

# Populations in Transition

## Definitions

**Crude birth rate:** (number of births/total population) X 1000

**Crude death rate:** (number of deaths/total population) X 1000

**Life expectancy:** average number of years at birth a person can expect to live.

**Infant mortality rate:** number of babies that die before 1 year old/ 1000 live births/year.

**Child mortality rate:** number of children that die before 5 years old/ 1000 live births/year.

## Patterns in MEDCs

**Low birth rates** due to:

- \* Low infant & child mortality rates
- \* Women remaining in education longer,
- \* Increased gender equality in the workplace has attracted more women to establish careers before having children.
- \* Cost of children has reduced the size of families.
- \* Family planning education & contraception availability.

**Death rates** increasing as these countries experience ageing populations, diet & lifestyle are leading to increased heart conditions.



## Patterns in LEDCs

**High birth rates** due to:

- \* Lack of access to contraception & family planning services.
- \* Higher infant mortality rates.
- \* Lack of state pensions means elderly rely on children for care.

**Falling death rates** due to:

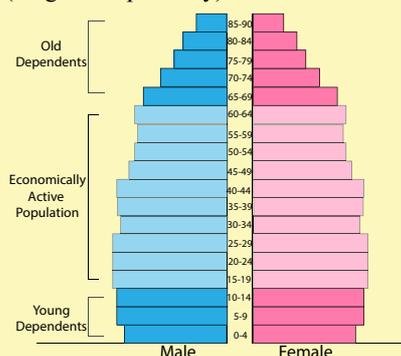
- \* Improvements in health care
- \* Better diet - more calories & wider range of food (nutrients)
- \* Improved sanitation and water supplies

## Population Pyramids

These display the age and sex make up of a population & give a good indication as to the birth & death rates. They also display the proportions of dependent & economically active sections of the population.

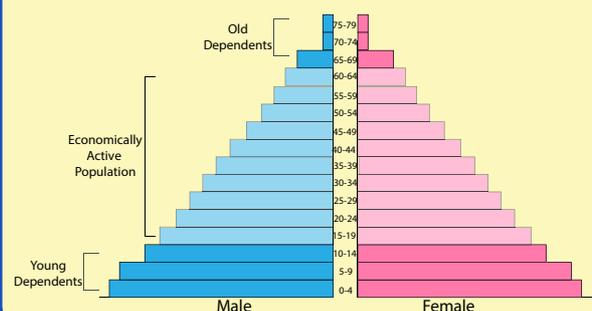
### MEDC Population Pyramid

Narrow base (low birth rate)  
Steep side (low infant & child mortality rates)  
Tall (long life expectancy)



### LEDC Population Pyramid

Wide base (high birth rate)  
Sloping sides (higher infant & child mortality rates, impact of AIDS)  
Short (low life expectancy)



## Soil & Change

\* **Soil degradation:** includes the actual **loss of soil** (erosion), the **depletion of its nutrient content** and the **contamination/pollution** of soil.

\* **Salinisation:** increase in salt levels in top soil - occurs in arid areas with high evaporation rates which draws deeper saline water upwards.

\* **Leaching:** water passing through soil removes nutrients

\* **Eutrophication:** leaching of fertilisers into rivers can cause excess growth of algae; this can deplete the river of dissolved oxygen & block out sunlight causing the death/depletion of many other plants & fish in the river.

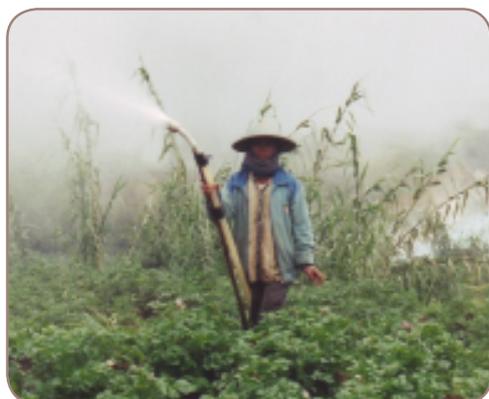
### Causes of Degradation

\* **Overgrazing:** increased livestock numbers overgraze the land, leaving bare patches of soil which are then eroded by wind & rain. Trampling by livestock kills vegetation & compacts soils.

\* **Deforestation:** removal of trees for agriculture/timber reduces interception of rain & leaves soils exposed to erosion. Many of the nutrients are stored in trees.

\* **Monocultures:** plantations of single crops remove specific nutrients which are not replaced as the vegetation is taken away to be sold.

\* **Irrigation:** in arid areas high evaporation rates draw water upwards and this brings salts with it causing **salinisation**.



### Consequences

\* **Loss of fertility:** increased pressure on agricultural land leads to its over-use & nutrient depletion. Fertilisers are then required to keep up crop yields.

\* **Fertilisers:** increase farming costs & so increase food costs. They also leach into water supplies which can cause eutrophication as well as health issues.

\* **Land prices:** soil degradation reduces value of land, so fertile land becomes more valuable/expensive which leads to higher food prices.

\* **Rural - urban:** migration: increases as land becomes less productive.

\* **Diet:** less crops - less food & variety of food, can cause malnutrition.

### Soil Management Strategies

**Terracing:** reduces surface run-off, slowing down erosion. Allows more intense farming on slopes.

**Afforestation:** trees increase rain interception, roots hold soils in place and trees act as wind-breaks reducing wind erosion of soil.

**Crop rotation:** different crops require different nutrients from the soil, rotating crops allows soils to replace lost nutrients.

**Contour ploughing:** ploughing along the gradient of the slope avoids channels facing down the slope & reduces surface run-off.

**Hedges:** provide protection from the wind & reduce wind erosion of bare soil.



### Case Study: Nepal

**Location:** In the Himalayan mountain range between China and India.

#### Causes:

- Poor country with majority of people living through subsistence agriculture. Steep land.
- Increases in deforestation due to demand for timber for fuel & building. Clearance of trees to allow farming.
- Monsoon rains major cause of soil erosion in deforested areas (including terraced slopes).

#### Solutions

- Tree-planting schemes to stabilise soils (afforestation)
- Using alternative fuels (animal dung) - although this then reduces organic fertilising of the soil by dung.