### Why Is Population Increasing at Different Rates?

- Demographic transition & world population growth
  - Most countries = stage 2 or stage 3 of the Demographic Transition
    - Stages 2 and 3 are characterized by significant population growth
  - No country is in stage 1 of the demographic transition
  - It is easier to cause a drop in the CDR than in the CBR

# Why Might Overpopulation be a Concern?

- Malthus on overpopulation
  - An Essay on the Principle of Population (1798): Population grows geometrically while food supply grows arithmetically
  - Criticism of Malthus includes the following:
    - Pessimistic viewpoint
    - Failure to consider technological innovation
    - Marxist critique

## Is there likely to be a population crisis?



### **Pessimistic Approaches**

- Thomas Malthus (1776-1834)
- Wrote "An essay on the Principle of Population" in 1798 which described a forthcoming population catastrophe



- World population was then nine million
- World population has now grown to close to SEVEN billion

### **Malthus' Core Principles**

- Food is **essential** for life
- Population increases *faster* than food supply

Therefore, Malthus predicted that population would grow until it reached the limit of food supply, then there would be widespread poverty and famine.

### Malthus recognized that:

*Population,* if left unchecked, will grow *geometrically*:

Whereas **food supply** increases **arithmetically** as the amount of land is finite:

1, 2, 3, **4**, **5**, **6** 

### And therefore he said ...

#### ... there would be a Malthusian catastrophe!

At the point where population reaches its limit of food supply there will be war, famine and disease.

Time

Population

Food supply

Population

### **Malthusian Checks**

- Malthus stated that once population reached this point, checks would come into play to readdress the balance between population and resources:
  - 1. positive checks increased levels of misery (war, famine and disease)
  - **2. preventative checks** celibacy, later marriage etc

### So, was Malthus right?!

## Was Malthus right?

- Evidence to support Malthus:
  - There has been a population explosion
  - Repeated wars & famines in Sahel region of Africa suggest population growth has outstripped food supply
  - FAO says that more than 800m people are chronically malnourished
  - UN say that by 2050 4.2 Billion people will be living in areas that cannot provide enough water for basic needs.



#### The Sahel region of Of Africa

### But ...

### Critics say that Malthus did not allow for:

- the development of new technology
- The opening of new land for cultivation (mainly in the LEDW Less Developed World)
- The development of irrigation systems which have allowed for increased yields
- The Green Revolution widespread introduction of high-yield crop varieties, pesticides, fertilizers etc
- The slow down in population growth as countries develop economically and progress to the latter stages of the DTM - Demographic Transition Model.

### **Neo-Malthusians**

Neo = new

 Accelerated population growth in LDCs since the 1950s renewed Malthusian fears

 1972, The Club of Rome published "Limits to Growth Model"

### Club of Rome – basic conclusion

- If present growth trends continue, and if associated industrialization, pollution, food production and resource depletion continue unchanged, the limits to growth on this planet will be reached some time in the next one hundred years.
- The most probable result being a sudden & uncontrollable decline in population and industrial capacity.

### Is the Club of Rome right?

- Don't panic yet!!!
- Doesn't take into account the ability of humans to respond to situations and innovate
- Human responses have changed e.g. alternative energy, HYV – High Yield Variety seeds sent to Africa

## A more optimistic approach

- Ester Boserup 1910-1999
- Wrote *"The Conditions of Agricultural Growth"* in 1965



- Opposite to Malthus
- People have resources of knowledge and technology to increase food supply as necessary

## **Boserup's main points**

- Environments have limits that restrict population
- But these limits can be changed using technologies
- Population growth is the trigger for innovation to allow food supply to increase
- e.g. irrigation, weeding, crop intensification, better seed quality, tools, techniques etc

### Was Boserup right?

- Evidence which *supports* Boserup:
  - Increasing intensity of shifting cultivation
  - Move from 'slash and burn' practices to using irrigation in rural areas with higher population densities
  - The Green Revolution widespread introduction of high-yielding varieties, pesticides etc
  - Hugely increased yields allowed more people to be fed
  - GMOs Genetically Modified Organisms

## Was Boserup right?

 Boserup admits that overpopulation can lead to unsuitable farming practices which may degrade the land

 E.g. population pressure as one of the reasons for desertification in the Sahel region

### What Do You Think?



# Applying the Ideas of Malthus and Boserup





### Malthus & Boserup

- There is evidence *to suggest* that the ideas of Malthus and Boserup may be appropriate at different scales.
- On a global level the growing suffering and famine in some *LDCs* may reinforce *Malthusian* ideas.
- On a national scale some governments have been motivated by increasing populations to develop their resources to meet growing demands.





### **Location Map**



### Map of Mauritius



## Mauritius: Population Change

### **Population**

1992: 1,094,000 2025: 1,365,000 <u>Growth Rate</u>: 1.45% <u>Pop doubling time</u>:

47 years Fertility Rate:

2.17 children



### Mauritius: Physical Geography



- <u>Area:</u> 1860 sq km
- Natural Resources: arable land & fish
- <u>Agriculture</u>: a/c for 10%
  GDP
- Climate: tropical
- Soils: fertile
- Exports: sugar 32%; garments 31%; plastics 32%; others 5%

### The Issues?

- 1.What can we say about the rate of population growth in Mauritius?
- 2. How does the graph opposite contribute to our understanding of population growth in Mauritius?



### Crisis? What Crisis?

Consider the graph again. To what extent do you agree with this statement: *In the1950's Mauritius Was experiencing a 'Malthusian crisis'* 



### **Possible Answer!**

- Birth rate had risen sharply from 35 to 45+ per thousand
- Death Rate had declined sharply from 30 to 15 per thousand
- Rate of natural increase suddenly very steep
  PRESSURE ON THE ECONOMY/NATURAL

PRESSURE ON THE ECONOMY/NATURAL RESOURCES/AGRICULTURE

### **Population Resources Equation**

- Population increasing
- Diminishing resources (more mouths to feed and more people to support)



### What happened next?

### Malthus - doom & gloom? OR Boserup - 'technological' change



### **Government Intervention**

The Government organized a family planning program, aiming to:

- improve the status of women
- restrict early marriage
- provide better health care
- set up a family planning service

### **Other influencing factors 1**

- Changes in attitude to family size
- improved educational opportunities for women
- improved female work opportunities (by 1990 35% of women were in paid employment (22% in 1975))
- getting married later on in life

### **Other influencing factors 2**

- Diversification of agriculture (2 crops and "derocking")
- Investment in industry
- Improved trading links as an ex colony of the UK it is quite 'westernized' and has a democratic, stable Government - this has helped forge links with the USA
- Many TNC's are drawn to Mauritius Why might this be? Suggest some reasons!!!

### **Mauritius - TNC Attractor!**

- Holds 'Export Processing Zone' (EPZ) status
- Tax incentives available
- Has large numbers of well educated residents

- Good level of investment in transport
- Good supply of cheap labor
- The creation of a Freeport at Port Louis

### Population Resources Equation



### Questions to Consider...

- 1. Compare the experiences of Mauritius with the theories of Malthus and Boserup.
- 2. To which theory is Mauritius closer?
- 3. 'A poor country's fragile economy cannot keep up with population growth, so people will just get poorer and poorer'. Use evidence from Mauritius to comment on this view, stating whether or not you agree with it.