25SCHOOLS
FREE LEARNING NOTES FOR ZAMBIA

FORM 1

Geography

Population and Natural Resources

Lesson notes for learners · Competence-Based Curriculum

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Every person needs food, water, energy and somewhere to live, and all of these come from natural resources. As the population of Zambia grows, more resources are needed, yet many resources are limited. In this note you will see how population and natural resources affect each other, what happens when demand is greater than supply, and what people can do to keep a balance.

AFTER THESE NOTES YOU SHOULD BE ABLE TO

- Explain how population growth increases the demand for natural resources
- Describe the effects of using resources faster than they can be renewed
- Suggest ways of managing the relationship between population and natural resources
- Practise habits that use natural resources wisely at school and at home

KEY WORDS

Natural resources	Materials from nature that people use, such as water, land, energy, minerals and timber.
Overutilisation	Using a resource faster than nature can replace it.
Sustainability	Using resources in a way that leaves enough for people in the future.
Scarcity	A shortage, when there is not enough of a resource for everyone who needs it.
Carrying capacity	The number of people an area can support with its resources.
Circular economy	A way of working in which resources are reused and recycled instead of thrown away.

1 How population and natural resources are linked

Natural resources are the foundation of human survival and economic activity. They give the raw materials for food, shelter, industry and energy. The relationship with population works in both directions. When the population grows, the demand for resources grows. When resources are available, people are better able to live well and the population can grow.

Resources are finite. If people overuse them, the result can be damage to the environment, scarcity and even conflict. A larger population puts more pressure on ecosystems, and this often leads to unsustainable practices in farming, mining, cutting down forests and the use

of energy. In areas where many people live close together, the strain on resources can be faster than nature can renew them. The results include pollution, loss of habitat and a fall in the variety of living things.

Think of a village well that served ten families for many years. If the village grows to fifty families, the same well must supply five times as many people, and it may run dry or become dirty. The well has not changed, but the demand on it has.

2 What a growing population demands

As population grows, people need more of the basic things they depend on. A larger population needs more food, water, energy and living space. It also needs more roads, housing and services, and all of these draw on natural resources.

Food: more people need more agricultural land, more water and more livestock, while the amount of land is limited. Energy: demand for energy such as biomass and hydroelectricity, used for heating and transport, rises and can cause problems such as pollution. Water: the need for fresh water for the home and for irrigation increases as the population increases. Raw materials: demand for minerals, metals and timber grows for construction, manufacturing and infrastructure.

As cities expand, the demand for construction, water supply and energy supply grows too. When a population goes beyond what an area can support, competition for resources becomes stronger. This can lead to conflicts, higher costs and unfair differences between people. Rising standards of living, especially in developing countries, also raise the amount of resources each person uses.

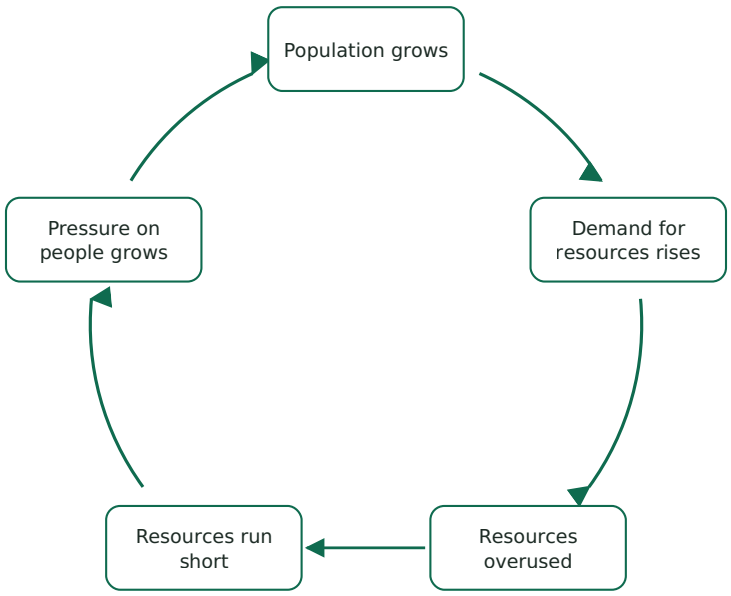


Figure 1. How growing demand can damage resources

3 When resources are overused

Overconsumption happens when people use resources faster than nature can replace them. The module lists several results: soil degradation, water shortages, loss of biodiversity, and air and water pollution.

Environmental damage linked to too many people for the resources available can include over-cultivation and desertification, overfishing, too much carbon released into the air, and climate change. When human activity is greater than the environment's ability to renew itself, the balance of the ecosystem is lost.

A simple example from school life shows the idea. If a school with a small borehole doubles its enrolment, taps are used more often, water is wasted and the borehole may fail in the dry season. The same pattern, a bigger demand on a limited supply, appears at the level of a district and a country.

4 Keeping a balance

People can reduce the effects of overpopulation through technology. Examples are renewable energy such as solar and wind, water purification and recycling, and climate-smart agriculture. Climate-smart practices include crop rotation, agroforestry and mulching.

The relationship can also be managed in other ways. Education and family planning can slow population growth. Sustainable development and green technologies can be encouraged. Environmental laws and international agreements, such as the Paris Agreement, can be put in place. A circular economy, where resources are reused and recycled, can be promoted.

Everyone can take part in daily life. Efficient use means making the best use of water, energy, land and minerals while wasting as little as possible. Reduce, Reuse and Recycle is a simple rule. To save energy, use efficient appliances and turn off lights when they are not needed. To save water, avoid waste and fix leaks. For land, use practices such as fallowing, crop rotation and agroforestry, and avoid cutting trees carelessly to reduce deforestation.

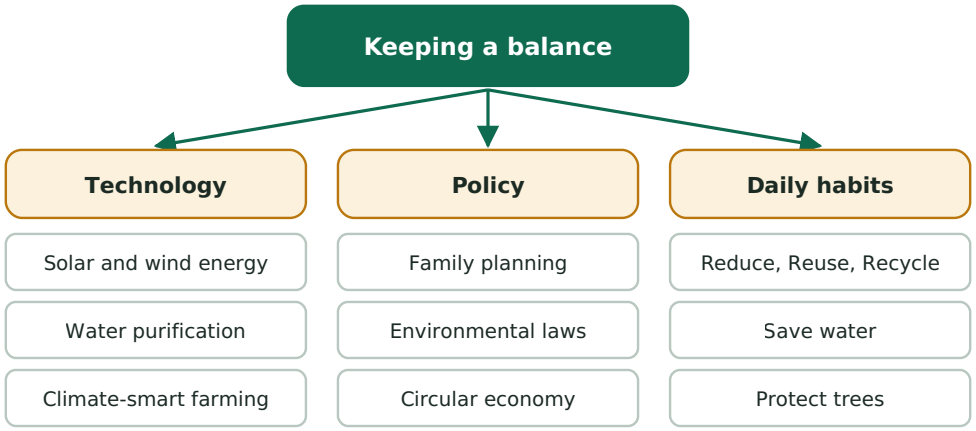


Figure 2. Ways of managing population and resources

TRY THIS

Choose one natural resource in your area, such as water, firewood or farmland. Walk around your school or home and list two ways people use it and one sign of pressure on it. Then write three sentences saying how a larger population in your community would change the demand for it, and suggest two actions your class could take to use it wisely.

REMEMBER

- Natural resources provide food, shelter, energy and raw materials, and they are limited.
- A growing population raises the demand for food, water, energy, land and raw materials.
- Using resources faster than they are renewed leads to soil damage, water shortages, pollution and loss of biodiversity.
- Technology, education, family planning, laws and a circular economy can all help to keep a balance.
- Reduce, Reuse and Recycle, saving water and energy, and protecting trees are actions everyone can take.

? Check yourself

1. A trading centre in Zambia has doubled in size in ten years, and the single borehole that serves it now runs dry every dry season. (a) Which resource is under pressure? (b) Name one way the larger population has caused this. (c) Suggest one action to reduce the pressure.
2. A farming community clears more and more forest to grow food for its growing families, and the soil is becoming poor and dry. (a) Name two results of overuse of land mentioned in the lesson. (b) Which resource is being lost when trees are cut carelessly? (c) Name one climate-smart farming practice t
3. A school council wants to reduce waste at the school, which uses a lot of electricity and water. (a) State what Reduce, Reuse and Recycle means in this case, with one example. (b) Give one way to save energy. (c) Give one way to save water.
4. Explain in your own words why a growing population and its natural resources are said to be linked in both directions. (a) How does population affect resources? (b) How does the availability of resources affect people? (c) Why is balance important?
5. A town council is planning for a city that is expanding, and it is worried about timber, water and energy for new houses. (a) Why does city expansion increase demand for these resources? (b) What can happen when competition for resources becomes strong? (c) Suggest one policy the council could use.
6. Two groups in a class debate this statement: technology is a better answer than controlling population growth. (a) Give one example of technology that helps manage resources. (b) Give one way of slowing population growth. (c) Say which is more helpful for your community, with one reason.

ANSWERS

1. (a) Fresh water. (b) More people use water for the home and for irrigation, so demand has risen. (c) Fix leaks and avoid waste, or use water purification and recycling.
2. (a) Soil degradation and desertification, or loss of biodiversity. (b) Forest and the trees. (c) Crop rotation, agroforestry or mulching.
3. (a) Use less, use again and turn waste into something useful, for example reuse paper or collect bottles to recycle. (b) Turn off lights when they are not needed. (c) Fix leaks and turn off taps when not in use.
4. (a) More people increase demand for resources. (b) Resources decide how well people can live and how the population can grow. (c) Without balance, resources run short and people and the environment suffer.
5. (a) Construction, water supply and energy supply need more resources as cities grow. (b) Conflicts, higher costs and social inequality. (c) Environmental laws, or promoting a circular economy or green technologies.
6. (a) Solar or wind energy, water purification and recycling, or climate-smart farming. (b) Education and family planning. (c) Any reasoned answer that uses the lesson, such as both together because technology saves resources and education slows demand.

Written by 25Schools to follow the Form 1 Geography syllabus of the Zambian competence-based curriculum. Free for learners to read, download and share. More notes and quizzes at 25schools.com.