Food and Nutrition security
&
Food safety

http://www.bing.com/images/search?q=food+and+nutrition+security&view=detailv2&&id=1A4620EC69C20659C68B1B3AA5097BBCFB213F62&selectedIndex=20&ccid=e5RXc2CV&simid=608039732491127632&thid=OIP.M7b945773609517d4a671d380f5bc27fao0&ajaxhist=0

Asist. Prof.Dr.Pharrunrat Tanaviyutpakdee
Institute of Nutrition
Mahidol University

Food security

Food security has been defined by the Food and Agriculture Organization (FAO) of the United Nations (UN) as

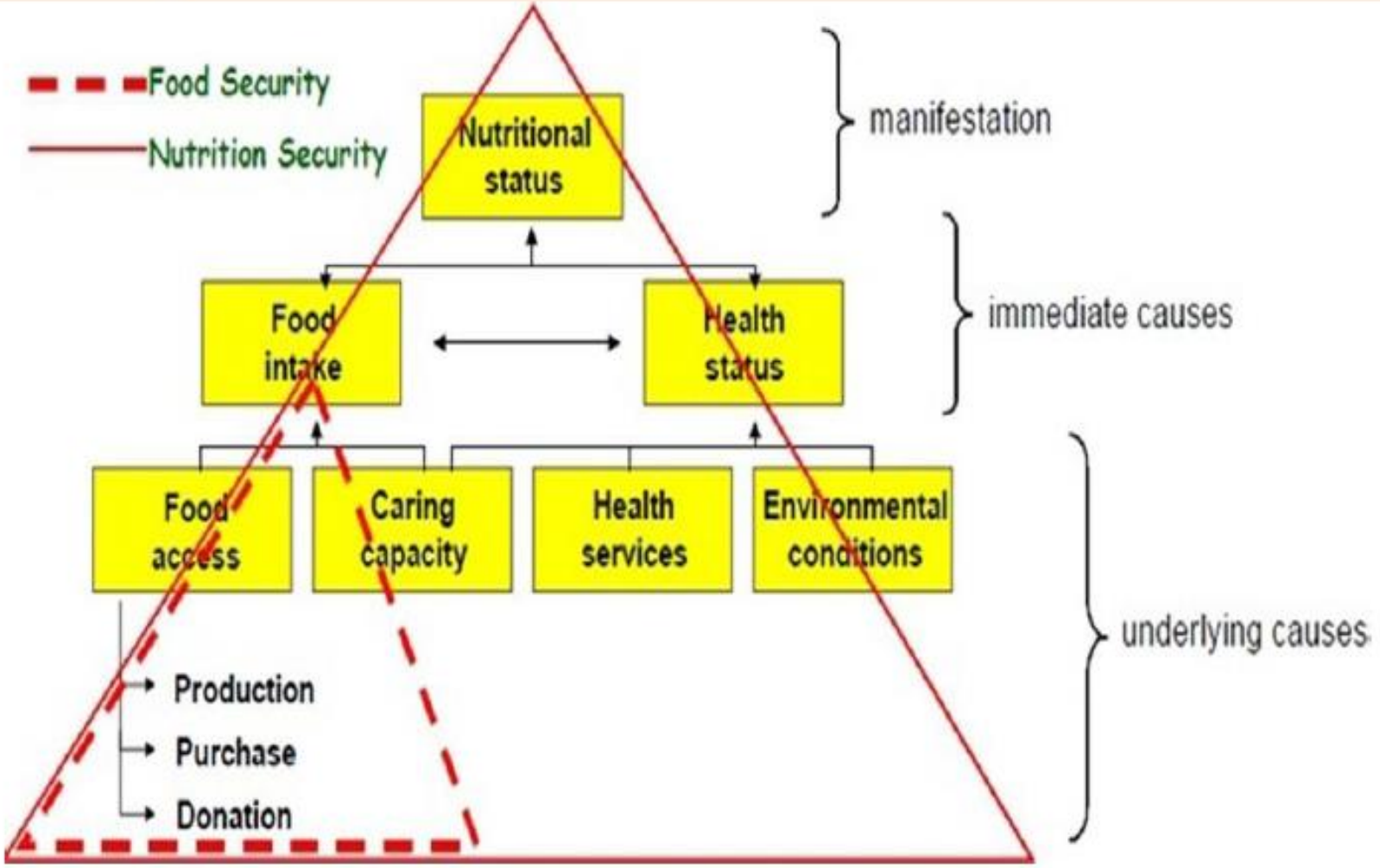
Food security exists when all people, at all times, have physical and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life.

Nutrition security

- *Nutrition security* is defined as secure access to an appropriately nutritious diet (ie, protein, carbohydrate, fat, vitamins, minerals, and water) coupled with a sanitary environment and adequate health services and care, in order to ensure a healthy and active life for all household members.
- Nutrition security requires that all people have access to
  - a variety of nutritious foods and potable drinking water;
  - knowledge, resources, and skills for healthy living;
  - prevention, treatment, and care for diseases affecting nutrition status; and
  - safety-net systems during crisis situations, such as natural disasters or deleterious social and political systems.

Food and Agricultural Organization of the United Nations. *The State of Food Insecurity in the World: Economic Growth is Necessary But Not Sufficient to Accelerate Reduction of Hunger and Malnutrition*. Rome, Italy: Food and Agricultural Organization of the United Nations; 2012.

The conceptual framework of nutritional status at the household level



Weingartner L. Paper I: The concept of food and nutrition security. In: Klennert K, ed. Achieving food and nutrition security: Actions to meet the global challenge: A training course reader. German Society for International Cooperation website. http://www3.giz.de/imperia/md/content/ a internet2008/portaliz/umweltunder naehrung/achieving_food_and_nutrition_security_2010.pdf. Published

The conceptual framework of nutritional status at the household level.

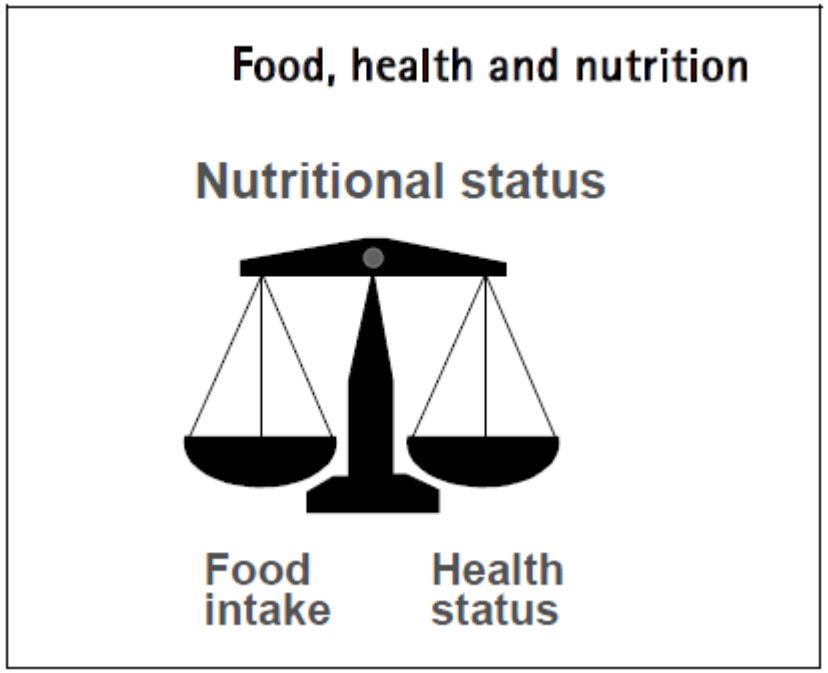
- Nutritional status is an outcome of food intake and health status and is linked with causal factors at the household level.
- The four underlying causes of food intake and health status can be influenced by several determinants.
- This conceptual framework emphasizes the difference between *food security* and
- *nutrition security*. Food security, illustrated as the small dotted triangle, refers to the area of causes and effects of food availability at the household level (eg, access to food) and utilization (eg, caring capacity).
- The underlying causes of health status (environmental causes and health services) can have several contributing factors (eg, poor housing and limited access to health care).
- Nutrition security, depicted in the large lined triangle, encompasses the entire relationship. Nutrition security exists when adequate nutritional status is achieved.

Food , nutrition and food safety

Food: stuffs that we eat and drink contain nutrients

& (non nutrient)

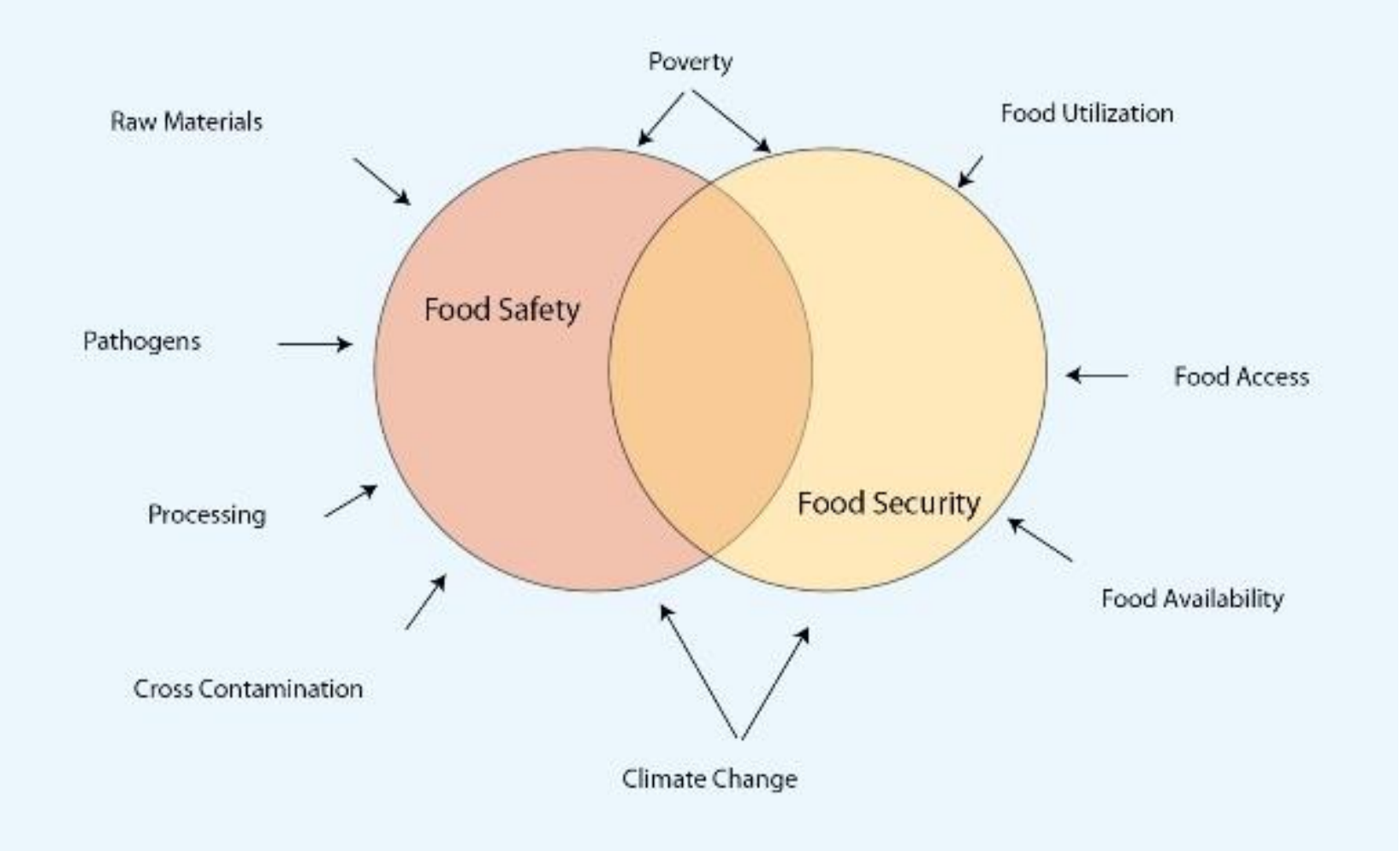
Nutrition: benefit and utilization of nutrient in human body



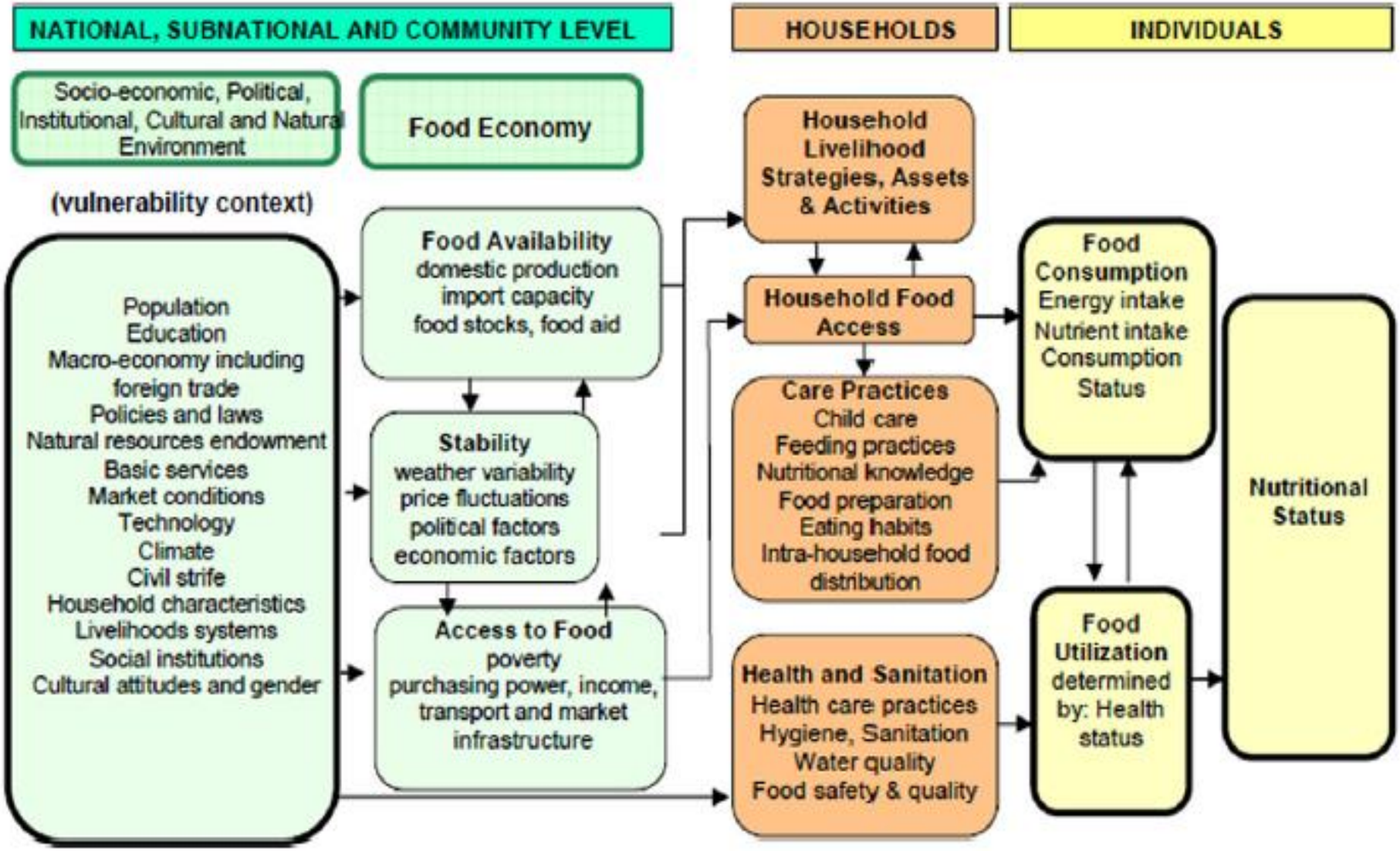
Enough food, safe food

Food ⟷ Nutrition ⟷ Health

Food security and food safety are interrelated concepts with a profound impact on quality of human life, and there are many external factors that affect both of these areas



Interrelationship of food safety and food security.



FAO/FIVIMS Framework: linkages between the overall development context, the food economy, households and individual measures of wellbeing (adapted from FAO/FIVIMS 2010).

Things affecting food security today include:

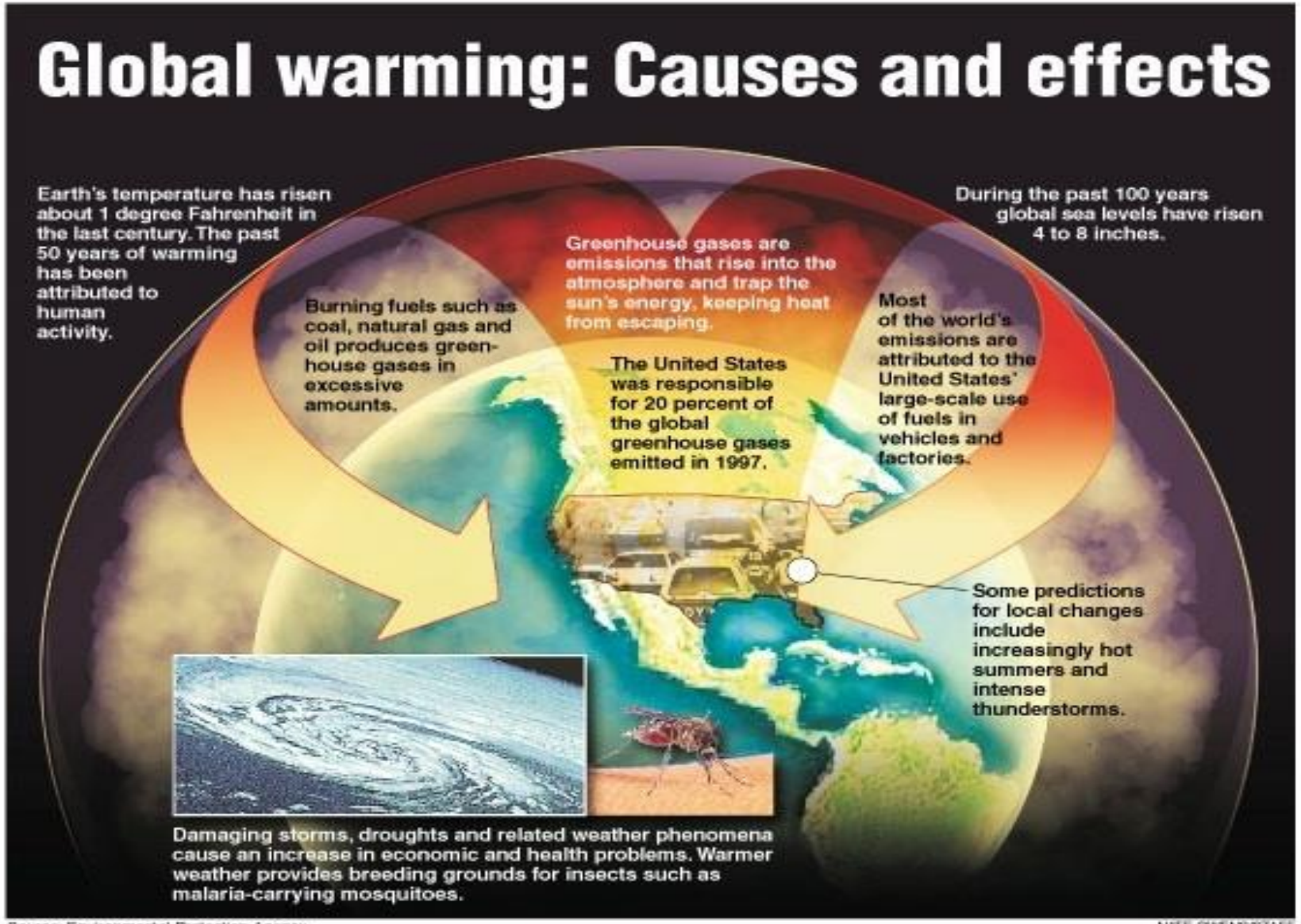
Global Water Crisis - Water table reserves are falling in many countries (including Northern China, the US, and India) due to widespread over-pumping and irrigation.

Climate Change - Rising global temperatures are beginning to have a ripple effect on crop yields, forest resources, water supplies and altering the balance of nature.

Land Degradation - Intensive farming leads to a vicious cycle of exhaustion of soil fertility and decline of agricultural yields.

Greedy Land Deals - Corporations and Governments buying rights to millions of acres of agricultural land in developing countries to secure their own long-term food supplies.

Climate Change



The Four Main Components of Food Security

1. AVAILABILITY
There is a reliable and consistent source of quality food.

2. ACCESS
People have sufficient resources to produce and/or purchase food.

3. UTILIZATION
People have the knowledge and basic sanitary conditions to choose, prepare, and distribute food in a way that results in good nutrition.

4. STABILITY
People's ability to access and utilize food that remains stable and sustained over time.

Climate change may affect food systems in several ways ranging from direct effects on crop production (e.g. changes in rainfall leading to drought or flooding, or warmer or cooler temperatures leading to changes in the length of growing season), to changes in markets, food prices and supply chain infrastructure.

Climate change and the four dimensions of food security:

- food availability,
- food stability,
- food access and
- food utilization

Availability

- Availability refers to the physical existence of food, be it from own production or on the markets, food supplies at the regional or national level.
- On national level

- food availability is a combination of domestic food production, commercial food imports, food aid, and domestic food stocks, as well as the underlying determinants of each of these factors.

Use

- Use of food refers to the socio-economic aspect of household food security.

- If sufficient and nutritious food is both available and accessible the household has to make decisions concerning what food is to be purchased, prepared and consumed (demanded) and how the food is allocated within the household.

- In households where distribution is unequal, even if the measured aggregate access is sufficient, some individuals may suffer from food deficiency.

Utilization

- Food utilization refers to the ability to absorb and use food nutrients and is related to individual health status, water and food sanitation, and food and water safety among other factors.

Stability

Stability or sustainability refers to the temporal dimension of nutrition security i.e. the time frame over which food security is being considered.

Access

Access is ensured when all households and all individuals within those households have sufficient resources to obtain appropriate foods for a nutritious diet

(Riely et al. 1995)

Climate change impacts on food availability – production and trade

- Agricultural output in developing countries is expected to decline by 10–20% by 2080.
- Globally, the potential for food production is projected to increase, with increases in local average temperature over a range of 1–3 °C, but above this range, food production is projected to decrease in all regions.

Climate change impacts on food stability and access

- Changes in the patterns of extreme weather events such as floods, cyclones, hurricanes will affect the stability of food supplies as well as accessibility.

- Climate change impacts on the stability of primary production affect food manufacturing and trade.

- Climate-related animal and plant diseases and pests such as blue tongue and rift valley fever in cattle or soy bean rust and corn root worm (Diabrotica) in crops and alien invasive aquatic species such as mollusks, algae or trematodes will reduce the stability of the production system and the stability of food stocks (FAO,2008a).

Climate change impacts on food stability and access

- Climate change and variability influences the contamination of food with
  - non-infectious hazards such as biotoxins (e.g. mycotoxins or marine toxins) and
  - chemicals and environmental contaminants such as dioxins or heavy metals which may have an impact on food and animal feed stability and access.
    - For example droughts, floods, and higher temperatures impact crop susceptibility to fungal attack which facilitates mycotoxin contamination of animal and human food crops and reduces the stability of food and animal feed stocks.

Climate change impacts on food stability and access

- Climate variability and change will likely contribute substantially to rising food prices (Cline, 2007).
- Temperature increases of more than 3 C may cause prices to increase by up to 40% (Easterling et al., 2007).
- Food prices impact food access of households by limiting the acquisition of appropriate foods for a nutritious diet and the purchasing power.

Climate change and food utilization

- Food utilization refers to the ability to absorb and use food nutrients and is related to individual health status, water and food sanitation, and food and water safety among other factors.

- Climate change may affect health outcomes and food utilization with additional malnutrition consequences.

- Populations in water scarce regions are likely to face decreased water availability, particularly in the sub-tropics, with implications for the consumption of safe food and drinking water.

Climate change and food utilization

- Flooding and increased precipitation are likely to contribute to increased incidence of infectious and diarrheal diseases.

- The risk of emerging zoonosis may increase due to
  - changes in the survival of pathogens in the environment,
  - changes in migration pathways, carriers and vectors and changes in the natural ecosystems

Achieving sustainable nutrition security

- Nutrition Strategy Solutions
- Successful Examples of Practical and Sustainable Nutrition Security Programs
- Strategies Addressing Micronutrient Deficiencies
- Strategies to Address the First 1,000 Days (Conception to 2 Years)
- Strategies Addressing School Health and Nutrition

Ex. Several countries have large nutritional programs involving - school feeding,

- food preparation and nutritional awareness,
- promotion of breastfeeding,
- improved weaning practices, and
- bio-fortification.

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The end