

The Food System in Bangladesh

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Food System

- **Food systems** encompass all *people, institutions and processes* by which agricultural products are produced, processed and brought to consumers.
- They also include the **public officials, CSOs, researchers and development practitioners** who design the policies, regulations, programs and projects that shape food & agriculture (FAO “State of Food and Agriculture 2014)

<http://www.fao.org/publications/sofa/en/>)

Policies around food system

- Prepared `Perspective Plan of 2021`
- Delta Plan for 100 Years (2030, 2041 & 2100) (water management)
- Voluntary review of SDGs by different ministries, being led by GED, Planning commission
- National Food Policy (2006)
- National Food Policy Plan of Action – NFP PoA (2008-2015)
- Country Investment Plan II
- National Social Security Strategy (NSSS)
- Climate Change Financing Plan

Stylist Facts

Foodgrain Demand

- Low income group category consumes **2062** kcal/day of which 83% is covered by the grain crops.
- Medium & high income groups consumes **2324** kcal and **2527** kcal of which 80% and 74% respectively comes from the grains.

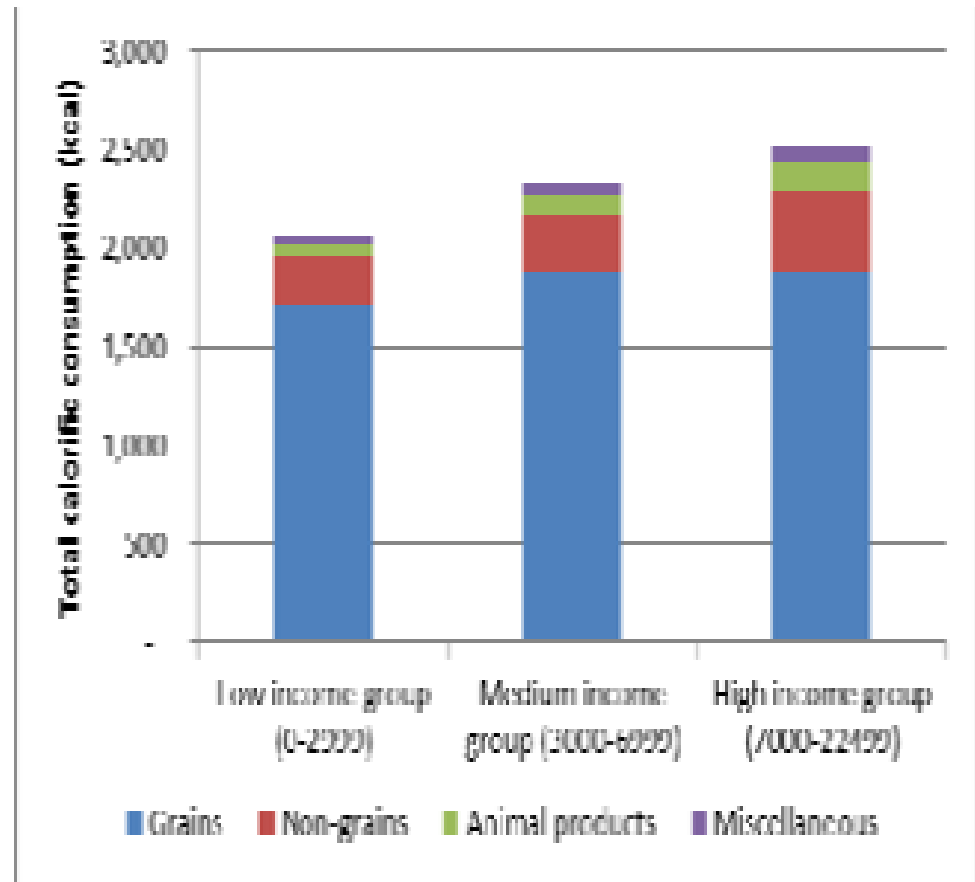
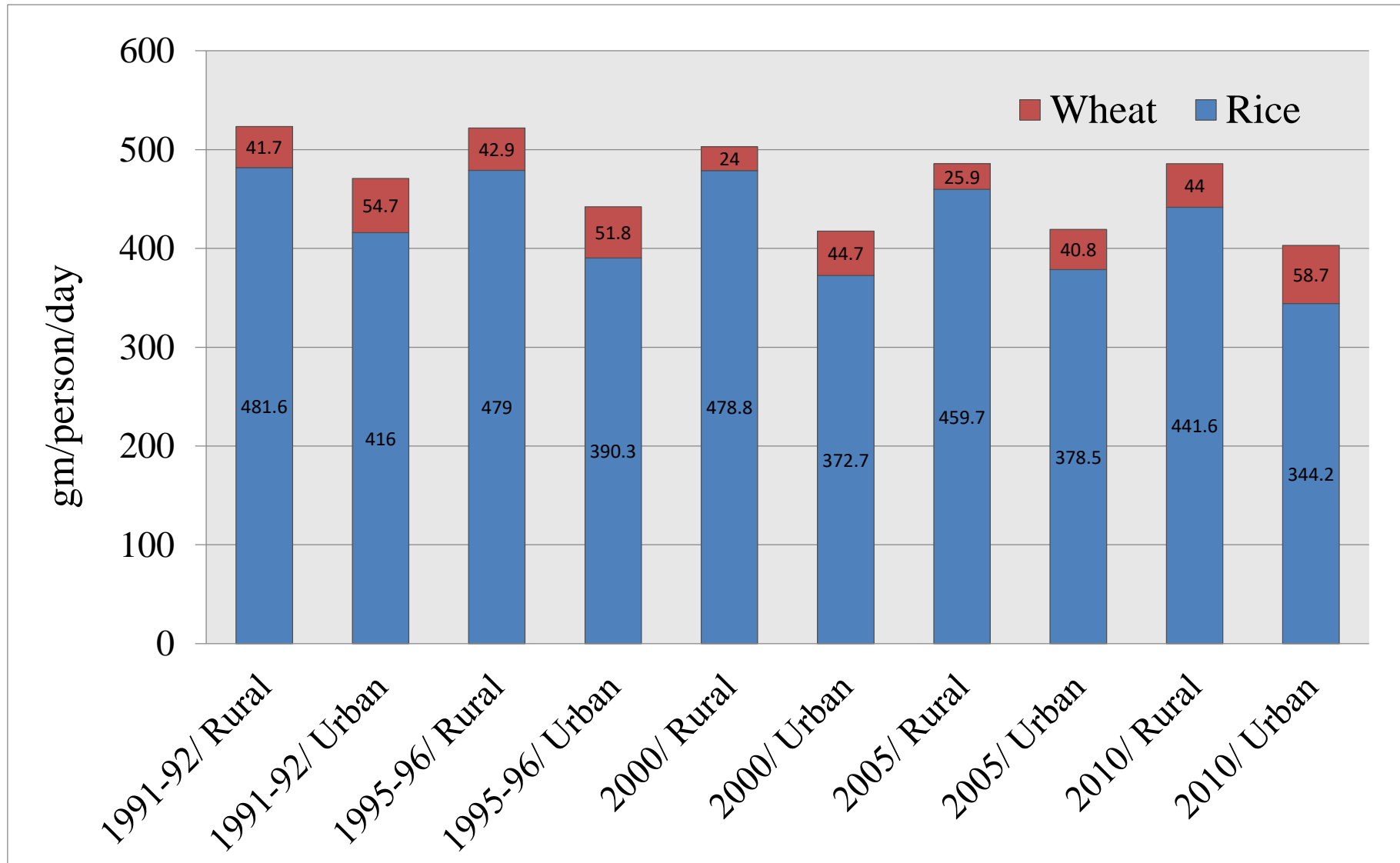
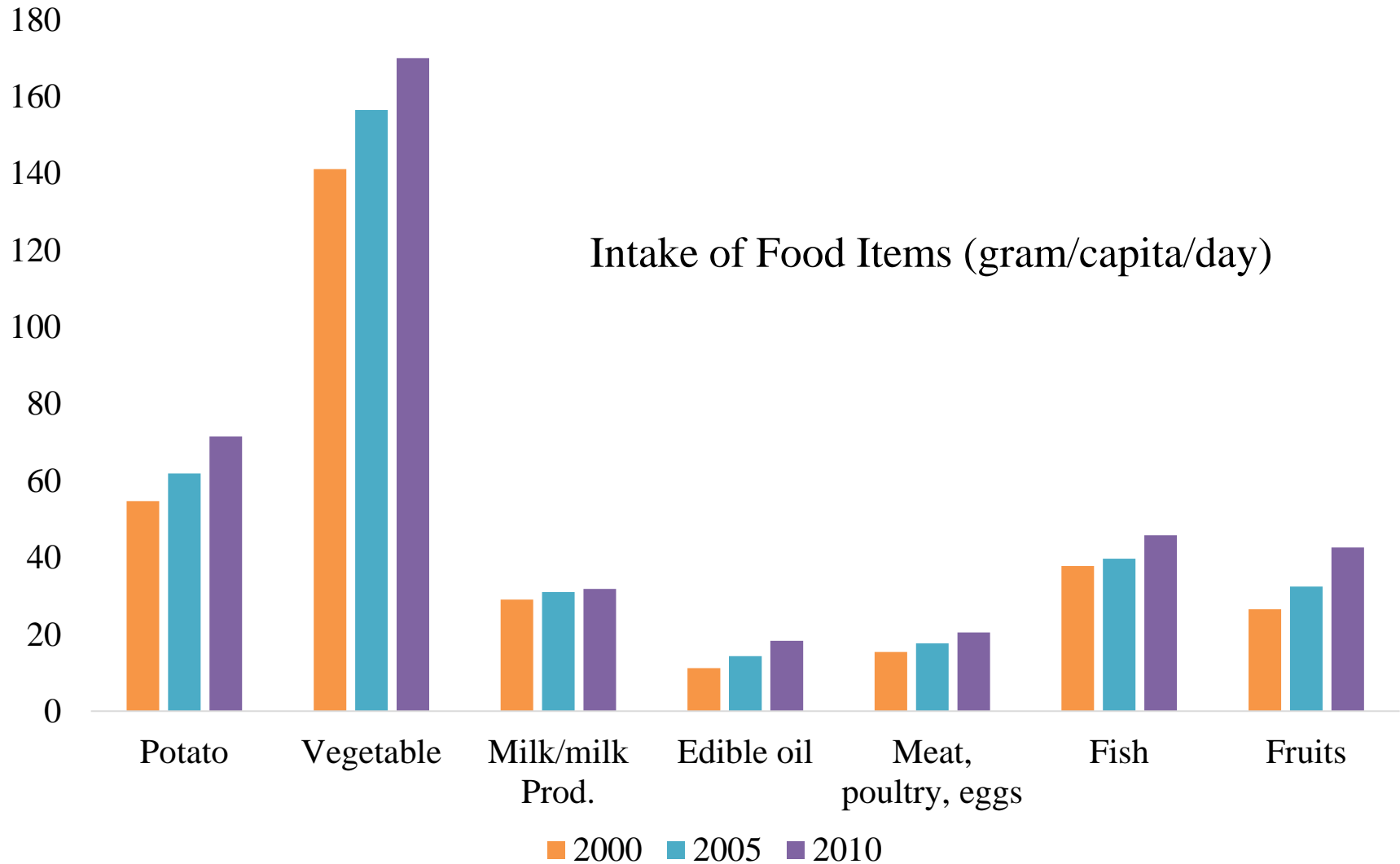


Figure : Consumption of different major category of food items disaggregated by different income groups

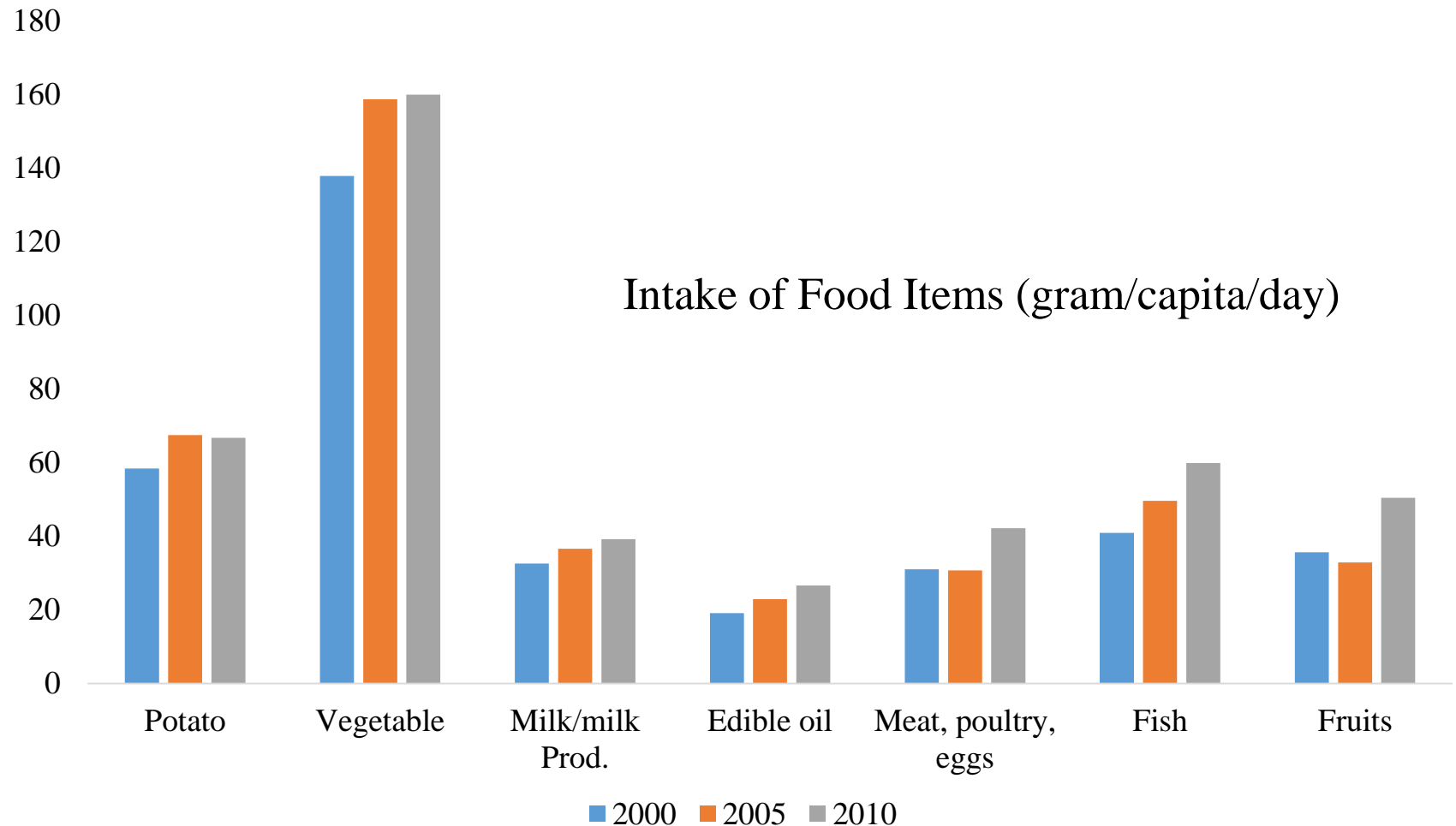
Per Capita Consumption of Foodgrain



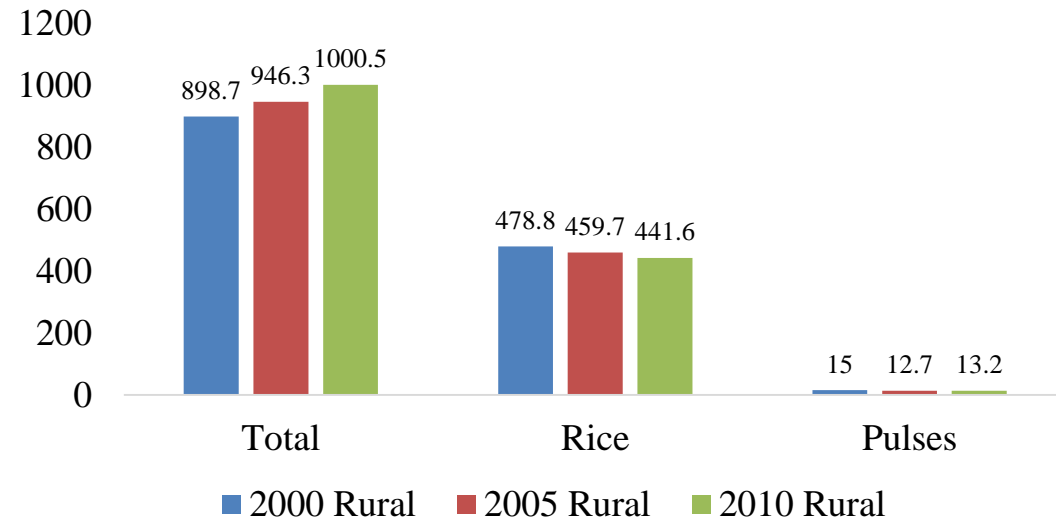
Food Consumption Trend – Rural Households



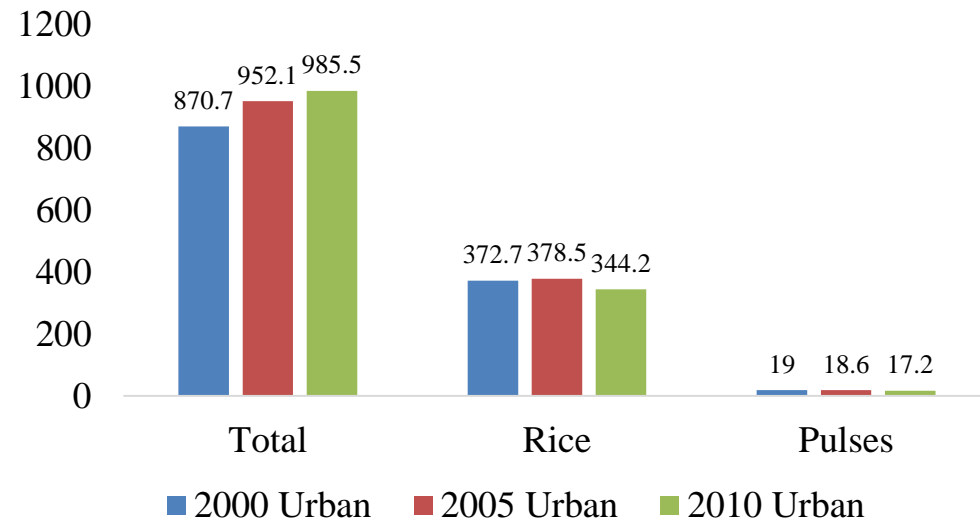
Food Consumption Trend – Urban Households



Food Consumption Trend – Rural & Urban



Intake of Food Items
(gram/capita/day)



Food Demand Projection Upto 2050

- Total demand for rice in 2050 will rise by **56%** from the base (2005) & other cereals like maize & wheat will be increased by ≥ 10 times.
- Fish & meat demand will increase by **150%**.
- Potato which can be expected to act as a substitute of rice will be increased by more than **200%**
- Milk & egg will be increased by more than **500%** and **200%** respectively.

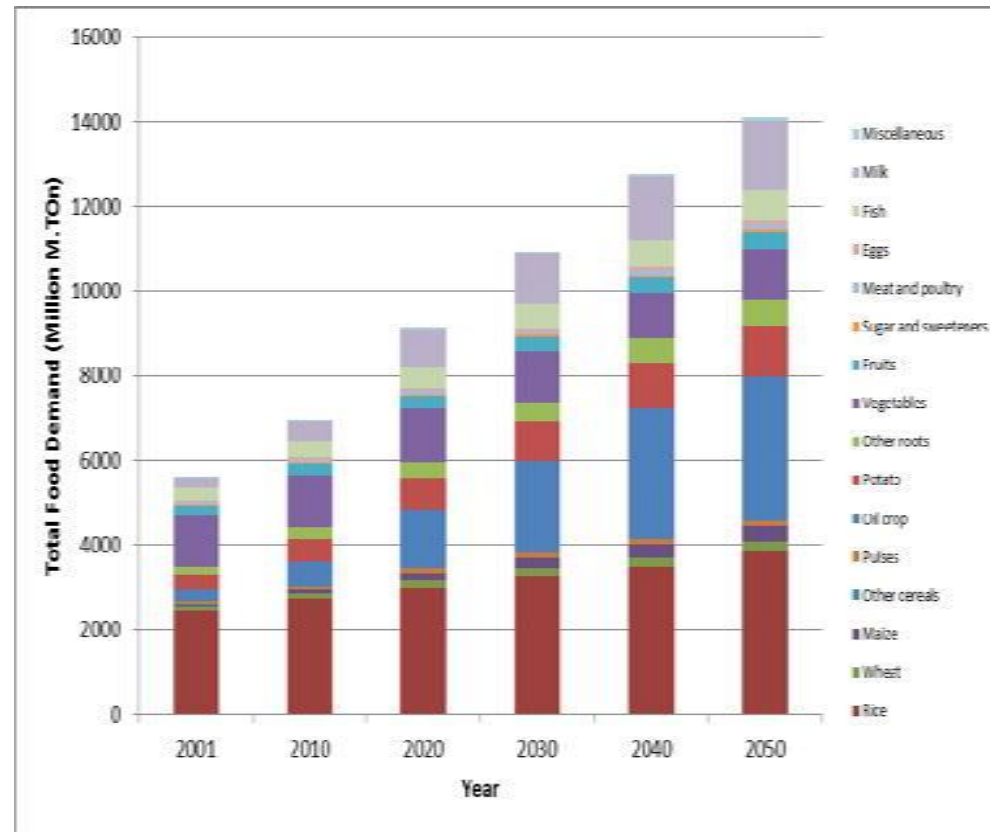


Figure: Total food demand up to year 2050

Processed Food Consumption

- Diet diversification - animal origin food such as egg, meat, milk and processed animal foods than cereals.
 - Share of processed (low & high) food is as high as 59% in rural Bangladesh & 70% in urban Bangladesh

Supermarkets

- Retailing & wholesaling contributing about 15% to total GDP
- Annual turnover of the superstores is more than 1500 core (15 billion) with a sales growth of 15-20% (Bangladesh Supermarket Owners Association)
- Supermarket turnover in food items is estimated at about 2% of food retailing.
 - ✓ First superstore established in 2001
 - ✓ 30 companies more than 200 outlets (*Menna Bazar, Swapno, Agora, Nandan, Prince Bazar, CarreFamily, Mart, Bangladesh Rifles, etc.*)

Micro-nutrient Status

- Major micronutrients deficiency - Vitamin A, Iron, Zinc & iodine

Vitamin A

- VAD - 20.5% in the preschool age children
- Prevalence in the school age children in the slums is 27%.

Anemia & Iron deficiency

- Prevalence of anemia in the preschool age children - 33.1%.
- Prevalence of iron deficiency in the preschool age children - 10.7%

Source: A survey, in collaboration of ICDDR, B, UNICEF, Bangladesh, GRAIN & IPHN (2011-12).

Micro-nutrient Status

Zinc deficiency

- Prevalence of zinc deficiency - 44.6% in the preschool age children.
- Of the total consumption majority comes from plant origin.

B12 and folate:

- Prevalence of folate deficiency is 9.1%.
- B12 deficiency is 23.0%.

Iodine:

- Prevalence of iodine deficiency - 42.1%.

Food Safety Remains a Concern



Food in Bangladesh: Adulterated or tainted with toxic chemicals



Bread
SUB-STANDARD YEAST
Diarrhea, vomiting, allergy



Egg
CIPROFLOXACIN
Diarrhea, vomiting

Banana
● **ALDRIN**

Convulsions, loss of consciousness



Fish
FORMALIN
Bronchitis, cancer risk

Lettuce
● **GAMMA BHC**
Cancer, respiratory failure



Bean
● **BETA BHC**
Respiratory damage



Pineapple
● **ETHION**
Respiratory problems

Carrot
● **DDT**
Cancers, birth defects



Tumeric powder
LEAD AND CHROMIUM
Respiratory problems, neurological damage



Tomato
● **ETHION**
Respiratory problems



Chicken
● **CIPROFLOXACIN,**
● **SULFONAMIDE**
Diarrhea, skin rash, vomiting



Capsicum
● **GAMMA CHLORDANE**
Liver, digestive and nervous system damage



Rice
ARSENIC, CHROMIUM
Skin, lung, bladder & kidney cancers, respiratory problems



Dried fish
● **DDT**
Cancers, birth defects



Milk
● **ALDRIN/FORMALIN**
Convulsions, Cancer risk



Apple
● **ALPHA CHLORDANE**
Blood cancers like leukemia and lymphoma

● PESTICIDE/INSECTICIDE ● ANTIBIOTIC

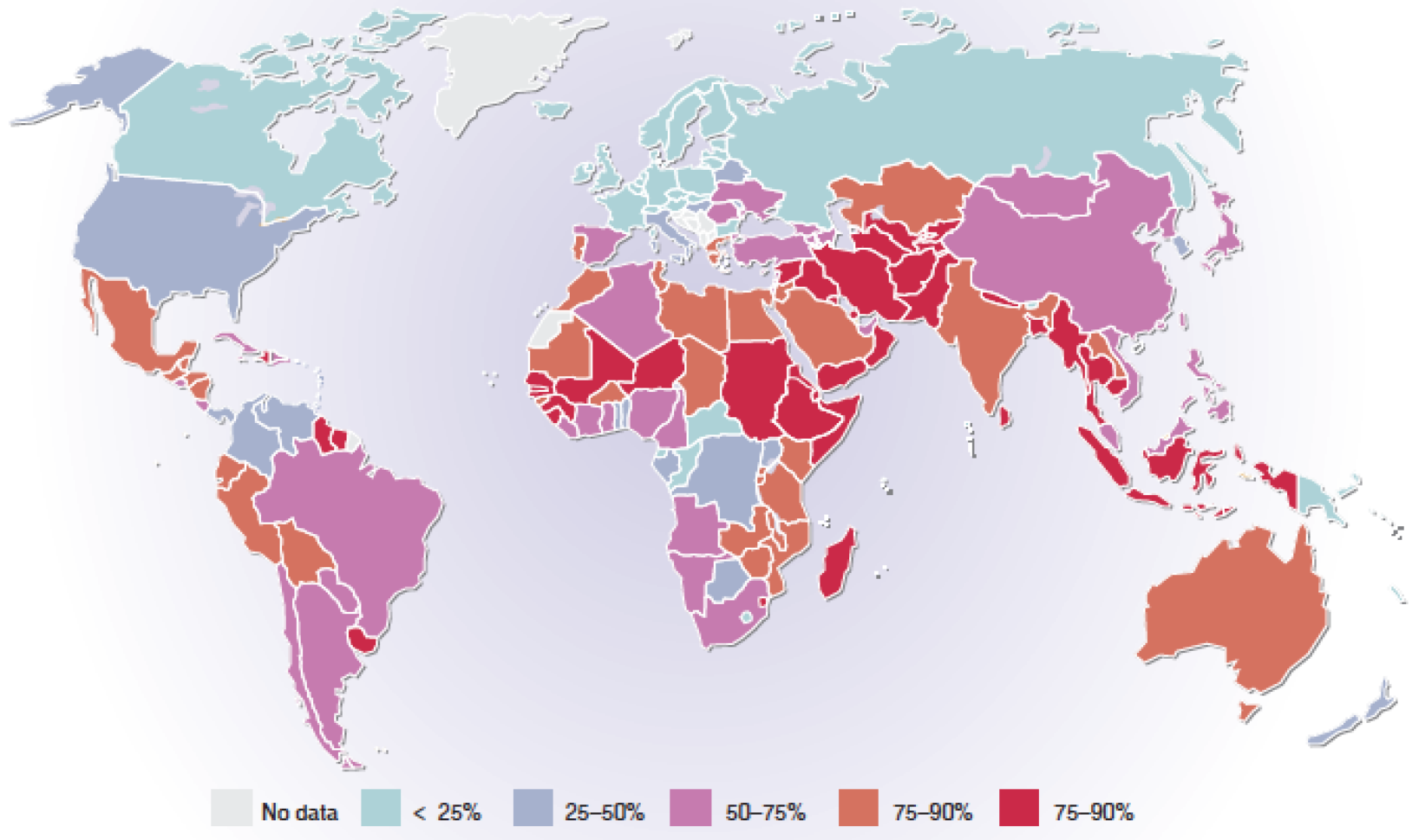
SOURCE:
ACCUMULATED FROM STUDIES OF
NATIONAL FOOD SAFETY LABORATORY,
BANGLADESH FOOD RESEARCH INSTITUTE
& U.S ENVIRONMENTAL PROTECTION AGENCY

Street Foods

- Street foods play an important role - to the lower & middle income people.
- Almost half of the capital`s population are used to eat in the street food shops
 - ✓ Foodborne diseases
 - ✓ Food poisoning



Percentage of water withdrawal for agriculture

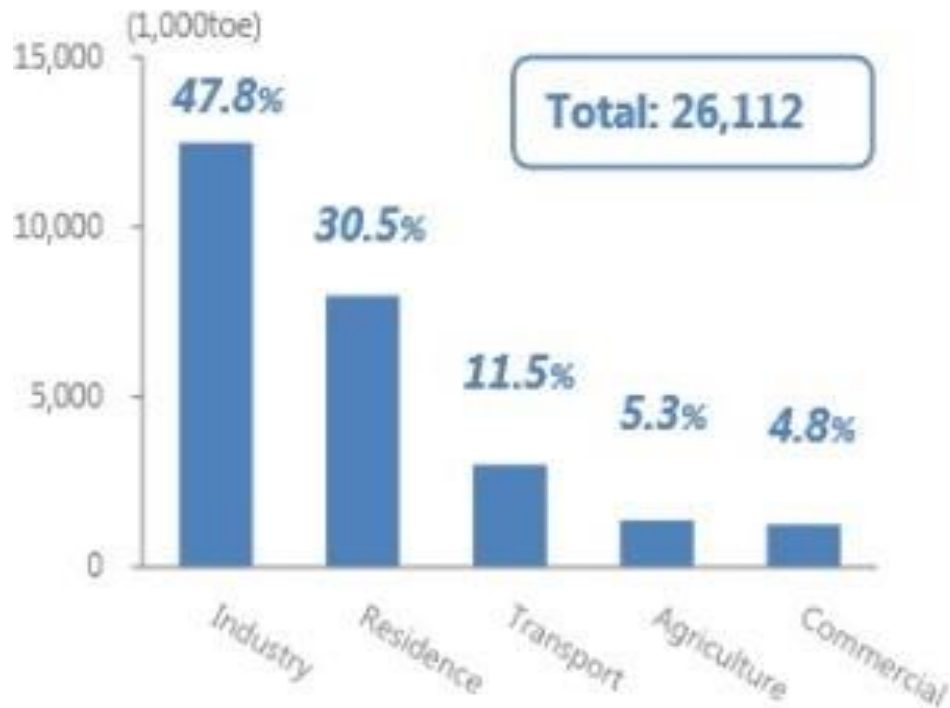


No data	< 25%	25-40%	40-60%	60-75%	75-90%
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Energy & Food System

- Food system **has become increasingly dependent on fossil fuel inputs**
- **Intensive agriculture consumes large amounts of energy.**
- It is sensitive to energy prices -
 - Direct energy consumption through combustion of fossil fuels for farm machinery and electricity for irrigation and other equipment.
 - Energy-related inputs, especially to manufacture fertiliser & pesticides
- Processed food prices are affected by energy costs

Energy Demand: Present Scenario

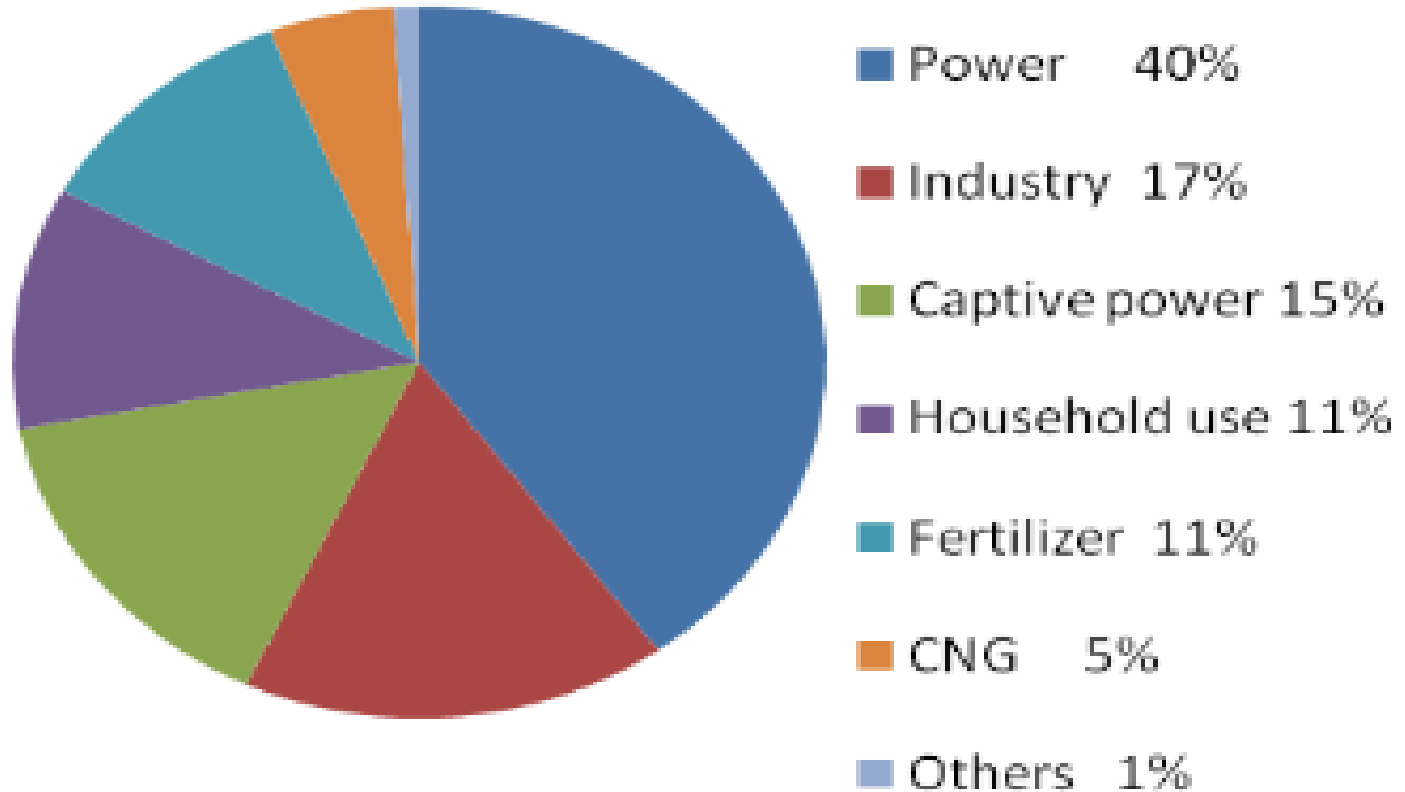


- Notes:
1. Primary energy basis: excluding biomass
 2. Electricity: 2,867kcal/kWh (thermal efficiency 30% basis)

Source: Compiled by JICA Project Team based on the following data;
Electricity: 2013-14, Power Cell, Power Division, Ministry of Power, Energy and Mineral Resources | Gas: 2013-14, MIS of Petrobangla, Oil: 2012-13, BPC, | Coal:2012, IEA

Source: JICA study, 2014

Natural Gas Consumption



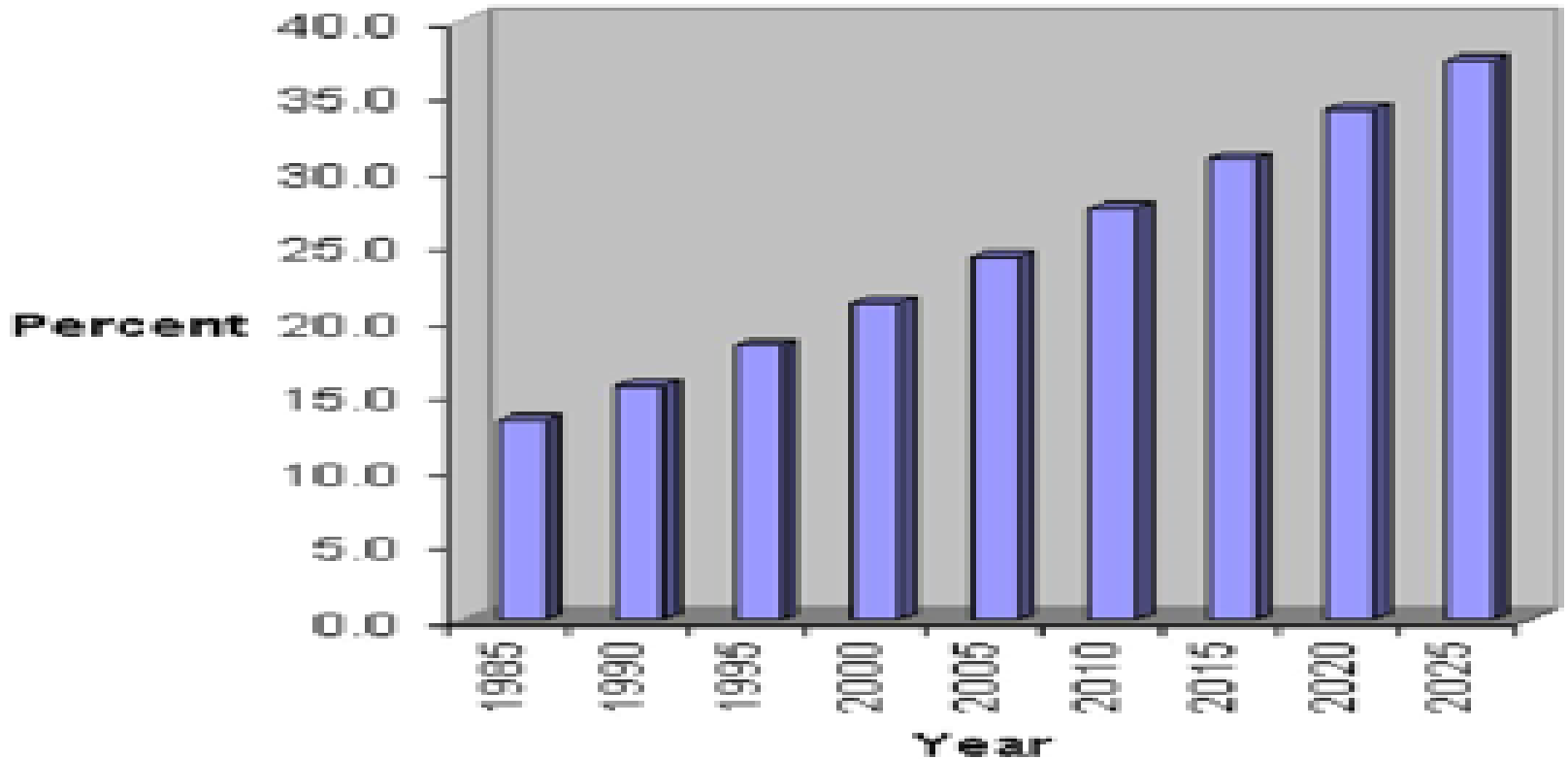
Source: JICA study, 2014

Population & Urbanization

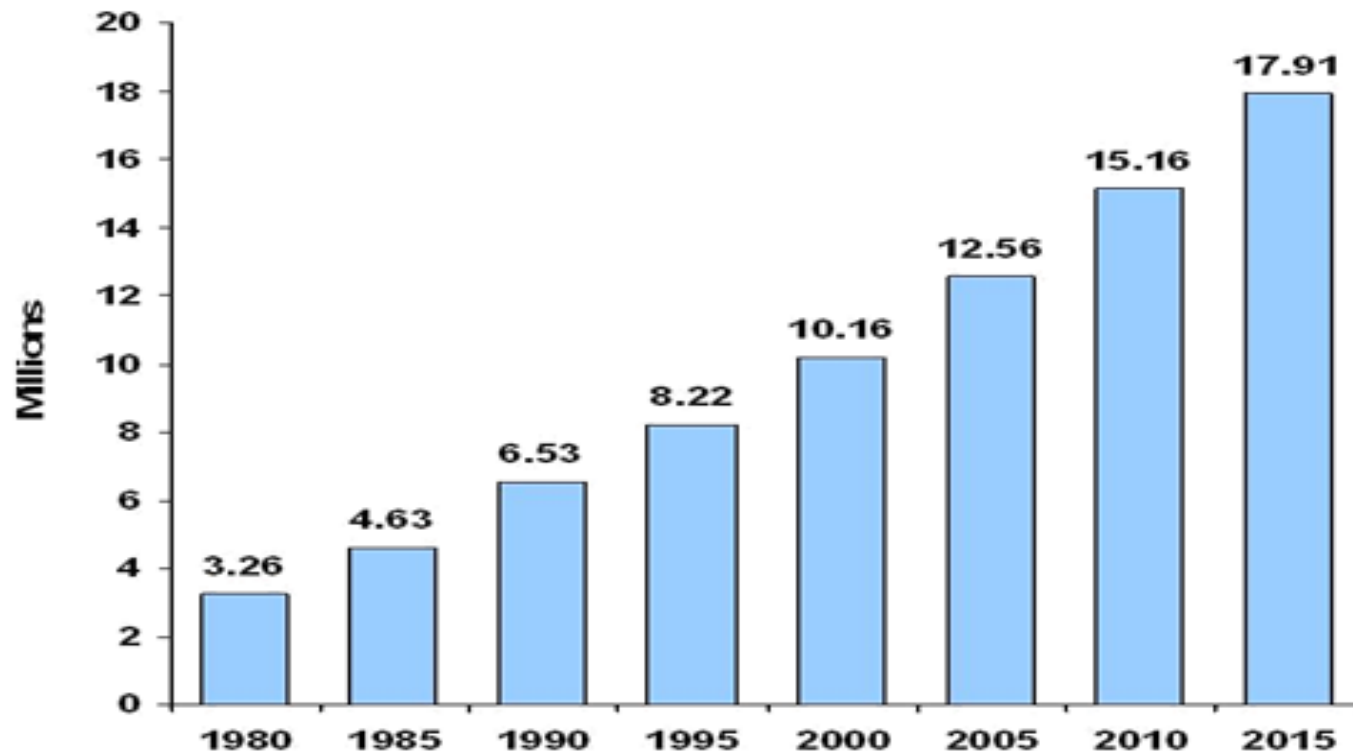
- World's seventh most populated country & also one of most the densest.
- Urban population has been growing at a yearly average rate of 6% since independence, at a time when the national population growth was 2.2%.
 - Result - urban population has grown six-fold, compared with a 70% increase in rural population.
- UN data - currently approximately 25% of current population currently lives in urban areas.
- Population density is now believed to have reached around 34000/sq km, making Dhaka amongst the most densely populated city in the world.

Urbanization

Urbanization level(Bangladesh)



Population Growth of Dhaka Megacity 1980-2015



Source: World Urbanization Prospects: The 2003 Revision, UN_

Congestion due to Urbanization

- People moving from rural settlement to a city or to a densely populated area calls urbanization.
- People move to cities for various reasons - Job, education, health care, entertainment etc. are the pull for urbanization.



Changing Supply of Food

- Bangladesh has more than tripled food grain production since independence
- Cropping intensity averages 240% across the country
- Fourth largest aquaculture producing country in the world
- Semi-industrial poultry farming for eggs and meat has increased substantially in the past 15 years
- Production of maize, as a component of poultry feed, has increased from a very low level to over 1.5million MT per year.

Threats in Food Production

- Production of food will be affected by
 - Scarcity of good quality agricultural land
 - Availability of sufficient water resource
 - The tightening of the agricultural labour market
 - Climate variability and long term climate change
 - Drainage and salinity.

Is Current System Sustainable?

- *Currently focusing more on how to produce more? & away from what's wrong with the system (why & more of what?).*
- *Food systems skewed toward 'bad' calories, unsustainable natural resource use i. e ground water*

What are the challenges?

- Continuing demand growth
- Population growth
- Urbanisation
- Malnutrition
 - ✓ Under-nutrition
 - ✓ Obesity & over-nutrition
 - ✓ Deficiency of micro-nutrition
- Pressures on agriculture
 - ✓ Water scarcity
 - ✓ Competition for land & soil degradation
- Resilience to shocks
 - ✓ Climate change

What are the current challenges (contd.)?

- Irrigated land : 56%
- Surface water: 21% and groundwater: 79%
- Drought problems in the north-western region of the country
- Lowering ground water in the dry season
 - ✓ More irrigation means more electricity
- Excessive use of fertilizers – soil fertility and human health
- Less land more production – deteriorating soil fertility
- Land loss is generally put at around 0.4% per annum (it rises to 0.72% when considering loss of prime crop land only).

Driving Forces

- Rapid urbanization and population growth
- Rise in income of the middle class
- Diet diversification
- Consumption preference
- Time allocation at home – increasing employment of women
- Demographic trends (more young people)
- Changes of family structure
- *Technological innovation in food processing*
- *Expansion of physical infrastructure (i. e., paved road, storage etc.)*
- *Climate Change*

Use of Food System Analysis to

- Improve food security – access, availability, utilisation, stability?
- Improve health and nutrition?
- Improve livelihoods?
- Reduce impact on environment?
- Conserve natural resources?
- Adapt to climate change?
- Improve efficiency and inclusiveness?
- ??

FAO Project

Of EKN

- Support for development of the safe, sustainable & resilient food system for Dhaka City

<http://www.fao.org/bangladesh/news/detail-events/en/c/1149681/>

- Project aims to develop a safe, sustainable and resilient food system for Dhaka metropolitan area through an iterative action learning approach.
 - ✓ This will be achieved through development of the systems model on food distribution, development of a strategic food agenda 2030 and interventions to improve the performance of the food system.
- Special emphasis will be placed on the role of women & poor peoples to explore & evaluate alternative strategies to improve access to safe, healthy, nutritious food.

Thanks