### Topic 8: Resource Reliance

#### Environment and Food: Fishing and Farming

| Resource Reliance Graph
| Consumption – The act of using up resources or purchasing goods and produce. Carry Capacity – A maximum number of species that can be supported. Resource consumption exceeds Earth’s ability to provide! 

#### 1. Population Growth

- Currently the global population is 7.3 billion. 
- Global population has risen exponentially this century. 
- Global population is expected to reach 9 billion by 2050.
- With more people, the demand for food, water, energy, jobs and space will increase.

#### 2. Economic Development

- As LIDCs and EDCs develop further, they require more energy for industry. 
- LIDCs and EDCs want similar lifestyles to ACs, therefore they will need to consume more resources. 
- Development means more water is required for food production as diets improve.

#### 3. Changing Technology and Employment

- The demand for resources has driven the need for new technology to reach or gain more resources.
- More people in the secondary and tertiary industry has increased the demand for resources required for electronics and robotics.

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### Environment and Water: Reservoirs and Water Transfer

<table>
<thead>
<tr>
<th>Methods</th>
<th>Environmental and Ecosystems</th>
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<tbody>
<tr>
<td>Increasing storage to hold more water and constructing more dams to control river flow can provide a reliable source of water.</td>
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<tr>
<td>Can flood a large area of land and damage habitats and natural landscapes.</td>
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<tr>
<td>Dams can be a barrier for certain species to migrate upstream.</td>
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<tr>
<td>Natural flow of sediment is disrupted, which then reduces fertility of land further down.</td>
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<td>Large-scale engineering works can damage ecosystems along the route.</td>
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<tr>
<td>Lots of energy is required to pump water over long distances.</td>
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### Food Security

- Poverty prevents people affording food and farmers buying modern equipment. 
- Poor infrastructure makes food difficult to transport fresh food. 
- Conflict disrupts farming and prevents supplies. 
- Food waste due to poor transport and storage. 
- Climate Change is affecting rainfall patterns making food production difficult.

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### Environment and Energy: Deforestation and Mining

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<th>Environmental and Ecosystems</th>
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<tr>
<td>Logging using modern machinery and transportation has made deforestation more productive &amp; convenient.</td>
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<tr>
<td>2 billion people depend on wood for fuel, which therefore creates high CO2 emissions.</td>
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<td>Forests provide for important habitats.</td>
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<td>Clearing of forests leads to soil erosion.</td>
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<tr>
<td>Tree intercepts rain and prevents flooding.</td>
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<tr>
<td>Large machines and drill technology can remove and reach through material effectively.</td>
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<tr>
<td>Mining waste can pollute soil and contaminate water supplies.</td>
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<tr>
<td>Habitats are destroyed in mining zones.</td>
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<td>Fossil fuels burnt release greenhouse gases</td>
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### Malthus and Boserup’s Theories about Food Supply

- Malthus Theory 
  - Believed that population would increase faster than food supply. 
  - This would lead to a lack of food being available. 
  - Malthus believed this would cause large scale famine, illness and war. 
  - This would occur until population returned to level that can be supported.

- Boserup Theory 
  - Believed that however big the population grew, people would find ways to manage. 
  - If food supplies became limited, people would find new ways to increase production. 
  - These solutions would often involve creating new technologies.
Food security varies around the world. Some people and places are more food secure than others. This can often depend on how much a country can grow and is able to afford.

### Measuring Food Security

<table>
<thead>
<tr>
<th>Food security indicators</th>
<th>Daily Calorie Intake</th>
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<tr>
<td>- The Global Hunger Index</td>
<td>- Effectiveness of urban agriculture allows people in urban areas to produce their own food</td>
</tr>
<tr>
<td>- In the Global Hunger Index Tanzania ranks 98th out of 109 countries with a score of 33.7 out of 100 (the lower the score the less food security)</td>
<td></td>
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<tr>
<td>- The index gives a value for each country from 0 (no hunger) to 100 (extremely alarming food insecurity)</td>
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<tr>
<td>- The profits benefit the community in the region</td>
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<tr>
<td>- In 2012 43.5% live on less than $1.25 a day so only used for high value crops.</td>
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<tr>
<td>- Most people growing their own food, animals and insects.</td>
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<tr>
<td>- Southern Agricultural Growth Corridor (SAGCOR) 2010 – aims to improve farming as a growth corridor. Millions invested in infrastructure to create 6 key cluster areas with better connections to world and national markets. By 2030 will create thousands of jobs &amp; millions out of poverty.</td>
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<td>- Tanzania has an average calorie supply per day of 2137. This has risen from 1696 calories a day in 1964 to 2283 calories in 1989. It fell to a low of 2056 calories in 1999 before rising again to 2137 in 2012.</td>
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<td>- South各国's president asked Canada for help growing wheat using modern technology. Between 1968 - 1993 $95 million of aid given</td>
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<tr>
<td>- Covered 35, 400 hectares in northern Tanzania and Canada helped develop seeds and provided expertise, training and machinery</td>
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### Attempts to Achieve Food Security

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<th>Social</th>
<th>Economic</th>
<th>Environmental</th>
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<tr>
<td>Ethical Consumerism</td>
<td>- This involves buying products that have a positive social, economic and environmental impact today, without compromising future generations.</td>
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<td>Social</td>
<td>- This is a global movement to give farmers a fair price for their products.</td>
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<tr>
<td>Intensive Farming</td>
<td>- The profits benefit the community with schools and medical facilities.</td>
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<tr>
<td>Food Waste</td>
<td>- Involves using farming methods that protect farmers rather than destroys environments.</td>
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<tr>
<td>Organic Methods</td>
<td>- Involves changing the DNA of foods to enhance their productivity and properties.</td>
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<tr>
<td>Food Production</td>
<td>- This shows how many calories per person that are consumed on average for each country.</td>
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<tr>
<td>Technology</td>
<td>- Involves using farming methods that protect rather than destroys environments.</td>
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<tr>
<td>Genetically modified (GM)</td>
<td>- This is a method of growing plants without soil. Instead they use nutrient solution.</td>
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<tr>
<td>Hydroponics</td>
<td>- This is a global movement to give farmers a fair price for their products.</td>
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<td>Urban Gardens</td>
<td>- Involves using farming methods that protect rather than destroys environments.</td>
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### Case Study: Tanzania Food Security

**Food Availability in Tanzania**

- Tanzania has an average calorie supply per day of 2137. This has risen from 1696 calories a day in 1964 to 2283 calories in 1989. It fell to a low of 2056 calories in 1999 before rising again to 2137 in 2012.

**Food consumption in Tanzania**

- Between 1990 and 2015 child mortality has fallen from 17% to 4%.
- Percentage undernourished has increased from 24% in 1991 to 32% in 2015.
- There is enough available food but it is not shared out equally.
- More nutritious diet and better quality of life.
- Success is seen by an increase in profits earned by farmers involved in the scheme.

**Success in securing local food security**

- Goat Aid by Farm Africa imported Toggenburg goats at a cost of £400 a goat. £200,000 was invested in the Babati region.
- These produced 3 litres of milk a day and villagers were taught how to keep and care for them. Were given on credit and cost repaid slowly.
- Benefits include income from breeding, meat, more nutritious diet and better quality of life.
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**Effectiveness of past attempts at food security**

- Tanzania’s president asked Canada for help growing wheat using modern technology. Between 1968 - 1993 $95 million of aid given.
- Covered 35, 400 hectares in northern Tanzania and Canada helped develop seeds and provided expertise, training and machinery.

**Effectiveness of present attempts at food security**

- Southern Agricultural Growth Corridor (SAGCOR) 2010 – aims to improve farming as a growth corridor. Millions invested in infrastructure to create 6 key cluster areas with better connections to world and national markets. By 2030 will create thousands of jobs & millions out of poverty by encouraging big commercial farms to cluster areas (hubs) which will help improve surrounding areas (outgrower areas)
- Other examples include tobacco processing factories / sunflowers

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