



Center for Research in  
Education & Social Policy

# Achieving Food Security in Small Island Developing States, the Bahamas Example

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4/28/2017

UPenn PRC Symposium  
Accelerating Policies and Research on Food Access, Diet  
and Obesity Prevention

MANY THANKS



The Fulbright Program aims to bring a little more knowledge, a little more reason, and a little more compassion into world affairs and thereby increase the chance that nations will learn at last to live in peace and friendship



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# Background, Food Security

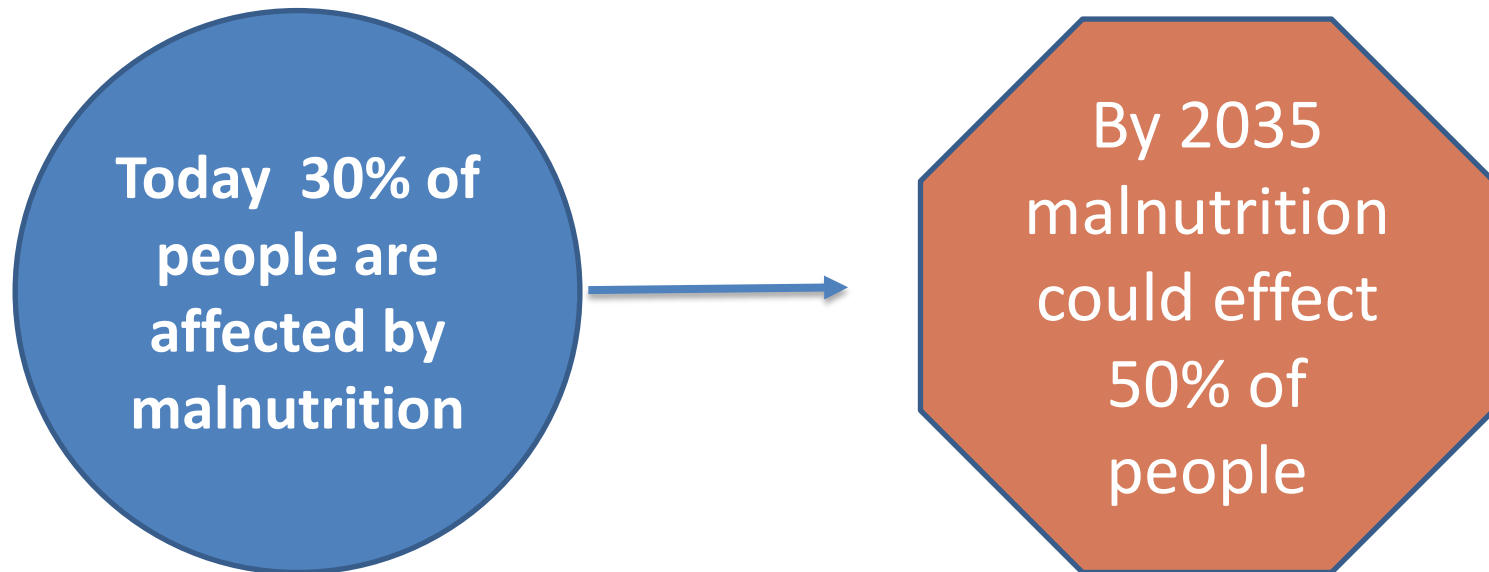
# Food Security – The Definition

Food security exists when all people, at all times, have physical, social and economic access to sufficient safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life.

ADDRESSES BOTH  
Underweight and Overweight

IS  
Malnutrition

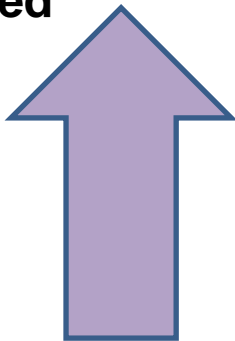
# Rapidly Rising Global Challenges



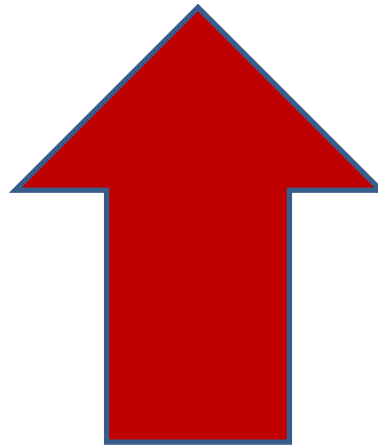
# Malnutrition is Pervasive and Increasing

- Changing face of malnutrition
- Most malnutrition is NOT in low income countries

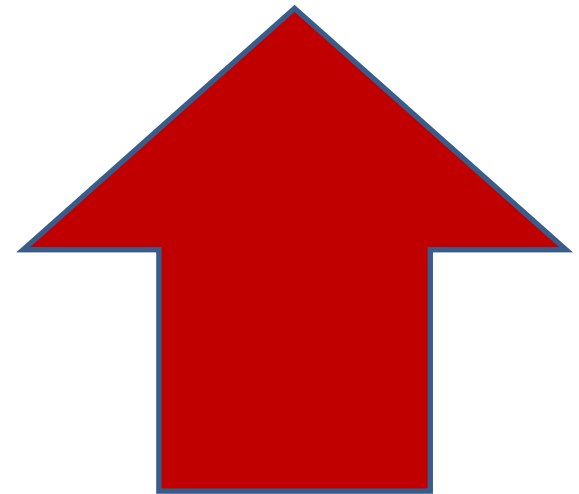
**790 million  
undernourish  
ed**



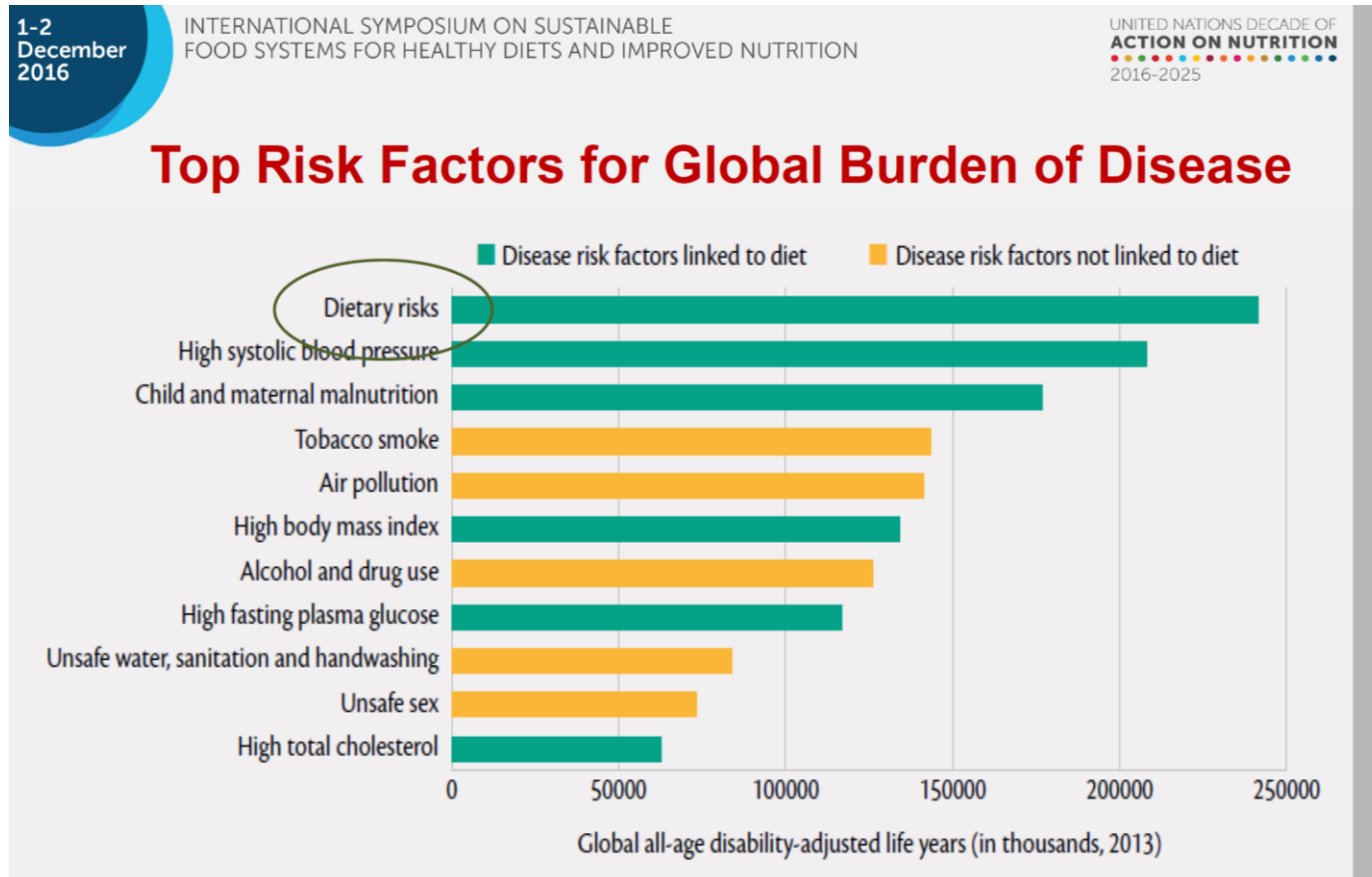
**2 billion with  
micronutrient  
deficiencies**



**2 billion  
overweight or  
obese**



# Diet is Leading Risk Factor for Disease Globally



## So what do we know?

- **Malnutrition is rising** globally.
- **Low diet quality** is common to all malnutrition.
- Business as usual will bring huge nutrition and **health crisis** – its already started...
- Tweaking at the margins won't suffice. We need ***a radical transformation of our food systems*** – to nourish not just feed 9 billion.

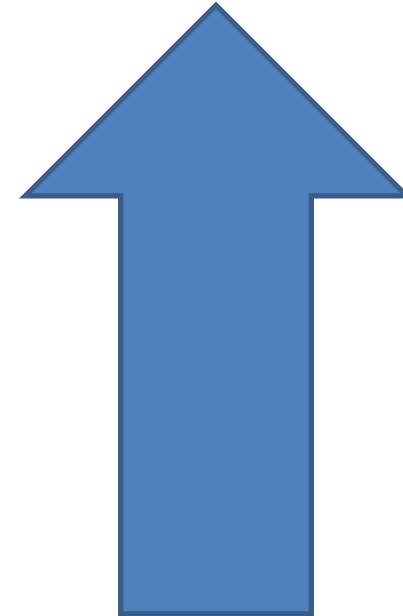
# What makes food security a particularly challenging problem for the Bahamas now?

- SIDS are uniquely vulnerable to food security
- Food imports are increasingly important source of food availability
  - More highly processed, energy dense foods high in FAT, SALT, SUGAR
- SIDS face triple burden of malnutrition where Undernutrition, micronutrient deficiencies and over nutrition (excess calories) coexist.

# Why the Bahamas is uniquely vulnerable to food insecurity

- Limited land mass and population
- Fragile natural environments
- Climate change vulnerabilities
- Susceptible to external economic shocks
- Limited economic pillars to drive development
- Increasing dependence on imports, limited dependence on domestic production

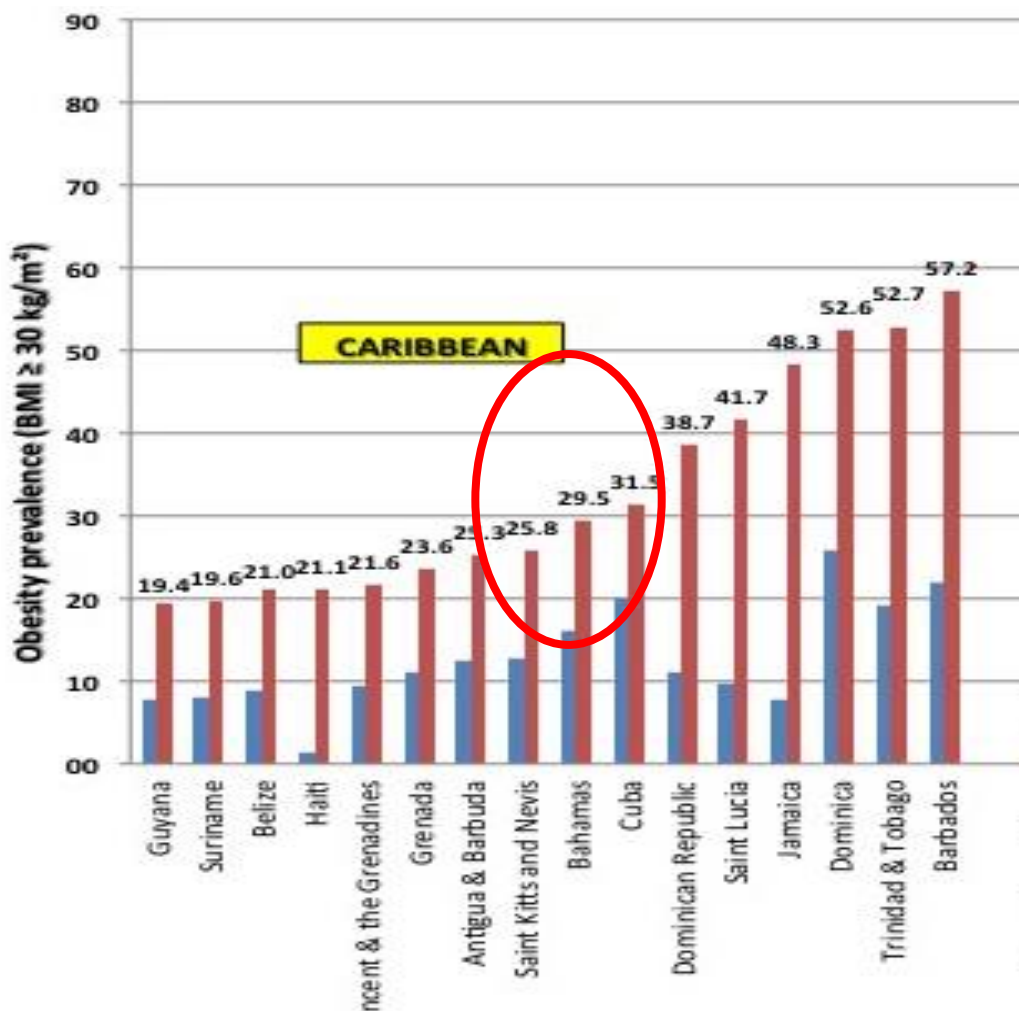
**~ 90%  
IMPORTED**



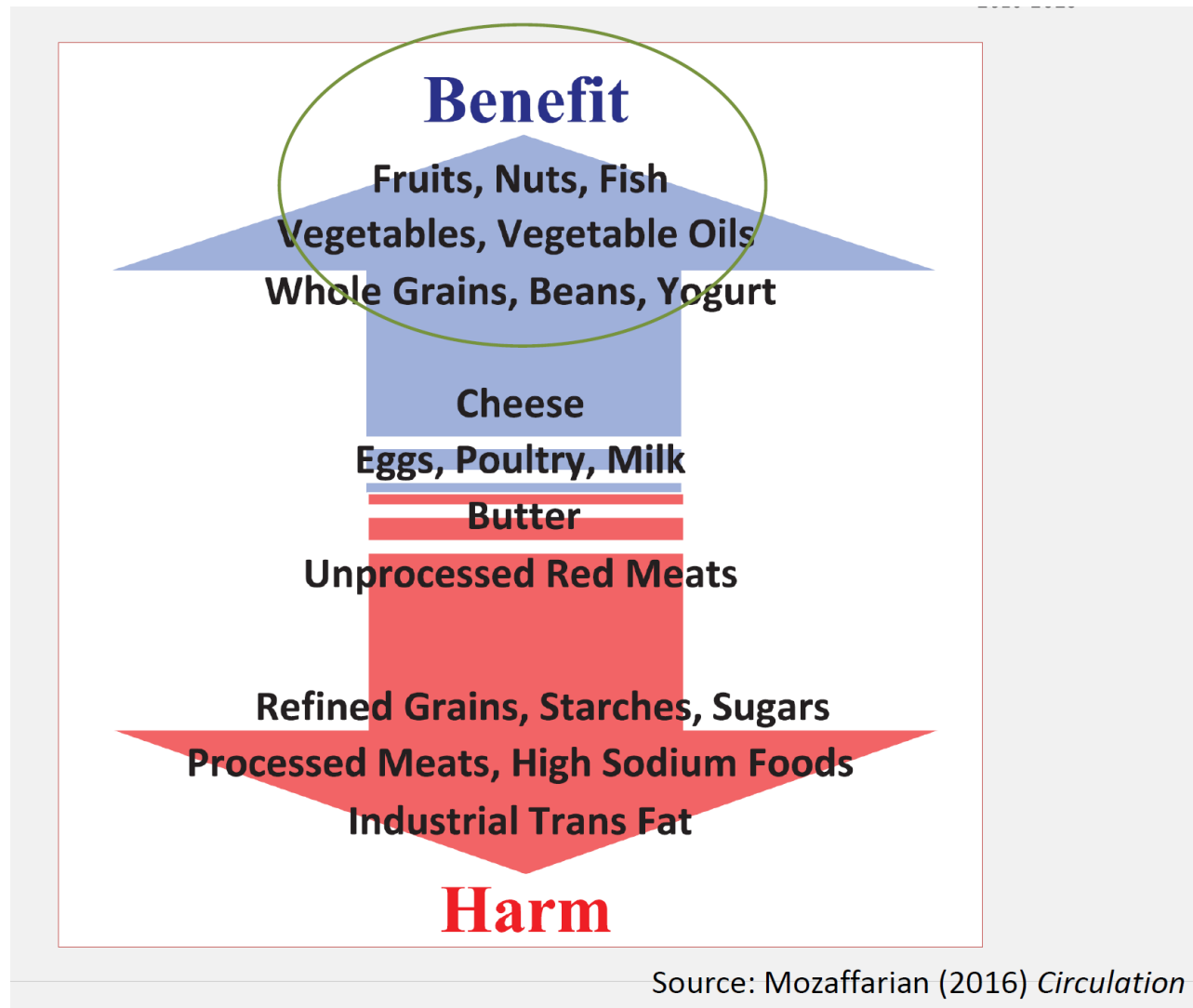
# Nutritional Quality of Imported Foods



## Obesity Rates, UD SIDS Male and Female &gt; 15 years

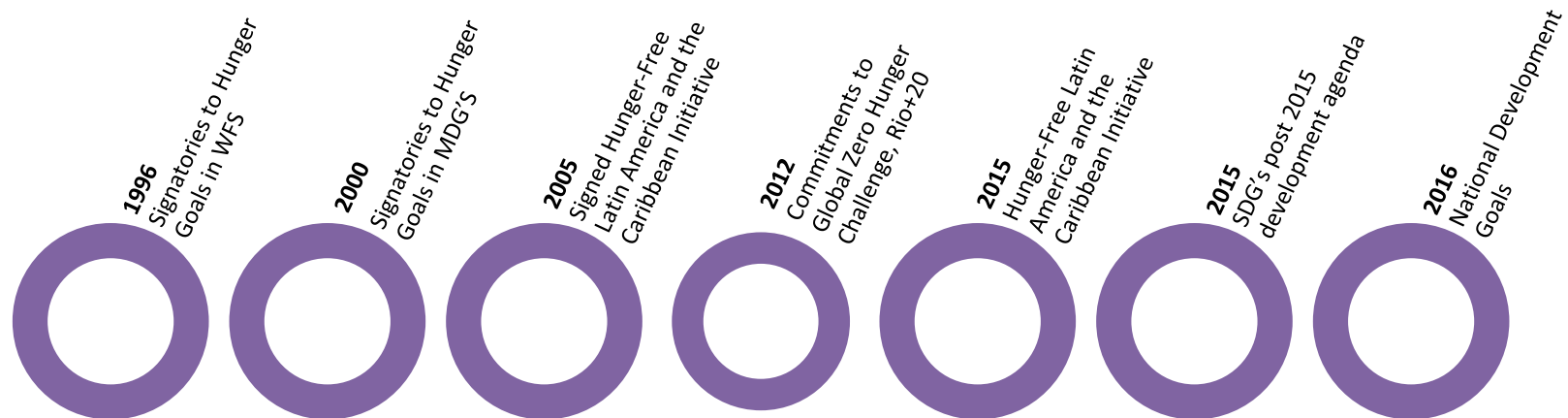


# What should we eat?



# What Food Policies are in Place?

# Bahamas commitment to Hunger



# UN Member states committed to Ending Hunger by 2030



Goal 1: Ending poverty

Goal 2: Ending hunger, achieving  
food security and improving nutrition, and  
promoting  
sustainable agriculture by 2030

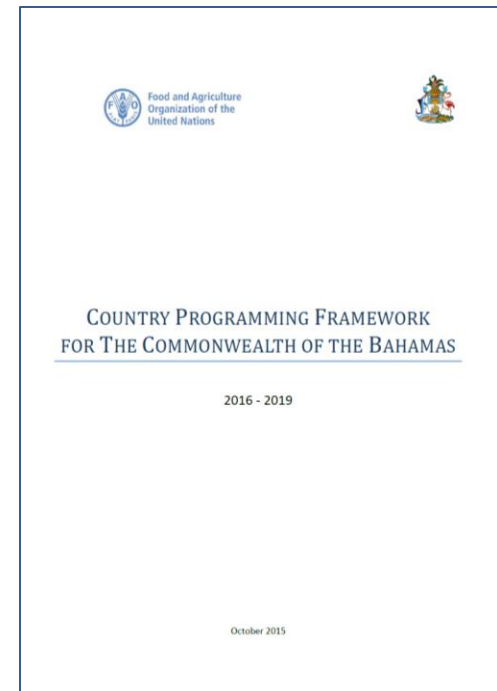
# Country Programming Framework

Sets 3 priority areas for collaboration between FAO and Bahamas:

**Priority 1: Food and Nutrition Security and Safety**

**Priority 2: Climate Change and Sustainable Resource management**

**Priority 3: Poverty Elimination**



Output	Indicator Target
<b>Output 1.1:</b> Market oriented production and productivity capacity of the agricultural sector of The Bahamas strengthened and modernized with improved linkages to markets to absorb increased production.	<i>Extension officers and farmers trained in at least 3 key production and post-harvest practices by 2017</i> <i>By 2018 at least one policy process is reviewed with the support of FAO</i> <i>By 2017, a review of agricultural data management is prepared</i>
<b>Output 1.2:</b> Improved food safety practices developed and implemented for Bahamas, with the support of FAO.	<i>Public education and communication programme on food safety, particularly for school environments is developed with FAO support by 2018</i> <i>A policy for the reduction of food waste is prepared by 2019</i>
<b>Output 1.3:</b> Incidence of over and under nutrition in the country reduced.	<i>Food and Nutrition Security Plan amended by 2016</i>
<b>Output 1.4:</b> National School Feeding Programme is strengthened.	<i>By 2017 assessment of School Feeding Programme undertaken with gender focus to develop gender differentiated intervention</i> <i>A model for improved linkages between the school feeding programme and produce from small farmers developed with FAO support by 2019</i>

# National Development Plan

- Action 5.4.7 expressly recommends the 'adoption of a national response to food and nutrition security'.
  - The output would be the development and implementation of a National Food and Nutrition Security Policy.
  - Added: multi-stakeholder coordination to improve food security and the integration of food security objectives into all policies and programmes.
  - use of the FIES measure of hunger and the reduction in food insecurity and hunger as an indicator of success.

# UN SIDS, Global Action Programme on Food Security and Nutrition in SIDS

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# Global Action Programme - 2<sup>nd</sup> Draft

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## Objective 1. Enabling environments for food security and nutrition

- 1.1 Politics and governance
- 1.2 Capacity and resources
- 1.3 Knowledge and evidence generation, dissemination and use

## Objective 2. Sustainable, resilient, and nutrition-sensitive food systems

- 2.1 Sustainable management and use of oceans and seas and their resources for food security and nutrition
- 2.2 Sustainable management and use of freshwater resources for food security and nutrition
- 2.3 Sustainable management and use of terrestrial resources for food security and nutrition
- 2.4 Inclusive and efficient nutrition-sensitive value chains
- 2.5 Climate adaptation and resilience for food security and nutrition

## Objective 3. Empowered people and communities for food security and nutrition

- 3.1 Social and economic empowerment
  - 3.2 Nutrition-sensitive social protection programmes
  - 3.3 Targeted community-based interventions and services to prevent and treat malnutrition in all its forms
-

## So Food insecurity is important!

- The Bahamas has taken action to address issues of food insecurity with policy.
- The NDP addresses the issue directly with many objectives and indicators clearly stated which will have measurable effects.
- Measures must be implemented.

# Measuring Hunger

# How do we measure Hunger?

- Complex issue, multiple measures
  - Food Insecurity Experience Scale
  - Global Hunger Index
  - FAO Prevalence of Undernourishment
  - Anthropometric measures, child weight for age (underweight) and height for age (stunting)
  - Food consumptions scores
  - Dietary diversity indicators
  - Food acquisition data from household expenditure surveys (indirect measure)

**FIGURE 7**

## The suite of food security indicators

FOOD SECURITY INDICATORS	DIMENSION	
Average dietary energy supply adequacy Average value of food production Share of dietary energy supply derived from cereals, roots and tubers Average protein supply Average supply of protein of animal origin	AVAILABILITY	STATIC and DYNAMIC DETERMINANTS
Percentage of paved roads over total roads Road density Rail lines density	PHYSICAL ACCESS	
Domestic food price index	ECONOMIC ACCESS	
Access to improved water sources Access to improved sanitation facilities	UTILIZATION	
Cereal import dependency ratio Percentage of arable land equipped for irrigation Value of food imports over total merchandise exports	VULNERABILITY	OUTCOMES
Political stability and absence of violence/terrorism Domestic food price volatility Per capita food production variability Per capita food supply variability	SHOCKS	
Prevalence of undernourishment Share of food expenditure of the poor Depth of the food deficit Prevalence of food inadequacy	ACCESS	
Percentage of children under 5 years of age affected by wasting Percentage of children under 5 years of age who are stunted Percentage of children under 5 years of age who are underweight Percentage of adults who are underweight Prevalence of anaemia among pregnant women Prevalence of anaemia among children under 5 years of age Prevalence of vitamin A deficiency (forthcoming) Prevalence of iodine deficiency (forthcoming)	UTILIZATION	

<http://www.fao.org/dcrep/018/i3434e/i3434e02.pdf>

Note: Values and detailed descriptions and metadata for these indicators are available on the companion website ([www.fao.org/publications/sofi/en/](http://www.fao.org/publications/sofi/en/)).

Source: FAO.

One key measure: The cost of food

# List of food items: market/food basket

7. The programme computes a diet/basket of foods which provides 24000 Kcal under given parameters based on the contribution of food groups to total energy(Kcals) and number of items selected from each Food Group. Currently the parameters being used in the programme are as set out in Table 1 below:

**Table 1: Nutrient Cost Programme parameters**

Food Group	Percentage of Energy Contribution	No. of Items in Diet
Cereals	30	3
Starchy Fruits, Roots, Tubers	15	3
Sugar & Syrups	10	1
Legumes	10	3
Vegetables	4	4
Fruits	6	4
Foods from Animals	15	8
Fats & Oils	10	3

Inter-American Development Bank  
Social Sectors Department, Social Protection and Health Division (SCL/SPH)  
THE BAHAMAS  
Strengthening Social Protection Programs in The Bahamas (BH-T1024)

REPORT of the

Construction of Food Basket for Poverty Calculations

For

The Bahamas

Prepared by  
Pauline Anderson-Johnson

April 2014

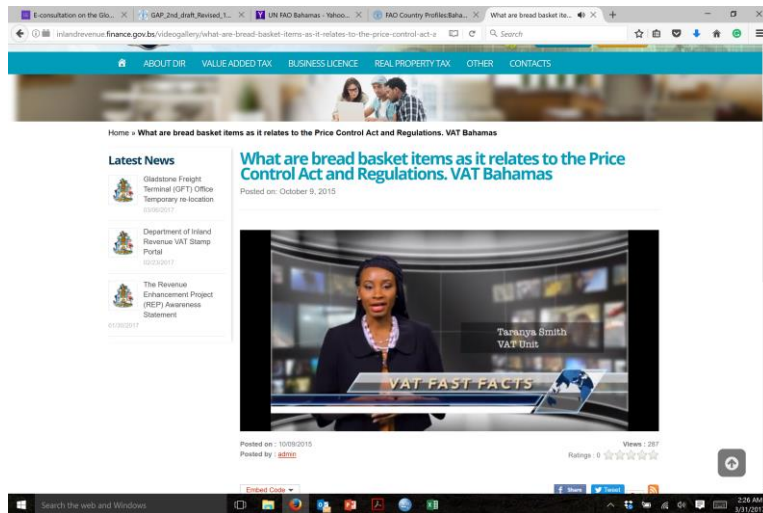
# List of food items

**Table 4: Nutritionally Balanced Low Cost Basket for the Bahamas – Second Substitutions**

	AMOUNT(GR)	ENERGY(KCAL)	COST(\$)
RICE, UNENRICHED	67	244.5	0.09
<b>BREAD</b> WHEAT FLOUR, ALL PURP, ENRH	67	243.8	0.46
<b>GRITS</b> RICE FLAKES, RAW	67	231.7	0.14
PLANTAIN, GREEN, RAW	151	137.3	0.29
<b>YAM</b> CASSAVA, FRESH ROOT, RAW	151	135.7	0.51
<b>SWEET POTATO</b> BANANA	151	87.2	0.26
SUGAR, WHITE, REFND, GRN LTD	62	240	0.09
SPLT PEA, NO SEED COAT, RAW	19	65.8	0.06
<b>PIGEON PEAS</b> (PEANUTS, RAW NO SKIN, PLAIN)	19	108.9	0.13
LENTILS, WHOLE SEEDS, DRY	19	65.3	0.07
CANNED CORN, DRAINED	31	25.1	0.06
<b>CABBAGE</b> ( AVOCADO PEAR)	31	37	0.24
MIXED VEGS, FROZEN, RAW	31	22	0.15
CARROT, FRESH, RAW	31	11.9	0.09
BANANA	69	41.3	0.15
<b>WATER MELON</b> (PINEAPPLE, CANNED, JUICE PK APPLE)	69	41.5	0.21
ORANGE, ALL VARIETIES	69	37.5	0.2
ORANGE, ALL VARIETIES	69	23.7	0.15
LIVER, PORK, RAW	24	32	0.1
CHICKEN GIBLETS, RAW	24	30.3	0.09
MACKEREL, SALTED	24	72.8	0.1
<b>BEEF, LIVER</b> (HAM, PICNIC)	24	48.8	0.25
HEN EGGS, WH, FRSH, FRZN, RAW	24	33.2	0.07
BEEF, CANNED, MED FAT	24	52	0.17
PORK FEET, TROTTERS, MED FAT	24	37.4	0.07
<b>CHEESE</b> (CODFISH, SALTED)	24	53.6	0.11
<b>VEGETABLE OIL</b> (MARGRNE, REG, HRD, AN&VG FAT)	10	75.1	0.34
MARGRNE, REG, HRD, VG FT OLY	10	75.1	0.03
SHORTENING, VEGETABLE	10	89.8	0.05
<b>TOTAL REVISED COST</b>		<b>2400</b>	<b>4.73</b>

# Not to be confused with the bread basket

## Foods Considered Essential to “sustain an affordable living” for the Bahamian population with minimal economic resources



<https://youtu.be/SiBW23oipD0>

- Butter
- Cooking Oil
- Mayonnaise
- Grits
- Cheese
- Corned Beef
- Evaporated Milk
- Margarine
- Rice
- Sugar
- Flour
- Bread
- Tomato Paste
- Baby Cereal
- Baby Formula
- Soups
- Broths
- Baby Food
- Powdered Detergents
- Condensed Milk
- Soaps
- Fresh Milk
- Mustard

## Lets talk about Poverty for a Minute

- Bahamas poverty rate between 12% and 17%
- Estimated cost of a food basket in 2013 was \$3.82/day per person
- That means \$1,394 per person each year
- Multiple it about 3 times (Engel Coefficient) and you get the poverty line: \$11.64/day or \$4,247/ person

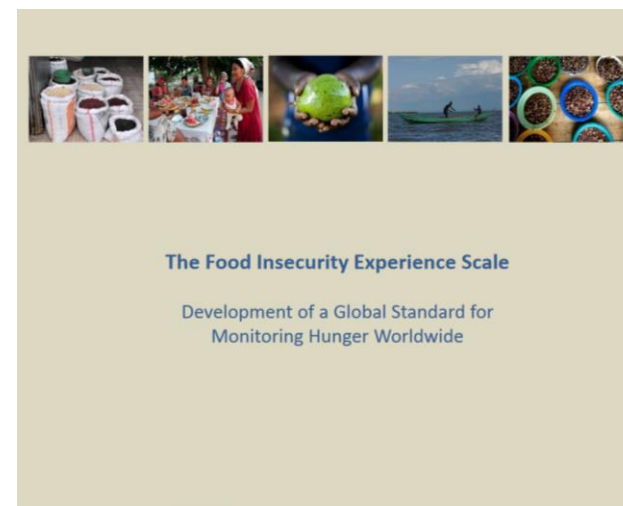
Household Expenditure Survey, 2013

[https://www.bahamas.gov.bs/wps/wcm/connect/5312dd47-5cd9-45f5-bf6c-dea99f3a6226/Bahamas+Household+Expenditure+Survey+2013+Report\\_v2.pdf?MOD=AJPERES](https://www.bahamas.gov.bs/wps/wcm/connect/5312dd47-5cd9-45f5-bf6c-dea99f3a6226/Bahamas+Household+Expenditure+Survey+2013+Report_v2.pdf?MOD=AJPERES)

# Food Insecurity Experience Scale

## Latin American and Caribbean Food

<b>GLOBAL FOOD INSECURITY EXPERIENCE SCALE</b> <b>Household Referenced</b>	
Now I would like to ask you some questions about food. During the last 12 MONTHS, was there a time when:	
Q1. You or others in your household worried about not having enough food to eat because of a lack of money or other resources?	0 No 1 Yes 98 Don't Know 99 Refused
Q2. Still thinking about the last 12 MONTHS, was there a time when you or others in your household were unable to eat healthy and nutritious food because of a lack of money or other resources?	0 No 1 Yes 98 Don't Know 99 Refused
Q3. Was there a time when you or others in your household ate only a few kinds of foods because of a lack of money or other resources?	0 No 1 Yes 98 Don't Know 99 Refused
Q4. Was there a time when you or others in your household had to skip a meal because there was not enough money or other resources to get food?	0 No 1 Yes 98 Don't Know 99 Refused
Q5. Still thinking about the last 12 MONTHS, was there a time when you or others in your household ate less than you thought you should because of a lack of money or other resources?	0 No 1 Yes 98 Don't Know 99 Refused
Q6. Was there a time when your household ran out of food because of a lack of money or other resources?	0 No 1 Yes 98 Don't Know 99 Refused
Q7. Was there a time when you or others in your household were hungry but did not eat because there was not enough money or other resources for food?	0 No 1 Yes 98 Don't Know 99 Refused
Q8. Was there a time when you or others in your household went without eating for a whole day because of a lack of money or other resources?	0 No 1 Yes 98 Don't Know 99 Refused



Ballard, T.J., Kepple, A.W. & Cafiero, C. 2013. The food insecurity experience scale: development of a global standard for monitoring hunger worldwide. Technical Paper. Rome, FAO. (available at <http://www.fao.org/economic/ess/ess-fs/voices/en/>).

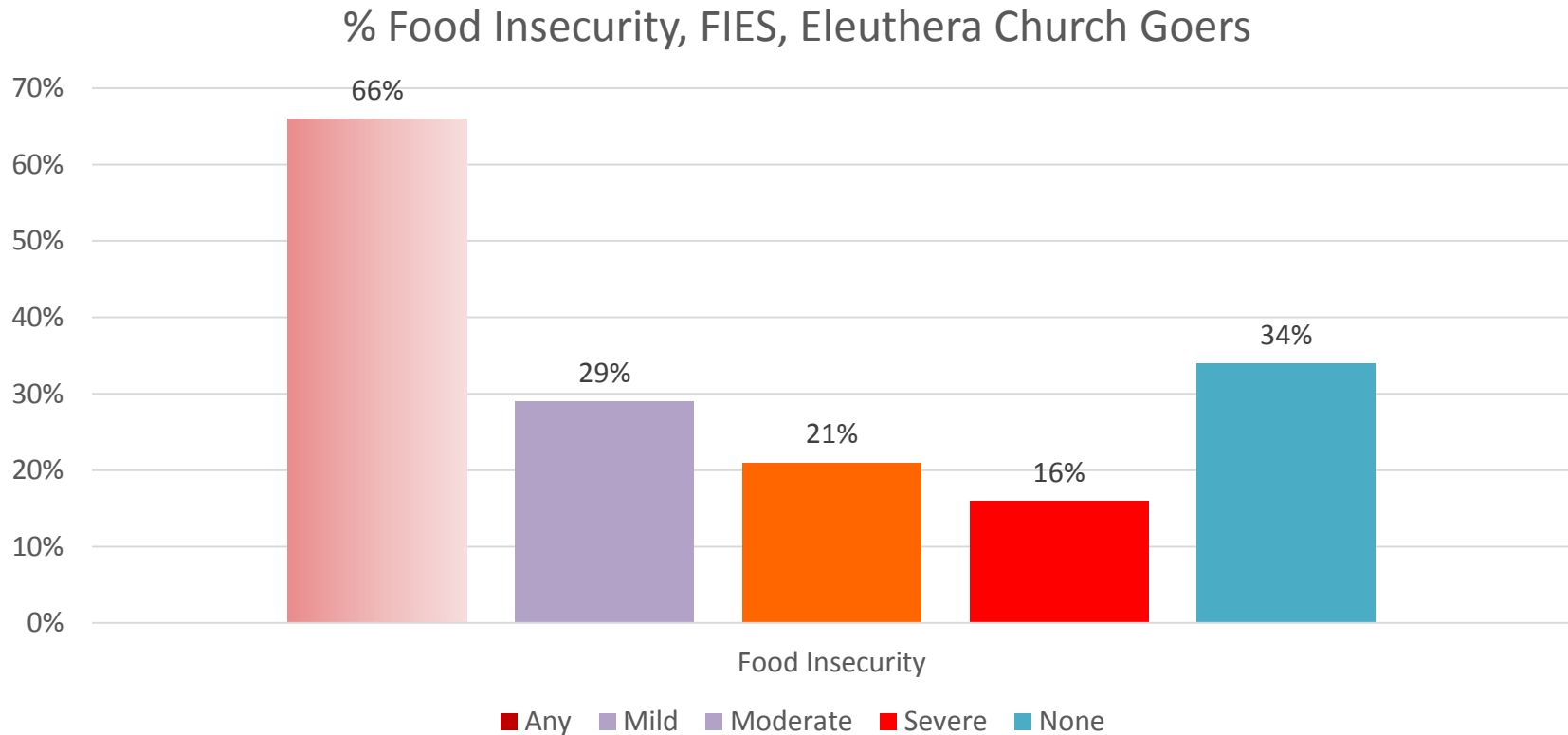
# Continuum of Food Insecurity



# Pilot study of FIES across Eleuthera, 3 towns (upper, central and lower)

- 62 local church goers
- Surveys completed in February 2017
- First use of FIES data in Bahamas
- Because of limited sample, findings are limited

# Food Insecurity on Eleuthera, Sample Churchgoers (n=62)



## Pilot study of food prices

- 27 stores in Nassau
- 18 stores in Eleuthera
- Recorded prices of available food products
- Aligned with Food Basket

## Cautions: Early Data

- Not all categories of foods included
- Not all stores, just a sample

# Have prices shifted since the 2014 Report?

Product	price 2014	avg price today	change since 2014	% change since 2014
grits	0.14	0.16	0.02	14.29%
sugar	0.09	0.13	0.04	44.44%
carrot	0.09	0.1	0.01	11.11%
banana	0.15	0.24	0.09	60.00%
eggs	0.07	0.07	0	0.00%
cheese	0.11	0.42	0.31	281.82%
margarine	0.03	0.04	0.01	33.33%
<b>TOTAL</b>	<b>0.68</b>	<b>1.16</b>	<b>0.48</b>	<b>70.59%</b>

# What are the differences in prices in Nassau as compared to Eleuthera?

Product	Nassau	Eleuthera	difference	% change
banana	\$ 1.12	\$ 2.14	\$ 1.02	91.07%
carrots	\$ 1.31	\$ 1.89	\$ 0.58	44.27%
tomato paste	\$ 2.19	\$ 2.54	\$ 0.35	15.98%
evaporated milk (13 oz)	\$ 2.29	\$ 2.65	\$ 0.36	15.72%
margarine	\$ 1.70	\$ 1.73	\$ 0.03	1.76%
eggs	\$ 2.10	\$ 2.72	\$ 0.62	29.52%
milk 1/2 gallon	\$ 3.91	\$ 6.64	\$ 2.73	69.82%
oil 24 oz	\$ 3.17	\$ 3.36	\$ 0.19	5.99%
<b>TOTAL</b>	<b>\$ 17.79</b>	<b>\$ 23.67</b>	<b>\$ 5.88</b>	<b>33.05%</b>

# What does food insecurity look like in the Bahamas?



## Future Considerations

- Household Expenditure Survey 2018?
- Living Conditions Survey
- Add the 8 FIES questions to measure FOR THE FIRST TIME, Food Security.
- The US has fought hard to reverse the problem, lets not let it get that bad here!

## Let's get out ahead!

- FIES is a UN monitoring indicator for SDG 2
- The FAO will help!
- As long as it's a state effort, they will provide the technical assistance for the analysis and reporting.

Thank you & Questions