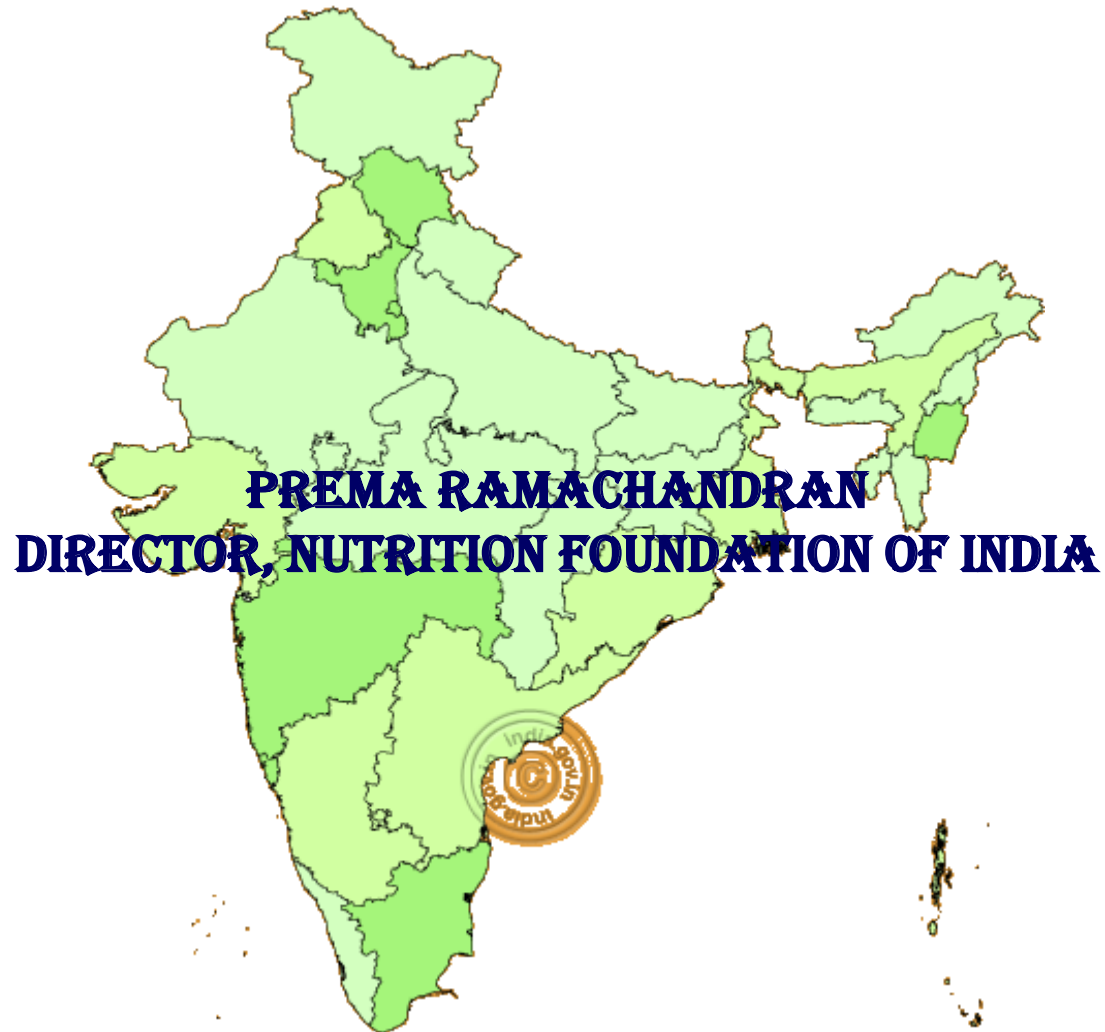


CLIMATE CHANGE AND FOOD SECURITY



**NPCCHH- ONLINE TRAINING COURSE
12.08.2021**

CHANGING CONCEPTS ABOUT FOOD SECURITY

In the 1950s and 1960s food security was defined as consuming sufficient protein and energy (food quantity).

In the 1980s the importance of micro-nutrients for a balanced and nutritious diet (food quality) was recognised .

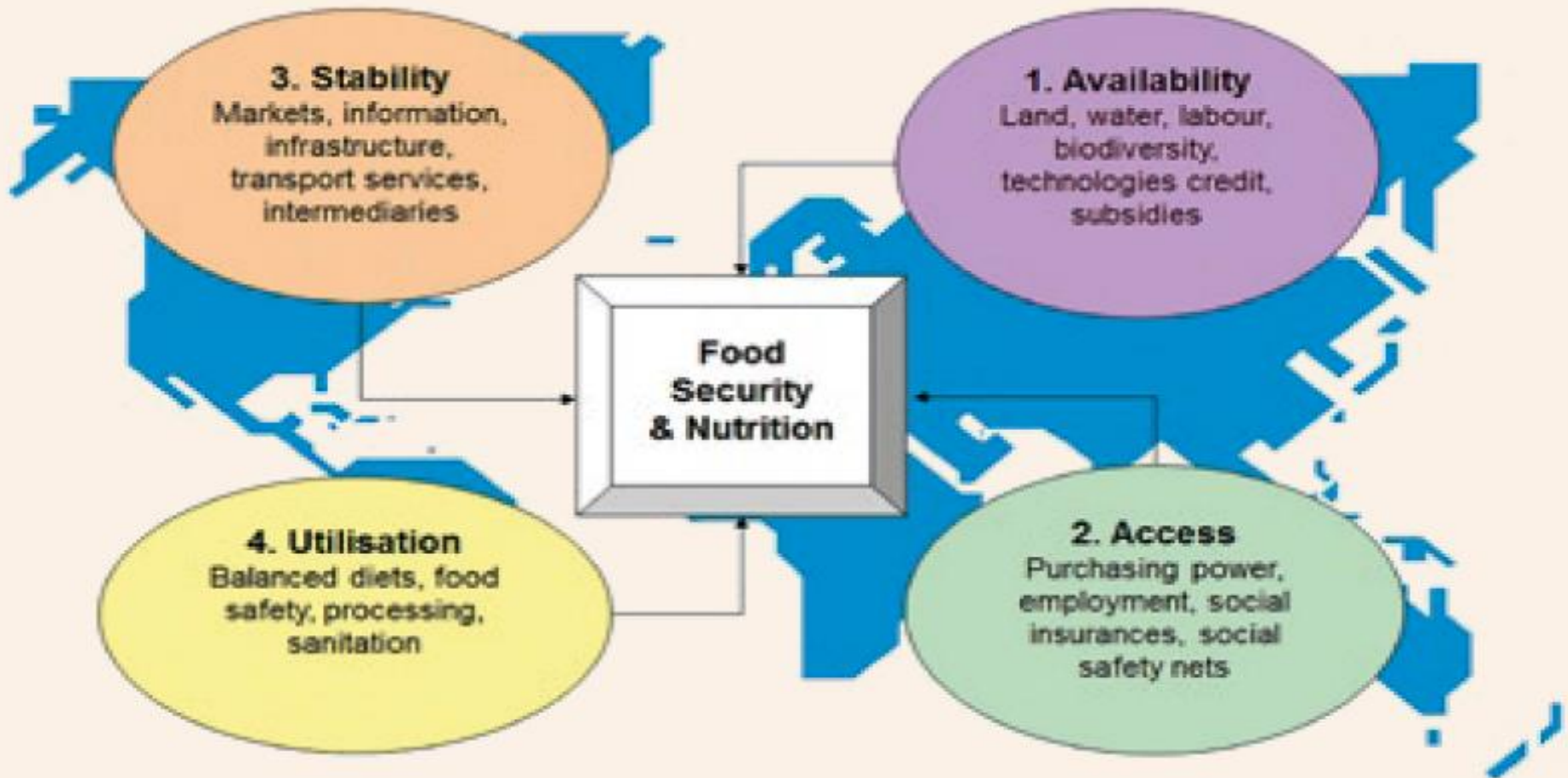
Problems in absorption of nutrients (eg diarrhea), or excessive loss of nutrients (eg respiratory infections) can adversely affect food utilization even if adequate amounts are consumed .

The third dimension– food utilization has become increasingly prominent in food security discussions since the 1990s.

Food security is important as determinants of nutrition and health status.

WORLD FOOD SUMMIT 1996 : REDEFINING FOOD SECURITY

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



DIMENSIONS OF FOOD INSECURITY

Food insecurity may be Acute or chronic

Acute food security is usually associated with natural or man made disaster. Severe and prolonged acute food insecurity (famine) is life threatening and requires energetic and effective interventions

Chronic food insecurity can be

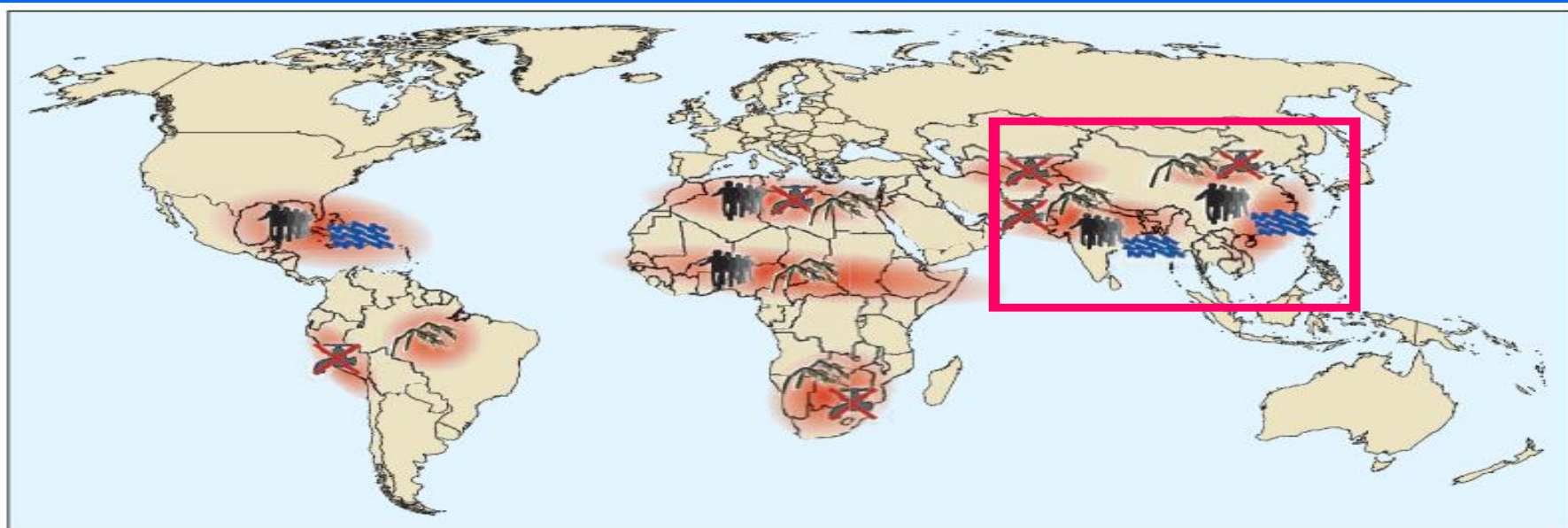
- **transient** ie short term and temporary (eg during drought) , or
- **long term and persistent** (eg poverty in marginalized population groups)

Food insecurity results in inadequate food consumption

Persistent chronic food insecurity and low food consumption results in undernutrition and micronutrient deficiencies

CLIMATE CHANGE AND FOOD SECURITY – GLOBAL SCENARIO

Hotspots of security risks associated with climate change: Asian challenge



Conflict constellations in selected hotspots



Climate-induced degradation of freshwater resources



Climate-induced decline in food production



Hotspot



Climate-induced increase in storm and flood disasters



Environmentally-induced migration

WBGU, 2007

Climate change can reduce fresh water resources and food production

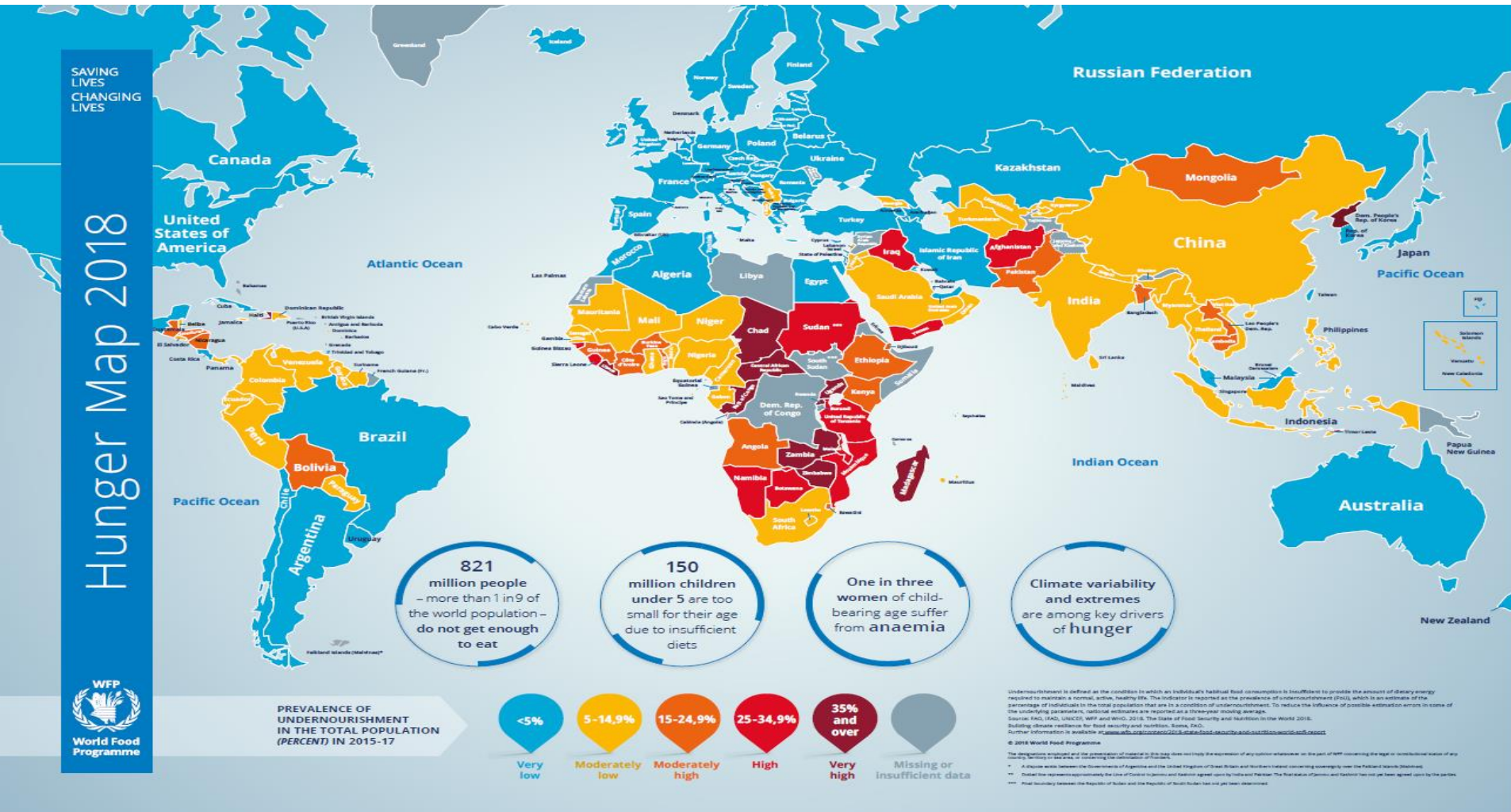
Climate change induced natural calamities can cause acute food insecurity

Increase in drought may lead to agricultural labour migration, joblessness and persistent food insecurity.

In climate change scenario, Asia is one of the worst affected continents.

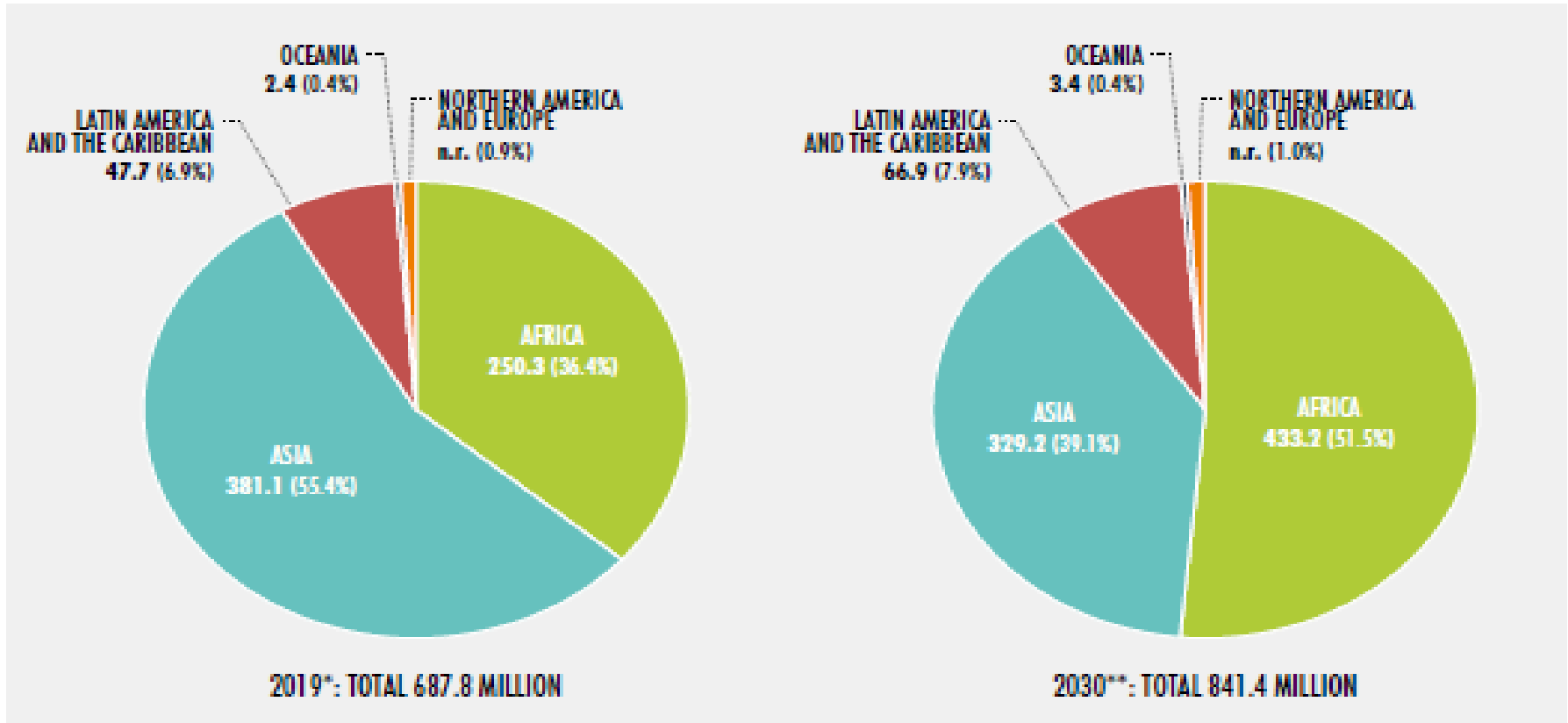
Because of the high population Asia will have highest proportion and number of persons suffering from adverse consequences of climate change

GLOBAL HUNGER MAP: WFP 2018



WFP grades India as having food insecurity below 15%
 Indians are short statured; majority are sedentary.
 Current average food intake is sufficient to meet their energy requirements ,but micronutrient needs are not met because of low vegetable intake .

PROJECTIONS OF UNDERNOURISHED PERSONS BY 2030 (FAO 2020)



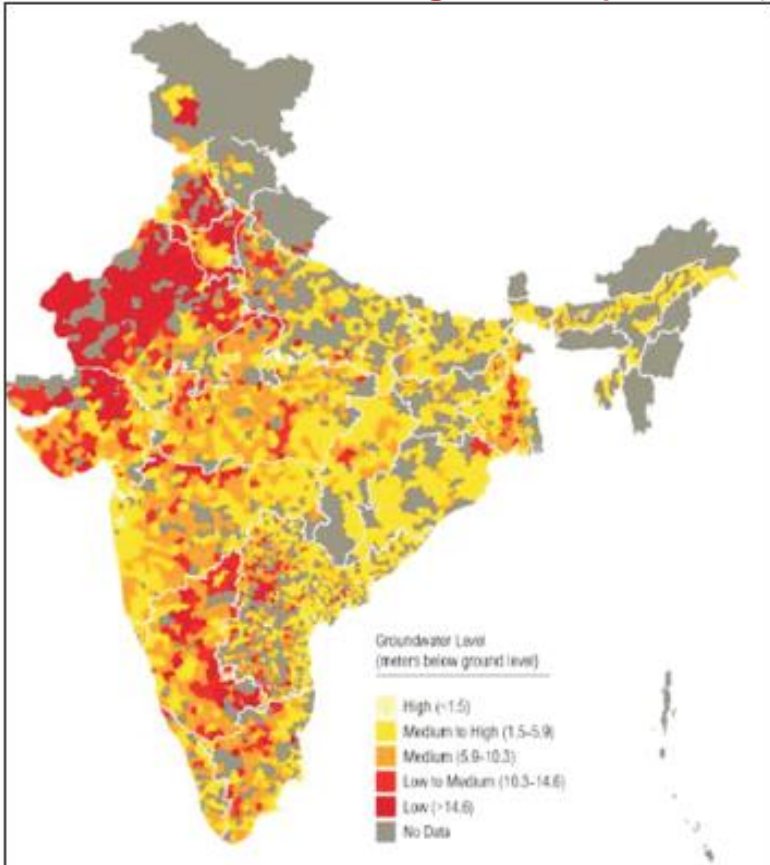
If the recent trends in food insecurity and undernourishment persist, there will be substantial changes in the regional distribution of undernourished persons over the next ten years

In 2030 the share of Asia in undernourished persons will come down from 55% to 39%

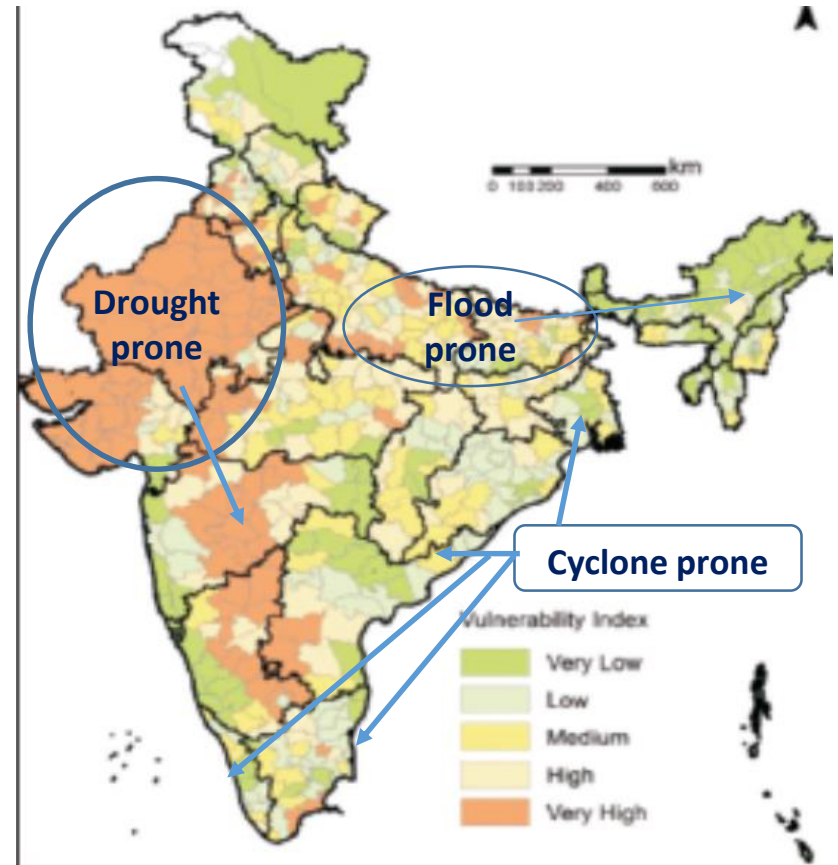
In 2030 51% of the undernourished persons will be living in Africa

CLIMATE CHANGE AND FOOD SECURITY –INDIAN SCENARIO

Water level below ground (meter)



Climate change & agricultural vulnerability



Indian agriculture is heavily dependant on monsoon

Scarcity of ground water in many parts of India can pose major threat to agriculture especially in drought prone areas western India and Deccan plateau - during monsoon failure

Gangetic plains and Assam are flood prone and acute food insecurity due to floods

Coastal areas in Bay of Bengal and recently even Arabian sea get hit by cyclones and people face acute food insecurity.

WHAT ARE MAJOR REPORTED CLIMATE CHANGES IN INDIA

Climate change can affect all four dimensions of food security: food production, food availability, food accessibility, food utilization and food systems stability.

Food production can be affected due to

- **Increase in max and min temperature in many regions of the country**
- **Increase drought in drought prone regions**
- **Increase in seasonal rainfall in some regions – decrease in other regions**
- **Delay and unseasonal rainfall in some regions**
- **Increase in extreme weather events - eg floods, cyclones**

Changes can be regional , seasonal or persistent .

Persistent effects have to be documented and efforts to mitigate adverse consequences have to be evolved, tested and implemented

Seasonal changes are difficult to predict

Catastrophic events require disaster management preparations

Climate change can indirectly affect nutritional status through :

- **Low food production affects availability and cost of food**
- **These result in food insecurity of vulnerable population, household or vulnerable individuals**

CLIMATE CHANGE FOOD SECURITY AND NUTRITION IN INDIA

Increase in drought prone areas will adversely affect cereal production and animal husbandry assets.

Increase in investment in pulse and millet cultivation in such areas can substantially mitigate the impact

Loss of livelihoods and purchasing power of rural poor due to climate change can adversely affect household food security and dietary intake; when persistent these may adversely affect nutritional status especially of the vulnerable groups.

In affected areas increasing non farm employment, focussed efforts to improve employment under NREGA, improvement supplementary feeding under ICDS and MDM can help mitigating the adverse impact on food security and nutritional status .

Unseasonal rains and increased humidity may increase post harvest losses and the chances of contaminations of produce such as aflatoxin in groundnut

Surveillance and monitoring for these are to be built up

CLIMATE CHANGE FOOD SECURITY AND NUTRITION

Climate change can affect all four dimensions of food security: food production, food availability, food accessibility, food utilization and food systems stability.

Food production

Impact of climate change on food production and food availability has been investigated extensively

**Increase in maximum and min temperature can adversely affect productivity
Delay in rainfall patterns may lead to delayed sowing reduce productivity
Unseasonal humidity and rainfall will increase pre and post harvest losses**

These cannot be prevented, but quickly detected through monitoring .

If there is a threat of sufficient magnitude to affect household food security , PDS should be geared up provide subsidised food to the families .

IMPROVING SUSTAINABLE AGRICULTURE AND FOOD SECURITY

IMPROVING SUSTAINABLE AGRICULTURE AND FOOD SECURITY

agricultural innovation



reduced ecological footprint

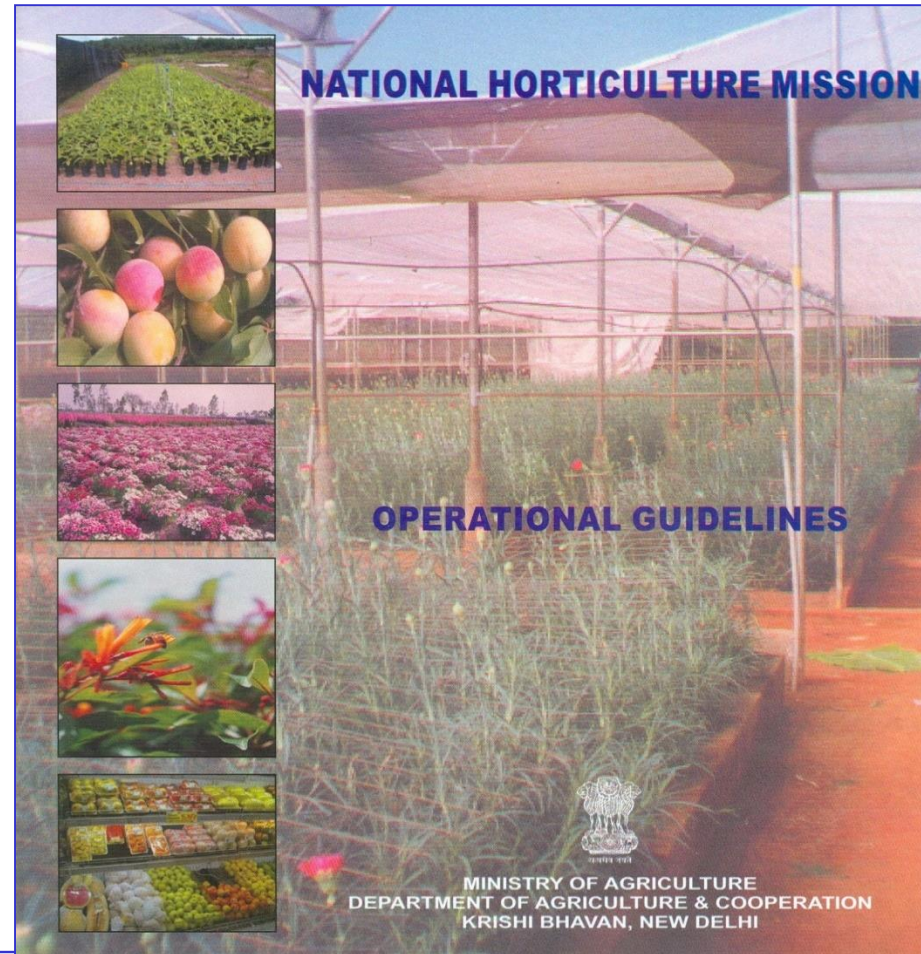
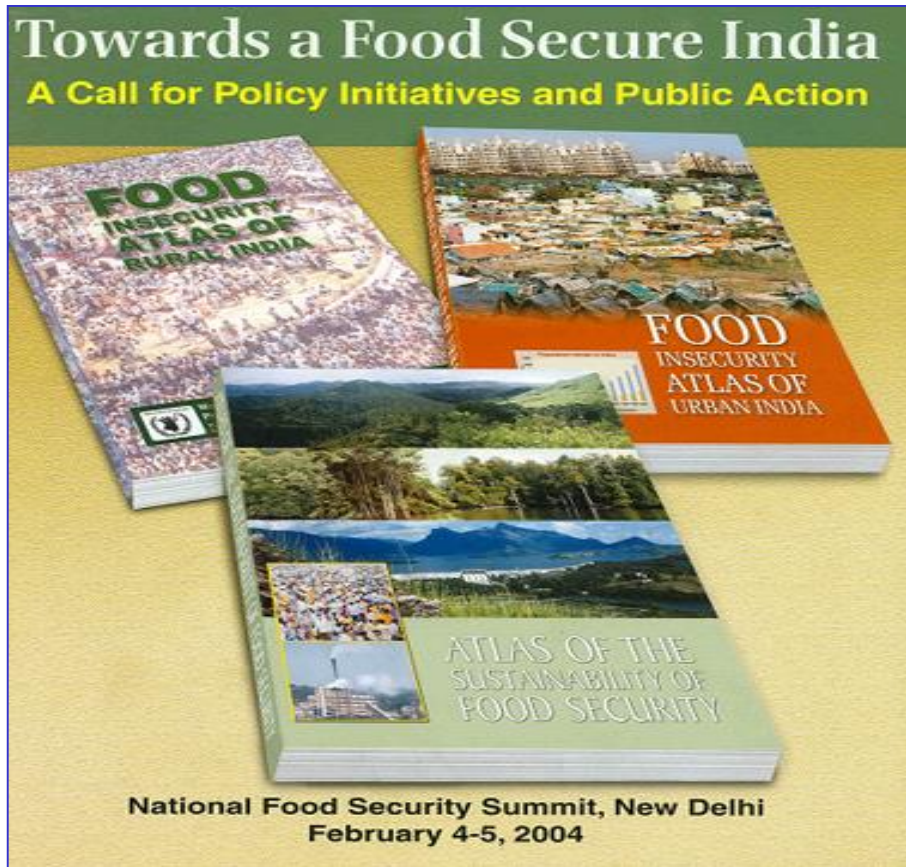


sustainably used agrobiodiversity



agricultural safety nets

INDIA'S EFFORTS TO IMPROVE FOOD SECURITY



The National Food Security Mission and National Horticultural Mission were set up for ensuring that all food stuffs needed for household food security and optimal nutrition at individual level are made available, accessible and affordable

WASTAGE REDUCTION: PROCESSING OF VEGETABLES BY DRYING (INDIA)



Sri Krishna
RICE PRODUCTS

Ponnagkanni Leaf

RICE POWDER

பொன்னாங்கன்னி கீரை சாதப் பொடி

Nutritional Information Each 100g contains	
Protein	17.14gm
Fibre	4.12gm
Fat	10.03gm
Gross Energy	423.90 kcal
Carbohydrate	52.95gm

100g

Ingredients: Ponnagkanni Leaf, Gram Dhal, Fried Gram, Asafoetida, Chilly, Urid Dhal and Salt

Recipe: Add small quantity of ghee or gingelly oil with required hot rice and then add required Krishna Ponnagkanni Leaf Rice Powder. Stir it for uniform blend with rice.

செய்முறை : குடான சாதத்தி
கேவையான அளவுக் கிருஷ்ண
பொன்னாங்கன்னி கீரை சாதப் பொடி
சேர்த்து நெய் அல்லது நல்லெண்ணெய்
கலந்து சாப்பிடவும்.

fssai
12415023000246

Marketed by
Sri Krishna Sweets & Food Products Chennai Pvt Ltd
No.7(23) , T.K.A Hall, Thiruvallur High Road, Madavilagam Village, Thirumazhisai, Chennai - 600124, Tamil Nadu.
Email: Customercare@srikrishnasweets.com

Toll Free No: 1800 102 2343

PRODUCT OF INDIA

Manufactured & Packed By:
Krishna Bhavan Foods & Sweets
402, Big Bazaar Street, Tiruchirappalli - 620 008.

8 4904165 903643

Keep your City Clean

NATIONAL FOOD SECURITY ACT

India is the first country in the world to provide subsidised food grains as a legal entitlement to over 67% of its citizens

The National Food Security Act aims to improve household food security through this entitlement .

Priority households are entitled to 5 kgs of foodgrains/person/ month.

The poorest of the poor (Antyodaya) households are entitled to 35 kgs/household/month.

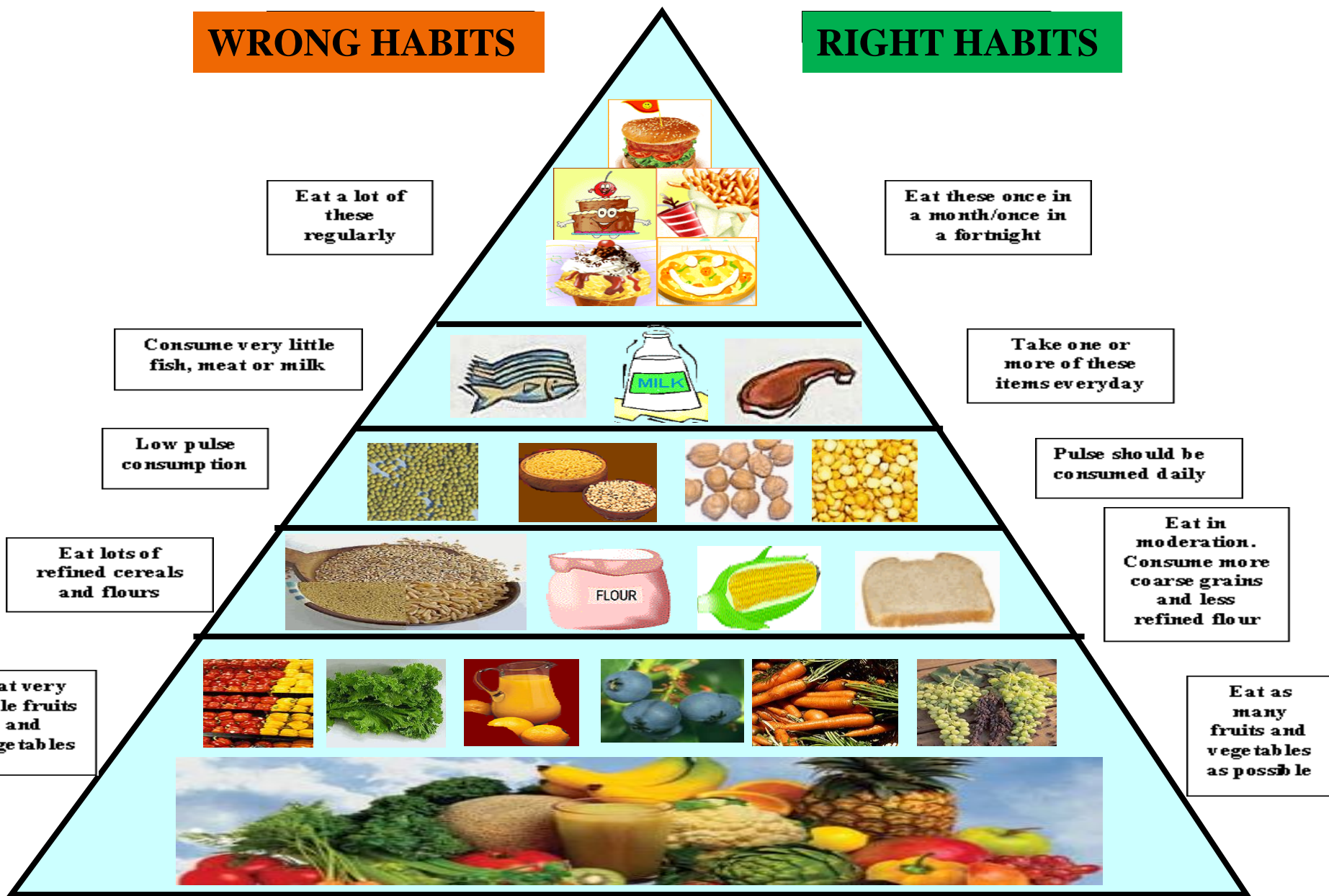
The combined coverage of Priority and Antyodaya households (called “eligible households”) is up to 75% of the rural population and up to 50% of the urban population.

During the COVID epidemic provisions under NFSA was utilised to provide free food grains and two hot cooked meals to all persons who needed them and came to the facilities to access them between April 2020 and November 2020.

This measure prevented acute food insecurity especially among labourers who were left jobless during lock down and subsequent slow improvement in employment and low emoluments

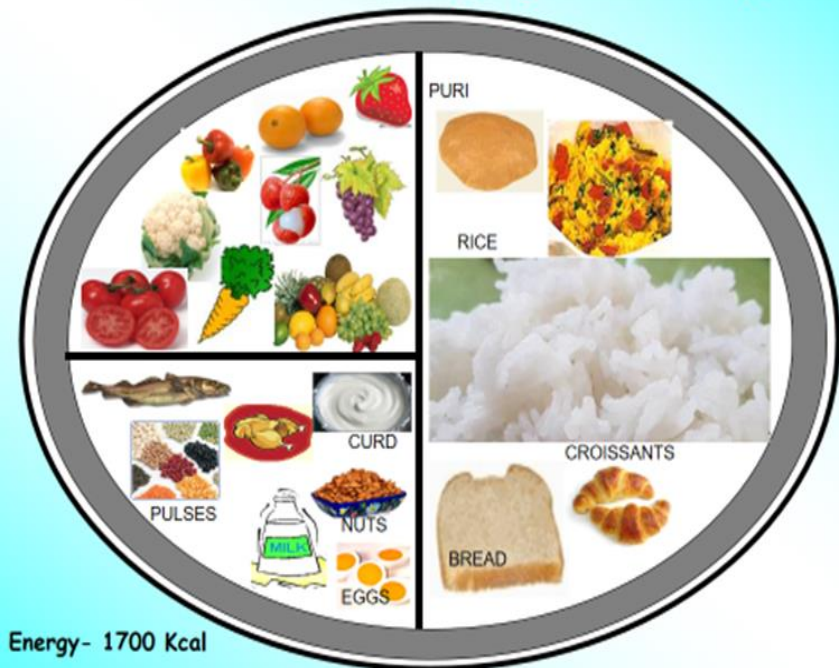
WRONG HABITS

RIGHT HABITS

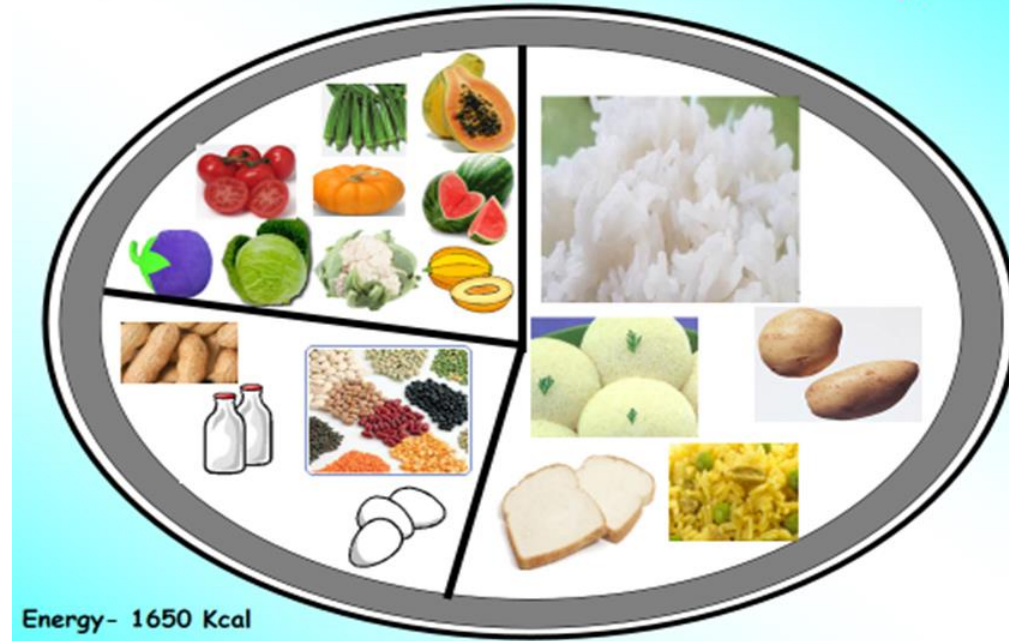


Indian diets are predominantly vegetarian. Cereals and pulses are traditionally included almost in every meal. Over the last decade there has been an increase in vegetable consumption. If available and affordable the consumption will increase

Balanced diet- Sedentary (High Income Group)



Balanced diet- sedentary (Middle Income Group)



In 2020 the ICMR expert group on nutrient requirements has revised the nutrient requirements for Indians

Food plates show diversified balanced diet for high and middle income groups
These diets will provide macro and micronutrients, anti oxidants and dietary fibre needed to maintain optimal nutrition and health

These predominantly plant based diets are ecologically appropriate, provide crop diversification and improve farmers income and prevent overnutrition and reduce risk of non communicable diseases

To sum up

India fares well in terms of food security indicators

Self sufficient in food production

MDG target for the poverty reduction was achieved .

Under NFSA 2/3rd of Indians are entitled to get subsidized food grains

During COVID 19 epidemic in India free food grains and cooked meals twice a day were given to all those who needed food .

This prevented food insecurity and undernutrition during lock down

Average energy intake of the population (1700kcal) is sufficient to meet the energy requirements

As a result there has been some reduction in undernutrition rates across the age groups.

There has been a steep reduction in physical activity .

Relatively lower reduction in dietary intake as compared to the reduction in physical activity has been resulted in rising overnutrition rates in adults

ACTION PLAN FOR CLIMATE CHANGE AT DISTRICT LEVEL

It is important to match the current weather situation and met predictions to plan crops to be grown district wise.

District level current food security and nutritional status of the population (available data from AHS and DLHS4) is to be assessed

Every year the district specific annual action plan can be drawn up
To begin with thee can be done for vulnerable districts identified by NITI Aayog for intensive intervention for the improving food security and nutritional status

WHAT ARE NON AGRICULTURAL INTERVENTIONS IN THE ACTION PLAN

Action Plans should include interventions under Employment programmes, PDS, food supplementation programmes (MDM and ICDS).

Strengthening ongoing nutrition surveillance & monitoring to assess

- adverse impact of the climate change on nutritional status and
- impact of interventions to minimise them

Thank You