

# Ancient Egyptian concepts on nutrition

- Night blindness and xerophthalmia treated by roasted beef liver.
- Scurvy treated by onion mashed with fat.

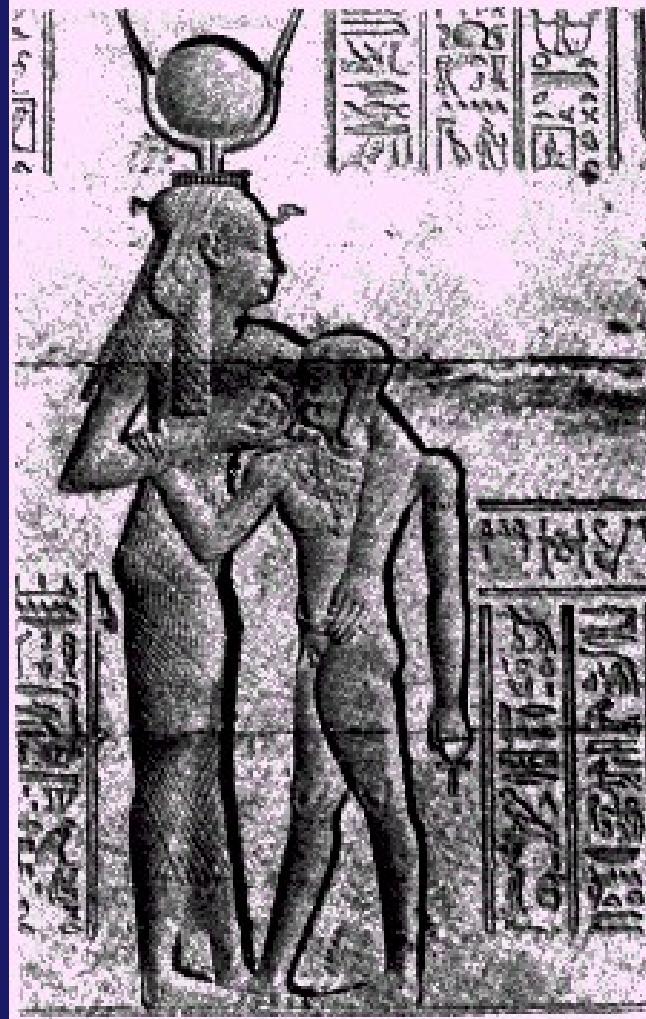
# Herodotus



The skulls of Egyptian soldiers killed in wars with the Persian King Cambyses were strong while the skulls of Persian soldiers were fragile; the reason is that they go bareheaded since childhood exposing their skull to sunlight while the Persians have turbans on their heads.



# Virtue of breast feeding



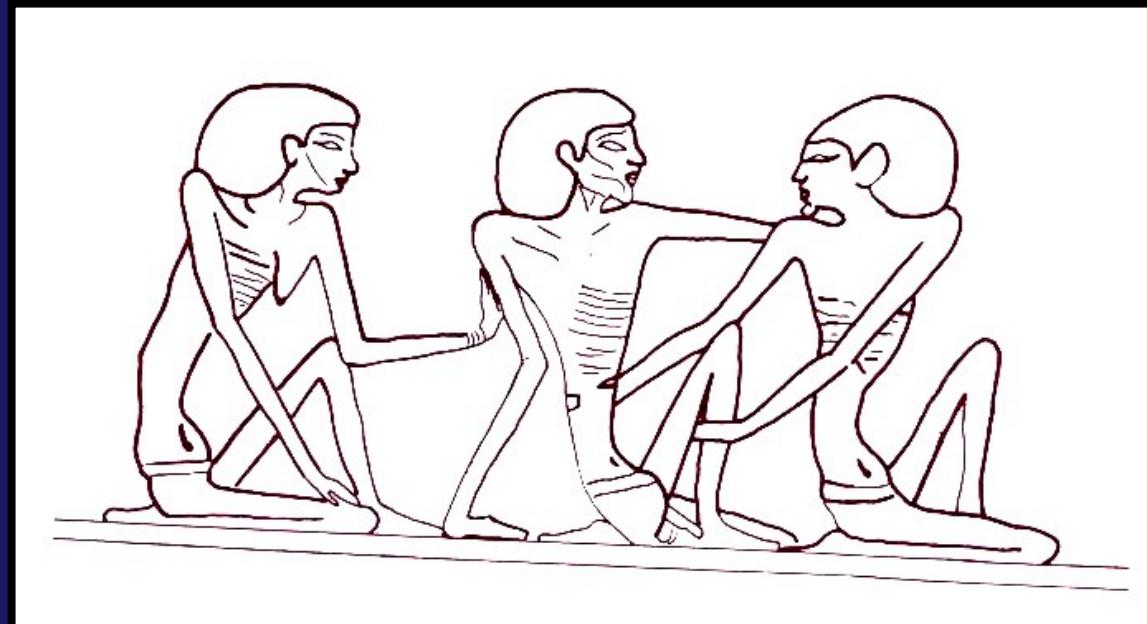
# Virtue of breast feeding

# King Una's message (2600 BC)

Eat good bread, ox flesh, wine, sweat and olive oil, fat, honey, figs, fish and vegetables everyday.

# King Zoser's text on famine (2600 BC)

I am overwhelmed with sorrow ... the Nile has not been full in any time for seven years. Grain is lacking ... there is a dearth of edible things ... children cry, young people waste, their legs give way squatting on the ground.



# Nutrition during Greco- Roman era

- **Scribonius Largus** 47BC importance of diet for health
- **Celsus** 25BC Classified foodstuffs and their relation to health.

# **Nutrition as a Science**

**Count Rumond  
(1795)**

**Science of nutrition**

**Francois Magendi  
(1816)**

**Nutrition properties  
of substances that  
do not contain  
nitrogen.**

# Early pioneers of nutrition

J. Von Leibeg	Germany	1846	Evolution of biochemistry & nutrition
C. Bernard	France	1856	Glycogen, pancreatic juice
F. Marie Jules	France	1877	Athrepesie
Sir T. Barlow	England	1883	Infantile scurvy
T. Escherich	Austria	1885	Intestinal flora
S. Gee	England	1888	Coeliac disease
O. Heubner	Germany	1903	Energy intake & expenditure
A. Czerny	Germany	1906	Child nutrition

# **Early pioneers of nutrition (continue)**

<b>H. Finklestein</b>	<b>Germany</b>	<b>1912</b>	<b>Disease of infancy</b>
<b>L. B. Mendel</b>	<b>USA</b>	<b>1909-1928</b>	<b>Nutritive value of proteins</b>
<b>C. Funk</b>	<b>Poland</b>	<b>1912</b>	<b>Vitamine</b>
<b>A. Garrod</b>	<b>England</b>	<b>1912</b>	<b>Inborn errors of metabolism</b>
<b>C. Von Pirquet</b>	<b>Austria</b>	<b>1913</b>	<b>Percentile growth chart</b>
<b>V. McCollum</b>	<b>USA</b>	<b>1916</b>	<b>Fat soluble &amp; water soluble factors</b>
<b>C. Williams</b>	<b>England</b>	<b>1933</b>	<b>Kwashiorkor</b>

# Nutrition science in the twentieth century

- *The biological phase: emphasis on vitamins and minerals .*
- Protein era
- Revival of interest in fat and carbohydrates
- Socioeconomic dimensions of nutrition.

- Mal-nutrition, immunological, cognitive & physical capabilities.
- Nutrition and chronic non-communicable diseases.
- *Therapeutic nutrition:* Dietetic, Pharmaceutical, Enteral, Parenteral
- Advances in agriculture and animal nutrition

# Tribute to nutrition Scientists

- |                            |                       |
|----------------------------|-----------------------|
| Burr                       | Essential fatty acids |
| Goldberger & Spies         | Pellagra              |
| McCollum & Moore           | Vitamin A             |
| Chick, Windaus & Hess      | Vitamin D             |
| Evans & Bishop             | Vitamin E             |
| King & Gyorgy              | Vitamin C             |
| Dam                        | Vitamin K             |
| Mitchell, Snell & Williams | Folic acid            |
| Hodjkin                    | Vitamin B12           |

# Tribute to nutrition Scientists (continue)

- **McCance, Mac kay,  
Widdowson McLaren  
& Woodruff** **Iron deficiency**
- **Williams, Fronuis,  
Gomez & Cravioto** **Protein calorie  
deficiency**
- **Jelliffe** **Breast milk**
- **Marriot & Jeans** **Infant feeding**
- **Ylippo** **Feeding prematures**
- **Pratt** **Food allergy**
- **Guy & Kretchmer** **Lactose intolerance**

# International Cooperation UN

- Several nutrition units were established:

WHO	FAO	UNICEF	WFC	
UNU	WB	UNHCR	WFP	UNDP
IFAD	WTO			

- (ACC/SCN) The subcommittee on nutrition of the administrative committee on coordination

- The protein advisory group, 1955

- Codex alimentarius commission, 1962

- Code of marketing, breast milk substitutes, 1981

- International conferences: 1<sup>st</sup> World food conference, Rome 1974, Children Summit, New York, 1990, World Conference on Nutrition, Rome, 1992, World Food Summit, Rome, 1996

# **Non- United Nation Organizations**

- **Governmental Organizations:**  
USAID (US), SIDA (Sweden), GFZ (Germany),  
Overseas department (UK), CIDA (Canada), European  
nutrition program (Nature, Nectar), Italy, Denmark,  
Netherlands, Japan, Australia.
- **Non Governmental Organizations:**  
Nutrition Foundation, ILSI, IFPRI, Ford, Carnegie,  
CARE, Catholic relief, Oxfam, Nestle, Ciba
- **Regional Institutes:**  
INCAP, Central America and Panama  
Institute of nutrition and food technology, Chili  
Institute of Nutrition, Mahidol University, Thailand

# **Crucial elements of success of nutrition intervention programs**

- Political commitment and political stability**
- Community mobilization and participation**
- Resource development, human and financial**
- Organization managerial structure.**

- Proper targeting
- Monitoring and evaluation
- Sustainability
- Replicability

# **Successful Projects**

## **Tamil Nadu India**

Reduced malnutrition by 53% in 2 years

## **Iringa**

## **Tanzania**

Spread from 168 – 610 villages,  
Decreased severe malnutrition from 6.3% to 1.8% & moderate malnutrition from 56% to 38% in 4 years

# **Successful National Programs**

## **Thailand**

Reduced malnutrition from 50% to 19% in 10 years

## **Norway**

Deaths from C.H.D. reduced by 50% in 20 years

## Achievements of nutrition sciences during the twentieth century

- Most macro and micronutrients discovered
- Nutritional needs and requirements identified
- Relationship between nutrition and health documented
- Sequela of overfeeding and underfeeding recognized

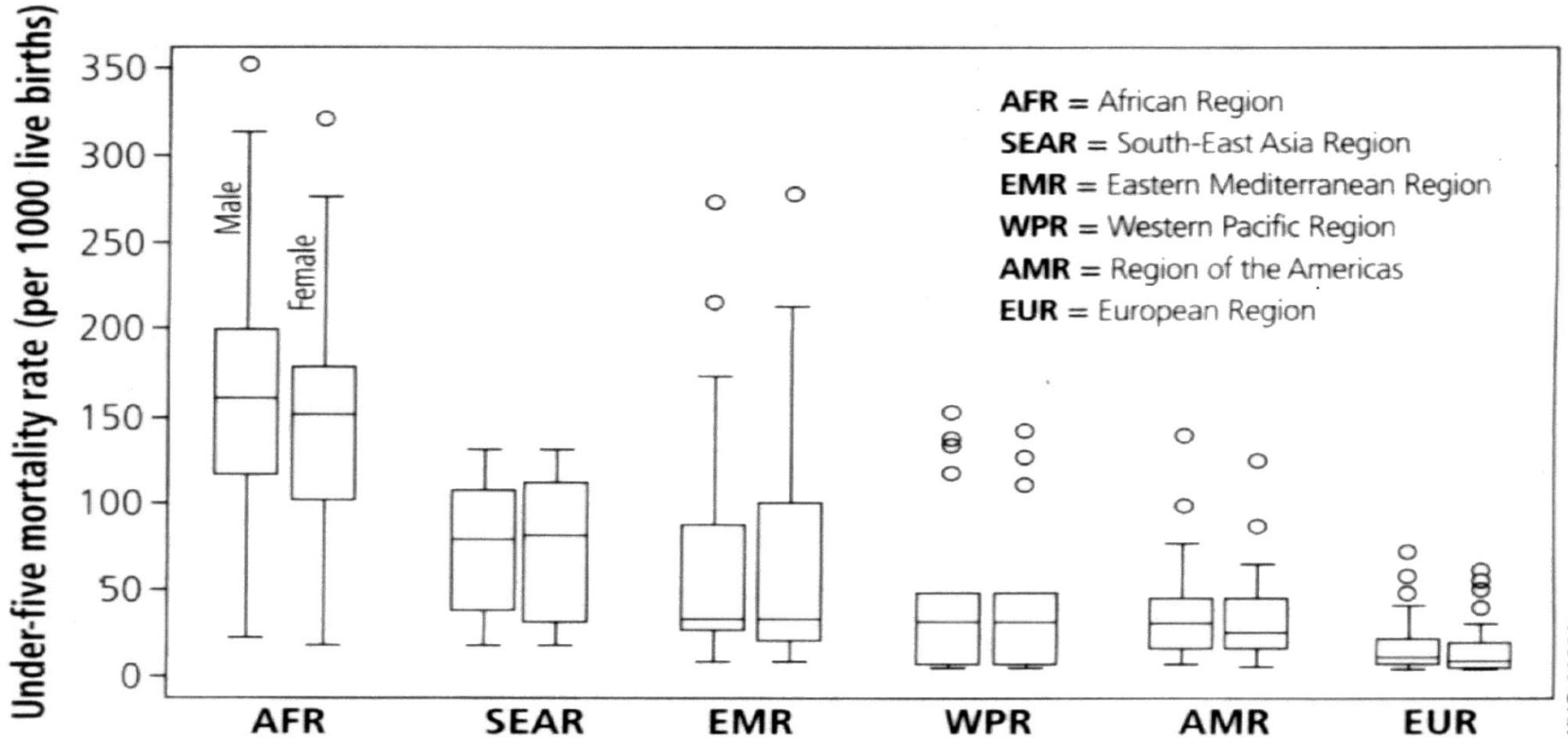
- Increased availability of agricultural and animal food
- Large scale famines controllable
- Severe PEM decreased
- Successful combat of iodine deficiency
- Control of Vit. A deficiency

# Global trend in under five mortality (1960 – 2000)

Period	Mean M.R.	Decline (%)
60-64	149.8	-6
65-69	136.6	-9
70-74	122.6	-10
75-79	108.0	-12
80-84	94.7	-12
85-89	83.7	-12
90-94	76.2	-9
95-99	70.4	-8

# Distribution of under five mortality rate by region and sex

## Distribution of under-five mortality by WHO regions and sex, 1999

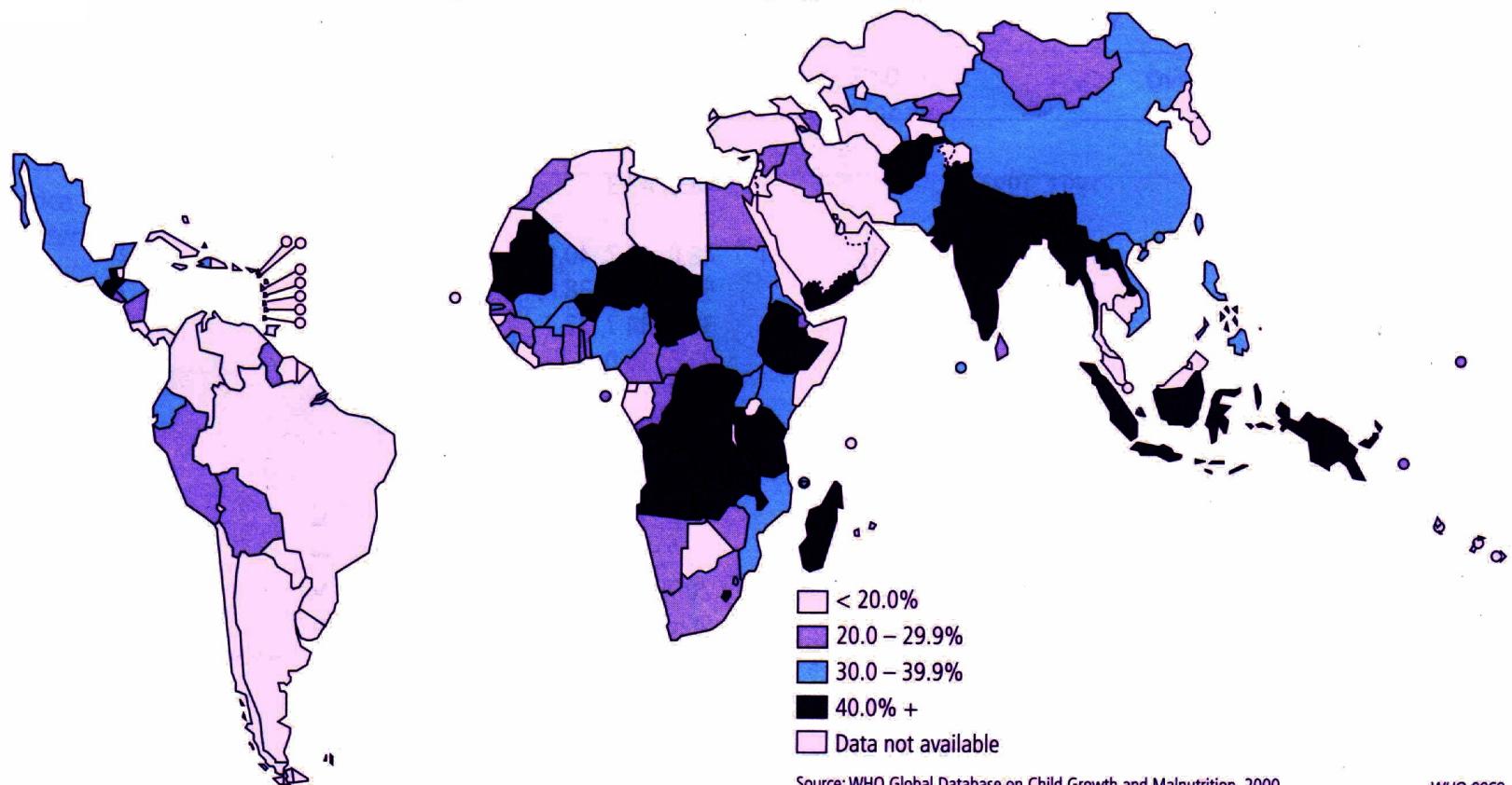


# Prevalence of stunting in pre school children 1980-2005

Region	1980	1985	1990	1995	2000	2005
Africa	40.5	39.2	37.8	36.5	35.2	33.8
East Africa	45.0	46.9	47.3	47.7	48.1	48.5
Asia	52.2	47.7	43.3	38.8	34.4	29.9
Latin America	25.6	22.3	19.1	15.8	12.6	09.3
Developing Countries	47.1	43.4	39.8	36.0	32.5	29.0

# Prevalence of stunted under five children in developing countries

## **Prevalence of stunted under-5-year-old children in developing countries**



Source: WHO Global Database on Child Growth and Malnutrition, 2000

WHO 0069

# prevalence of underweight preschool children in developing countries

Region	1980	1985	1990	1995	2000	2005
Africa	26.2	26.7	27.3	27.9	28.5	29.1
Asia	43.9	40.2	36.5	32.8	29.0	25.3
Latin America	14.2	12.2	10.2	08.3	06.3	04.3
Developing Countries	37.4	34.7	32.1	29.2	26.7	24.3

## **Nutrition situation at the end of the twentieth century**

**Intrauterine growth retardation.**

**30 million (28.8%)**

**P.E.M < 5**

**150 million.**

**Iodine deficiency disorders.**

**740 million.**

**Vitamin A deficiency.**

**2.8 billion.**

**Iron deficiency anemia.**

**2 billion.**

**Obesity.**

**300 million adult. (17.6 million children)**

**Cancer (diet related).**

**10.3 million cases/year**

**Mal-nutrition > 5.**

**540 million.**

**Osteoporosis.**

**2 million hip spine fractures per year.**

# Nutrition goals set in twentieth century

- World Food Conference 1972
  - Within a decade no child will go to bed hungry, no family will fear for its bread (H. Kessinger)
- Children summit 1990
  - Lowering L.B.W to below 10% by 2000
  - Decreasing malnutrition by 50%
- WHO 1998
  - Prevalence of stunted children in any country less than 20% by 2020
- IFPRI 2000
  - By the year 2020 every person will have access to sufficient food to sustain a healthy and reproductive life, where malnutrition is absent

# Future Challenges

## Economic

Poverty GNP 26.157\$ developed.  
261.00\$ least devp.  
Success Costa Rica, Cuba, Chili

## Geopolitical

Political stability- 12 m. refugees

## Environmental

Degradation, desertification, deforestation

## Emerging disease

HIV- Zoonotic diseases

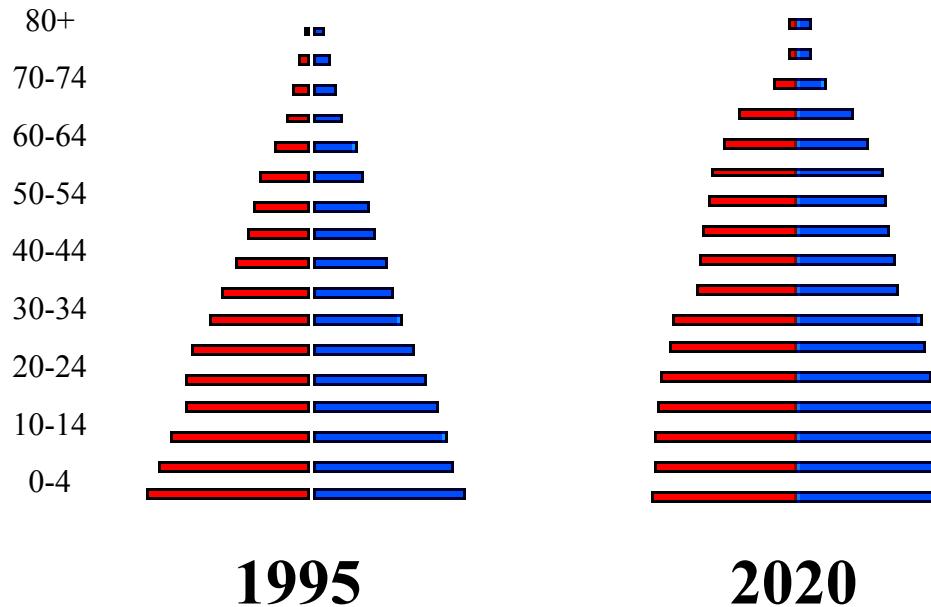
## Demographic

Population growth, urbanization

# Decline in total fertility rate 1960-1999

Total Fertility rate			
Year	1960	1990	1999
Industrialized countries	2.8	1.7	1.6
Developing countries	6.1	3.5	2.9
Least developing countries	6.6	5.7	4.9
Sub-Saharan Africa	6.7	6.2	5.4

# Population by age and sex in developing countries 1995 – 2020



# IUNS

First executive committee	London 1948
First Congress	Brazil 1952
Member of ICSU	1968
Special status	FAO, WHO, UNICEF, UNU, SCN, UNESCO, IUFOST
Regional Organizations	AFRONAUS, FANS, FENS, SCAN
Specific Organizations	ICCID, IVACG, INACG, IDECG, ICDA, IOCN, IOPN
More than 1000 committee reports	

# **Strengths of IUNS**

- Extensive network**
- Broad geographical representation**
- Multi – disciplinary**
- Independent non – governmental organization**
- Respect and credibility**
- Holds the International nutrition congresses**

# Weaknesses of IUNS

- Poor resources
- Fragile network of adhering bodies
- Poor communications
- Weak collaboration with other nutritional organization
- Conflict of interest

# Futuristic Look

- Reorganize to become proactive, problem solving
- Activate resource mobilization
- Support decentralization
- Develop better communications
- Foster international cooperation
- Strengthen national adhering bodies

# **Global Issues**

- Deal with emerging global issues relevant to nutrition:
  - Human right approach
  - Economic effects of W.T.O
  - Mass media and lifestyle
  - Multinational food and drug companies
  - Ethical issues of biosciences