

Figure 11. Consumer price index by major categories (May 2018–May 2021)



Source: Statistical Institute of Belize. 2021a. Consumer price rises 2.8% in May 2: fuel, LPG and personal care products up: hotel accommodations down. Consumer Price Index for May 2021, 30 June 2021. http://sib.org.bz/wp-content/uploads/CPI_2021-05.pdf

Approximately 45 percent of the total population lives in urban areas and are experiencing lifestyle

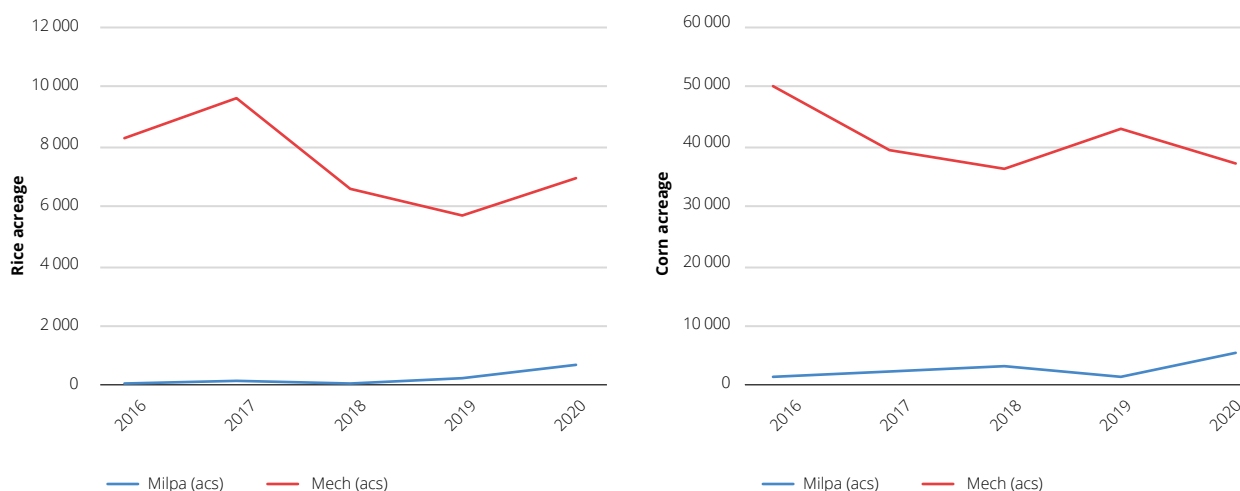
changes, which has had a significant impact on how and what they eat. The diet of poor households, especially rural ones, is heavily reliant on only cereals – rice, wheat and corn – with beans as an important source of protein. Unhealthy eating habits in urban areas, particularly the consumption of fast food (fried chicken) and imported processed food (corn beef and chopped ham) are leading to further poor nutrition outcomes. Unskilled labour in urban areas earn approximately USD 75/week. Almost all of them rent small rooms (barracks) where they live with family. Many of these households find it cheaper to buy fast food than cook a healthy meal. In addition, there is a growing dependency on imported foods, such as sugary beverages, vegetable oils and fats. Many experts hold the view that these imported foods have contributed to the increased incidence of NCDs over the years.

The high reliance on imports combined with low productivity among small farmers is resulting in low production of the main staples (corn, rice and beans). Smallholder production accounts for only 3 percent of the national production of red kidney beans, 2 percent of corn and 8 percent of rice. **Figure 11** shows the acreages distributed across rice and corn, reflecting the minor role of milpa farming³ in national production, even though this production itself is important to the food security of the poorest producers. This scenario is similar among most of the smallholder farmers throughout the country, but tends to be more pronounced in southern Belize.

³ A traditional intercropping system used by Mayan farmers.



Figure 12. Comparative production (acreage) of milpa versus mechanized farming for corn and rice



Source: Belize Agriculture Information Management System – Ministry of Agriculture, Food Security and Enterprise. 2021. Selected gender indicators. (Unpublished data).

Nutritional knowledge at the household level is insufficient to make healthy food choices. This is the result of the absence of adequate and effective public health services among communities across Belize, which is especially noticeable in the northern and southern parts of the country. Low nutritional knowledge among producers and consumers has resulted in low consciousness among the population about healthy food production and consumption.

Factors related to this low awareness influence the eating habits and food choices of the population. For instance, households in remote, rural communities value and consume corn tortillas as an important energy source and do not eat other important ingredients required for a healthy daily diet. In addition, some households in rural communities situated along primary roads in major towns and municipalities can afford to purchase fresh vegetables and fruit, but they instead continue to stick to eating rice, beans and deep-fried chicken.

The national health system is not consistent in promoting nutrition education among children

in schools and among civil society at large. This is because public policies do not have sufficient reach to affect the import of low-value food products and, therefore, do not ensure that high nutrient value food products contribute to healthy diets.

Also of note, development of and access to appropriate food and agriculture technology and extension services are limited. The technology development centre and the extension service of the Ministry of Agriculture are unable to operate at a satisfactory standard to improve production, distribution and consumption outcomes. Weak public policy governing these institutional areas and associated limited human resource capacity are the main challenges inhibiting the transformation in these two critical areas of research and extension.

Another factor limiting farmers' access to and adoption of innovative technology is difficult in obtaining credit to purchase infrastructure, equipment and operating inputs. This lack of access to resources is related to the lack of collateral and ability to demonstrate a



repayment capacity, in addition to the low number of financing and credit institutions in rural areas. This boosts the cost of credit and reinforces the cycle of poverty, poor nutrition and underdevelopment of the poorest rural communities in Belize.

The public draft policy (National Agriculture and Food Policy 2015–2030) governing agriculture in Belize is weighted heavily towards the development of crops and livestock for exports. Accordingly, the extension services are more oriented to these crops than to food crops, such as calaloo, chaya and chayote, for domestic consumption. In addition, there is a major shortage of qualified technical personnel. Only four post-graduate professionals are working in the research and development (R&D) department of the Ministry of Agriculture, Food Security and Enterprise. This capacity issue is also reflected in the lack of prioritization of food and agriculture R&D programmes. A programme for developing quality seeds of corn and beans for rural communities, for instance, was recently discontinued due to a lack of financial and human resources.

The National Agriculture Extension Service is comprised of an estimated 40 professionals spread across the country's six districts to assist farmers. This equates to a ratio of 1:150 extension officers available per farmer, which is insufficient to adequately provide technical services to farmers, especially to small farmers in remote areas. At best, the services concentrate on basic technical advice on crop and animal production. Current officers, moreover, are not trained with the latest skills, as capacity building offered to them has been limited in such areas as innovative and alternative sustainable practices, such as organic production, precision agriculture, digital agriculture (risk management and early system warning) and climate-smart agricultural practices. Because the technology training curriculum is not sufficiently relevant to current needs, the motivation levels of technical and extension staff

are low. As a result, their own productivity is low and the benefits to the communities they should be helping remain limited as unsustainable practices continue.

Proposed systemic levers:

1. **providing nutrition education through community health initiatives, including in schools; and**
2. **promoting local products linked to better nutrition.**

Providing nutrition education through community health initiatives would ensure that producers, and women, in particular, can produce, select and prepare foods using healthy, locally available crops. Strengthening school gardens and school feeding programmes across the country, especially in rural areas, would create an opportunity to increase the growing and consumption of healthy foods that are culturally recognized and consumed locally in daily meals, such as chaya, string beans, pumpkins, chayote and yams.

Public policy related to food and nutrition should be more focused on promoting local produce linked to better nutrition. This includes emphasizing shorter value chains that prioritize diversified and sustainable food production using fresh products over imported processed products.

To increase nutrition education and promote local produce requires increased levels of coordination across government departments of the ministries of agriculture, education, finance, health and sustainable development. This collaboration is essential to ensure that the policy orientation is comprehensive, the variety of required technical services are available and resources at the public, private and community levels are adequate to promote the changes needed. Expansion of school feeding programmes, school gardens and nutrition education as a part of the education curriculum is paramount and recognized in policy frameworks as important interventions in this regard.



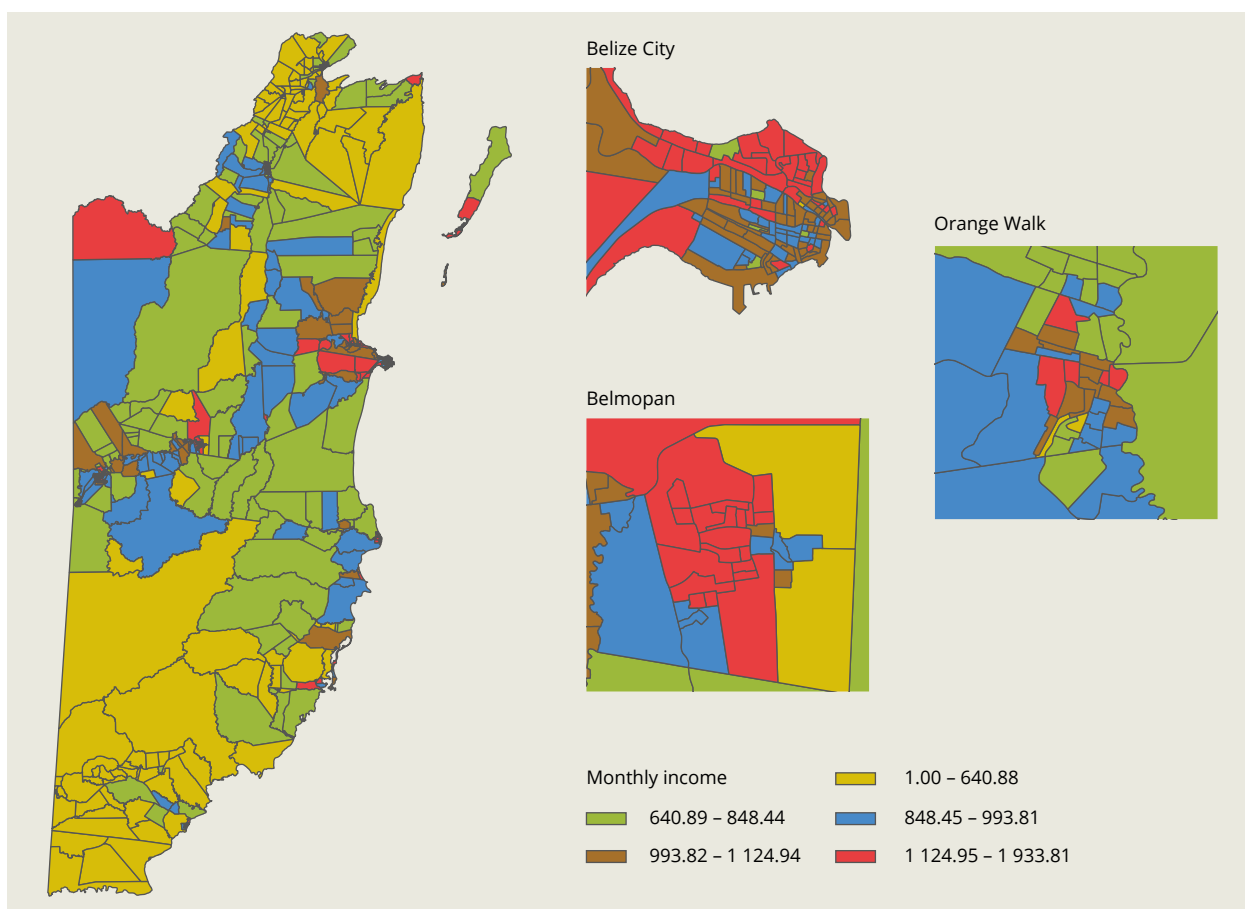
Key Sustainability Question 2: What are the key bottlenecks to integrated territorial and socioeconomic development of a dynamic and inclusive food system across all regions of Belize?

Agricultural production systems in Belize are very diverse. Approximately 92 000 acres are planted with sugar cane, 48 000 with citrus and 48 500 with corn. Additionally, approximately 135 400 head of cattle graze on 351 700 acres of pastures (CIAT, World Bank and Climate Change Agricultural and Food Security, 2018). In terms of regional diversity, Toledo district contains 25 percent of the farms in Belize, with a high concentration of small farms (77 percent of them are less than 20 acres), followed by

Orange Walk (22 percent) and Corozal (21 percent) districts.

The agrifood system constitutes the main livelihood for many communities in rural Belize. However, there is uneven territorial development; some districts are home to much larger proportions of the poor, and not surprisingly lagging other districts in terms of general indicators of development. **Figure 13** clearly brings out this disparity.

Figure 13. Average levels of estimated monthly income across Belize (2020)



Source: Hersh, J., Engstrom, R, Mann, M., Martin, L., & Mejia, A. 2020. Mapping Poverty in Belize Using Satellite Features and Machine Learning. Inter-American Development Bank technical note, No. IDB-TN-609. IDB. Map conforms to UN. 2020. <https://www.un.org/geospatial/content/map-world Map no. 4170, Rev. 19>



Figure 13, which depicts the average monthly income of communities in the districts of Belize in 2020, shows that the lowest monthly income (USD 1 460) was recorded in Toledo, Stann Creek and parts of Corozal. The poverty rate varies across districts (see **Figure 14**), and is highest in Toledo (82 percent) and Orange Walk (57 percent). Over time, there has been an increase in poverty across districts (except for Corozal), with the most pronounced increase being recorded in Toledo (Statistical Institute of Belize, 2021b). Differences have also been recorded across rural and urban areas. In 2009, the rural poverty rate was 55 percent, and the urban poverty rate was at 28 percent. These rates rose to 59 percent and 43 percent in 2018, respectively.

Figure 14. Poverty rate by district



Source: Statistical Institute of Belize. 2021b. More than half of Belize's population living in poverty in 2018. Poverty Study release for 2018/19, 30 June. <http://sib.org.bz/wp-content/uploads/PovertyStudy2018.pdf>

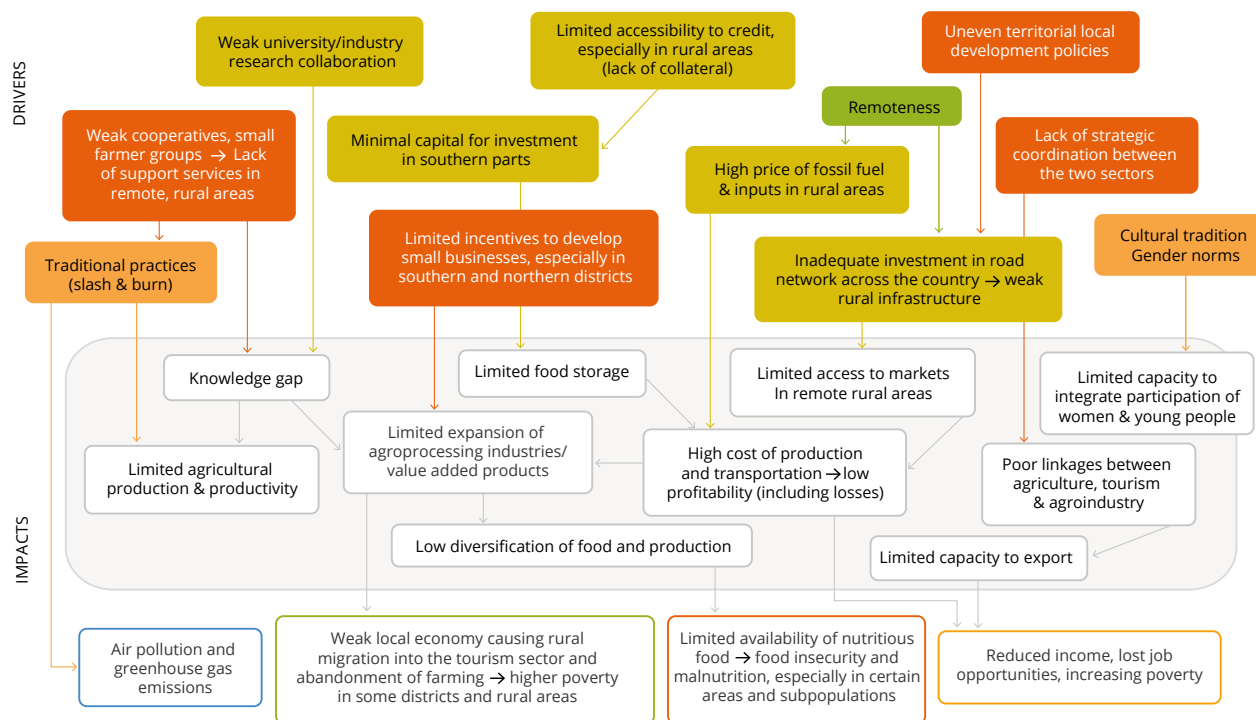


The high indigence rate of some of these districts also influences the triple burden of malnutrition, especially among children. Children in Toledo, for instance, had the highest stunted rate among children in the country in 2015. In contrast, the percentage of wasted children was highest in Stann Creek and Belize City Southside (3 percent each), while in Belize district, the highest percentage of overweight children (11 percent) was recorded. Marked differences according to household head ethnicity are also observed, with 35 percent of stunting and

5 percent of severe stunting recorded among Mayan children, and 15 percent overweight among the Garifuna children. In addition, the stunting rates among children whose mothers have a secondary or higher education are five times lower than that of children whose mothers have no education. In contrast, prevalence of overweight children is five times higher among those whose mothers have received a secondary or higher education than those with no education (Statistics Institute of Belize and UNICEF Belize, 2017).



Figure 15. Key bottlenecks to integrated territorial and socioeconomic development of a dynamic and inclusive food system across Belize



Source: Authors, 2022.

Remoteness is a contributing factor to lack of development in some of the districts. This is also related to the lack of linkages with nearby poles of development, especially failure to implement processes of development that are inclusive and create synergies that positively affect these districts. In Corozal, this is the case with the sugar industry, and similarly with the citrus and banana industries in Stann Creek and Toledo. As a result, the rural economy of these districts remains weak, with an underdeveloped infrastructure and service sector, a very small private sector and community organizations lacking the capacity to plan and effectively leverage opportunities within and across the districts.

This remoteness is also connected to the national and regional policy planning challenges, which perpetuate underdevelopment. Several

earlier projects targeting these areas have not resulted in the expected processes for future development to take hold. On one hand, local entrepreneurs and communities have pointed to lack of their participation in the design and implementation of these projects. On the other, the policy institutions have pointed to cultural traditions and disputes over how the local communities want to govern their areas and participate in the development process. Many of the factors that contribute to the uneven territorial development and lack of dynamic and inclusive food systems across the country are presented as drivers in **Figure 15**.

The remote districts of Belize have less dynamic food and agricultural systems, partly because of their distance from urban centres, which drive development in the country. A major factor behind the continuing underdevelopment



of rural areas is that only 20 percent of the country's primary roads are paved. The distance and impact of poor roadways result in higher costs for inputs, low profitability, limited availability of services and lack of infrastructure.

There is also a major credit bottleneck, as discussed in KSQ 1, limiting production expansion in the regions that lag. Banks and credit unions are unwilling to take higher levels of risk required for rural development projects, which lowers the probability of financing agricultural development for smallholder farmers.

Approximately 30 cooperative enterprises work in the country's agricultural sector, as discussed in section 3. Most of these are farmer-only cooperatives that produce primary food products for self-consumption. A small quantity of their products are sold in the market, indicating limited and weak development for value-added products. Cooperatives and small farmer groups have generally not been successful in working together, reducing their ability to demand access to services (extension), such as obtaining certification of products, which would enable increased market entry. On the other hand, some farmers, such as Mennonites, produce primary and value-added products. In addition to operating their own storage and distribution scheme, they have adapted to the whole food system – from production, harvesting and processing to distribution and consumption.

In addition to the critical economic variables that limit territorial development mentioned above, educational and industrial rural area development linkages to support productivity enhancement and product development are weak. In 2020, Toledo, Stann Creek and Corozal registered the lowest incomes compared to other districts, even though the country's major banana, citrus and sugar industries are in these districts. This scenario is also evidenced with the tourism sector in these districts. The

fundamental problem is the lack of market linkages and synergies.

As mentioned earlier, the tourism sector accounts for 28 percent of national employment and 21 percent of GDP. The sector, including the cruise industry and high-end hospitality segment, continues to depend mainly on imported produce, as there is a lack of confidence in the quality and reliability of the supply of local products.

Removing the bottlenecks could make an important contribution to reducing the territorial disparities in Belize. The limited market incentives for farmers to expand and grow their enterprises and the tourism sector's lack of confidence in rural tourism opportunities continue to contribute to the poverty and low level of food systems development, especially in the more remote areas of Belize.

Proposed systemic levers:

1. **creating public policy incentives to foster the development of entrepreneurs and microenterprises. Supporting regulations and financial measures that assist rural residents, farmers and non-farm enterprises to invest using local resources and sustainable practices; and**
2. **creating effective partnerships and productive linkages between the agriculture and tourism sectors, emphasizing market-driven enterprises that are inclusive and have a dynamic development path.**

To be effective, public policy incentives need to reduce knowledge gaps, facilitate strategic business development and enable the establishment of market information platforms (digitization) that expand agriculture, agritourism, and small and medium enterprises, especially for women and young people. The Government is prioritizing first-time land ownership for women and young families and could facilitate



the establishment of rural enterprises, which are viewed as low hanging fruits in terms of opportunities, such as honey production, rice production, cacao production, fruits and vegetables agroprocessing, and agroforestry. Development of these areas would also facilitate greater integration of rural enterprise with agroecological tourism opportunities.

Large-scale industries should be encouraged to adopt a growth and development process that is more beneficial to local communities. Similarly, the tourism industry could develop an association with rural areas in terms of being a market for farm produce and in promoting agritourism opportunities. The high demand for nature-based tourism should be exploited as a niche experience within the ecotourism segment.

This would create jobs, promote sustainable food systems and improve the livelihood systems of rural communities.

Ensuring that there are adequate public policies promoting agrifood and tourism linkages, and value-added enterprises using rural resources would create economic and social opportunities. This, in turn, would lead to a transformation of the food systems by enabling greater access to good quality and healthy food products for the national market, and the tourism and export markets. When implementing public policies and promoting the development of enterprises, it is important that inclusion (opportunities for marginalized groups) and sustainability (from an environment and economic standpoint) considerations be kept at the forefront of the policy platforms.





Key Sustainability Question 3: What are the reasons for the low resilience to climate change and continuing environmental degradation that undermines the food systems of Belize?

Belize has experienced frequent natural disasters of catastrophic proportions over the last fifty years. Hurricane Hattie destroyed half of Belize City in 1961, killing 400 people and submerging Turneffe Island and Caulker Caye in 13-foot storm surges. The economic damages, estimated at more than 600 percent of GDP, prompted the Government to build a new administrative capital 50 miles inland in Belmopan. In 2000, Hurricane Keith caused damages that exceed 45 percent of GDP, and one year later, Hurricane Iris submerged parts of Belize in 14-foot storm surges, destroying about 4 000 homes. Tropical Storm Arthur, which occurred in May 2008, caused extensive damages to critical infrastructure and the agriculture sector (World Bank (2011a); (2011b)). An average of 3.3 percent of GDP was lost annually between 1993 and 2012 from disasters.

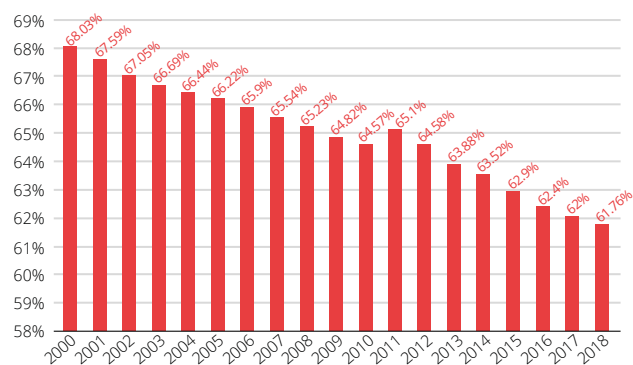
More than 50 percent of the population and business centres are on or near the long, lowlying coastline, most of which are at or near sea level. The country's economy is highly sensitive to climate variability due to its dependence on natural resources. Projections suggest that frequent heatwaves and droughts are expected, including high intensity rainfalls, and rising sea levels, which would lead to increased storm surges and riverine flooding (Carneiro, 2016).

Climate change and environmental degradation are the result of several factors. Among the most relevant factors are deforestation, excess use of chemical fertilizers, and inappropriate management of solid, and liquid waste. These continuing practices damage the environment and expose Belize to risk of climate impacts. They also make the country vulnerable to the effects of increasing climate change. Belize has been experiencing more droughts and floods. Regarding the latter, beaches have been washed away at Monkey River in Toledo district and at Dangriga town in Stann Creek district. In addition, the change in weather

patterns has shifted the cycle of pests and diseases affecting crops. Furthermore, pests, such as the Asian Thrips, which are not common in Belize, devastated the soyabean crop in 2021, causing a ripple effect on the country's food systems. The impact of these changes will result in lower levels of food and agricultural production, and damage to the fisheries ecosystem.

Other environmental indicators are also of concern in Belize. **Figure 16** shows a loss of over five percentage points of forest cover in less than two decades. In addition, Belize is facing a serious problem with water contamination from agrochemicals and fertilizers used in crop production and for solid and liquid waste management. The impact from contamination combined with climate change may affect the agrifood sector and render some agricultural commodities unsuitable for production. In such cases, diversification to other products may be required to sustain the country's food systems. A high concentration of microplastics (see **Figure 17**) has been detected in the Mopan River of Cayo district, for example. It is likely that all rivers in Belize are similarly contaminated and this plastic waste will eventually end up in the marine ecosystem (Belize, 2019).

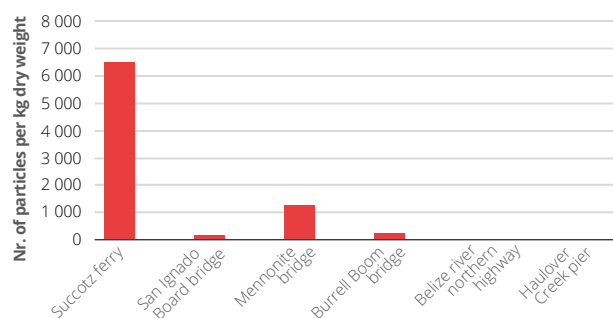
Figure 16. Forest cover change nationally from 2000 to 2018



Source: Belize, Ministry of Agriculture, Forestry, Fisheries, the Environment, Sustainable Development and Immigration. 2020. Belize forest reference level (FRL)/Forest reference emission level (FREL), 2001–2015. https://redd.unfccc.int/files/belize_frel_final_report_2001-2015_2020.01.13.pdf



Figure 17. High concentration of microplastics in Mopan River, Cayo district



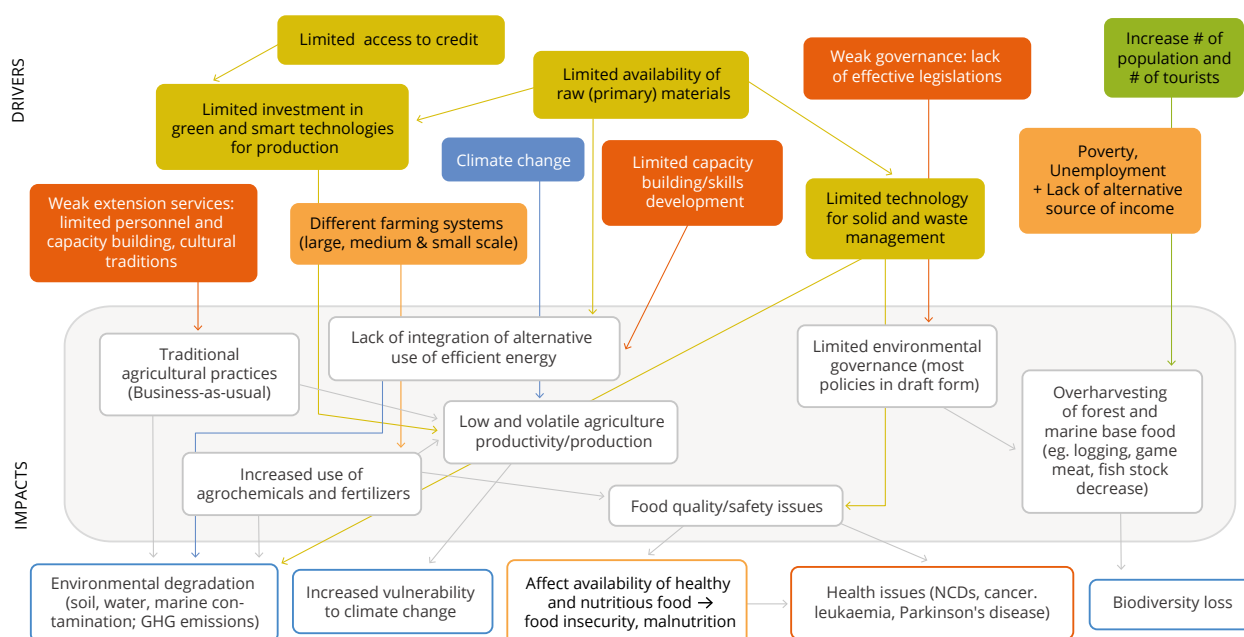
Source: Belize. 2019. National Marine Litter Action Plan. Belize –Blue, Clean and resilient and strong. <https://doe.gov.bz/download/belize-marine-litter-action-plan/76>.

Overharvesting continuously of products from forests (see **Figure 16**) and marine systems contribute to biodiversity loss, which disrupts the flow to ecosystem services that yield food and water for Belizean livelihoods. This overharvesting of food resources has been exacerbated by population growth, increased unsustainable tourism practices and inefficient use of natural resources

in the national farming systems. Increased poverty and unemployment have also contributed to the overharvesting of timber and non-timber forest products and overfishing of marine resources. The use of unsustainable crop (commercial and traditional) and livestock production practices (deforestation to create pastures) along with other negative human–nature interactions have made the country extremely vulnerable to land degradation (International Center for Tropical Agriculture (CIAT), World Bank and Climate Change Agricultural and Food Security, 2018). Mitigation measures, such as soil management practices that reduce fertilizer use, promotion of legumes in crop rotations, integrated crop/livestock systems, and promotion of low-energy production systems, should be employed to deal with this problem of land degradation.

For Belize to transform its food and agriculture systems to a sustainable path, the country must urgently address the factors that continue to contribute to climate change and environmental degradation (see **Figure 18**).

Figure 18. Reasons behind low resilience to climate change and continuing environmental degradation, which undermine the food systems of Belize



Source: Authors, 2022.

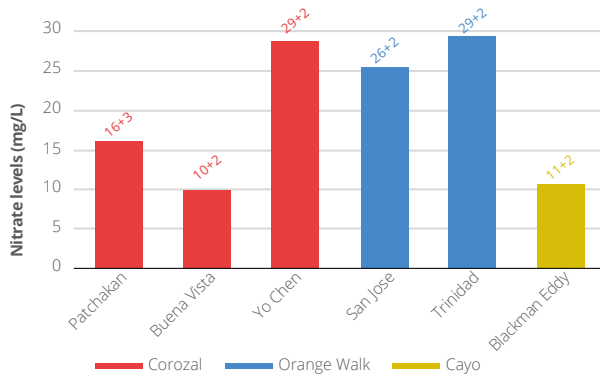


The historical lack of adequate supportive public policies promoting sustainable practices has resulted in little environmentally friendly investment and limited capacity and skill development (trained environmentalists and climate-smart agronomists). Accordingly, commercial agribusinesses and small- and medium-sized farmers continue to use energy sources and practice waste management techniques that are detrimental to the environment.

In addition, there is the significant constraint of inadequate financing of investment in climate-smart and environmentally friendly practices, such as in climate-smart agriculture, renewable energy, tailored credit lines for farmers, climate-based insurance financing and irrigation systems. The high cost of sustainable technologies, such as solar panels, greenhouses and hydroponic systems, including implementation of carbon sequestration within livestock farms, limits the use of them by farmers. This is especially applicable to smallholders and subsistence farmers.

There is already evidence that the excessive use of agrochemicals and fertilizers in crop production are contaminating the country's groundwater. High concentration (above the norm 10 mg/L) of nitrates in groundwater has been found in four villages in the northern districts of the country (see **Figure 19**).

Figure 19. Nitrate level in drinking water in rural communities in Belize



Source: Husaini, D., Enriquez, A., Arzu, T., Miranda, K., Mossiah, D. & Cardinez, C. 2020. Nitrate levels in rural drinking water in Belize.

Another challenge Belize is encountering is the limited provision of sewage and water management services. Belize Water Services is the only entity to offer sewage and water management services. It services only 21 percent of the customers in the country, mainly in the cities of Belize and Belmopan, and San Pedro town. Other major municipalities depend on septic treatment, while rural areas depend on latrine systems. More pressure is also emanating from the growing population and the disposing of liquid waste in the marine system from the increasing number of cruise ships making stops in Belize. The absence of clear guidelines and specific targets for quality waste management treatment is also a contributing factor.

In Belize district, 66 percent of the population relies on municipal collection for their garbage disposal and only 13.9 percent burn their garbage. In Toledo district, however, 52 percent of the population burns their garbage and only 21.4 percent depend on municipal collection to dispose their garbage. Management of solid waste generated from villages, towns and cities (see **Table 3**) pose an environmental threat to the food systems because of lack of proper disposal (burning or illegal dumping) of solid waste. Landfills are not properly sealed to avoid leaching from industrial (citrus, banana, sugar and aquaculture) and medical waste, which contaminates the groundwater and the environment (Young, 2008).





Table 3. Residential solid waste management in Belize

	Dump on land	Take to dumpsite	Compost	Burn	Throw in river, sea, or pond	Bury	Municipal collection	Garbage truck-private	Other	Don't know/not sure
Corozal	1.9	23.5	0.2	36.5	0	0.5	27.3	8.6	0	1.5
Orange Walk	2.7	21.4	0.2	39.4	0.1	0.4	32.2	2.4	0.1	1.1
Belize	3.3	4	0.1	13.9	0.4	0.7	66	11.1	0.2	0.4
Cayo	1.4	6.3	0.3	27.2	0	0.9	51.4	10	0.3	2.2
Stann Creek	2.8	10	0.2	22.4	0.1	2.9	45.4	14.4	1.2	0.5
Toledo	4.4	11.8	1	52	0.1	2.8	21.4	5.8	0.4	0.3
Total	2.7	10.5	0.3	27.1	0.2	1.1	47.5	9.3	0.3	1

Source: Statistical Institute of Belize. 2011. Main results of 2010 population and housing census. http://www.statisticsbelize.org.bz/dms20uc/dynamicdata/docs/20110505004542_2.pdf

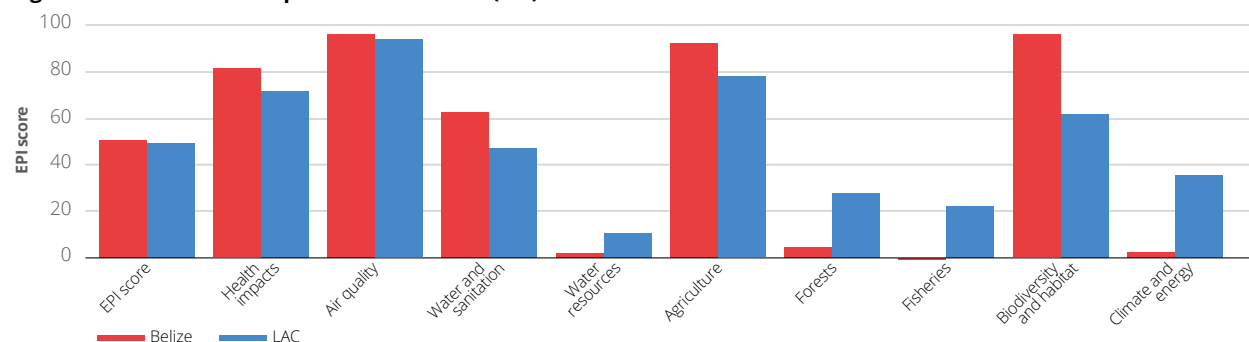
Failure to implement appropriate mechanisms to reduce and/or manage solid and liquid waste will eventually affect soil fertility and the availability of groundwater. The chemical composition of fresh water will also be affected, which will lessen the quality of the drinking water. Unfortunately, the quality, safety and availability of food produced in Belize will be compromised under the current situation.

national policies and plans is a major constraint to increasing climate change resilience and reducing environmental degradation.

Figure 20 shows the performance of some environmental indicators. For some of them, Belize appears to be scoring above the regional average, while for others, it is lagging, especially the climate and energy indicator. Failure to implement existing

Policies and strategies, such as the Belize National Agroforestry Policy (2020), National Forest Policy of Belize (2015), National Adaptation Strategy to Address Climate Change in the Agriculture Sector in Belize (2015), and the draft national agriculture and food policy (2015), provide useful guidance on priority actions. The worthwhile recommendations from many of these documents have not been incorporated into programmes being implemented in Belize.

Figure 20. Environmental performance index (EPI)



Source: Carneiro, F. 2016. Belize – Right Choices Bright Future: Systematic Country Diagnostic, 16 January, World Bank Group. <https://documents1.worldbank.org/curated/en/870551467995073017/pdf/103941-WP-P152070-PUBLIC-None-Board-version-WB-Belize-CRA-noreport.pdf>.



Proposed systemic levers:

1. increase development, adoption and promotion of green climate technologies and adopt and enforce waste management regulations; and
2. encourage adoption and implementation of environmental, climate-smart and sustainable development policies in the context of a circular economy.

Belize needs to implement policies that facilitate investment and promote using products related to green technologies, such as solar panels, tools that improve efficient resource use, including digital agriculture, and climate-smart and resilient agriculture, greenhouses and hydroponic systems. Similarly, policies should facilitate use of products that would contribute towards waste prevention, waste minimization and biological treatment of waste, which improves sanitary landfill outcomes. The incentives should also foster private-sector innovation in food and agricultural production and distribution. For example, using stems and leaves from the banana sector, which are considered as garbage, for paper products for a niche tourism market. The promotion of these technologies should also be incorporated more directly and practically into the education system, especially in vocational education linked to opportunities for new and sustainable livelihoods in the food, agriculture and tourism sectors.

The Government has stated its commitment to “promote land use that is environmentally sound and socially responsible especially in this age of climate change and unprecedented weather conditions” (Belize, 2020). Integrated institutional coordination and collaboration is required to make an effective change that leads to increased resilience and reduced environmental degradation. Ministerial silos that prevent actions from being taken across sectors reduce the chances of success in any sector as the constraints often cannot be effectively addressed through the actions of only one or two institutional points.

In the longer run, the interdependence of interventions and using all resources efficiently, including what are currently considered as waste products, are essential for increasing efficiency and diversifying outputs. An approach that incorporates implementation using circular economy principles would lead to more sustainable livelihood systems and also contribute towards efforts to transform the food and agricultural systems into more viable and sustainable entities. Policies and plans that offer guidance in this direction should be used simultaneously and in a cooperative and synchronized manner across the public, private, NGO, community and other stakeholder sectors. The Agroforestry Policy (2020) and the National Adaptation Strategy to Address Climate Change (2014), are two such initiatives that would benefit from an integrated implementation and coordinated action.





Key Sustainability Question 4: What prevents greater inclusion and lucrative economic participation of young people and women in the food systems of Belize?

The agrifood sector provides 17 percent of the employment opportunities in the country (Statistical Institute of Belize, 2020b), of which 26 percent of the national employment is made up of women working primarily in the agroprocessing sector. Women and youth participation in the economy of Belize in general and in the food system in particular is hindered by structural, economic, social and cultural factors. This is evidenced by the high rates of unemployment among these two population groups, the exclusion of women from landholding and the high migration of young people from rural to urban areas.

Lack of inclusion of women in the economic growth and transformation of Belize is alarming even by Latin American standards. In Belize, the national unemployment rate of women (14.9 percent) in 2018 was more than twice that of men (5.6 percent). This situation is even more perplexing given that women have higher levels of

education than their male peers in Belize. Their low workforce participation hampers economic growth.

In addition, women's lack of a voice and participation is most pronounced at the levels of civic leadership and at the parliamentary level and very few of them have become village chairpersons. While 79 percent of adult women have some secondary level of education, the lack of representation at the village level very likely can be attributed to less educational opportunities for rural women compared to those available for their urban counterparts. Overall, this lack of inclusion in policy decision-making contributes to the inadequacy of policies and programmes intended to benefit women (see **Table 4**). A recent change in government is believed to have increased the proportion of women in Parliament to 11 percent. **Table 4** shows that women are also underrepresented in other leadership roles.

Table 4. Women in leadership roles in Belize

	Number	Male	Female	Female %
Village chairperson	191	167	24	12.6
Village council members	1 437	972	465	32.4
Mayors	9	9	0	0
Municipal councillors	58	40	18	31
Parliamentary reps	31	29	2	6.5
Senators	13	10	3	23.1

Source: National Women's Commission-Ministry of Human Development and Women's Affairs. 2021. Gender quality spreadsheets (unpublished data).



The exclusion of women is also apparent in the food and agricultural sector in which only 8 percent of landholders are females (World Bank, 2018). **Table 5** shows that this is in line with the historical data from the Belize Land Registry (2002). Similarly, **Table 6** shows

the gender distribution of all farmers at the district level. This lack of inclusion is more striking in the southern districts of Cayo, Stann Creek and Toledo given the significant contribution of women to food security in these communities.

Table 5. Total number of registered land holders by gender

Gender	Total no. of holdings	Corozal	Orange Walk	Belize	Cayo	Stann Creek	Toledo
Female	790	222	233	142	56	88	49
Male	8 907	1 844	1 931	477	1456	867	2 332
Total	9 697	2 066	2 164	619	1512	955	2381

Source: National Women's Commission-Ministry of Human Development and Women's Affairs. 2021. Gender quality spreadsheets (unpublished data). (Cited as Belize Farm Registry, Agriculture Department, Belmopan, 2002).

Table 6. Gender distribution of all farmers, district level

	Belize	Cayo	Corozal	Orange Walk	Stann Creek	Toledo
Total farmers (excluding corporations and companies)	681	2,549	3,793	3,263	823	2,550
Share of women farmers	20.1%	10.2%	31.5%	27.5%	14.7%	16.6%

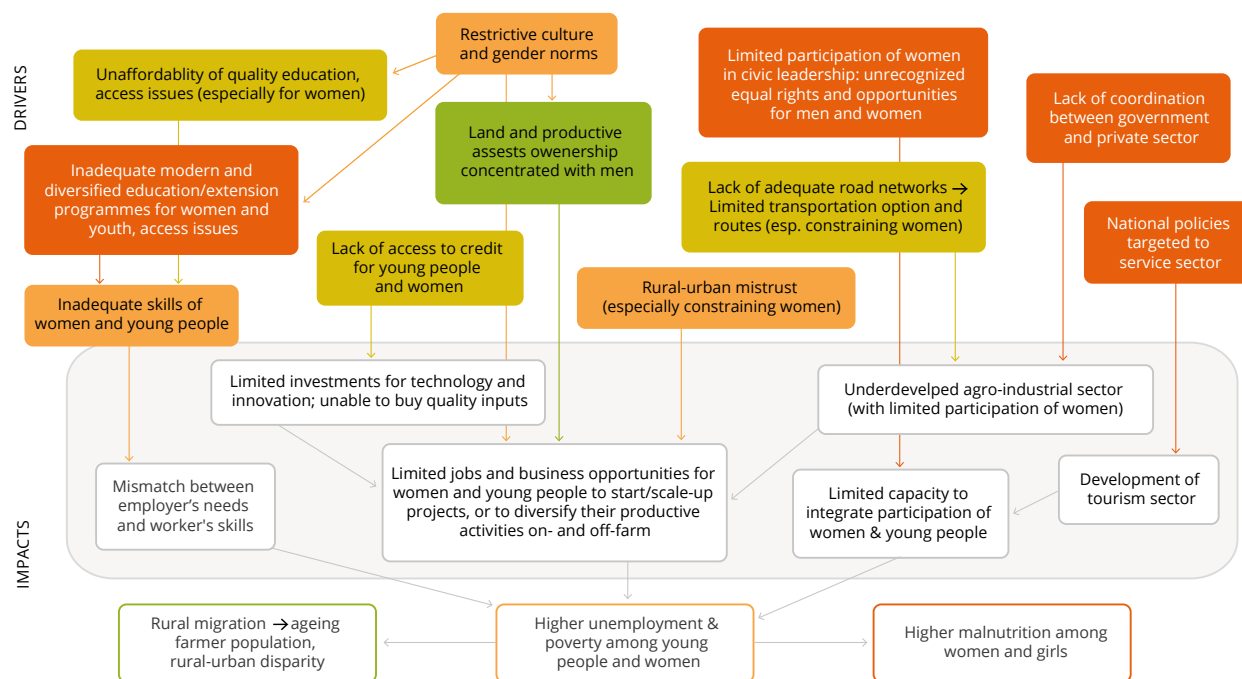
Source: Belize Agriculture Information Management System – Ministry of Agriculture, Food Security and Enterprise. 2021. Selected gender indicators. (unpublished data).

This exclusion is influenced by indigenous cultural practices and is allocated to the male head of the household. Consequently; women are accorded less rights and resources than an equivalent male. The negative impact of this is considerable, given that the role of women in agriculture in Belize is important, as they make a significant contribution to the development and food security of their communities.

The youth (14 to 19 years) unemployment rate in 2018 was 21.3 percent, more than twice the national average (9.4 percent). Among this group, the unemployment rate of young females was twice as high as young males. This was largely the result of low levels of education beyond primary school, a sociocultural bias against young people, and the mismatch between educational and training opportunities, and workforce demands.



Figure 21. Causes that prevent greater inclusion and lucrative economic participation of young people and women in the food systems of Belize



Source: Authors, 2022.

Women and young people lack access to land, credit and education opportunities in Belize. They also lack access to assets, technology and market information, which reduces their participation in economic activities and contribution to the food security of their communities and families in particular. The lack of the right to land and property, for instance, results from women not being seen as the head of households (Ramirez *et al.*, 2020).

One of the most daunting challenges facing young people and women is access to finance. This access would provide resources to start and/or scale up projects as well as to diversify their productive activities on and off farms. As discussed in KSQ 1, the inability to provide collateral required by banks and credit unions is a major factor. Without access to credit, young people and women remain unable to purchase quality inputs and make investments that will

enable them to access opportunities to improve their livelihoods and increase their economic productivity.

Young people are not well equipped to take advantage of the job opportunities in Belize: because of the high education fallout after primary school. A substantial decline in enrolment occurs through secondary school; the net enrolment rate is 40.7 percent. Given the high correlation between education and employability, the exclusion experienced by young people is not surprising. Notably, many young people, especially the poor and unemployed, often cannot afford school fees, and as a result, lack the personal, technical and social skills needed to gain employment. According to Statistics Institute of Belize (2021b), 16.2 percent of unemployed citizens have a secondary education, while 10.4 percent have only a primary education and 10.1 percent have no education.



An Inter-American Development Bank (IDB) report in 2020 on employability in Belize points to a skills mismatch between employers' needs and workers' skills. It was noted in the report that "employers have trouble finding workers who can collaborate effectively, think critically, and perform in a digital environment" (Näslund-Hadley, Navarro-Palau and Prada, 2020).

For young women, meanwhile, the lack of job opportunities and not being valued as productive social members result in approximately 50 percent of all live births in Belize being to women aged 15-24 years. Young persons have expressed the lack of adequate social services for them as a major contributor to this outcome. While the barriers that women face to effectively participate in the food systems are similar to men, the incidence of the barriers and their impact affect women more. The results of a study of poor female farmers in Belize (Franklin, 2017) indicated that female farmers experienced difficulties in obtaining technical and financial assistance, which made their production systems more vulnerable to seasonal variations, pest and disease attacks, while limiting their access to market opportunities.

Young people and women often feel alienated in their own homes and communities. The National Youth Development Policy of Belize indicates that young people face a serious problem of stigmatization and are often seen as a problem in society by adults. This results in a vicious downward cycle of exclusion in which young people become disaffected and leave their communities. The young people see themselves as lacking a voice and not valued as partners in development. One result is that policies and programmes intended to improve their situation are less effective and impactful (Belize, 2012).

Women face persistent cultural barriers, such as not being supported to leave their

area for training or work and not attending training in areas where it is being conducted by men. This undermines the development of women, as it increases their invisibility and prevents progress towards higher levels of empowerment and economic autonomy. It also adversely affects their opportunities to access technical assistance, training and financing.

Indigenous women, who tend to have many children, find it even more challenging to attend training events because they spend most of their time engaged in domestic work (Ramirez, *et.al.*, 2020). Not all women have the same family support and there is resistance to women's independence. This results in women having less access to opportunities for training and other capacity-building activities, particularly those related food and agriculture sector, as few women are extension workers at the Ministry of Agriculture, Food Security and Enterprise (Ramirez, *et.al.*, 2020).

During the past two decades, the service sector (tourism) of Belize has expanded significantly and also relatively, and has become the main driver of economic growth. This transition has been promoted by national-level policies that have not been sufficiently directed at increasing inclusion of women and young people. While the economy has increasingly shifted emphasis from the primary (agriculture) and secondary (manufacturing) sectors to the services sector (tourism), the increased employment in the service sector has mainly benefited men. Between 1999 and 2018, the number of men working in the sector increased from 44 to 54 percent. At the same time, women's employment in the services sector increased from 82 to 83 percent, was stagnant in the manufacturing sector, rising 11 to 12 percent and remained at 6 percent in the agricultural sector. The example of the distribution of tour guides by the tourism sector (see **Table 7**) underlines this point.

**Table 7. Licensed tour guides in Belize**

Male	2 029
Female	229
Total	2 258

Source: The National Women's Commission Ministry of Human Development and Women's Affairs, 2021 (unpublished data) (cited as Belize Tourist Board).

The exclusion of women is even more pronounced when it is understood that women with a higher education level constitute an untapped resource for economic growth. The IDB study on employability in Belize indicates that economic growth is hampered by the underutilization of highly skilled women, who are struggling to find employment (Näslund-Hadley Navarro-Palau and Prada, 2020).

Currently, there is also a lack of skilled workers in the food and agriculture sector. The limited number of food and agricultural technologists, who are required to facilitate the development of new, value-added products based on the country's diverse agricultural production base, are a case in point. In addition, the market orientation that links the few government research and development centres with the private sector, individual entrepreneurs and cooperatives is insufficient. Greater linkage is essential for attaining investments in technology and product development information.

The establishment of new small- and medium-sized agroprocessing enterprises are being hindered by serious weaknesses in an effort to foster the development of them. One critical factor is the lack of a supportive public/private sector agroindustrial strategy, namely one that would provide an innovative vision that emphasizes development of new products and uses improved technologies. The general low level of digital technology use, especially in agriculture, is a major weakness in terms of engaging women

and young people in the sector. This, of course, contributes to the high median age of farmers (45 years) in Belize, and continues to contribute to the current low levels of productivity in the agriculture sector.

Although Belize has a women's commission attached to the Ministry of Human Development, and a gender policy at the national level, no systematic mechanisms or guidelines have been set within the institutions for the inclusion of gender into their programme activities. Some actions, driven by external funding, are included within specific projects, resulting from requirements by the donor and not from the implementation of national institutional policy (Ramirez *et al.*, 2020).

Proposed systemic levers:

1. **targeted educational and capacity development for young people and women, including facilitating enterprise start-up financing; and**
2. **empowerment and governance of cooperatives.**

Belize is a signatory to the various international conventions that recognize the rights of women and young people. At the national level, the country has enacted a series of laws and adopted policies and institutional mechanisms that guide actions towards age and gender equity. Despite these measures, greater inclusion of women and young people in the economy and in food systems is needed.

It is important to implement processes in which young people and women can have input in charting their own destinies. This includes influencing capacity development and educational opportunities that qualify them to join the workforce and better serve as tomorrow's leaders. Envisioning, creating and promoting innovative programmes for young people and women are essential. These should be relevant in the context of a digitalized economy, rooted



in dynamic growth opportunities, with broad scope to ensure that a larger number of young people benefit from a variety of opportunities linked to the food and farm sector. Fostering entrepreneurship and job creation should be the centerpiece of these programmes. Incubator agroprocessing programmes emphasizing innovative fruit and vegetable products (dried, crushed, sweetened or creamed) targeting niche health and wellness product markets are one example in which employment opportunities and income generation can be created for young people and women. This need is recognized and the Government is committed to increasing the budget for youth development from USD 2 million to USD 6 million for projects with a social impact. This includes assistance through programmes to expose “youth to new creative and technological skills, and opportunities for start-up businesses” with “quick microfinancing for young entrepreneurs” (Belize, 2020b).

Educational programmes targeted for women at the lowest levels of achievement have the highest chances of making a significant impact given that the gap in gender employability is greatest at that level. This thrust should also emphasize opportunities related to home and food security,

such as food and agriculture production and processing. Furthermore, more attention should be paid to “soft skills”, which contribute greatly towards achieving positive outcomes.

Based on the increasing market-driven economy and uncertain economic climate, a new approach to promoting and developing cooperatives involving young people and women could be designed. The approach could include two dimensions that had not been sufficiently integrated into past cooperative initiatives. The first is to project cooperatives as partners with the private sector. One example would be to encourage hotels and supermarkets to form partnerships with cooperatives as suppliers and distributors. The second dimension would be an increased developmental role by the government in which a public-private agreement would be the basis for promoting stability and the sustainability, as young people and women embark on new employment and enterprise opportunities. Wider social protection programmes that provide financing, training and insurance for young people, women and other vulnerable groups could be developed and operated through the cooperatives that are being promoted.

Transition to sustainable food systems

This food systems assessment clearly reveals that Belize has very diversified food systems with differentiated actors. The diversity of the food systems ranges from indigenous milpa farms growing corn and beans on small acreages and large-scale rice and livestock operations, to traditional plantation exports of agricultural products. A key feature of the differentiated actors is shown by the important role that the Mennonites play as suppliers of livestock, poultry and dairy products. Despite the apparent strength of the food and agriculture sector, major challenges in terms of sustainability and how well it serves the national population remain. Lack of

access to good quality food at affordable prices results in malnutrition, which, in turn, results in high levels of NCDs. The low participation rates of young people and women in the food systems and the production technologies used by most farmers contributes to the low productivity and undermines sustainability.

While the country is facing a myriad of problems, it is important to identify the most critical and prioritize interventions to address them. Among them are education and skill development to foster a greater understanding of nutrition and linking this to appropriate production



technologies and product development to attain a food supply comprised of healthy and good quality products. Income accessibility needs to be fostered through greater inclusion of young people and women in the food systems. Public-private partnerships directly linked to cooperatives should be promoted to assist the transition to more inclusive and sustainable systems.

Implementation of public policy in a more integrated manner, vertically and horizontally, is essential to improve the breadth and depth

of governance linking the various sectors and institutional points to promote and sustain change to more sustainable and inclusive food systems across the districts in Belize. Finally, adoption of green and climate-smart technologies is required to enhance the country's resilience to climate change impacts. Adequate financing at all levels must be increased to provide government services, enable investments for small- and medium-sized enterprises and provide safety nets that encourage innovation to lead to food systems transformation.





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