



FEED THE FUTURE

The U.S. Government's Global Hunger & Food Security Initiative

Strengthening Agricultural and Nutrition Extension (SANE)



Sustainable Nutrition: Malawi is Rich with Potential

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MICHIGAN STATE
UNIVERSITY



OCRS
CATHOLIC RELIEF SERVICES

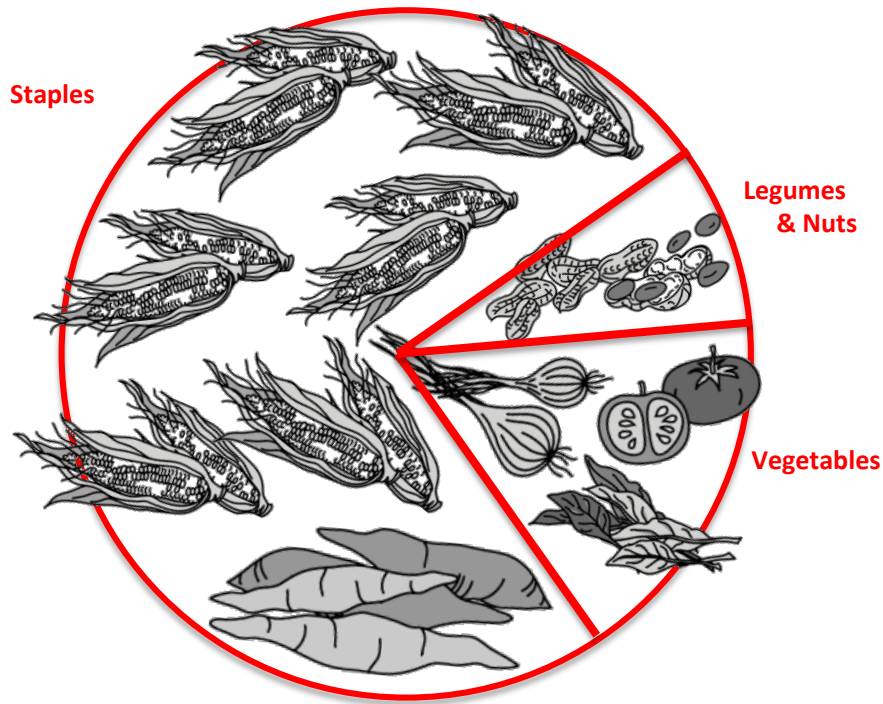
ILLINOIS
UNIVERSITY OF ILLINOIS AT URBANA-CHAMPAIGN

Strengthening Agricultural and Nutrition Extension (SANE)

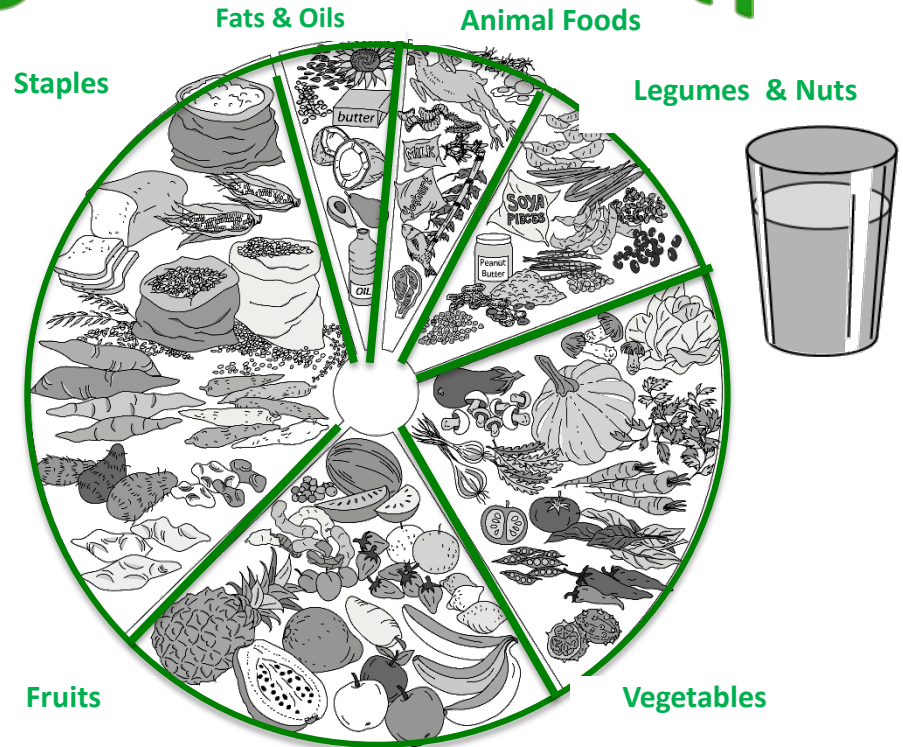
Objectives, to share:

1. Status and Causes of Malnutrition – in a nutshell
2. Processes, research efforts and approaches used to improve agriculture nutrition programs and policies in Malawi
3. Programme tools & strategies to address all forms of malnutrition

Production



Consumption



Agriculture is the Foundation of Nutrition

Current Imbalance

1. Need Diverse Production of All Food Groups for Diverse Consumption
2. Ecological Agriculture is the Best for Earth & People

**Malawians eat more maize
per capita than any other country on earth!**

Over 1/2 of calories are from just 1 food.

85 % of land is used to grow maize

75 % of calories consumed is from maize

**Maize was brought to Southern Africa from Central America
about 300 years ago**

Staple food security is NOT food security

Yet, this is the focus for most programmes in

Agriculture, Food security & Food Aid.

Agriculture, the Basis of Nutrition

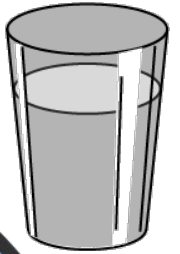
75% of Agriculture & Diets are Maize

47% of Malawi's children are nutritionally "stunted"

Unbalanced Meal



Balanced Meal



Same Amount - Balanced Groups with More Variety

Agriculture – the Basis of Nutrition

Unbalanced production



**Too Much Maize
Soil & Water Loss**

All Seasons (rains vs. dry)



**Bare
Soil & Water Loss**

Balanced Production



**Diverse Production
Care for the Earth**

All Seasons (rains vs. dry)



**Permaculture
Designed with Nature
Care for Earth, Care for People, Fair Share**

“Agro-ecology and the Right to Rood”

March 2011: Agroecology, if sufficiently supported, can double food production in entire regions within 10 years while mitigating climate change and alleviating rural poverty.

Permaculture: Designing Sustainable Human Systems

Any Size – Any Place

Top: www.Kusamala.org Bottom, my home: www.NeverEndingFood.org

United Nations

A/HRC/16/49



General Assembly

Distr.: General
20 December 2010

Original: English

Human Rights Council

Sixteenth session

Agenda item 3

Promotion and protection of all human rights, civil, political, economic, social and cultural rights, including the right to development

Report submitted by the Special Rapporteur on the right to food, Olivier De Schutter



Malnourished

=

Drought

Floods

Low Yield



Nourished

=

Resilient

Sustainable

Productive

The Difference 7 Months can make!

- (1) **Before** Wife sweeping 1 hour+ each day
- (2) **Month 1** Reduced sweeping and beds
- (3) **Month 7** Area flourishing with foods



(1) 2005 July: Before



(2) 2005 Aug: 1 month

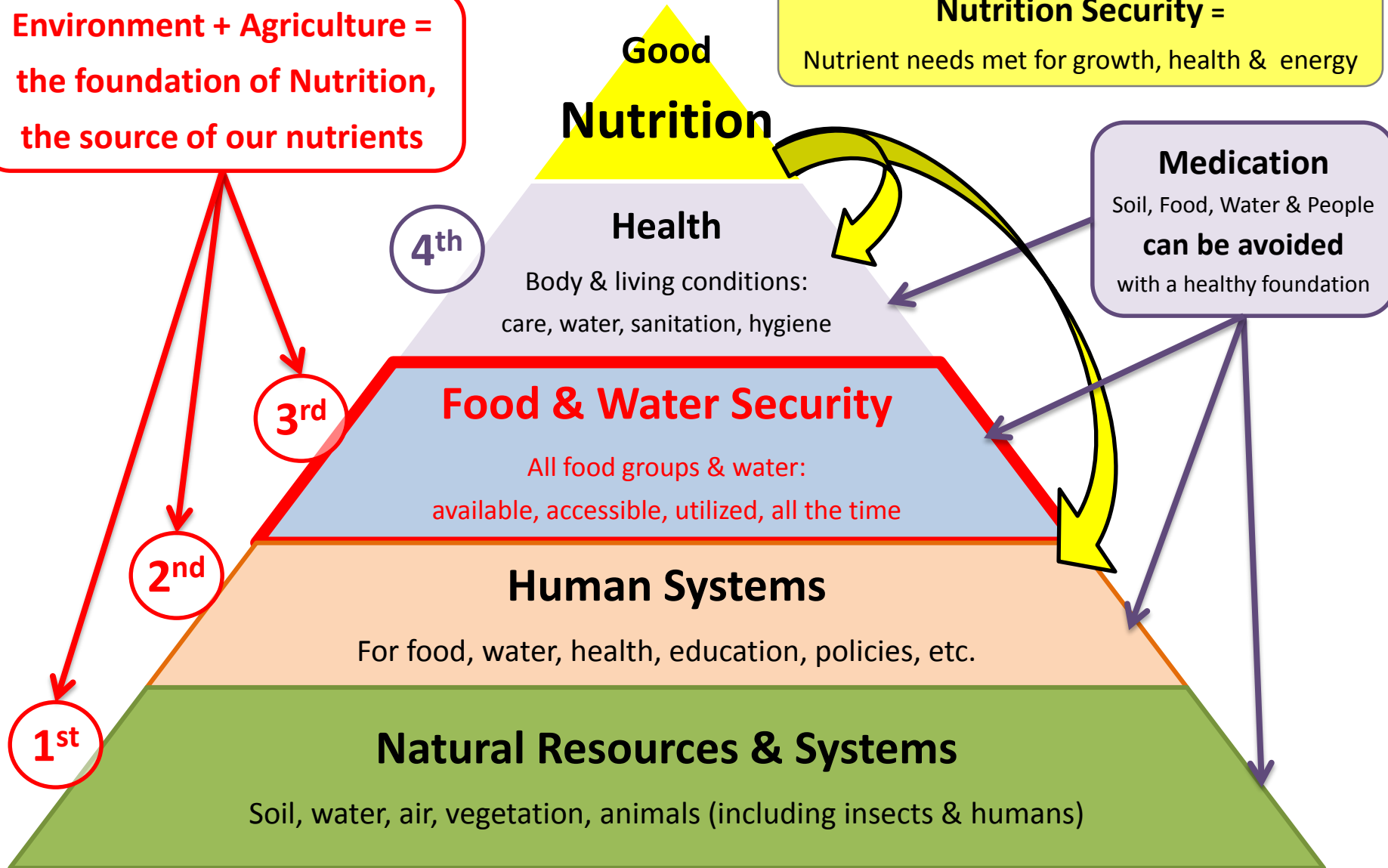


(2) 2006 Jan: 7 months

Agriculture – the Foundation of Nutrition

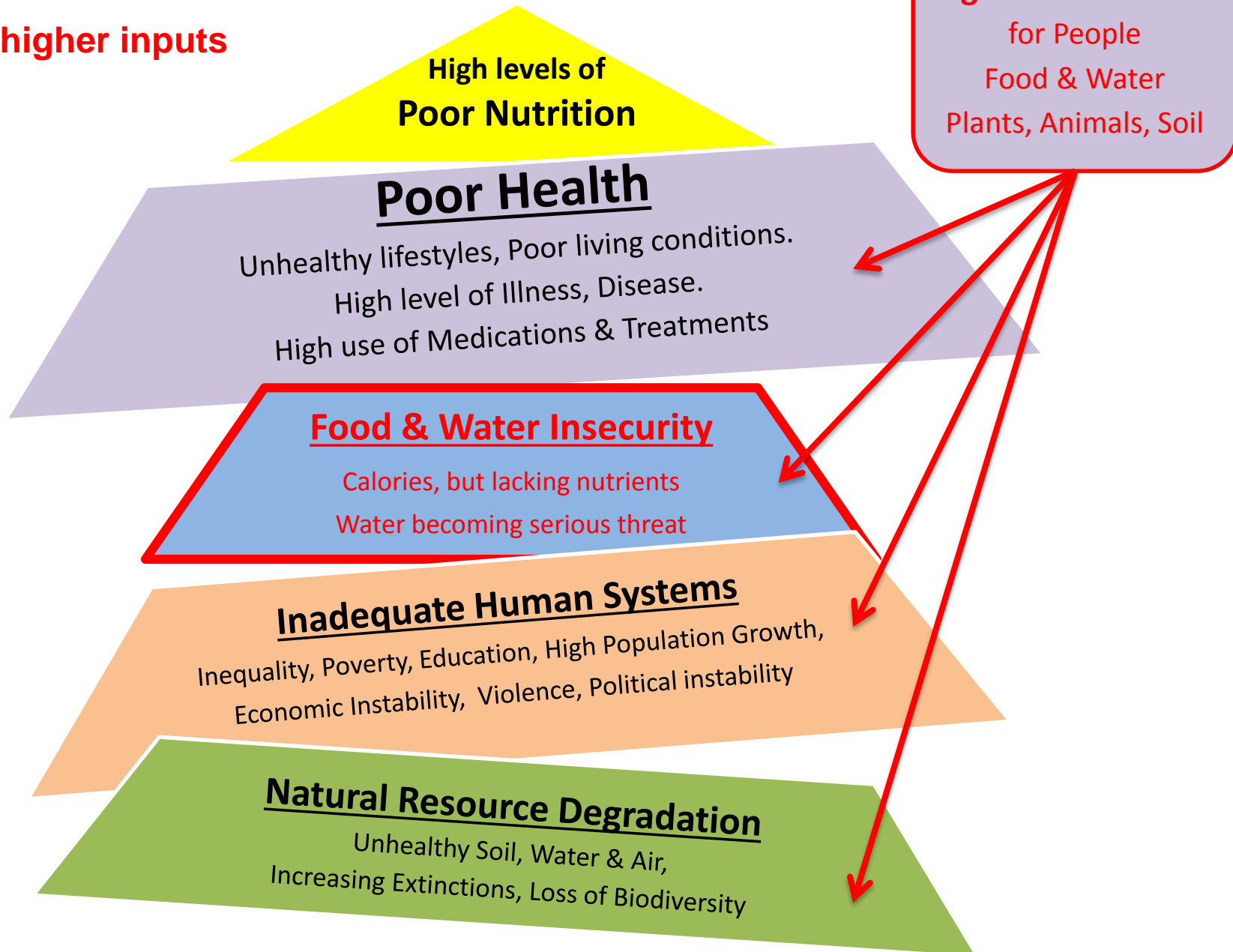
**Environment + Agriculture =
the foundation of Nutrition,
the source of our nutrients**

Nutrition Security =
Nutrient needs met for growth, health & energy



Systems are currently out of balance

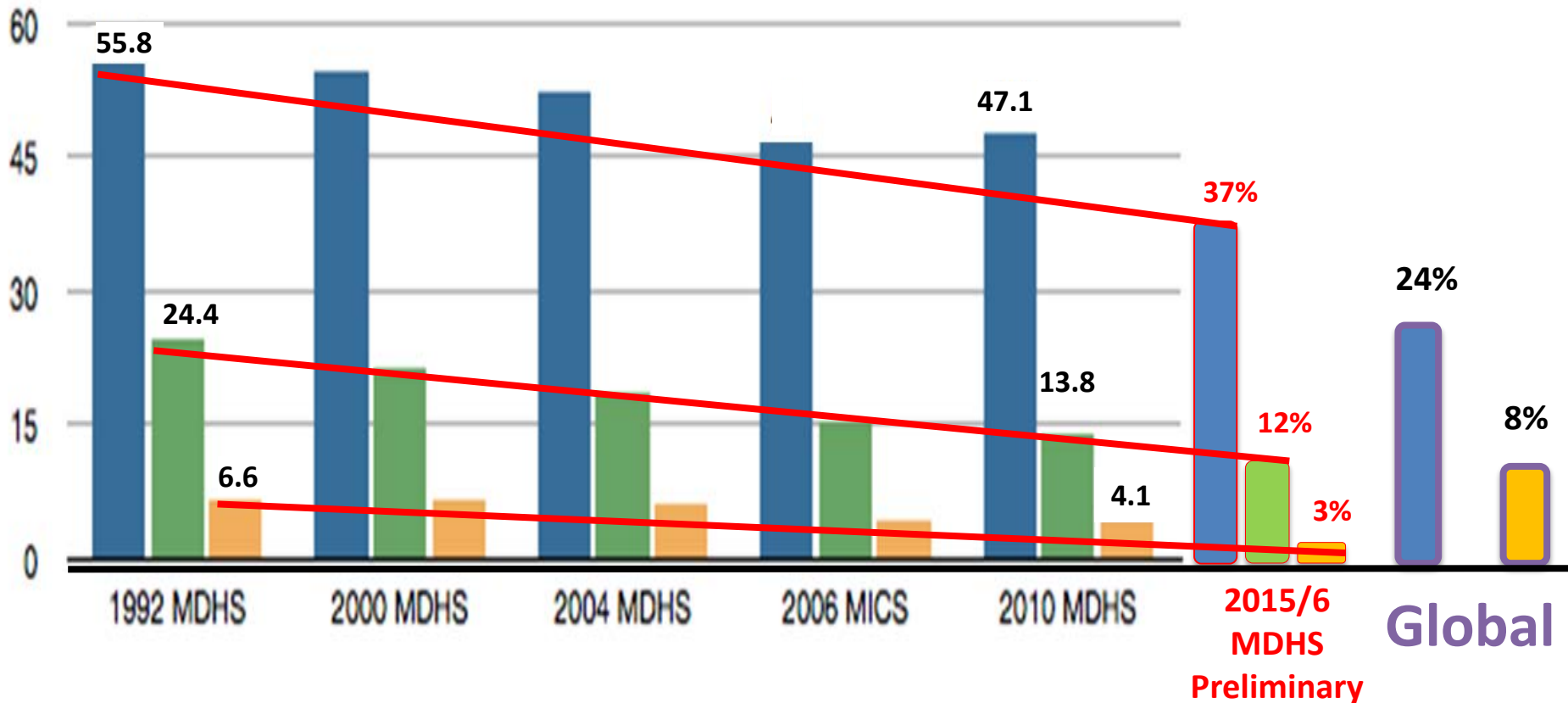
Requires higher inputs



Malawi: Heights & Weights of Children under 5 years

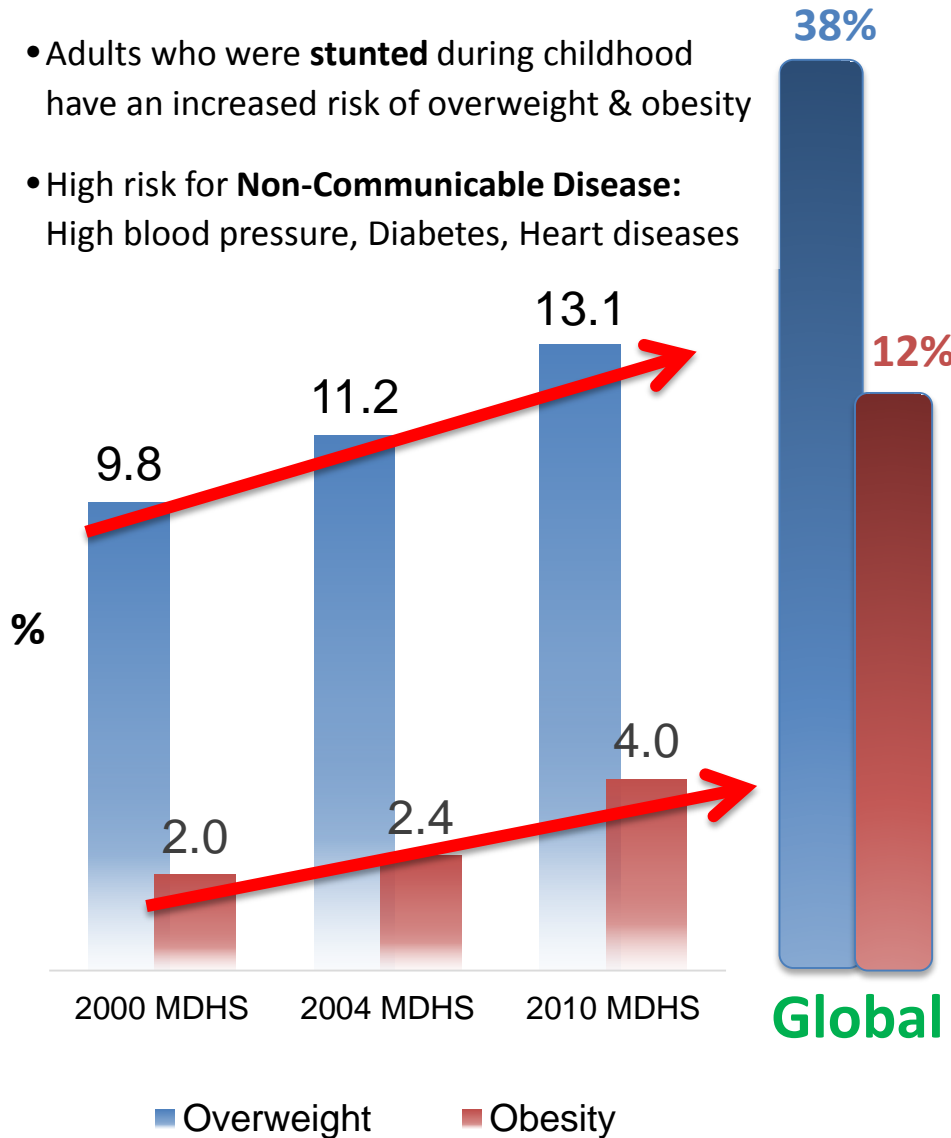
Slight improvements from 1992 to 2016 (~24 years)

Stunted Too short for age Chronic nutrition/health issue	Underweight Too thin for age Chronic or Acute	Wasted Too thin for height Current nutritional status
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Malawi is Getting Heavier We need Good Nutrition for ALL!

- Adults who were **stunted** during childhood have an increased risk of overweight & obesity
- High risk for **Non-Communicable Disease**: High blood pressure, Diabetes, Heart diseases



the NEW NORMAL

57 out of 129 surveyed countries currently experience serious levels of both undernutrition and adult overweight & obesity.

44%

WE MUST END MALNUTRITION—IN ALL ITS FORMS—BY 2030. #NUTRITIONREPORT

SOURCE: 2016 Global Nutrition Report

THINK YOUR COUNTRY DOESN'T HAVE A NUTRITION PROBLEM? THINK AGAIN.

Countries are making some headway on reducing undernutrition, but it's far too slow. And overweight and obesity are getting worse, not better.

CHILD STUNTING

OBESITY

2 BILLION people don't get enough VITAMIN A AND IRON

749 MILLION people don't get enough CALCIUM

161 MILLION children are severely UNDERNOURISHED

WE HAVE A BIG PROBLEM WITH UNDERNUTRITION

1.9 BILLION adults are OVERWEIGHT or OBESE

1 in 12 adults has TYPE 2 DIABETES

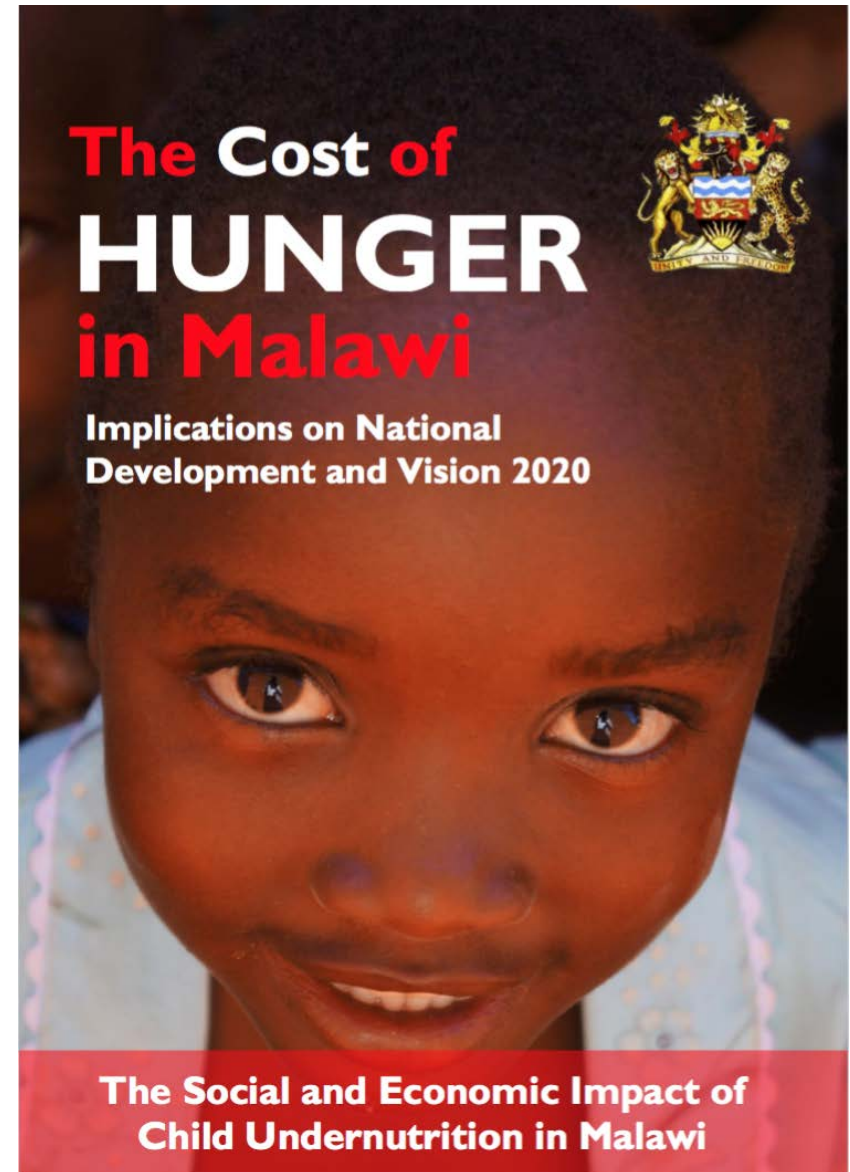
42 MILLION CHILDREN are OVERWEIGHT

WE HAVE A BIG PROBLEM WITH OVERWEIGHT & OBESITY

Cost of Hunger in Africa: Malawi Study

1. The total annual costs associated with child undernutrition are estimated at 10.3% GDP:
 - **147 billion mk**
 - **597 million USD**

2. 66% of the adult population engaged in manual activities were stunted as children, an annual loss of:
 - **16.5 billion mk**
 - **67 million usd**



Scaling Up Nutrition (SUN)

13 key interventions

Based on Lancet Series



Healthy Eating & Living:

1. Healthy Diverse Diets

- Pregnant & Lactating Women
- Fathers, Siblings, Grandparents, etc.

2. Infant Young Child Feeding:

- Exclusive breastfeeding (0 - 6 mo.)
- Complementary feeding (6 - 24 mo.)

3. Water, Hygiene & Sanitation

THESE 10 WILL DIMINISH AS WE IMPROVE:

Treatments / supplements:

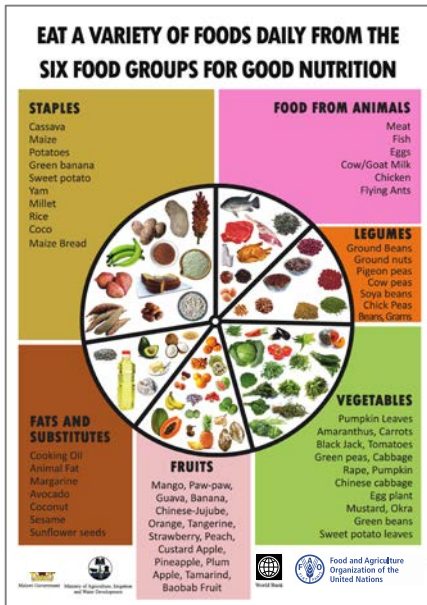
4. Vitamin A supplementation
5. Zinc supplementation for diarrhoea
6. Deworming
7. Iron & folate supplements
8. Salt iodisation
9. Prevent & treat Undernutrition
10. Treat Severe Acute Malnutrition
11. Multiple micronutrient powders
12. Iodised oil capsules
13. Iron fortification of staples

Food Security = ALL food groups

Disconnect between Agriculture & Nutrition

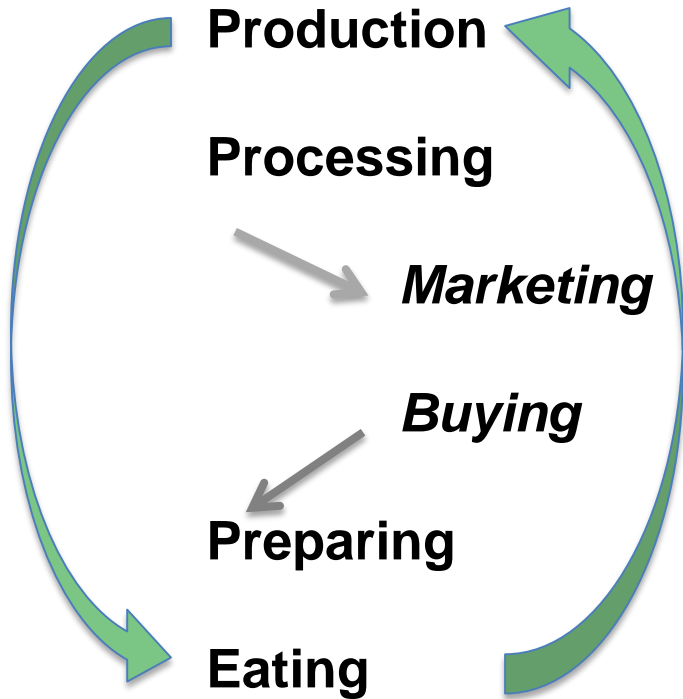
Agriculture = maize

Agriculture = 300 kg maize



		1 day		1 year	
		1 Adult Calories	% Calories	1 adult (Kg)	16 Million Adults (kg)
1. Staples	½ Grains	838	38%	90	1,460,000
	½ Tubers	240	11%	90	1,460,000
2. Fruits		150	7%	108	1,752,000
3. Vegetables		96	4%	108	1,752,000
4. Legumes & Nuts		588	26%	54	584,000
5. Animal Foods		58	3%	36	584,000
6. Fats		235	11%	18	116,800
TOTAL food needed:		2,205	100%	504	7,708,800

ALL Food Groups



Global FOOD Supply

7,000 plant foods available

3 crops = 50 % plant energy

30 crops = 95 % calories & protein

FAO 1997

Do we have the foods we need in Malawi?

YES! Malawi has at least 600 different foods.

Plus species for soil fertility, medicines, energy, building, fibres, finances, etc.





Food and Agriculture
Organization of the
United Nations



Flanders
State of the Art

With support from



by decision of the
German Bundestag



Improving Policies, Strategies and Guidelines

2016

2015

2014

2013

United Nations System Standing Committee on Nutrition

Country Policy Analysis

Nutrition Impact of Agriculture and Food Systems

Malawi

August 2013 (First Draft)
March 2014 (Final)

UN System Standing Committee on Nutrition country study for the second International Conference on Nutrition

Draft Jan 6, 2014

MINISTRY OF AGRICULTURE AND FOOD SECURITY

ZERO DRAFT

AGRICULTURE FOOD AND NUTRITION STRATEGY

December, 2013

Draft Nutrition Strategy 2014-2019

Flanders State of the Art

MINISTRY OF AGRICULTURE AND FOOD SECURITY

Food and Agriculture Organization of the United Nations

A Proceedings Report for:

A Retreat to review the role of the Ministry of Agriculture, Irrigation and Water Development in Improving Nutrition in Malawi

under the theme of:

"Agriculture – the basis for improved Nutrition"

held at Club Makokola, Mangochi
25-26 June 2015

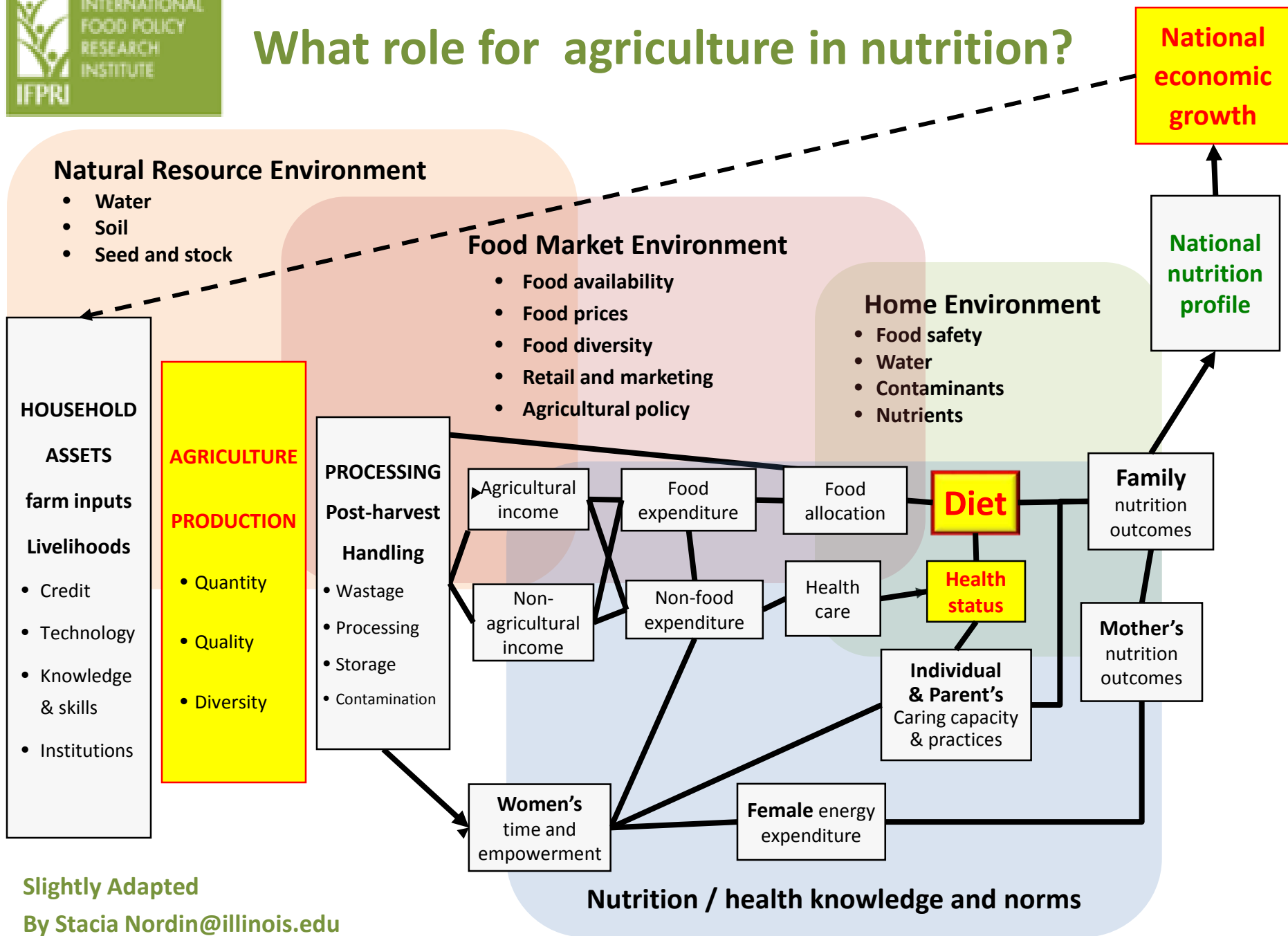
by
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P. O. Box 30145, Lilongwe Malawi

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June 30, 2015



What role for agriculture in nutrition?



Slightly Adapted

By Stacia Nordin@illinois.edu



Flanders
State of the Art



Food and Agriculture
Organization of the
United Nations

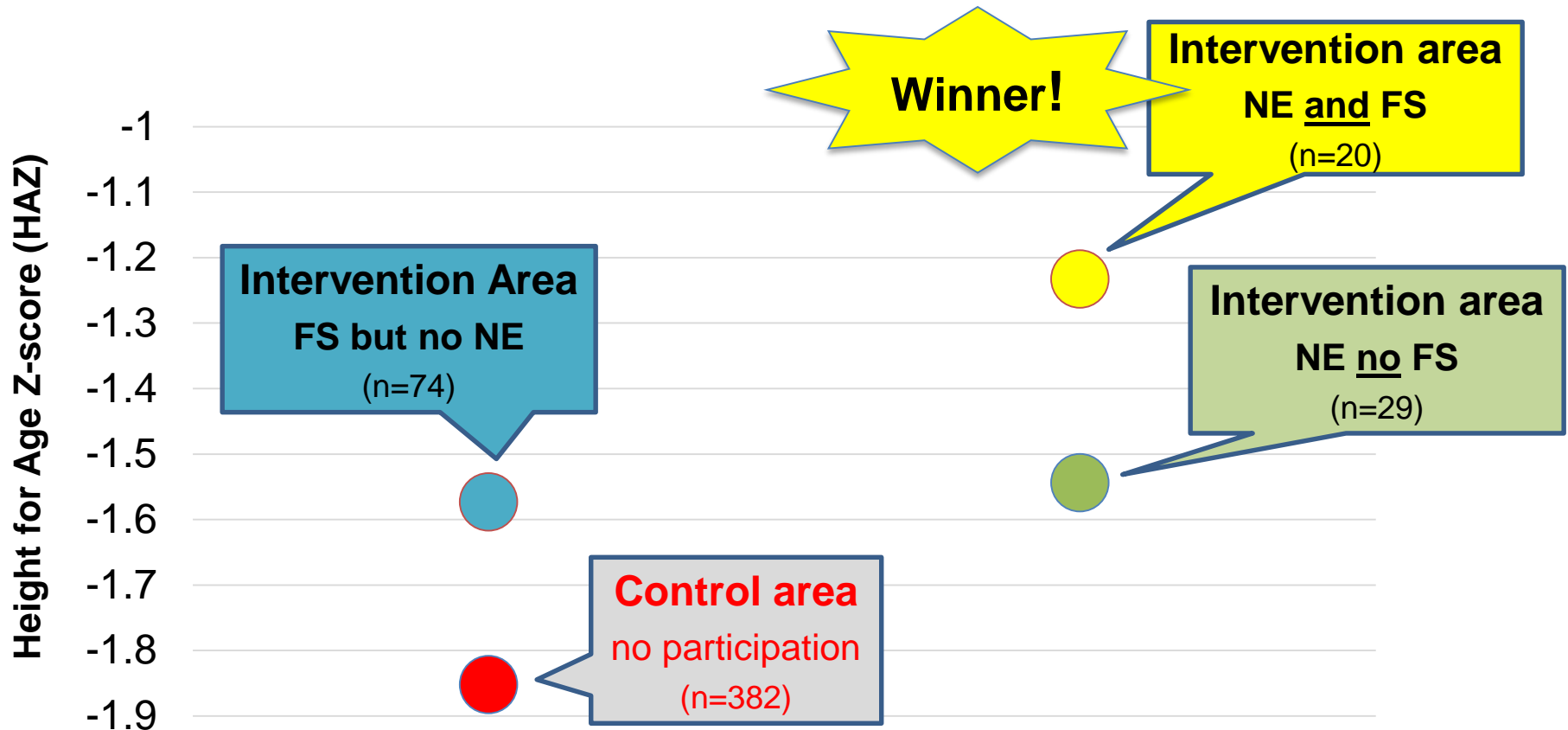


What has the best impact on stunting?

Continue as is?

Production for Food Security (FS)?

Nutrition Education (NE)?



Nutrition
Education Bag

Food Availability
Calendar

Wrap

Food Guide
Poster

Measuring
Cup

Recipe
Book

Meal Photos

Counselling
Cards

Integrated
Homestead
Farming
Manual

Local Food Cards



Biodiverse Food Cards & Food Availability Calendar



2015 June

Common Foods in Malawi



With support from:

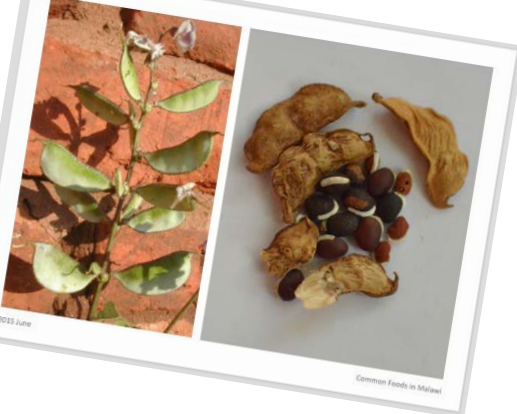
Kabaifa, Chimbamba, Kamumpanda, Lima Bean

Phaseolus lunatus

Edible Parts:
Seeds, leaves

2015 June

Common Foods in Malawi



Food Groups	FOODS Available:	Dec-Mar Hot/Wet	Apr-Jul Cool/Moist	Aug-Nov Hot/Dry
1. Staples 	Green Banana, Plantain	✓	✓	
	Maize, Chimanga		✓	
	Millet, Mawere		✓	✓
	Cassava, Chinangwa		✓	✓
	Yams, Chilazi Mpama			✓
2. Fruits 	Mango	✓		
	Papaya		✓	
	Banana		✓	
	Masuku			✓
	Chisale			✓
3. Vegetables 	Mushrooms, Bowwa	✓		
	Amaranth, Bonongwe	✓		
	Hibiscus leaves, Limanda	✓	✓	
	Cassava leaves, Chigwada	✓	✓	✓
	Chipwete		✓	
4. Legumes & Nuts 	Beans, Nyemba	✓	✓	
	Cowpeas, Kfobwe	✓	✓	
	Groundnuts, Mtedza		✓	
	Pigeon Peas, Nandolo		✓	✓
	Lima Beans, Chimbamba, Kamumpanda		✓	✓
5. Animal Foods 	Termites, Ngumbi	✓		
	Eggs (chicken, ducks, etc.)	✓	✓	✓
	Rabbits	✓	✓	✓
	Milk	✓	✓	✓
	Goat	✓	✓	✓
	Fish	✓	✓	
6. Fats and Oils 	Avocado, Mapeyala	✓		
	Coconut		✓	
	Sunflower seeds		✓	✓
	Pumpkin seeds		✓	
	Sesame Seeds		✓	
Water 		✓	✓	problem

IYCF Recipe Books: with flexible, diverse ingredients



B.4. Mbatata ya kholowa kapena kachewere ndi ufa wa nsomba

Kudyedwe mwana m'modzi

ZOFUNIKIRA:	MIYEZI 6-8	MIYEZI 9-11	MIYEZI 12-23
1. Mbatata ya kholowa kapena kachewere	1 Imodzi yaling'ono ½ c Kapena yochepera theka la kapu ya mbatata yoduladula 50 g Kapena magalamu makumi asanu	1 yokulirapo pang'ono imodzi ½ c Kapena yoduladula yopyolera kapu theka kapena 90 gm	2 ziwiri za zing'ono 1 c kapena zokulirapo Kapu imodzi yoduladula kapena yokwanira 120 gm
2. Ufa wa nsomba zowuna	½ T Theka la theka la sipuni yaikulu	½ T Kupyolera pang'ono sipuni yaikulu	1 T Sipuni yaikulu imodzi
3. Ufa wa Masamba osinjasinja	1 t Sipuni yaling'ono imodzi	1 ½ t Sipuni yaling'ono imodzi ndi theka	1 T Sipuni yaikulu imodzi
4. Mafuta Ophikira	1 t Sipuni yaling'ono imodzi	1 t Sipuni yaling'ono imodzi kapena kuchepera theka	1-2 t Sipuni yaling'ono imodzi kapena iwiri
5. Madzi	Kapu yaling'ono (250 ml) imodzi 1 c (mazana awiri ndi mphambu makumi asanu)	1 ½ c Kapu yaling'ono (250 ml) imodzi kapena kupitirira apo	1 ½ - 2 c Kapu yaling'ono (250 ml) imodzi ndi theka kapena kupitirira apo
6. Mchere wa Iodine	Mchere pang'ono	Mchere pang'ono	Mchere pang'ono

KAPHIKIDWE KAKE:

- Sendani mbatata yanu yakholowa kapena yakachewere ndikuidula pang'onopang'ono.
- Thirani mbatata ya kholowa kapena yakachewere ndikuidula pan'onopang'ono
- Phikani kwa mphindi makumi awiri kapena makumi zitatu kapena mpakana mbatata yakachewere itapsya kapena kufewa
- Takasani mbatata yakholowa kapena yakachewere mpaka zitasakanikira bwini ndi kuseri kwa sipuni
- Ngati ndi yolimba kwambiri, thirani madzi pang'ono kuti lirimbwe moyenera mwana
- Thirani mafuta ophikira komanso masamba osinjasinja ndikuphika kwa mphindi ziwiri kapena zitatu
- Thirani mchere wa ayodini



Pictures & Recipes - healthy diverse family meals

SERVING PORTIONS FOR AN ADULT



Millet nsima served with roast beef, beans, green vegetables and guava juice

SERVING PORTIONS FOR AN ADULT



Ntakula (one pot dish of boiled maize, groundnuts, carrots) and an orange

SERVING PORTIONS FOR AN ADULT



Mbalagha (one pot dish of plantains, goat meat, green vegetables (chisosos) and an orange

SERVING PORTIONS FOR AN ADULT




Cassava flour (kondole) nsima served with small fish (kapenta), green vegetables and a tangerine

Farmer Field School Nutrition Handbook July 2015

Section 1: Integrating nutrition into farmer field schools	2
Section 2: Food and nutrition issues and solutions.....	6
Section 3: Crop growth and human growth.....	22

3 Crop growth and human growth

Monitoring and planning for our farm's health and productivity




- ❑ To make proper use of available resources, farms require planning so that there is efficient use of land, water, labour, time, money, and other resources.
- ❑ Farmers should aim at re-investing their financial resources to improve production.
- ❑ Planning farm activities in advance will help farmers ensure inputs are stored and purchased in a timely way.

Page 39 Nutrition Handbook for Farmer Field Schools

3 Crop growth and human growth

Monitoring and planning for our families' health and productivity



- ❑ It is important to plan and manage food in a household annually before production and after harvesting to ensure food sufficiency and minimize losses.
- ❑ If growing cash crops, ensure some land is reserved for food crops for family consumption or use the income from the cash crop to buy a variety of foods.
- ❑ Reserve enough food for household consumption before selling, trading, or giving it away.
- ❑ Preserve vegetables and fruits by drying under a shade or in a solar dryer. Process and preserve perishable foods like cassava and sweet potato into fours and chips (mokoko) when they are plentiful to reduce wastage.
- ❑ Reduce food wastage by cooking only enough food as the family needs.

Nutrition Handbook for Farmer Field Schools Page 40



Other Materials

Emergency Nutrition

February 2015

Final 2015 Jan 29
Page 1 of 10

Standard Operating Procedure for Nutrition in Camps

Guide 1:

General Population

1 Food Security = H

2 Foods Available

3 Meal Prepar

2. Foods Commonly Available in Malawi

There are wide a range of food options that are underutilized in Malawi. The foods below are just a few ideas taken from a larger list of 600 foods available in Malawi! Use the list to improve:

- Your own gardens, farms, businesses and meals at home.
- Food assessments in your home, community or area.
- Food diversity you share with others (Food Basket or Ration)
- Agriculture Input diversity provided for Recovery

Learn more about the foods in your area and share the knowledge with as many people as you can. Talk to:

- Community Elders, Diverse community (males, females, different ages have different knowledge)
- Extension staff knowledgeable in: Agriculture, Forestry, Nutrition, Culture, Fisheries

- 1. Staples Food Group**
Daily eat about 250 g cereals plus 250 g starchy tubers/fruits.
Always take care to know what you are eating. Almost every year people die in Malawi from eating the wrong tuber - Know your local foods!

Cereals	Starchy Tubers / Fruits
1. Millets (Mawere, Lipoko, Machewere)	6. Yam (Chilazi mpama)
2. Rice (Mpunga)	7. Coco Yam (Coco)
3. Sorghum (Mapila)	8. Cassava (Chinangwa)
4. Wheat (Tirigu)	9. Banana/Plantain (Nthochi yayiwisi)
5. Maize (Chimanga)	10. Air Potato (Chinkhowe)
	11. Sweet Potato (Mbatata)
	12. Water Lily (Chikolowa)
	13. Potato, Irish (Kachewere)
	14. Kaffir Potato (Buye)

AIM FOR:

- Indigenous and/or perennial (trees, shrubs & vines) they are more resilient through floods & drought.
- Quick maturing for quick recovery.

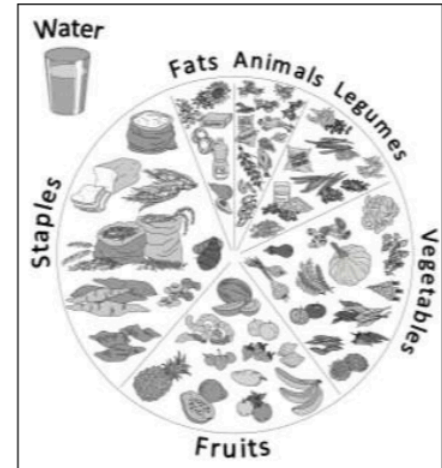
1. Food Security = All Food Groups Every Day

1) Food Security

When people think of food security they often only think of the Staple food group, but that's not true! Thinking of only staples creates problems with food security, nutrition, environmental health and our finances, too. We need to start thinking of Food Security as "All Food Groups Every Day".

2) Six Food Groups

In 1999, Malawi released a food guide poster and community nutrition manual to guide food choices at different stages of life. The poster and manual are currently under revision. For a few ideas on what might be available in your area from each food group, see the next page "Foods Commonly Available in Malawi". There are more than this - keep adding to the list!



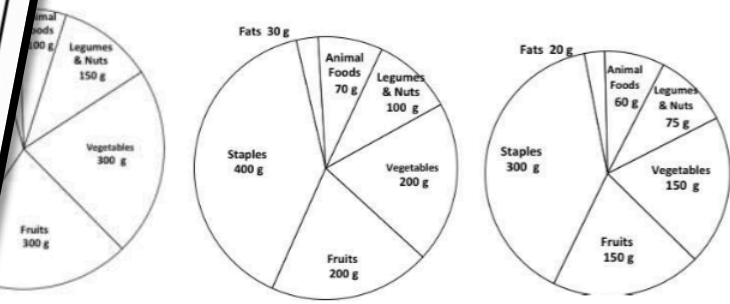
3) How much should I eat?

Many people eat too much from the Staple food group and not enough of the other food groups. To have the best nutrition you need to have a balance from the food groups – like in the picture and listed in the table. A larger circle (more food) – but the balance stays about the same.

Amount of Food needed in A day:

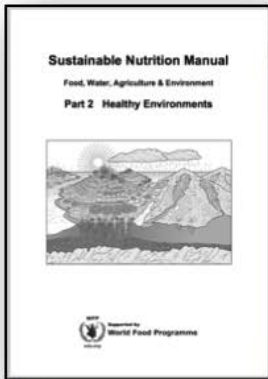
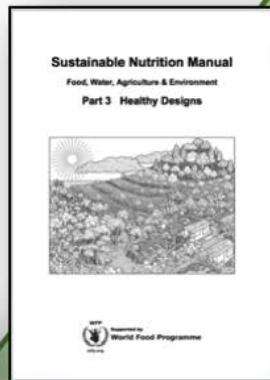
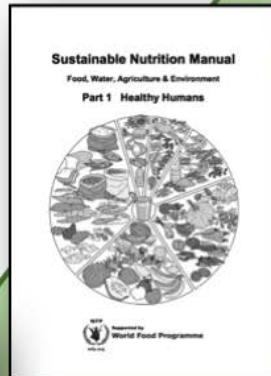
Food Group	Adult 2,100 kcal	Primary 1,600 kcal	Pre School 1,200 kcal
1. Staples: Grain: Tubers & Fruits:	250 g 250 g	200 g 200 g	150 g 150 g
3. Fruits	300 g	200 g	150 g
2. Vegetables	300 g	200 g	150 g
4. Legumes & Nuts	150 g	100 g	75 g
5. Animal Foods	75 g	70 g	60 g
6. Fats & Oils	50 g	27 g	20 g
Water	2-4 L	2-3 L	1-2 L
TOTAL amount:	1.4 kg	1 kg	0.7 kg

Primary School Child 1 kg about 1,600 kcal
Pre School Child 0.7 kg about 1,200 kcal



Sustainable Nutrition Manual

Second Edition
June 2016

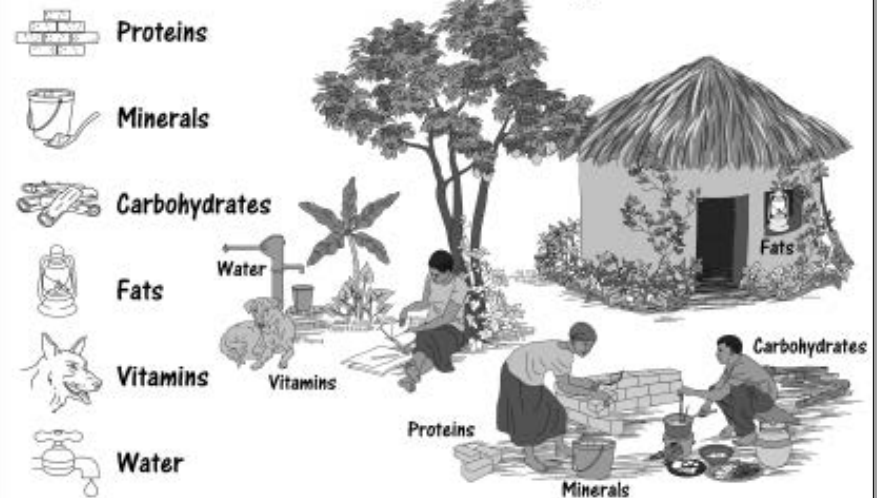


Creative Commons download at:

<http://www.neverendingfood.org/sustainable-nutrition-manual/>

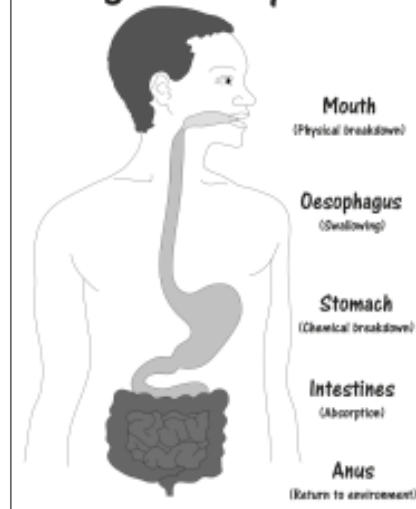
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Nutrient Village



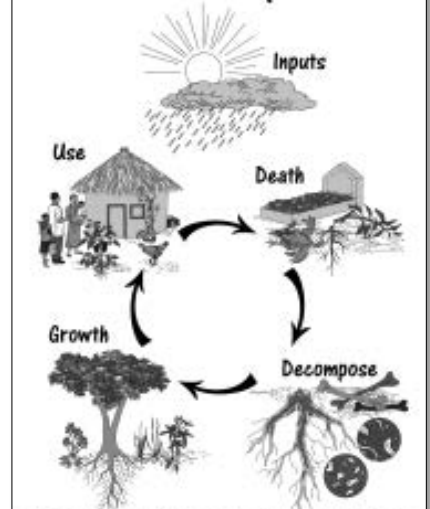
1

Digestive System



3

Nature Cycle



Malawi is Rich!

Produce & Eat all food groups

Staples



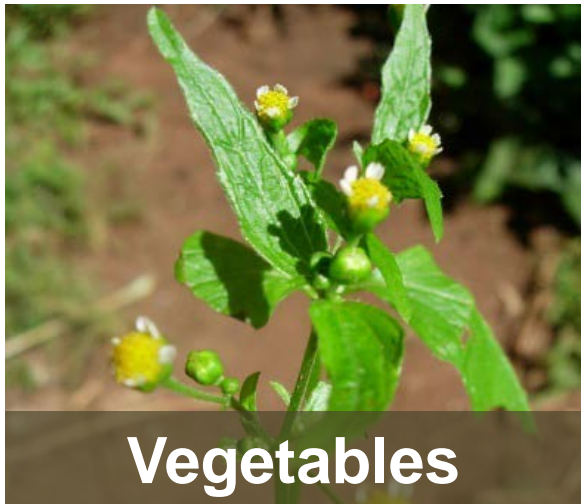
Fats



Fruits



Vegetables



Animal Foods



Legumes & Nuts

