



The United Republic of Tanzania
Agriculture Sector Lead Ministries

4TH ANNUAL AGRICULTURAL POLICY CONFERENCE [AAPC]

Integrating Food and Nutrition Security into Economic Transformation and Industrialization Agenda:

How can agriculture be the driver rather than follower of economic transformation in Tanzania?



New Dodoma Hotel, Dodoma

14th - 16th February, 2018





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New Indicators of the Cost of Nutritious Diets

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Vision

- When we speak of “food” prices, we should be able to have a measure that reflects the food people need for active and healthy lives.
- Food security: All people, at all times, have physical and economic access to sufficient, safe, nutritious food to meet dietary needs and food preferences for an active and healthy productive and reproductive life.

Data we used

- NBS data
 - Collected for the purpose of monitoring inflation (Consumer Price Index)
- Includes 74 items currently
 - Will be updated based on 2017 HBS
- Raw prices are also used by various stakeholders such as; the business community, the media and higher learning institutions for research.

Indicators Developed

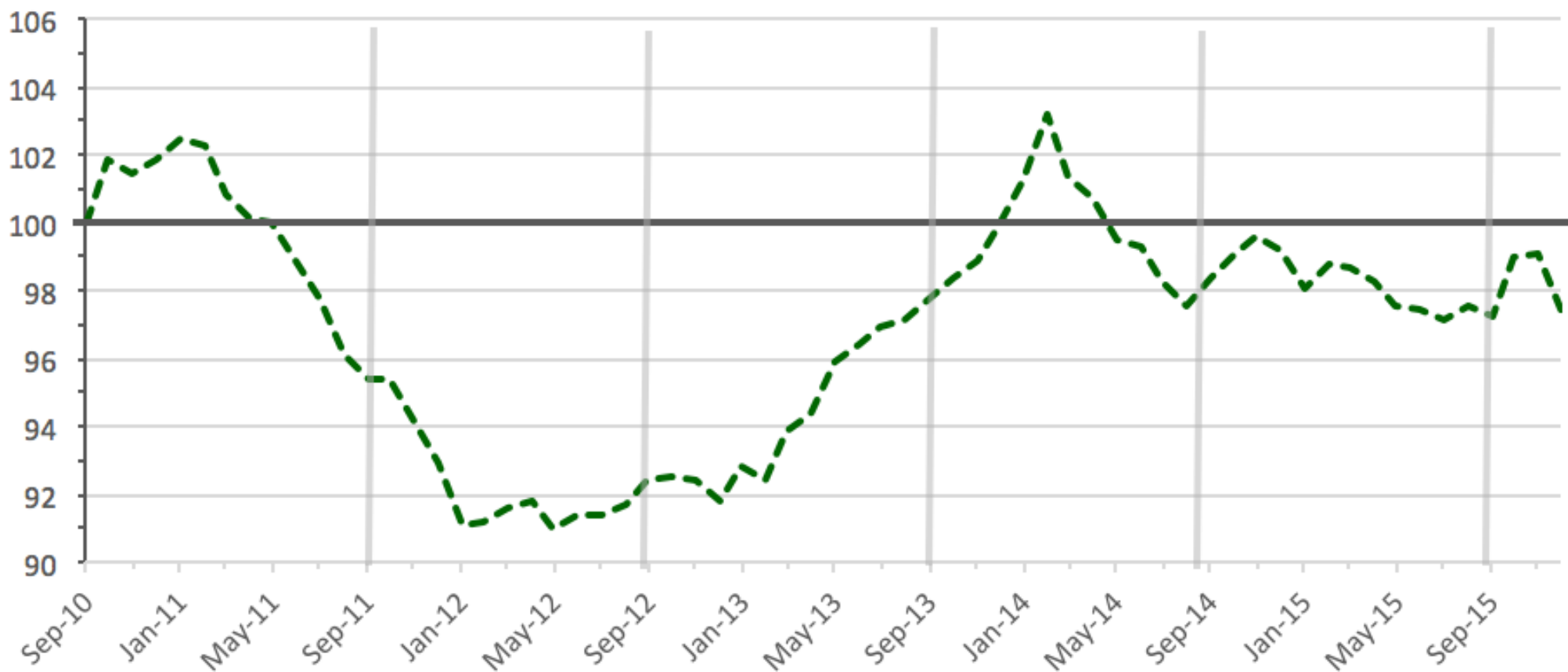
- Indexes:
 - Nutritious Food Price Index (NFI)
 - Cost of a Diverse Diet (CoDD)
- Absolute cost:
 - Cost of Nutrient Adequacy (CoNA)
 - Cost of a Recommended Diet (CoRD)
- Presented today: “Beta-versions” / initial results

Index 1: Nutritious Food Price Index (NPI)

- CPIs use economic weights: food items are weighted according to the proportion of income spent on them.
 - Out of every \$100 spent on all purchases (food and non-food), the weight is the \$ spent on that particular item.
 - Food is very important in national CPIs because in Tanzania it accounts for 37% of all expenditures (previously 48%).
- We use alternative weights to construct a food price index that up-weights more nutritious foods and down-weights less nutritious foods
- Requires: (1) food CPI data (2) Nutritional Value (NuVal) scores



Nutritious-food price index (NPI) relative to food CPI in Tanzania, Sep. 2010-Dec. 2015



Note that if we could have regionally representative price data, this may be even more informative, showing regions where nutritious food is relatively more expensive.



Index 2:CoDD: Cost of Dietary Diversity

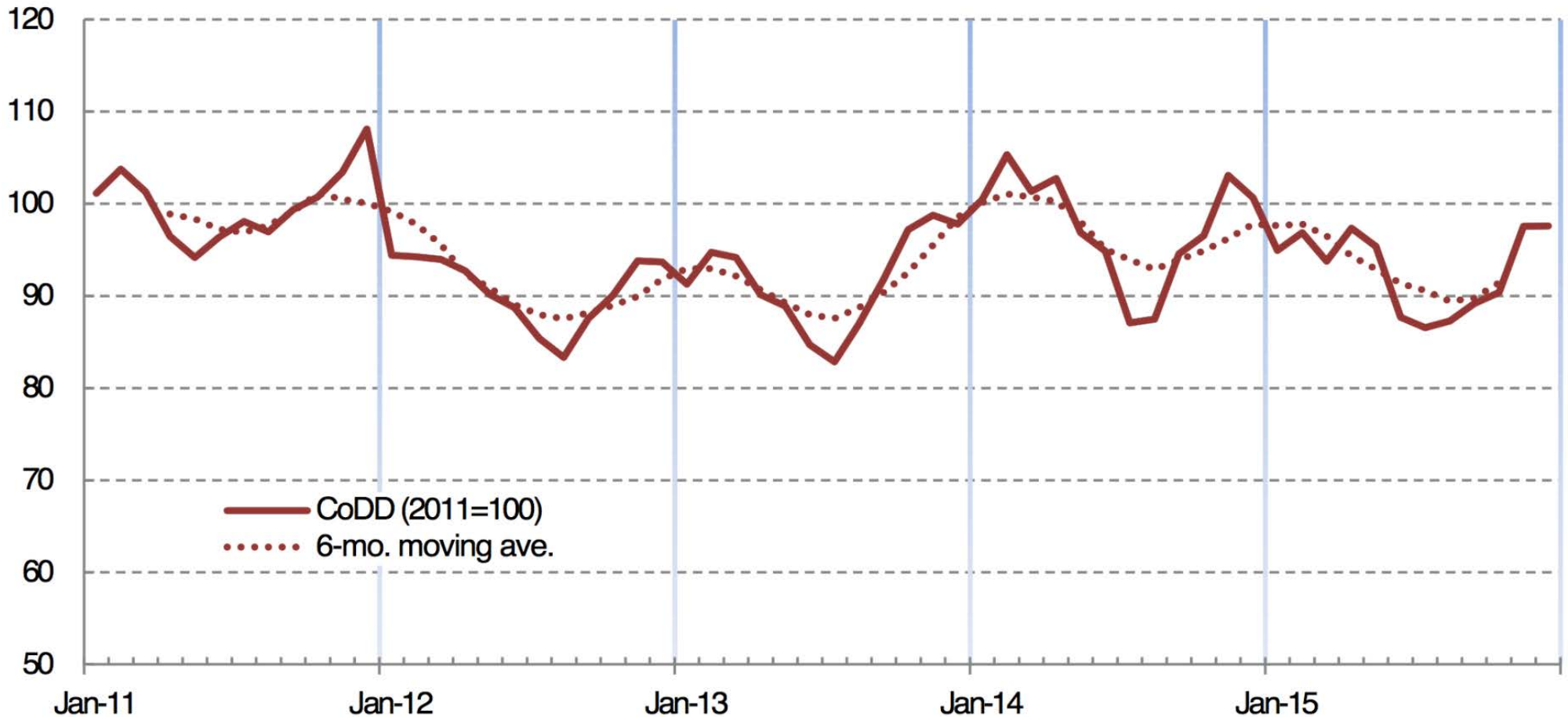
- The CoDD indicator provides an index of the cost of meeting Minimum Dietary Diversity (MDD-W)
 - Tracks the cost over time of the 5th-cheapest food group (to meet the MDD threshold: 5 out of 10 food groups)
 - CoDD helpful to understand stability or volatility in the cost of bare minimum dietary diversity
 - Also shows relative prices and volatility of each food group
- Requires
 - Food price data for each of the 10 MDD-W groups



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Tanzania CoDD (by kcal)



Cheapest 5 food groups on a per-calorie basis: Starchy staples, pulses, groundnut, meat/fish, fruit.

More expensive: eggs, leafy green vegetables, other vegetables, vitamin A-rich fruit, milk

Note seasonal variation, where price is relatively higher in January compared to July. This is mainly due to the fluctuation of fruit price.

Real cost indicator 1:CoNA: Cost of Nutrient Adequacy

- CoNA shows the minimum cost of achieving minimum **nutrient adequacy**, with no other dietary constraints.
- Linear programming method
- Requires
 - (1) food prices for a diversity of foods
 - (2) nutrient requirement data (EARs)
 - ✓ Estimate Average Requirement: The level at which 50% of the population meets nutrient needs
 - (3) food composition data

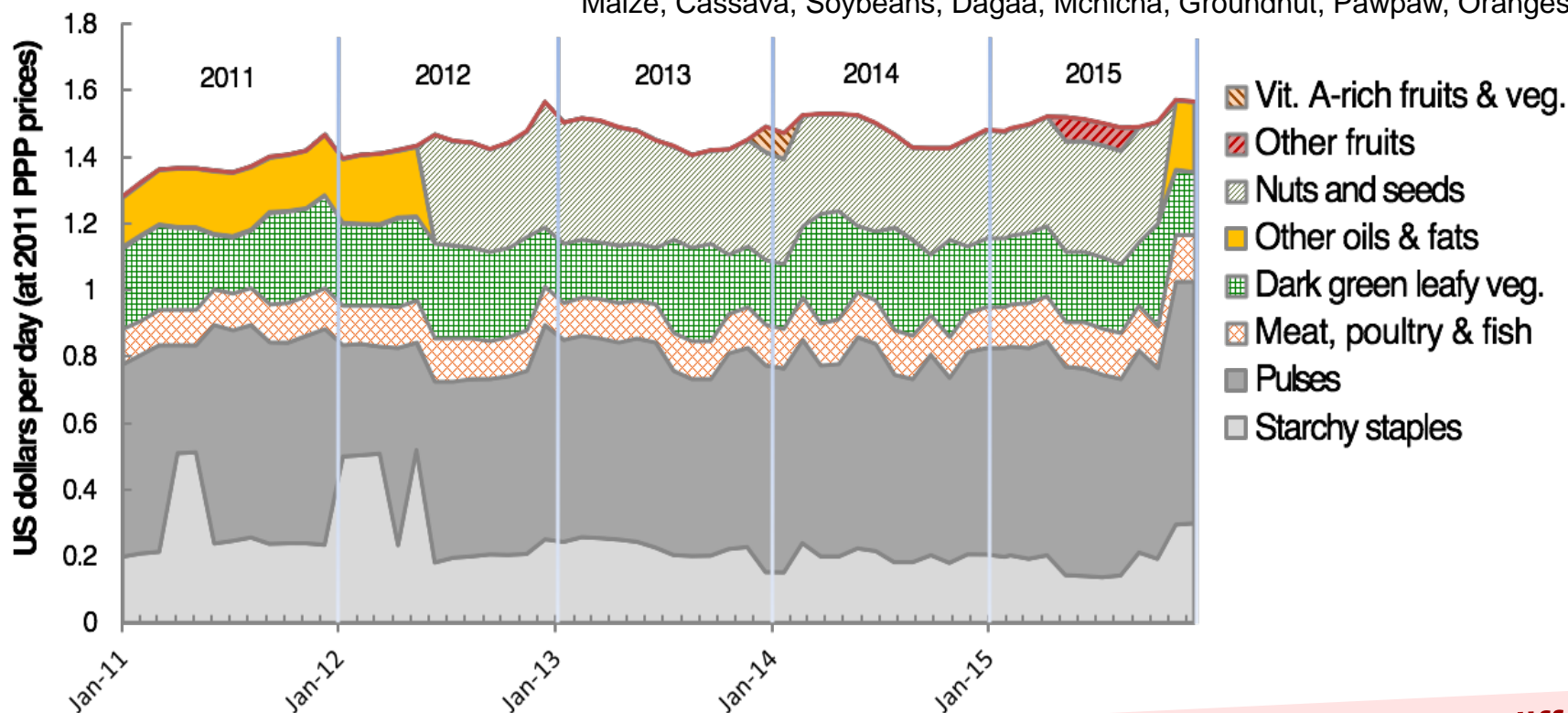


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CoNA by Food Groups in Tanzania : TSH 903 (USD \$0.42)

Cheapest foods that, combined, met calorie and nutrient needs ("biggest bang for buck" foods):
Maize, Cassava, Soybeans, Dagua, Mchicha, Groundnut, Pawpaw, Oranges



In Tanzania, there was some rise in CoNA during 2011-12, with many different food groups playing important roles in keeping the cost of nutrients relatively stable

CoRD: Cost of Recommended Diet

- Total cost of meeting food-based dietary guidelines (FBDGs)
 - FBDGs are designed to provide (a) nutrient adequacy and (b) prevention of diet-related non-communicable disease within a culturally-acceptable diet.
 - Tanzania, however, does not have national FBDGs. They are currently being developed.
- As a substitute, we used:
 - **African Heritage Diet Pyramid**
 - ✓ created by an organization which focuses on traditional diets
 - **Benin and South Africa FBDGs**
 - ✓ Closest countries geographically with national FBDG



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African Heritage Diet Pyramid



Illustration by George Middleton

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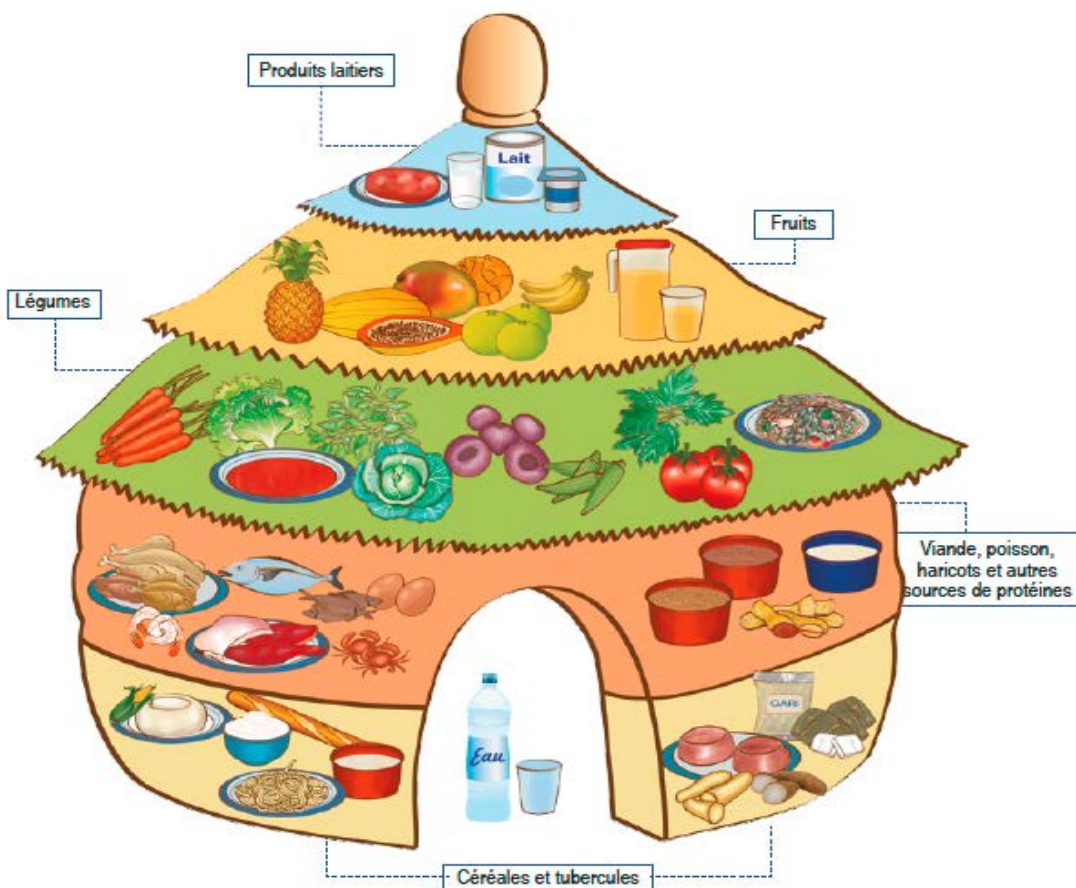
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République du Bénin
Fraternité – Justice – Travail
CONSEIL NATIONAL
DE L'ALIMENTATION ET
DE LA NUTRITION (CAN)



Guide alimentaire du **Bénin**



GROUPES D'ALIMENTS ESSENTIELS

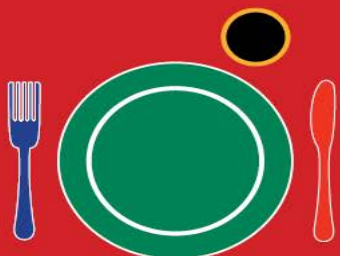
<http://poledfn.org>



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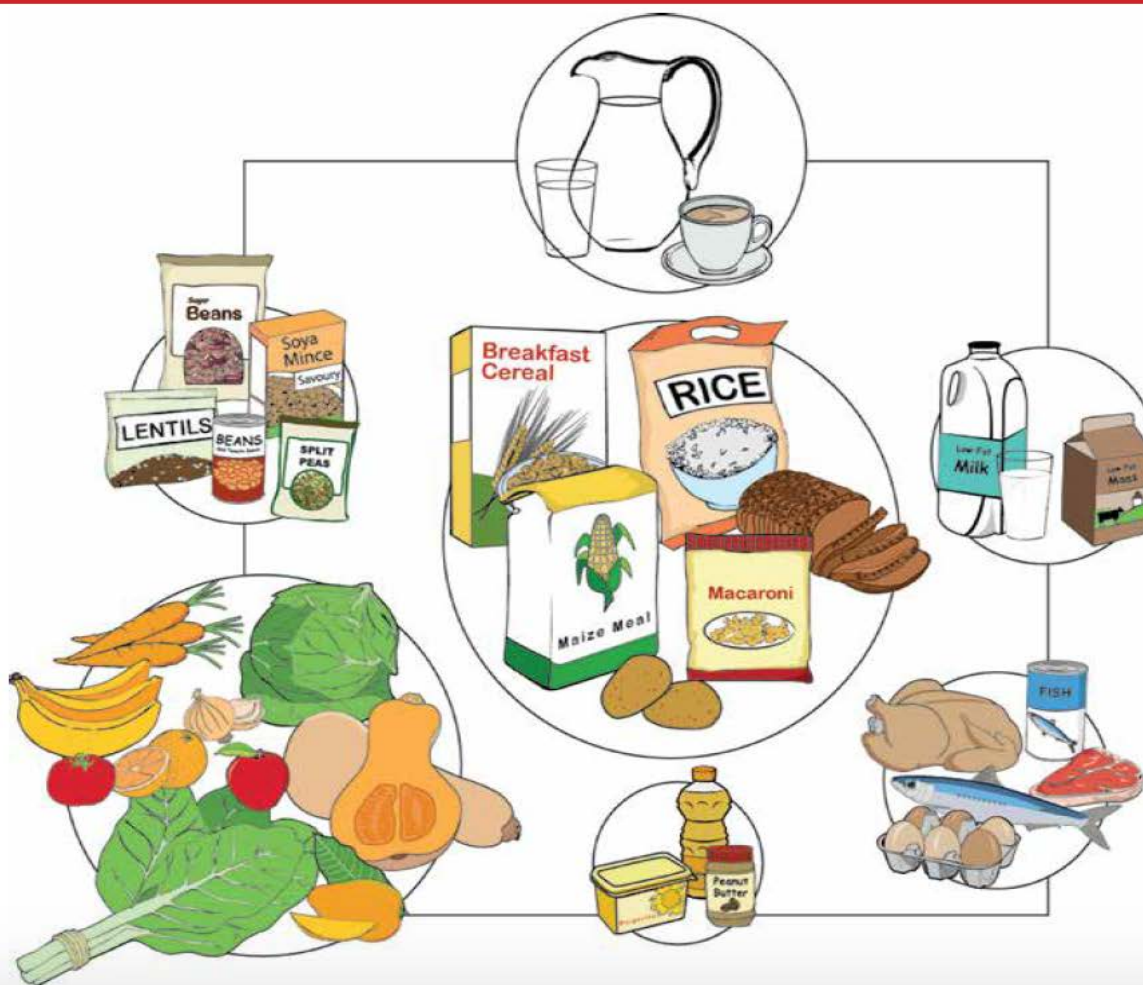
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FBDG-SA 2013

Food-Based Dietary Guidelines for South Africa

S Afr J Clin Nutr 2013;26(3)(Supplement):S1-S164
www.sajcn.co.za





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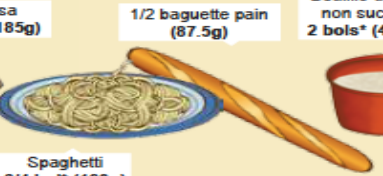































Recommended Diet we used for our calculations

- Starchy staples: 5 servings
- Beans/nuts/seeds: 3 servings
- Vegetables: 3 servings
 - One has to be a dark green leafy vegetable
- Fruits: 3 servings
- Dairy, egg, fish, poultry, meat: 1 serving



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CÉRÉALES					TUBERCULES			
 Pâte de maïs non fermentée 1 bol* (185g)	 Riz cuit 1 bol* (220g)	 Akassa 1 bol* (185g)	 1/2 baguette pain (87.5g)	 Bouillie de mil non sucrée 2 bols* (450g)	 Pâte de cossette 1 bol* (175g)	 Manioc bouilli Grosueur du bol* (185-200g)	 Gari 1/4 bol* (60g)	
VIANDE ET AUTRES ALIMENTS D'ORIGINE ANIMALE					HARICOTS ET AUTRES ALIMENTS VÉGÉTAUX RICHES EN PROTÉINES			
 Volailles et viandes Sans os : Paume de la main Avec os : morceaux ou poids (75g)	 Poissons Paume de la main et début des doigts (100g)	 Petits poissons séchés 1 bol* (50g)	 Oeuf 2 moyens (80g)	 Crabes 3 petits (200g)	 Haricot 1/2 bol* (140g)	 Fromage de soja 1/4 bol* (50g)	 Arachides 1/3 bol* (50g)	 Voandzou 1/5 bol* (50g)
 Carotte 1 moyenne (60g)	 Oignon 1 moyen (100g)	 Chou 2 bols* (50g)	 Laitue 2 bols* (50g)	 Feuille de gboman 2 bols* (50g)	 Tomate 2 moyennes (100g)	 Sauce tomate 1/2 bol* (125g)	 Sauce feuille 1/2 bol* (80g)	
 Ananas Grosueur d'un bol* (150g)	 Papaye Grosueur d'un bol* (150g)	 Mangue 1 petite mangue non greffée ou 1/2 greffée (100g)	 Orange 1 moyenne (100g)	 Banane 1 moyenne (75g)	 Jus de fruit pur 3/4 verre bambou (150ml)			
 Fromage local Équivalent à 2 fois la longueur du pouce (50g)	 Lait concentré non sucré 1/2 boîte (85g)	 Yaourt 1 pot (125g)	 Lait en poudre 1 cuillère à soupe (20g)					

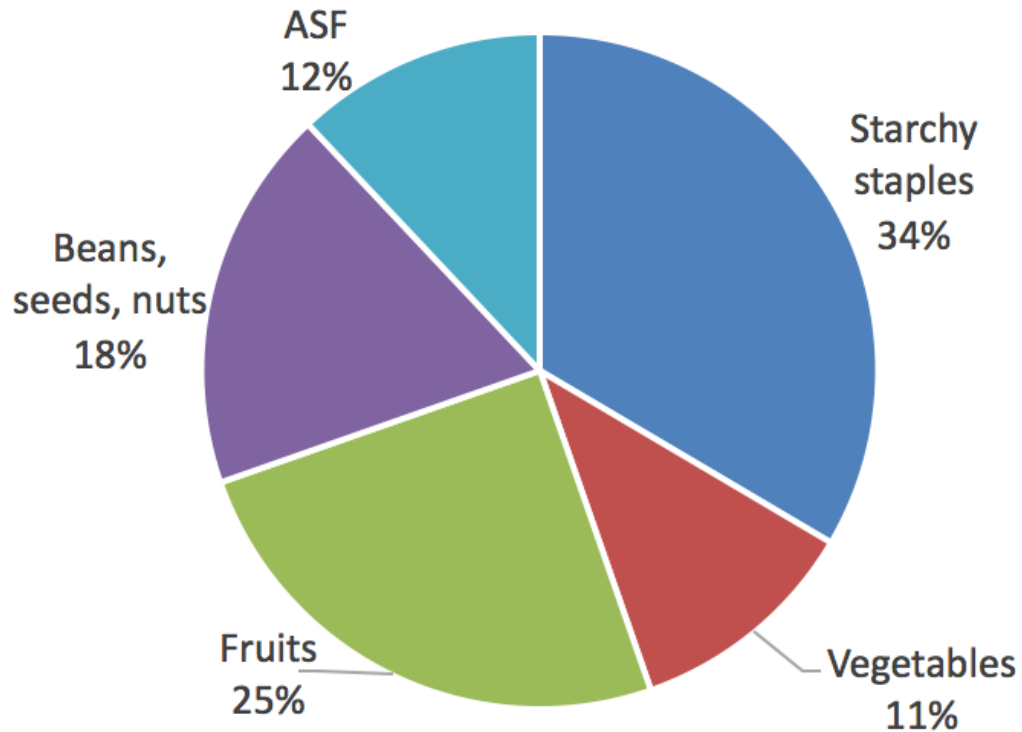
Cost of Recommended Diet (CoRD) Method

1. Group all items in food list into food groups.
2. Take the two lowest-cost items in each group
 - We take the cost of more than one item because the recommendations call for diversity/variety within food groups.
3. Multiply the cost by the number of servings recommended for each group
4. Add up cost of all food groups



CoRD: TSH 1807-2810 per day (USD \$0.81-1.26)

Lowest-cost items in each category (TSH 1807)



- Over half the cost of a recommended diet is non-staple plants (fruits, veg, beans, nuts, seeds).
- Animal-source foods are also relatively expensive.



Conclusions

- The cost of meeting nutrient needs (CoNA) is about half the cost of meeting dietary recommendations (CoRD).
 - Meeting nutrient needs is important but not enough for a good diet
- A nutritionally weighted price index (NPI) shows different trends than a traditional consumer price index, implying the need for policy attention to the more nutrient-dense foods
- The cost of minimally diverse diets (CoDD) fluctuates seasonally, highest in Jan and lowest in July. This is mainly due to fluctuation in the price of fruits.



Conclusions

- The different indicators show different ways of looking at the cost of nutritious diets.
- Each may be useful to different organizations
 - NPI is calculated similarly to CPI, and would be easy to track by statistics organizations
 - Cost of Recommended Diet (CoRD) and Cost of Dietary Diversity (CoDD) point out which food groups are more expensive than others, of particular interest to agriculture
 - ✓ Milk, fruits, vegetables and eggs are most expensive.
 - Cost of Nutrient Adequacy (CoNA) can point out which foods are the best nutritional “bang for the buck”
 - ✓ Soybean, dagaa, mchicha, groundnut, pawpaw, oranges



Food price data for nutrition

- This project demonstrates that an existing food price data monitoring system can be used, with very little added cost, to provide information on the cost of nutritious diets
- Next steps:
 - In Tz, need more rural market prices for better regional and district-level information
 - Work with NBS further to see how such measures can be incorporated into Tz monitoring systems for decision-making
 - Conduct research to show relationship between food prices, and diets and nutritional outcomes



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Agriculture as a driver of economic transformation

- Good nutrition is central to human wellbeing, and economic transformation
- Adequate nutritious diet is the cornerstone of good nutrition
- Agriculture is the driver of access to adequate nutritious diets.
- Adequacy means investment in obtaining the right combination of foods and nutrients
- Our results show that some of the most nutrient-dense foods are the most expensive → need investment
- Then cost of diet is really critical, availability is not necessary access

THANK YOU



MICHIGAN STATE UNIVERSITY



Dalberg

