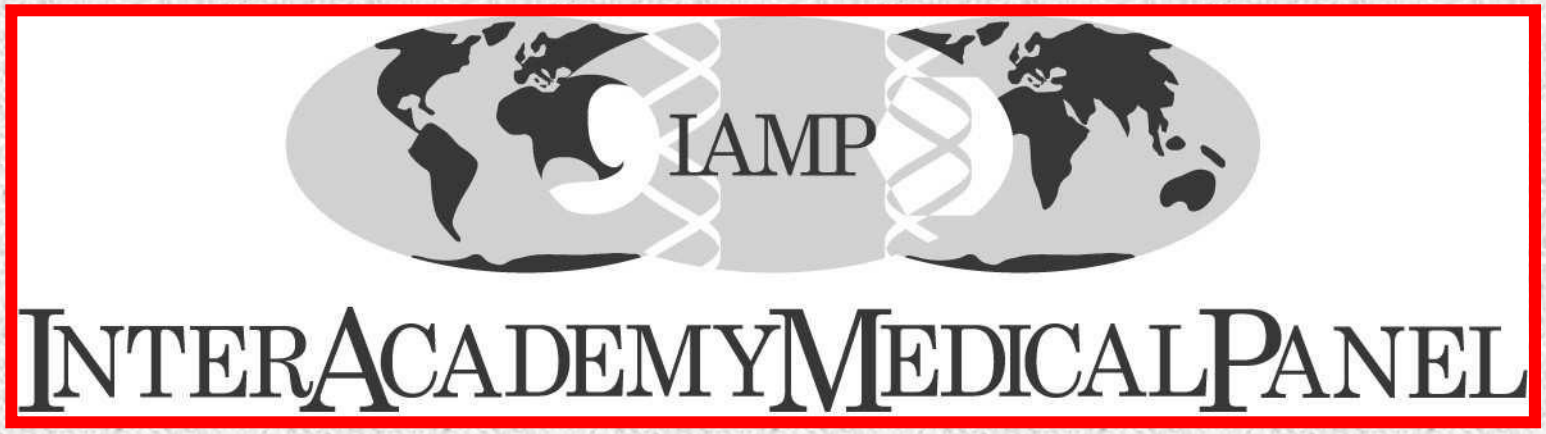
IAMP
INTERACADEMYMEDICALPANEL

INTERACADEMY MEDICAL PANEL

- **MEETING OF THE EXECUTIVE COMMITTEE:**
  2 - 3 May 2012

- **SCIENTIFIC WORKSHOP:**
  4 – 5 MAY 2012

- **Río de Janeiro, Brazil**

DEMOGRAPHY AND DISEASES:

THE EPIDEMIOLOGICAL TRANSITION

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DEMOGRAPHY AND DISEASES:

THE EPIDEMIOLOGICAL TRANSITION

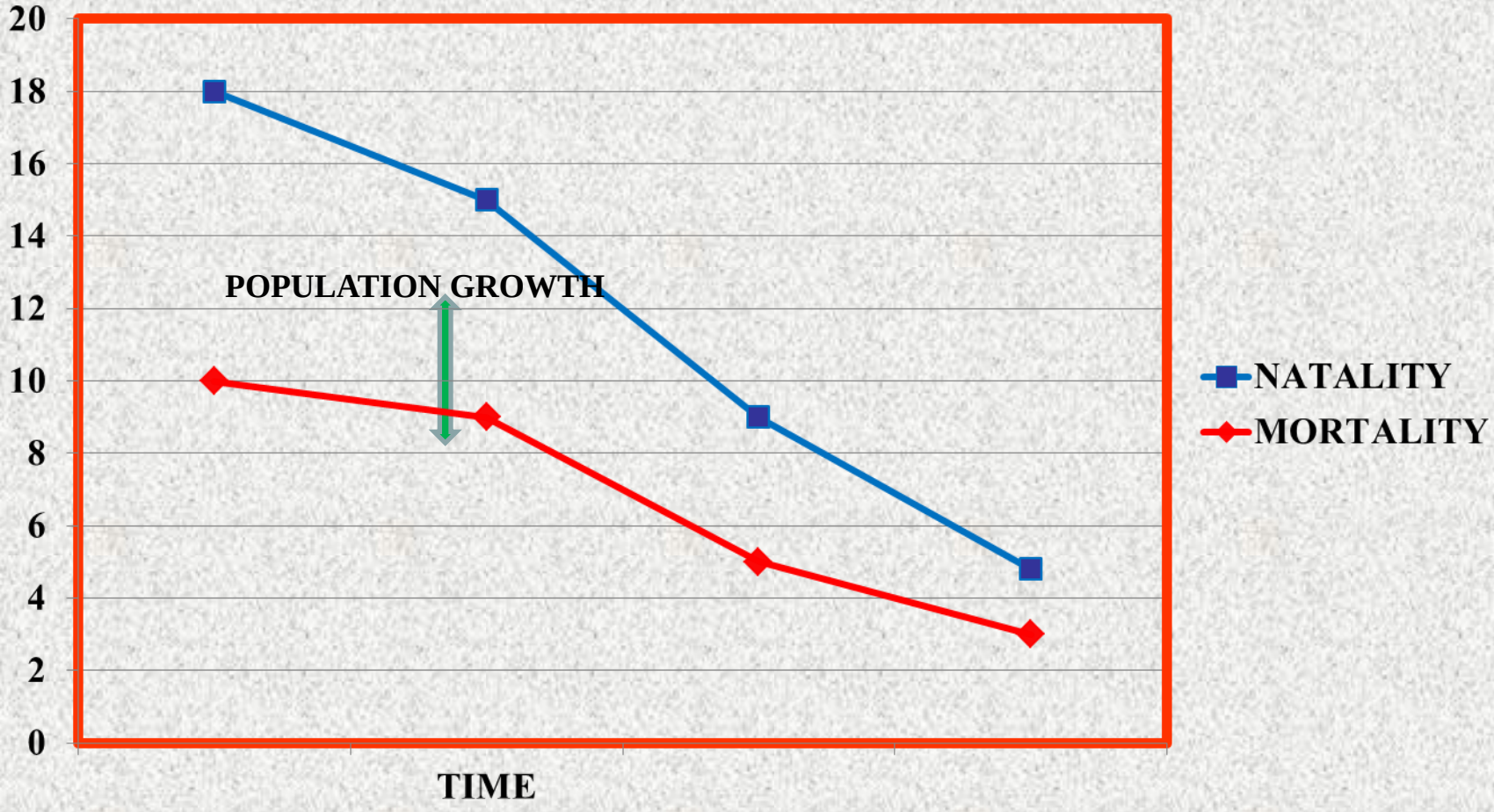
WHY THERE ARE DIFFERENT DISEASE PATTERNS IN DIFFERENT POPULATIONS

DEMOGRAPHIC TRANSITION

- **Human populations are dynamic and the changes in Mortality and Natality are reflected in their size.**

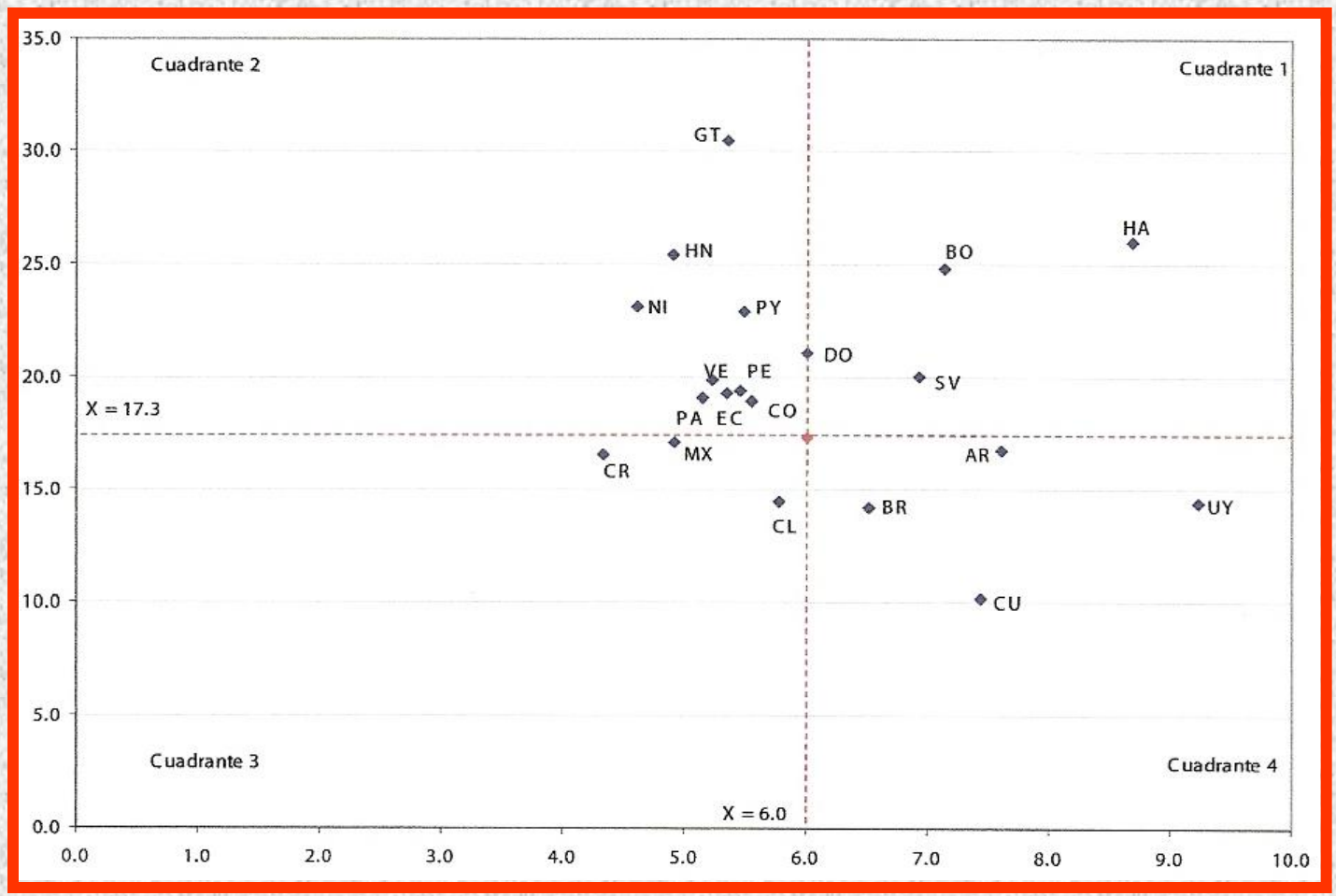
- **A reduction in the Mortality rate and also a reduction in the Natality rate result in a low growth increase of the population.**

DEMOGRAPHIC TRANSITION



Source: Bloom DE, 2011, 7 Billion and counting, SCIENCE: 333:562, 29 July 2011

DEMOGRAPHIC TRANSITION IN LATIN AMERICAN COUNTRIES: DETERMINANTS OF POPULATION GROWTH 2010-2015



Source: OPS/OMS, 2011, ECONOMÍA Y SALUD (2): La Transición Demográfica, p.49

RELATION BETWEEN DEMOGRAPHIC TRANSITION AND EPIDEMIOLOGICAL TRANSITION

- **It is not easy to determine whether the epidemiological transition is a consequence and hence it comes after that the demographic transition has occurred.**
- **Possibly both occur simultaneously and they mutually influence each other.**
- **The better sanitary and nutrition conditions improve the defence of human organisms and contribute to increase the life expectancy of children, adults and in the long term to increase the proportion of persons older than 60 years.**

RELATION BETWEEN DEMOGRAPHIC TRANSITION AND EPIDEMIOLOGICAL TRANSITION

- **Urbanizatión favors that women have better access to employement and contributes to decrease fertility.**

- **The increase in older population groups logically increases the frequency of chronic diseases, many of them of degenerative nature.**

CAUSES OF EPIDEMIOLOGICAL TRANSITION

- Demographic changes
- Change in the risk factors
- New infectious agentes (AIDS)
- Changes in antigenicity (Influenza)
- Resistance in microorganisms (Tuberculosis)
- Changes in Life styles: physical inactivity etc.
- Impact of scientific research: early diagnosis

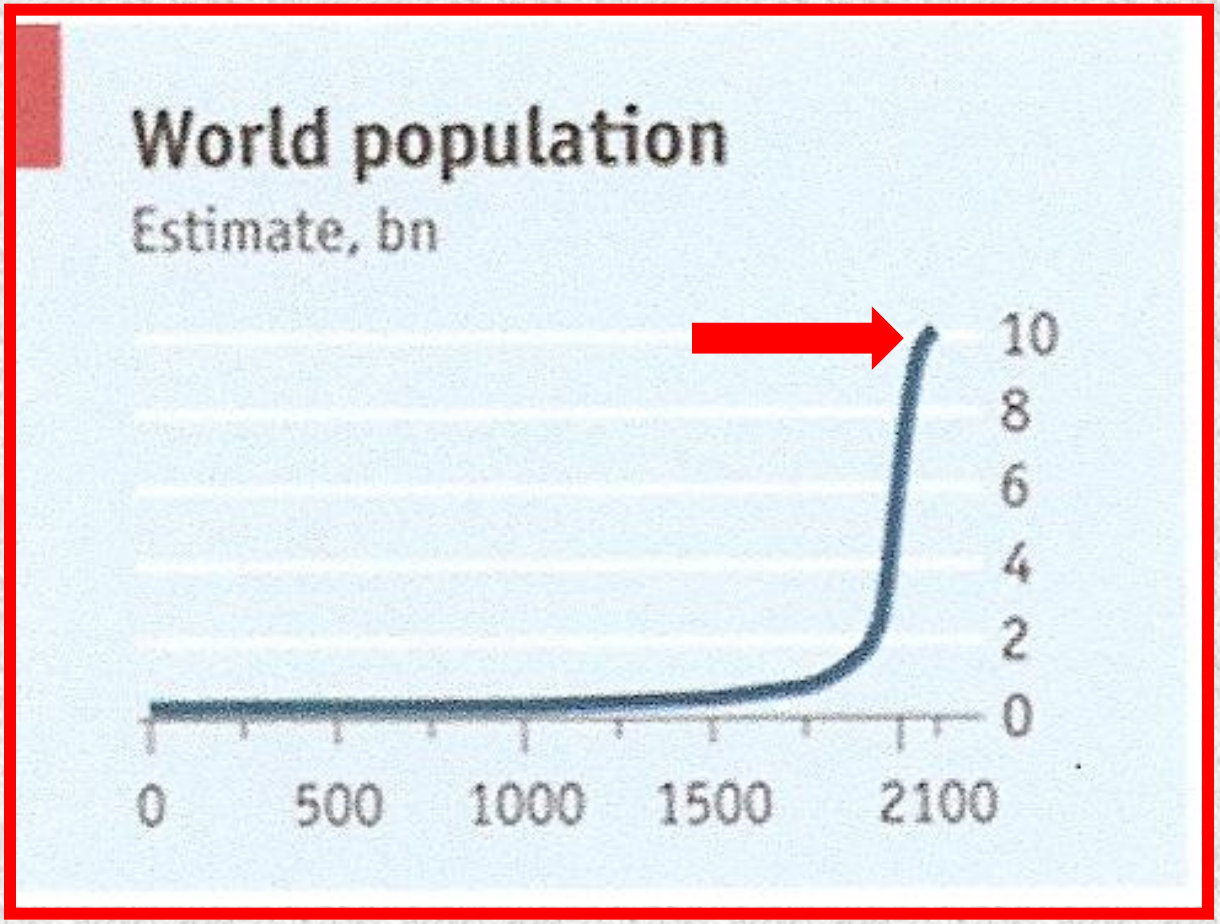
Source: Ruiz Morales A: (en) MALAGÓN-LONDOÑO, MONCAYO MEDINA, SALUD PÚBLICA PERSPECTIVAS, Editorial Médica Panamericana, Bogotá, 2011, Capítulo 11, págs. 175-181

GROWTH OF WORLD POPULATION 1804 - 2011

YEAR	BILLIONS	GROWTH PERIOD
1804	1	
1927	2	123 YEARS
1960	3	33
1974	4	14
1987	5	13
2000	6	12
2011	7	12

Source: The Demographic Transition Keith Montgomery Department of Geography and Geology, WIKIPEDIA

GROWTH OF WORLD POPULATION



Source: THE ECONOMIST, 22 October 2011

GROWTH OF WORLD POPULATION
1804 - 2011

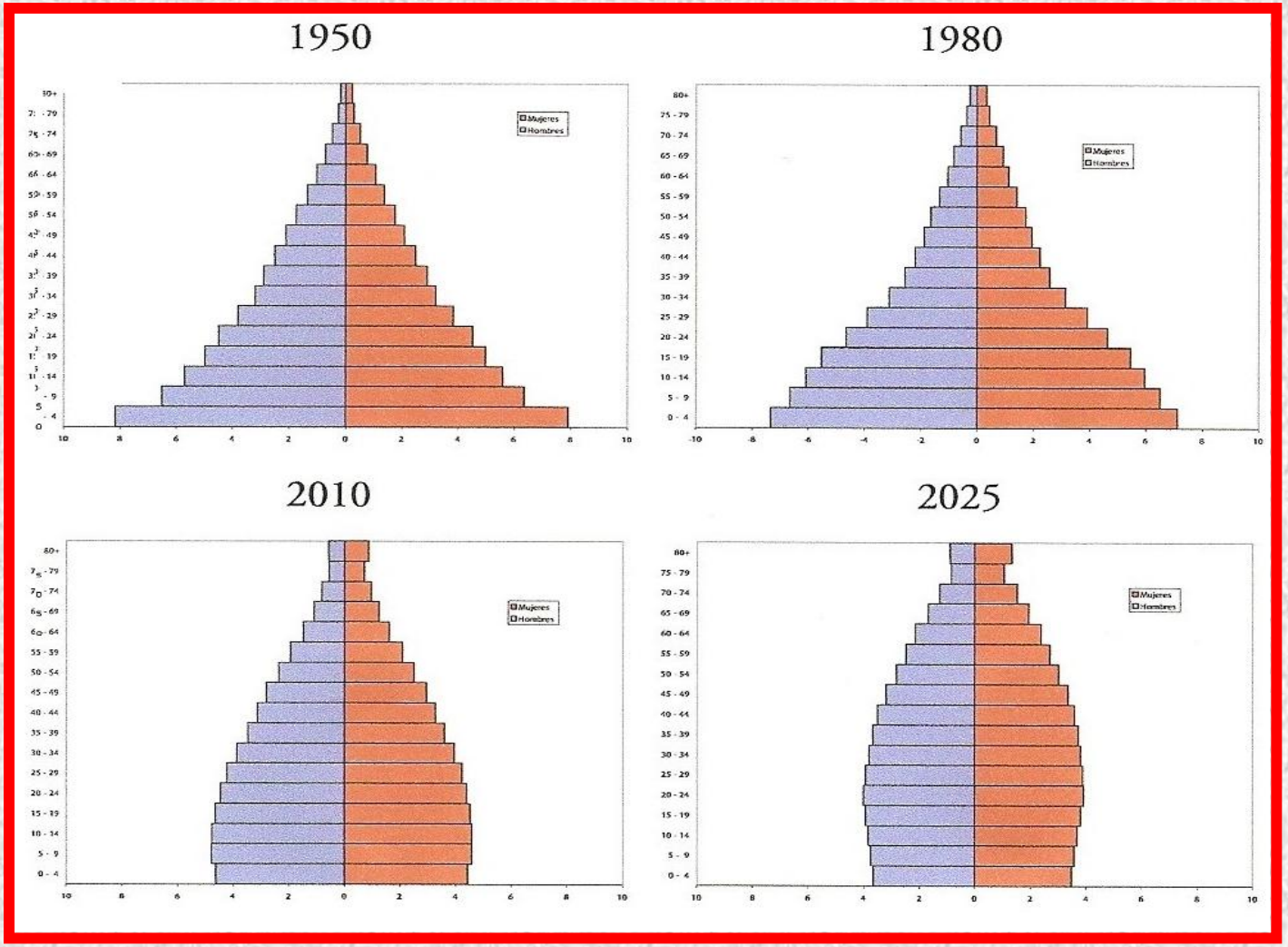
YEAR	BILLIONS	POPULATION GROWTH PERIOD	FERTILITY RATE (x 1000)
1804	1	250 000 years	
1927	2	123	
1960	3	33	4.8
1974	4	14	4.8
1987	5	13	
2000	6	12	2.6
2011	7	12	2.1

Source: The Demographic Transition Keith Montgomery Department of Geography and Geology,
THE ECONOMIST, The World in 2011, p. 28

AGE STUCTURE OF POPULATIONS

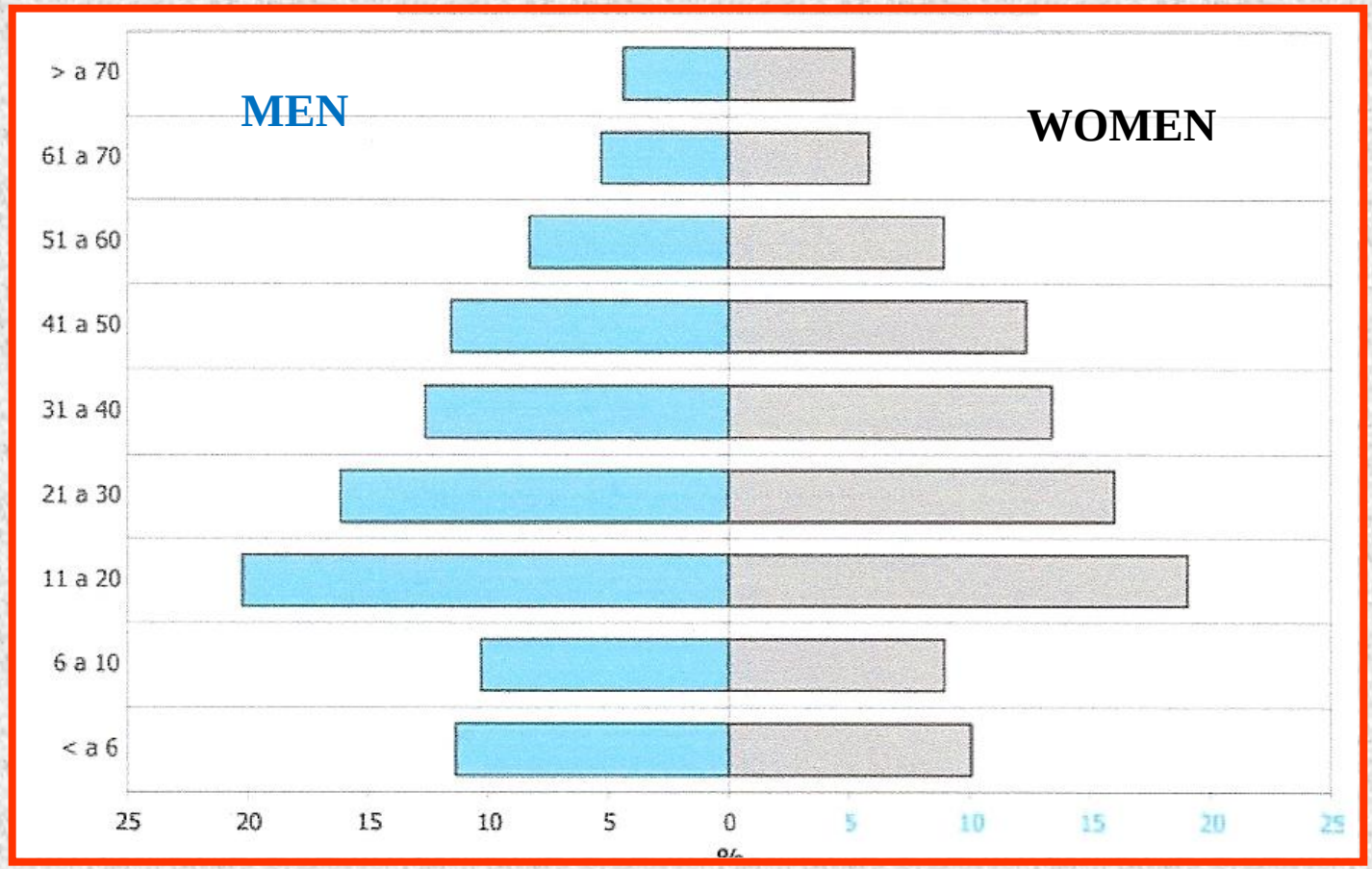
- A population pyramide is a graph that reflects the age and sex structure of a population in a given moment.
- The population structure is the result of the relation between natality and mortality.
- In the developed countries mortality rates are low and life expectancy is high.
- In the developing countries mortality is high and life expectancy is lower.

DEMOGRAPHIC STRUCTURE IN LATIN AMÉRICA
1950 - 2025



Source: OPS/OMS, 2011, ECONOMÍA Y SALUD (2): La Transición Demográfica, p.55

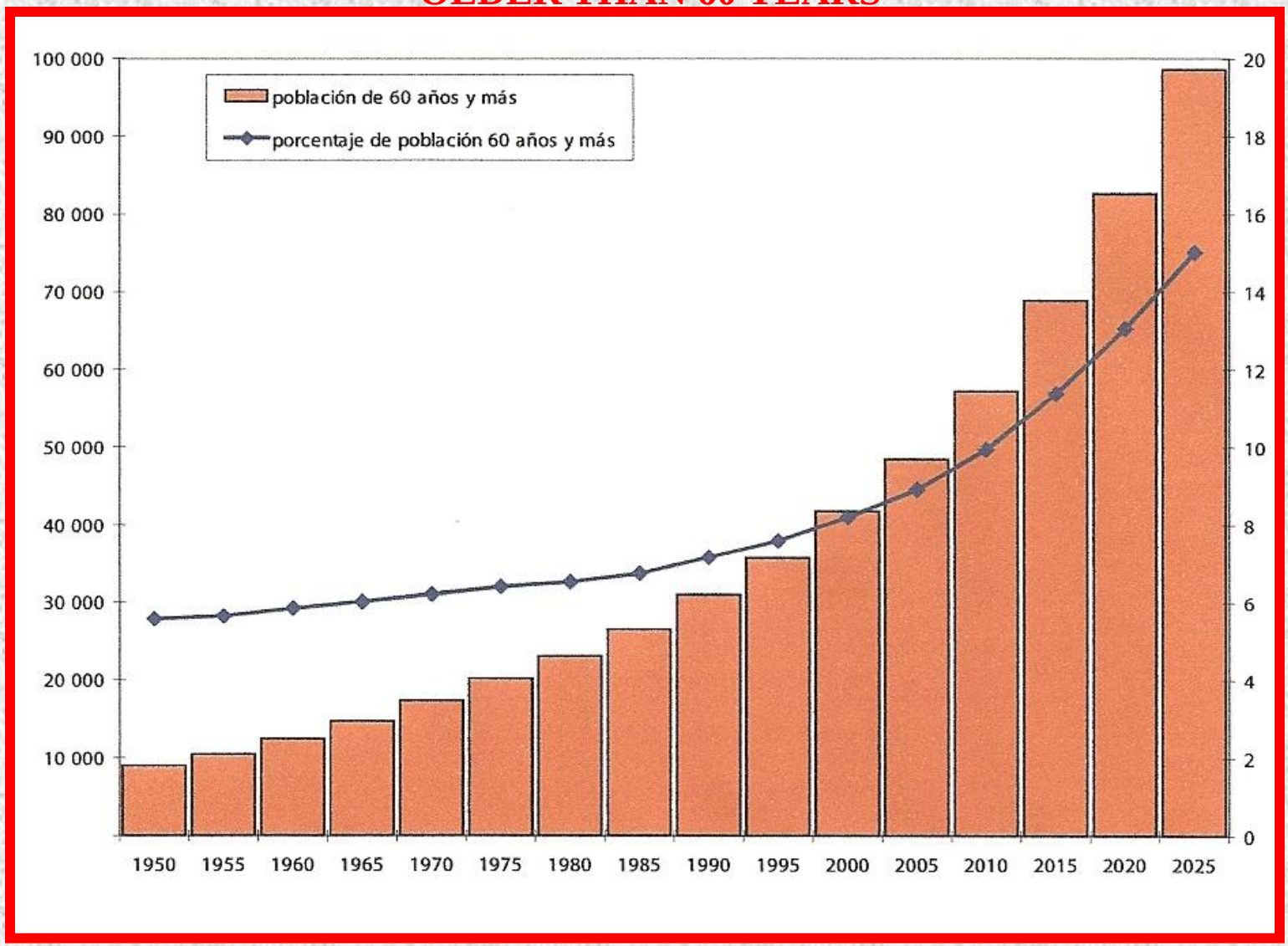
POPULATION PYRAMIDE, COLOMBIA 2010



Source: PROFAMILIA, Ministerio de Salud, Colombia, Encuesta Nacional de Nutrición y Salud, 2010 p.79

ABSOLUTE AND RELATIVE DISTRIBUTION OF POPULATION OLDER THAN 60 YEARS

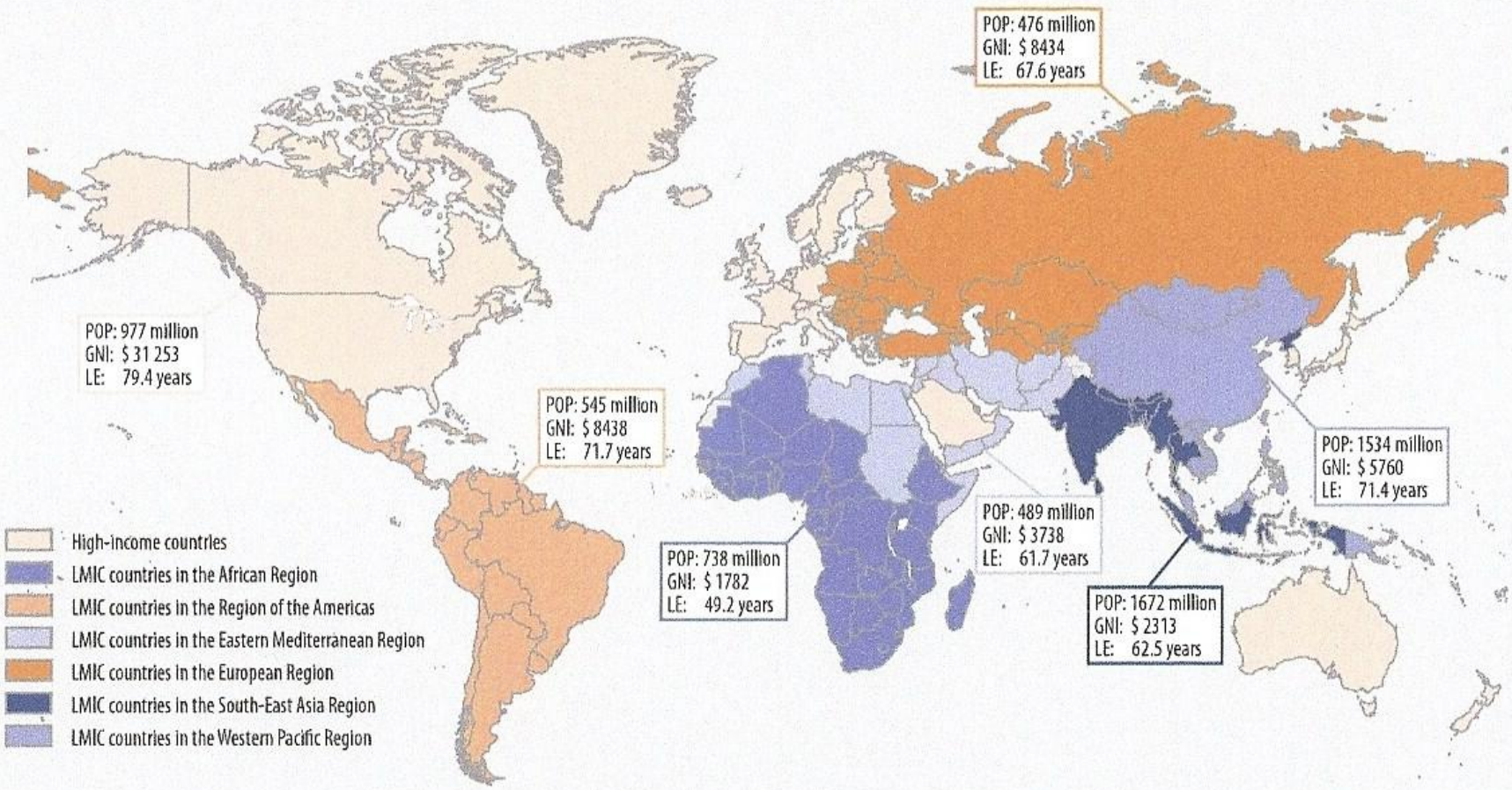
POPULATION



PROPORTION OF OVER 60

Source: OPS/OMS, 2011, ECONOMÍA Y SALUD (2): La Transición Demográfica, p.58

PER CAPITA INCOME AND LIFE EXPECTANCY



POP, population; **GNI,** gross national income per capita (international dollars); **LE,** life expectancy at birth; **LMIC,** low- and middle-income countries.

Source: WHO, 2009, Global Health Risks, Geneva 2009 p.7

PER CAPITA INCOME AND LIFE EXPECTANCY LATIN AMERICA 2010

Country	Per capita income (US) (2009)	Life Expectancy (years) (2010)
Chile	9 510	79.0
Mexico	10 000	77.0
Uruguay	8 020	76.1
Argentina	7 515	76.0
Ecuador	3 730	75.7
Venezuela	9 170	74.5
Peru	3 990	74.1
Colombia	4 610	73.8
Bolivia	1 450	66.8

Source: Organización Panamericana de la Salud, Proyecto de Información y Análisis de Salud. Iniciativa Regional de Datos Básicos en Salud. Washington DC, 2010.

MORBIDITY PATTERNS AND ECONOMIC DEVELOPMENT

- **The most common causes of death in developed countries are cardiovascular diseases, cancer and diabetes.**

- **Infectious and parasitic diseases are still frequent causes of death in developing countries.**

CAUSES OF DEATH IN DEVELOPED COUNTRIES

ORDER	DISEASE	% OF DEATHS
1	Ischaemic heart disease	22.9
2	Cerebrovascular disease	13.3
3	Lung Cancer	4.5
4	Respiratory Infections	3.4
5	Pulmonary obstructive disease	3.1
6	Colon Cancer	2.6
7	Diabetes mellitus	1.1

Source: Kawabachi I, Wamala S (Eds.), 2007, Globalization and Health Oxford University Press, Chapter 16, p.277

CAUSES OF DEATH IN DEVELOPING COUNTRIES

ORDER	DISEASE	% OF DEATHS
1	Ischaemic heart disease	9.5
2	Cerebrovascular disease	8.5
3	Respiratory Infections	7.9
4	HIV/AIDS	6.3
5	Perinatal conditions	5.5
6	Pulmonary obstructive disease	5.3
7	Diarrheal diseases	4.1

Source: Kawabachi I, Wamala S (Eds.), 2007, Globalization and Health Oxford University Press, Chapter 16, p.277