sazaniassociates

Sazani Trust

Teaching Guide 4

Population and health

Healthy and Sustainable Schools Programme 2nd Edition

Preface

The Healthy and Sustainable Schools Programme is a result of Sazani Associates UK and Sazani Trust Zanzibar's ongoing partnership with the Ministry of Education to improve the quality of education and learning in Zanzibar.

The project is aligned with the Sustainable Development Goals and actively supports teachers and schools in achieving Global Education Target 4.7.

By 2030, ensure that all learners acquire the knowledge and skills needed to promote sustainable development, including, among others, through education for sustainable development and sustainable lifestyles, human rights, gender equality, promotion of a culture of peace and non-violence, global citizenship and appreciation of cultural diversity and of culture's contribution to sustainable development (UNSD, 2021).

Focusing on the combined importance of key skills and healthy and sustainable life skills, we have revised and updated our series of fifteen Teaching Guides to support competency based curriculum linked learning.

The teaching materials are suitable for use in the last two years of primary across the transition to the first two years of secondary school.

There are fifteen Teaching Guides in this series, themed around topics that contribute to healthy and sustainable life styles within the context of Zanzibar, as follows:

1. Why we need to eat well
2. Getting enough food
3. Keeping food safe and clean
4. Population and health
5. Water
6. Sanitation and waste
7. Tourism
8. Biodiversity
9. Agriculture
10. Fisheries and marine resources
11. Energy
12. Land transport
13. Land use
14. Climate change
15. Participatory action learning

Each Teaching Guide is themed and contextualized to bring Zanzibar and contrasting localities into a classroom setting and to make learning engaging and relevant to local livelihoods. Activities are gender responsive, participatory and proven to support numeracy, literacy, English language and critical thinking.

For more information please visit our website **www.sazani.org**

Acknowledgements

This series of fifteen Teaching Guides has been adapted from Sazani Associates HSSP topic books by Rajab S. Ali, Safia M. Abdalla, Mwanawije M. Makame, Patrick Rutledge, Nicola Shone, Joshua Shawe and Rashid O. Shehe, with editorial review by Marilyn James and Dr Cathryn MacCallum. Graphic design and layout by Seven Six Design.

Contents

1 Introduction

The learning content and activities in this Teaching Guide have been designed to be easily integrated across the curriculum. Throughout the resource, knowledge, skills, attitudes, and values are interlinked and are built into all the topic areas addressed.

We have revised and updated our series of fifteen Teaching Guides to support competency-based, curriculum linked learning and development by focusing on the combined importance of key skills including numeracy, literacy, critical thinking and English language for healthy and sustainable lifestyles. The teaching materials are suitable for use in the last two years of primary across the transition to the first two years of secondary school.

There are different methods of displaying this information, through text, tables, diagrams, images and activities. Each activity includes icons to illustrate which curriculum area and which key skills are used as summarized in the tables below.

Key skills				
Numeracy	Literacy	Critical thinking	English language	Creativity
				

Activity / STD V-VI	Maths	English	ICT	Civics	Geography	History	Science	Religion	Arabic
Population of Wales		X		X	X	X	X		
Population density of Wales		X		X	X	X	X		
Population growth in Zanzibar and Wales	X	X		X	X	X	X	X	
Malaria		X	X	X	X	X	X	X	X
Urban and rural population		X		X	X	X	X	X	X
Population maths		X		X	X		X		
Health		X		X	X	X	X	X	
Hygiene		X	X	X	X	X	X	X	X
Hand washing	X	X	X	X	X	X	X	X	X

Activity / Form 1-2	Maths	English	ICT	Civics	Geography	History	Biology	Chemistry	Physics	Religion	Arabic
Population of Wales		X		X	X	X	X				
Population density of Wales		X		X	X	X	X				
Population growth in Zanzibar and Wales	X	X		X	X	X	X	X	X	X	
Malaria		X	X	X	X	X	X			X	X
Urban and rural population		X		X	X	X	X	X	X	X	X
Population maths		X		X	X		X				
Health		X		X	X	X	X	X	X		
Hygiene		X	X	X	X	X	X	X	X	X	X
Hand washing	X	X	X	X	X	X	X	X	X	X	X

2 Topic overview

Population refers to the number of individuals in any given area. We count populations of human beings as well as animals.

Key words

Population: all the inhabitants of a particular place.

Continent: any of the world's main continuous expanses of land (Europe, Asia, Africa, North America, South America, Oceania and Antarctica).

Country: a nation with its own government, occupying a particular territory.

Distribution: an act or instance of distributing.

Sparsely populated: with only a small number or amount of people.

Densely populated: places which are densely populated contain many people.

Did you know?

- In 2006, the population of the world was 6.5 billion (6,500,000,000); today there are more than 7 billion people living on this planet and 1/3 of the people live in Asia alone!
- There are two countries with a population of more than a billion people: China (1.3 billion) and India (1.2 billion). The third biggest population is the United States of America (300 million), that's a billion less people than China.
- The population of Zanzibar was estimated at 1.3 million in 2018.
- The population of Pemba flying foxes, a type of bat which was once a critically endangered species, has now grown to between 22,000 and 36,000 thanks to conservation measures.

3 Population

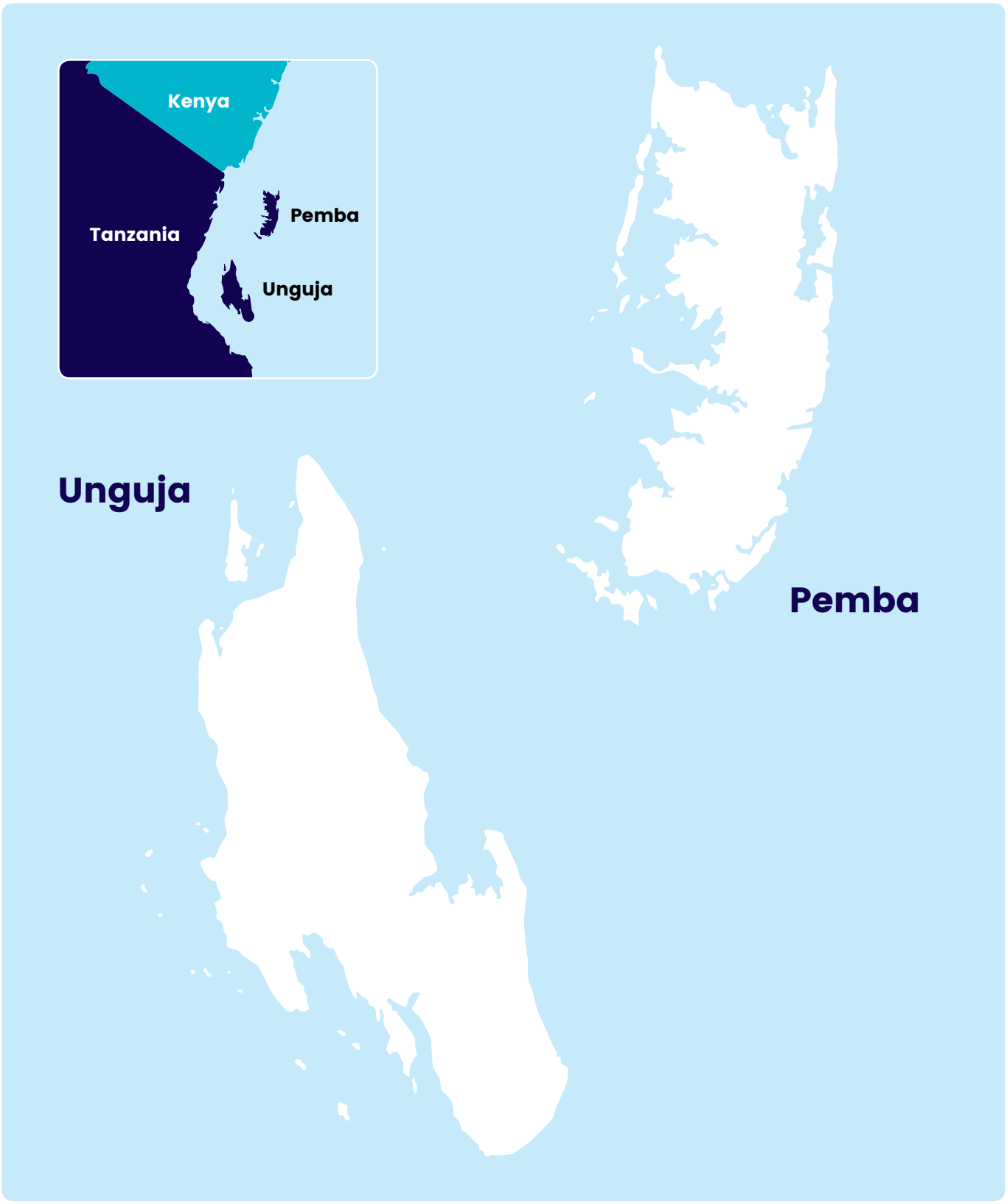
Population distribution refers to how spread out the people are. Population distribution is influenced by many factors. These are summarized in the tables below:

Possible reasons for the existence of sparsely populated areas:	Possible reasons for the existence of densely populated areas:
Few raw materials	Raw materials e.g. buildings
Poor water supply	Water supply
Too steep	Gentle slopes and flat land
Very cold / hot / dry	Pleasant climate
Poor, thin soils	Fertile soils
Not many jobs	Jobs
Little industry	Range of industry and jobs
Poor communications	Well connected

Factors	Densely populated	Examples	Sparsely populated	Examples
Economic	Good roads, railways, airport, development of tourism, etc.	Germany, C, Jamaica.	Poor transport links, lack of industrial development.	Himalayas, Sudan.
Political	Government.	Tokyo Region, North Italy.	Lack of government investments.	Democratic Republic Of Congo.
Social	Better housing opportunities, education, health facilitation.	Arizona, Sydney, Milan.	Poor housing opportunities, limited education and health facilities.	Afghanistan, Soweto.

The population of the world is not evenly distributed, and neither is the population of Zanzibar. The maps shown below show the two major Islands that make up Zanzibar, Unguja (left) and Pemba (right).

Use the table in 3.1 to shade in the two islands with darker colour for areas of greater population and lighter colour for less populated areas.



3.1 Population density

Population density refers to how crowded a place is and is measured in persons per kilometre squared (km²). Census figures show that almost two-thirds of the population (773,000) live on Unguja Island, mostly in and around Stone Town in the west of Unguja (483,000).

	2002 Population	2010 Population	Land Area (000) Km²	Density / Km² 2010
North Unguja	137,000	177,000	470	377
South Unguja	94,000	113,000	854	132
Urban West (in Unguja)	390,000	483,000	230	2101
North Pemba	185,000	254,000	574	443
South Pemba	175,000	247,000	332	743
Total	**981,000**	**1,274,000**	**2460**	**518**

How to work out population density of an area:

In 2010, Zanzibar had an area of **2460km²** and a population of **1,274,000**.

Therefore, the population density = **2,460,000 / 1,274,000 = 518 persons per km²**.

3.2 Population densities for other countries

- Mauritius has a population density of 645 persons per km².
- Singapore has a density of 6,637 persons per km².
- Australia has a population density of 3 persons per km².

Compare the population densities of Mauritius, Singapore and Australia with that of Zanzibar.

What can you say about the population of Zanzibar given the size of the country in contrast to the other countries mentioned?

4 Population growth

Key words

Birth rate: is the ratio between the number of live-born births in the year and the average total population of that year.

Death rate: or mortality rate is the ratio of deaths to the population of a particular area or during a particular period of time, usually calculated as the number of deaths per one thousand people per year.

Migration: the long term movement from one place to another.

Asset: a useful or valuable thing or person.

Labour: work, especially physical work.

Soil erosion: is the displacement of the upper layer of soil; it is a form of soil degradation.

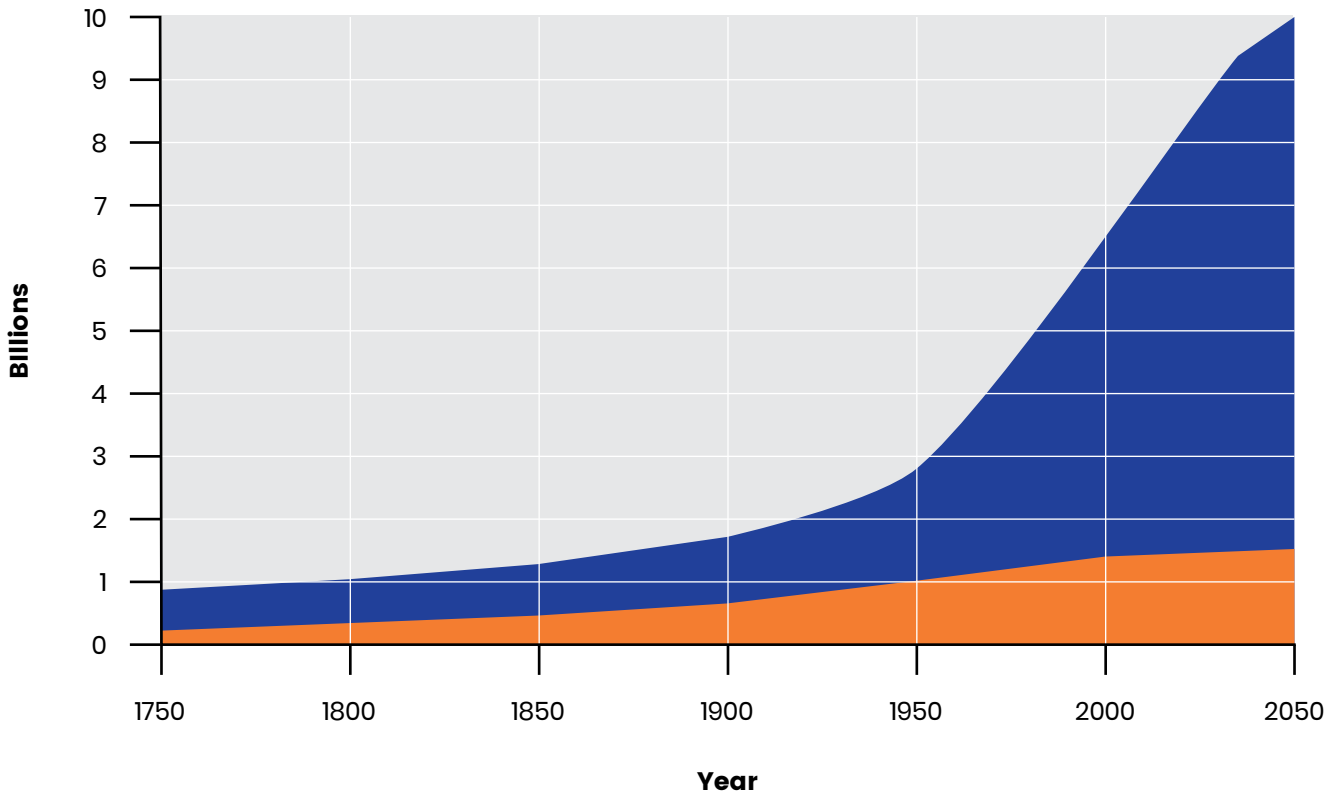
Fertility rate: the total number of births in a single year per 1000 of the population.

Life expectancy: is a statistical measure of the average time an organism is expected to live, based on the year of its birth, its current age, and other demographic factors including biological sex.

Population in Zanzibar has grown over the years. This growth is influenced by birth rates, death rates and migration.

- The birth rate is calculated as the number of live births for every 1000 people in that country.
- The death rate is the number of people who die for every 1000 people in that population.
- The difference between birth rates and death rates gives the natural increase.
- Life expectancy is the average number of years a person is expected to live.
- The dependency ratio is the number of people in the population who depend on the working population per 1,000 people (it does not include the unemployed).
- Migration refers to the movement of people within and between countries.

World population development



4.1 Population growth and consequences

A growing population can be defined as an "asset" or a "liability", with the following impacts:

1. Positive impact

- It can provide labour to utilise the resources lying idle in the under populated areas.
- It can encourage improvements in science and technology. For example: when populations grow people can be forced to change agriculture systems from secondary cultivation.
- Populations can enhance industry and trade since it can provide markets for different goods (both industrial and non-industrial).

2. Negative impact

- Population growth can create pressure for scarce resources leading to over utilisation.
- It can lead to soil erosion and deforestation because of increasing need for food and settlement.
- It can lead to the increase in environmental pollution.
- Crime can increase because of unemployment.
- Increased pressure on social services like healthcare and education.
- Spread of diseases accelerated by population growth.
- Population growth leads to global warming. The carbon legacy of one child can produce 20 times more greenhouse gas than a person will save by driving a high-mileage car, recycling, using energy-efficient appliances and light bulbs, etc.
- The population of the world is increasing very rapidly. Experts say that every hour there are 12,500 extra people living on our planet; that is there is an increase of 3 people every second! This increase is happening so fast that it is called a population explosion.

4.2 Population characteristics in Zanzibar

- A growing population puts additional pressure on the environment especially where there is limited land. This can be said of Zanzibar with a large and growing population (see below) on a small island and with a high population density. 60% of the population lives on Unguja alone.
- Use the following table of statistics to summarise some of the changes that are happening to the Zanzibar population, referring to:
  - Fertility rates.
  - Life expectancy.
  - Total population.

	1988	2002	2010
Total population	640,685	981,754	1,274,000
% Under 15 years of age	47.1	44.3	39.1
Life expectancy (years)	47	57	59.5
Total fertility rate	6.9	6.2	5.1

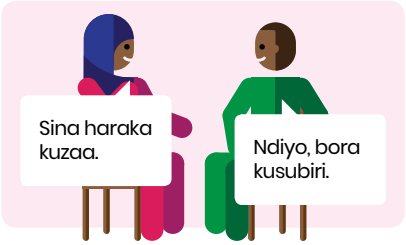
How could the following factors contribute to changes in the population?

1. Reduce poverty

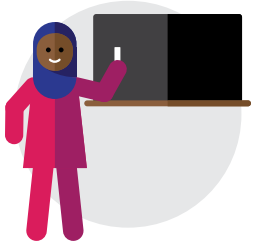
2. Family planning

3. More equality

4. First child at a later age



5. Better education, especially for women



6. Improved health care

*English Translation:

Woman: "I'm in no hurry to get pregnant."

Man: "Yes, better to wait."

5 Populations in nature

Key words

Indigenous species: a species is indigenous to a given region or ecosystem if its presence in that region is the result of only natural processes, with no human intervention.

Habitat: the natural home or environment of an animal, plant, or other organism.

Dispersal: the action or process of distributing or spreading things or people over a wide area.

Pollination: the transfer of pollen to a stigma, ovule, flower, or plant to allow fertilisation.

Parasite: is an organism that lives on or in a host organism and gets its food from or at the expense of its host.

Pathogen: is an organism that causes disease.

Cull: reduce the population of (a wild animal) by selective slaughter.

5.1 The Pied crow and the house crow

The Pied crow (corvus albus) is a native species of Zanzibar and its habitat is mainly on the island of Pemba.

In the past the existence of a stable population of crows brought some benefits. For example, disposal of unwanted waste through their scavenging, dispersal of seeds and pollination, and feeding on both crop pests and animal parasites. However, in the 1880s the Indian house crow (corvus splendens) was introduced to Zanzibar and from here it spread across eastern Africa.

This exotic species is more dependent on the urban way of life than the native Pied crow, and as such their numbers grew in the more densely populated Unguja island. Their invasive, highly competitive and often destructive nature threatens not only the habitat and numbers of the Pied crow and other indigenous species but also agriculture, human health, and industry.

- Wildlife including bird species of weaver, sunbird, and cattle egrets has started disappearing, and turtle eggs are increasingly preyed upon.
- In agriculture crops have been damaged by crows stripping fields of newly sown seeds, whilst in poultry farming the crow's prey on chicks.
- Crows also pose a threat to human health; they are known to carry pathogens which are a disease producing agent and includes cholera and salmonella. This is especially problematic in markets where they defecate on and contaminate produce.
- They can affect tourism, stealing food from tourist tables and mobbing shacks and kiosks, often forcing these businesses to shut down.

The explosion in the Indian house crow population resulted in a 31 year cull, and by 1947, the government of Zanzibar killed 3,303 crows and destroyed at least 78,080 eggs. Despite this the population soon recovered, leading in the 1990s to another program of trapping, rewarding and poisoning, and urban numbers were dropped by 85% and rural numbers by 65%. Currently the crow population remains imbalanced, with the Indian house crow having taken over from the Pied crow completely on Unguja with an estimated population nearing 1 million birds. In comparison, the Pied crow on Pemba represents only a slight of 54.12% of the much smaller total crow population. With the Pied crow in sufficient numbers to negate any threat to their survival as a species, the current crow problem on Pemba is one that is tackled indiscriminately through the use of the poison starlicide.

5.2 Pests and human health

Pests like the house crow have also been cited as having used gutters to store food, which then if not removed can become a breeding site for mosquitoes. If not kept in check and dealt with effectively, incidences of malaria can spread to other people; to the extent that in 2003, it accounted for 43% of all outpatient consultations and was the primary cause of all hospital morbidity and mortality.

6 Combating malaria in Zanzibar

Key Words

Malaria: a serious tropical disease spread by mosquitoes.

Mortality: the number of deaths in a certain group of people in a certain period of time.

Diagnosis: the identification of the nature of an illness or other problem by examination of the symptoms.

Treatment: the management and care of a patient to combat disease or disorder.

Chloroquine: an antimalarial drug.

Artemisinin combination therapy: a fast acting therapy for malaria.

Anopheles gambiae complex: consists of at least seven species of mosquitoes in the genus Anopheles.

Malaria is caused by one principal parasite, responsible for almost all infections called Plasmodium falciparum. This parasite is transmitted by mosquitos to humans by the dominant vector in Zanzibar; anopheles gambiae. The mosquito feeding habits are such that they feed indoors and at night, therefore the individuals most at risk are those asleep. Mosquito nets and insecticidal spraying are both used to help to control mosquito populations and the spread of the disease.

Look at the graph on the next page and compare the number of cases and deaths in 1999 with the number of cases and deaths in 2008.

What does this tell us about the effectiveness of diagnosing and treating malaria?

Pick up leaflets from the Ministry of Health in Zanzibar to find out more about how malaria has been reduced.

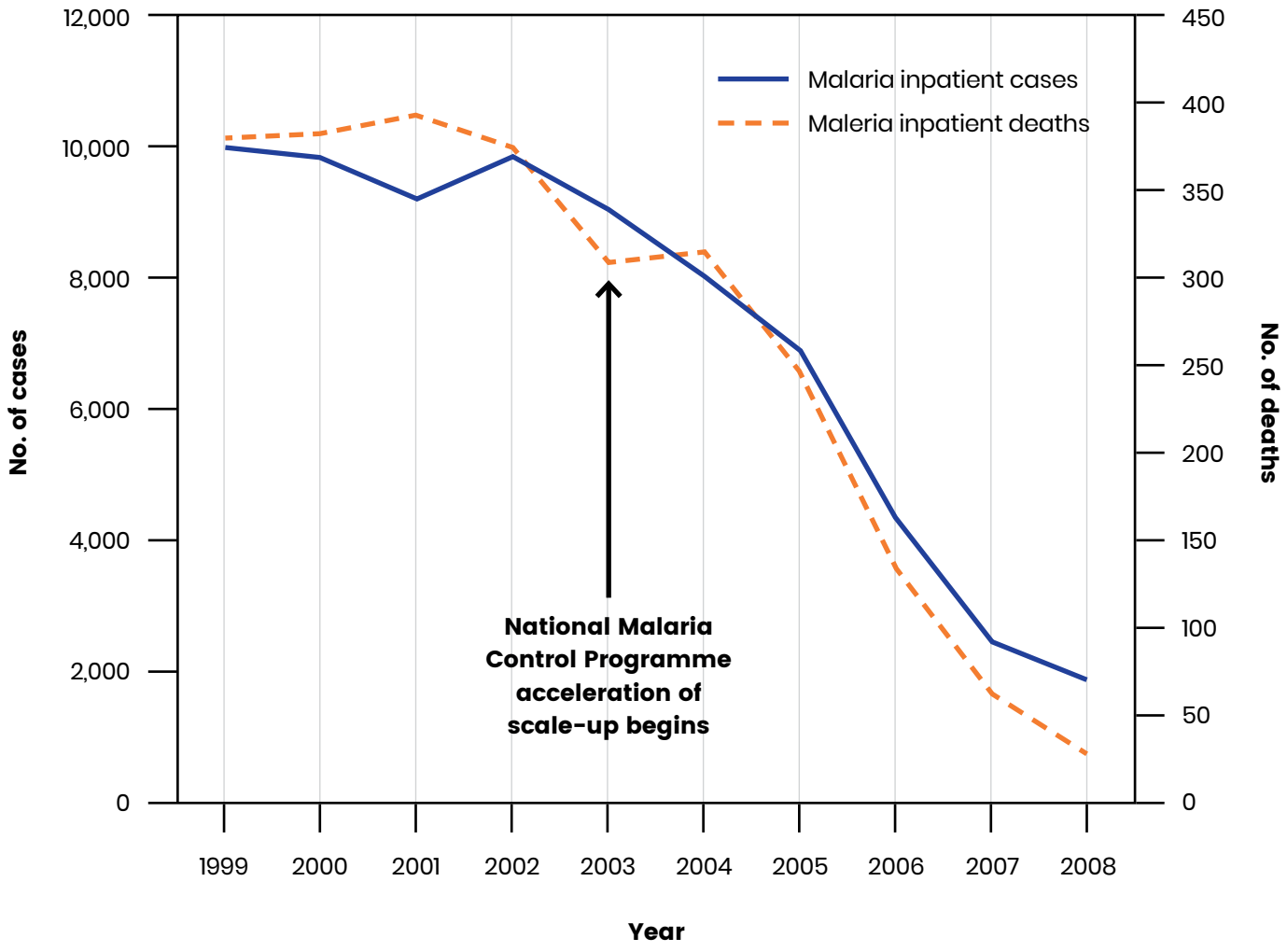


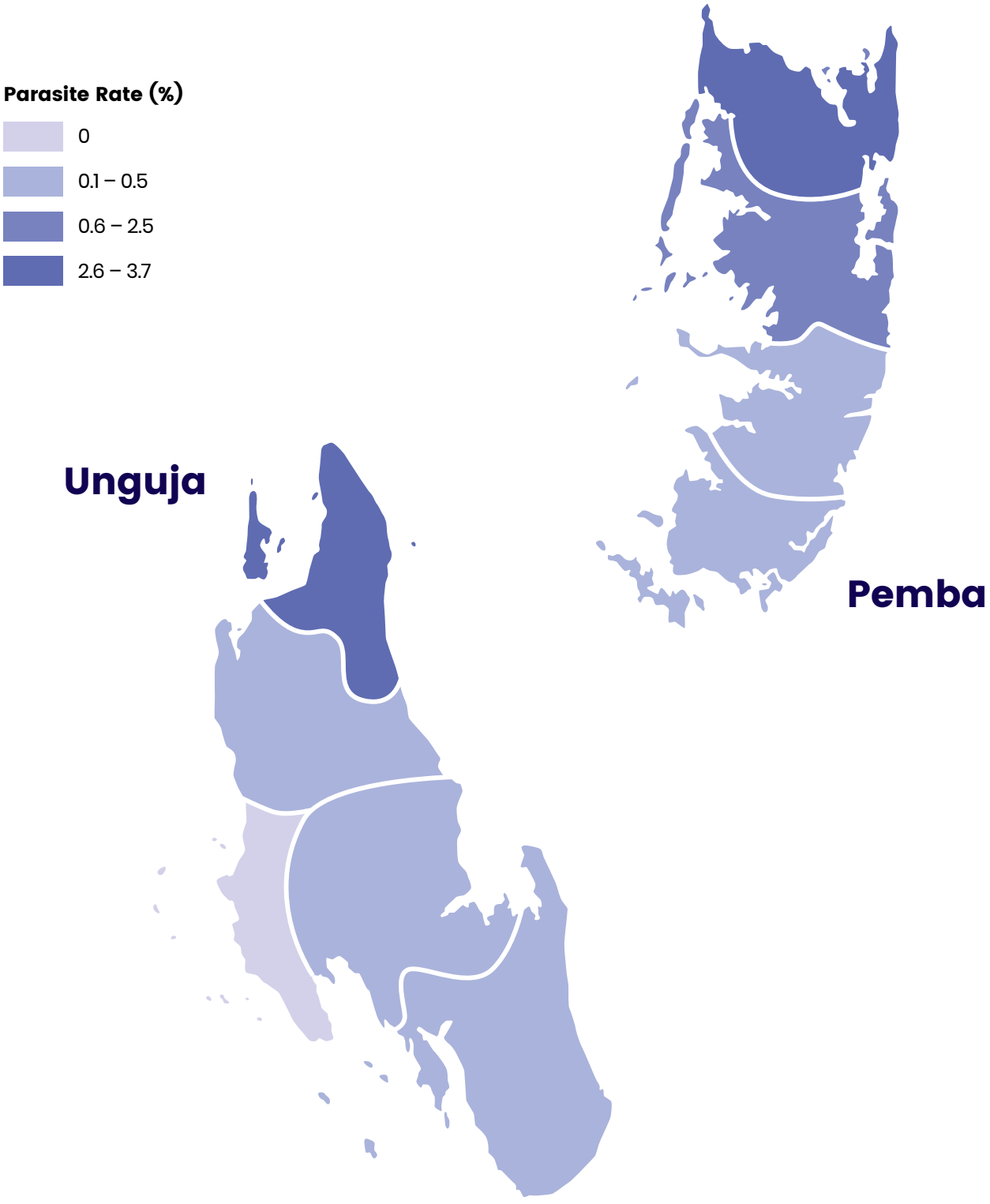
Figure 3. World Health Organization. World Malaria Report 2009.
Available at http://www.who.int/malaria/world_malaria_report_2009/en/index.html

6.1 Promoting health

In Zanzibar the Ministry of Health and Social Welfare is responsible for the Zanzibar Malaria Control Program (ZMCP).

In the last 10 years, as evident from the graph, great efforts have been made to eliminate life-threatening diseases such as malaria. The ZMCP has started a number of initiatives to help reduce the threat posed by mosquitoes and improve the treatment of malaria sufferers. By 2008 case and mortality rates were 80% and 92% lower than in 2001-2, and parasite prevalence in Zanzibar is now below 1%.

This was achieved through three key approaches of the Zanzibar Malaria Strategic Plan (2003-2007).



6.2 Prevention of infection

The distribution of insecticide-treated nets and their use has increased from 2.8% of the population in 2002 to 60% in 2007.

The spraying of insecticide in houses, with coverage of above 90% after four rounds of treatment between 2006 and 2008.

The pregnant and the under-5s are among the most vulnerable to malaria, and these groups have been specifically targeted for use of the nets. Use by pregnant women has gone from 3% to 73%, and under-5's from 0.3% to 74%.

Here are some things that have prevented infection:

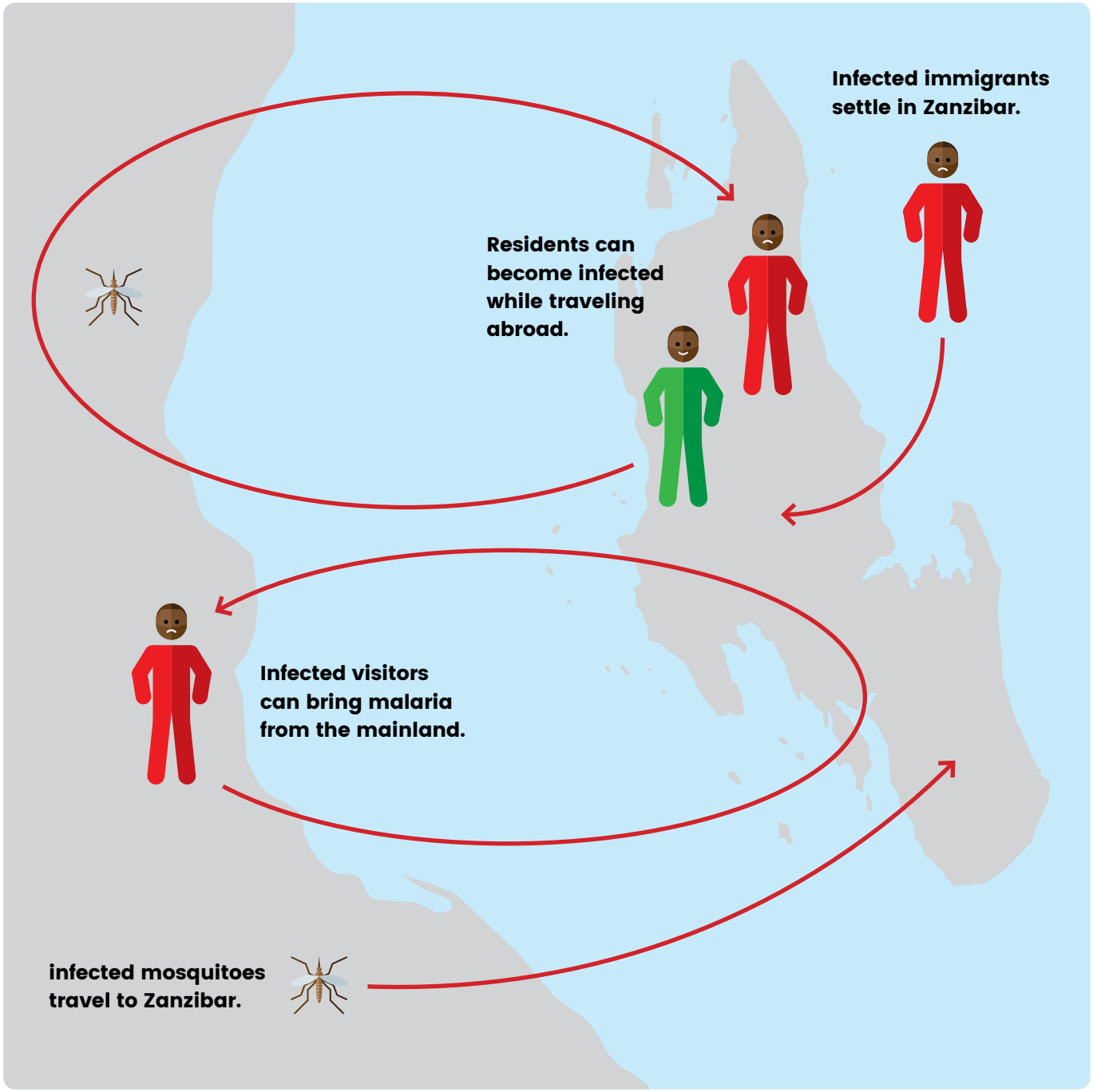
- Early diagnosis and prompt treatment.
- The distribution of rapid diagnosis tests (RDTs) emphasis on training programs for medical staff.
- Realising that the medicine chloroquine had low success rates, replacing it with artemisinin combination therapy, which was made free on the health service. Thanks to this, doctors are now dealing with a reduction in their malaria related workload. This has allowed them to focus on other health problems, such as non-malarial fever and disease.

6.3 Surveillance and operational research

The ZMCP used the President's malaria Initiative to establish a malaria early epidemic detection system, which will be useful to monitor malaria levels in Zanzibar.

In June 2008 the ZMCP was able to use this new system and respond appropriately to a suspected outbreak of malaria.

Constant monitoring, surveillance, and preparedness are necessary if numbers of malaria cases are to remain low. There are a number of ways malaria can be reintroduced to Zanzibar.



- Zanzibar residents can become infected while traveling abroad and bring it home and thus the number of infected people with malaria increases. When a mosquito bites an infected person, a small amount of blood is taken in which contains microscopic malaria parasites.
- Infected visitors to Zanzibar can bring malaria from mainland Tanzania.
- Infected immigrants travel and settle permanently in Zanzibar.
- Infected mosquitoes travel to Zanzibar either flying or passively carried out by wind or riding along human means of transportation. (http://www.nature.com/srep/2011/110915/srep00093/fig_tab/srep00093_ F2.html)

6.4 How can you fight the risks of malaria?

Awareness of these risks will be especially important since recent successes will have reduced the natural immunity in the general population.

You can fight the risks by:

- Sleeping under a net.
- Making sure your net has been sprayed with insecticide recently.
- Making sure those most at risk (pregnant women and under 5's) use nets or undergo preventative treatment.

Since anti-malaria spending per capita remains low at $0.80, efforts must be made to ensure that international groups like the President's Malaria Initiative continue to support the Zanzibar government's health programs.

As well as disease control and prevention, much effort has been made in improving quality and quantity of food, improving housing and conditions in the workplace.

Today 80% of households in Zanzibar use piped water, yet access to flush toilets remains minimal at only 8.4%. Access to sanitation facilities in general have a long way to improve as one-third of households in Zanzibar do not have a pit latrine.

Having said this, The Government of Zanzibar estimates that 90% of the population live within 10km of a health facility, and life expectancy in Zanzibar has increased from 51 in 2002 to 60 in 2010.

6.5 Hygiene

- An important element in healthy living is hygiene. This can mean at school, work, home, and play! The lack of basic hygiene skills and knowledge can cause sickness such as diarrhoea, cholera, and parasitic worms.

About 400 million school-age children are infected by roundworm, whipworm, hookworm, schistosomiasis and other flukes and / or guinea worm, often with multiple species infections. These parasites consume nutrients from children they infect. In doing so they bring about or aggravate malnutrition and harm children's physical development. This can lead to stunting, underweight and anaemia (iron deficiency anaemia, IDA).

Visit Teaching Guide 3 to learn more about how to maintain good hygiene in school and at home.

Case study: The fish market

For a long time, traders and customers in Zanzibar have suffered the filthy environment of the fish market at Malindi port. Although Zanzibar Municipal Council (ZMC) gets funding from donors and collects revenue daily from traders, little has been done to keep the town clean.

Vendors and petty traders pay between Tanzanian shillings 200/= to 500/= to the ZMC daily for cleaning, but the untidy surroundings particularly at the famous Malindi port fish market show that no efforts have been made to observe hygiene standards.

Mr Hassan Juma Ali, a fish seller at Malindi port, blames the municipal authorities, 'we pay a compulsory 500/= shillings for cleanliness, but the council has failed to do the work and support us in making tables for selling fish.'

Mr Omar Rashid Hamad, another fish trader at the same place, blames the government for failing to develop the Malindi environment, which accommodates approximately 200 fish sellers who sell directly to the customers in the early morning.

A local NGO known as Zayedesa led by the Zanzibar first lady built a house intended for a fish market a Malindi port, but the ZMC has also failed to encourage traders to shift to the 'new' market.

Unfortunately, the new building continues to be empty because both fish sellers and customers still prefer to use the filthy area! Lack of education, lack of enforcement of the law, and hygiene ignorance are problems which must be solved.

People in Zanzibar consume different types of fish which have all been placed on the ground. The smell of the fish and rubbish attracts crows to the area. Officials from the Department of Public Health have warned that the environment poses a risk of health problems such as a cholera outbreak.

The poor disposal of garbage, stagnant water and the selling of fish and cooked food in a filthy environment at the site should force the ZMC officials to enforce the law and educate people.

Questions:

- Whose fault is it if someone gets sick from eating the fish?
- What could be done to improve the way fish is sold?
- Where do you buy your fish from?

7 What we have learned:

- Population is not evenly spread across the globe or Zanzibar. Population distribution is influenced by the availability of flat land, clean water, food, jobs, industries, etc.
- To prevent malaria we must keep using nets, training doctors, and working to get rid of mosquitoes.
- To keep healthy we must follow basic hygiene rules such as washing hands, keeping flies away from food, and cooking food properly.

Knowledge and skills	Attitudes and values
Understand that people and wildlife share basic needs; analyse and interpret statistics.	Appreciate that resources are finite and should therefore be used wisely; appreciate the factors that influence good health.

8 Learning activities

How How How activity

Refer to the **How How How activity** detailed in the "Participatory Action Learning" book to help the student explore different ideas and concepts and challenge each other's points of view.

Activity 1: Population of Wales

Resources required:

- Enlarged map of Wales, showing density of population
- Black / whiteboard
- Chalks / pens

Set up:

This can be done as a classroom discussion or learners can be asked to work in small groups or pairs. Explain to everyone that the population of Wales stood at around 3 million in 2011.

Activity:

- Ask the children to think about where in Wales they think most people live. Then show them the map below, explaining how it shows us the most and least populated areas of the country.

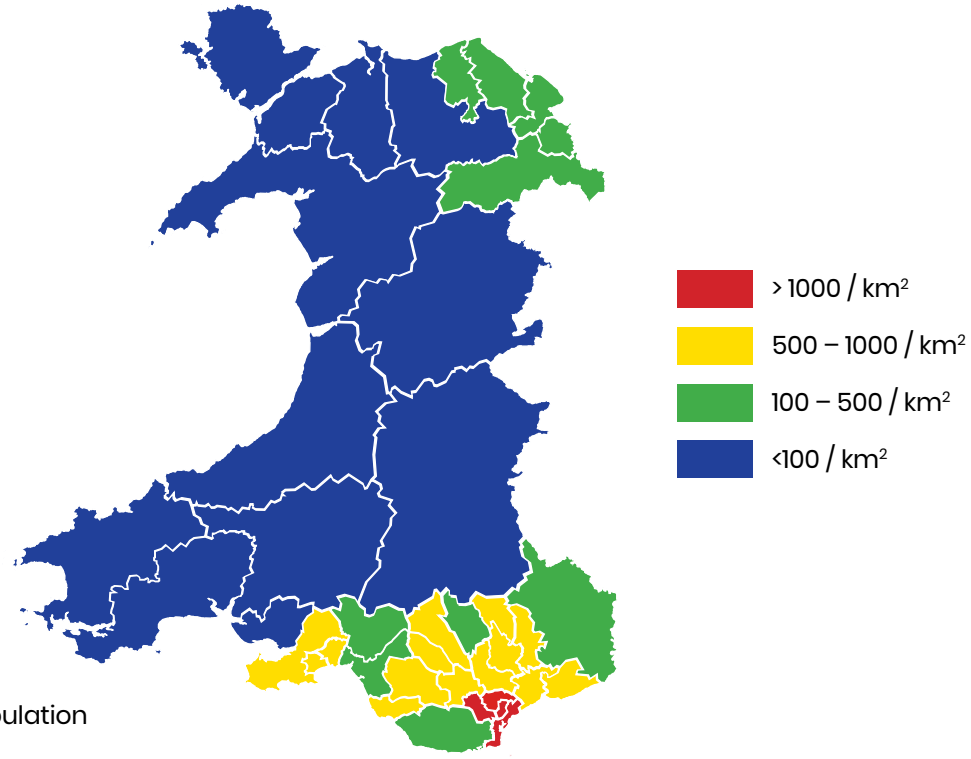


Figure 4. Welsh areas by population density in the 2011 UK census.

- Discuss the reasons why more people might live in some regions than in others. What qualities do these areas have?
- Ask learners to create a table or list of what sorts of qualities are most important in Wales.

Review:

The following questions or points may be used to review the activity:

- Ask the children to imagine that they are about to move to a new area of Wales. What sorts of qualities would be important to them?

Activity 2: Population density of Wales

Resources required:

- Black / whiteboard
- Chalks / pens

Set up:

Use the answers the learners listed from activity one as to why there may be higher population in certain parts of Wales.

Write the following ideas on the board as a prompt, adding to them as the discussion progresses.

Put the children into groups of six children in a group.

Industry	Countryside	Shops
Castles	Parks	Town
Coast	Village	Attractive scenery
Wildlife	Forests	Mountains

Activity:

- Give each group a particular quality from the above chart, giving them time to prepare an argument for why their quality is the most important factor for making people want to live in a particular region.
- Next have a debate, giving each group a chance to state their case then the opposing groups to give their counter-arguments.

Review:

The following questions or points may be used to review the activity:

- Is there a clear winner? You could even have a panel of adjudicators! Discuss with the children afterwards how they think the activity went.

Activity 3: Population growth in Zanzibar and Wales

Resources required:

- Graphs showing population growth
- Black / whiteboard
- Chalks / pens

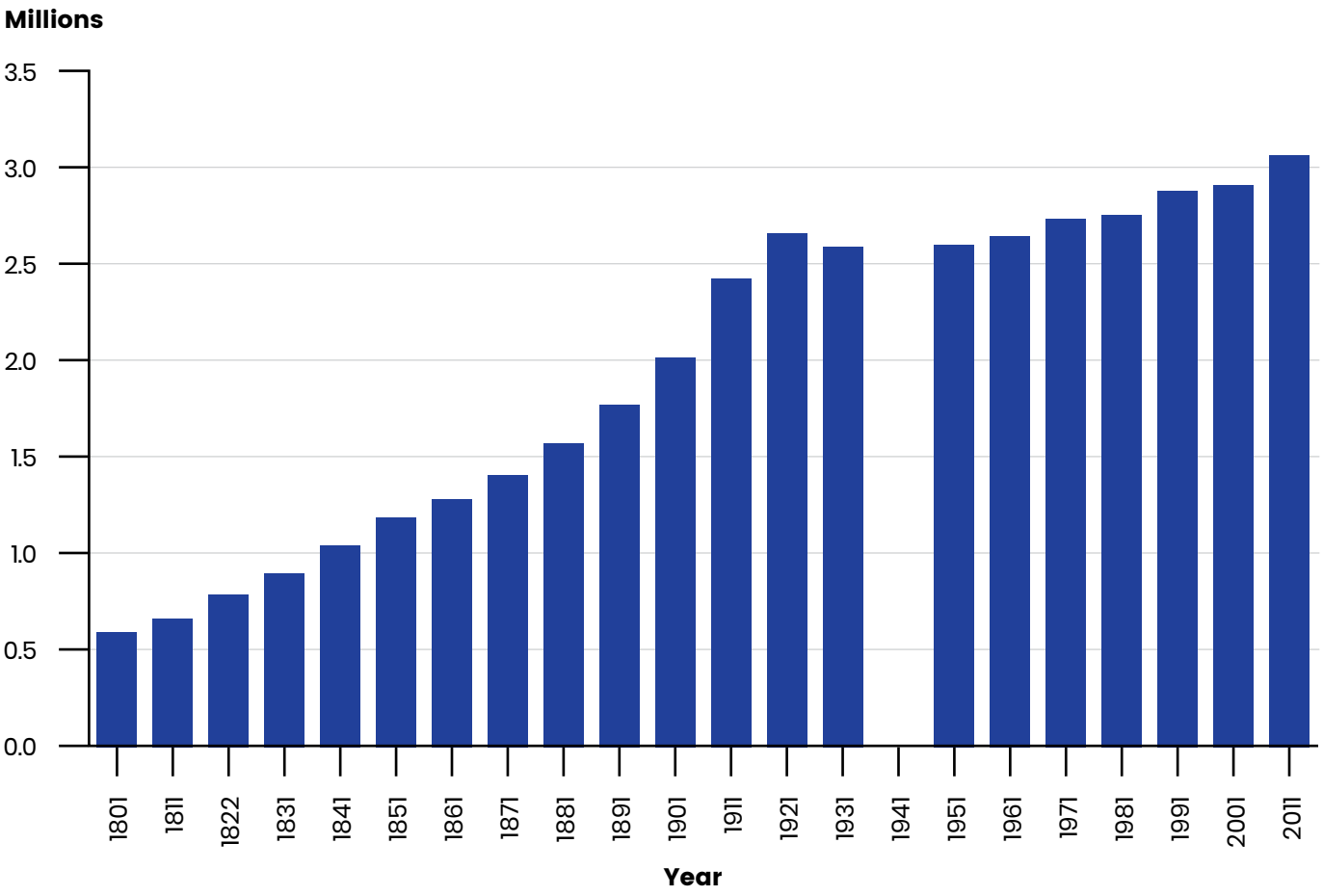
Set up:

Draw the following table on the board, showing approximate values for population growth in Zanzibar and Wales from 1971 to 2011.

	Population Zanzibar	Population Wales
1971	400,000	2,700,000
1981	500,000	2,700,500
1991	700,000	2,850,000
2001	950,000	2,900,000
2011	1,280,000	3,060,000

Activity:

- Now look at the bar graph below, showing population growth in Wales.
- Ask the children to work in pairs to discuss and state facts that they can find out using the table.
- Encourage them to compare the populations of the two countries. Report back and make a class list of findings on the board.



Review:

The following questions or points may be used to review the activity:

- Ask the learners to guess the missing bar.

Activity 4: Malaria

Resources required:

- Visiting nurse
- Reference books and leaflets
- Internet
- Paper
- Pens, pencils

Set up:

A nurse could be asked to come into the school to talk to the children about malaria.

Alternatively learners could use reference books and leaflets or the internet for research.

Activity:

Find out the following about malaria:

- How it is spread.
- Where in the world it is most common.
- How to prevent it.

Ask the children to write a letter to a friend who is going to a malaria zone on holiday, giving them advice about the prevention of malaria.

Review:

The following questions or points may be used to review the activity:

- Have the learners got any further information or questions on malaria?

Activity 5: Urban and rural population

Resources required:

- Paper
- Pens, pencils

Set up:

Learners can work in groups and prepare their information through lists or mindmaps.

Activity:

- Ask the learner to prepare information about their extended family, including: a list of their family members and how they are related to them; how many male and female members; the role of each member (including heads of the family).
- Working in groups, the children should present their information and discuss similarities / differences in their family set-ups to the rest of their group.
- Each group could then report back to the rest of the class.

Review:

The following questions or points may be used to review the activity:

- Why are there more people living in urban areas than in rural areas?
- Why is the population of Wales and Zanzibar increasing each year?
- What can be done to control the over-population of urban areas?

Activity 6: Population maths

Resources required:

- Paper
- Pens, pencils

Set up:

Learners can work in groups or pairs to answer the questions below:

Activity:

1. Population growth

The population of Zanzibar was estimated to be 1.2 million in 2010. If the population grows at 1% each year how many people would there be in Zanzibar?

Next year?	
In 5 years' time?	
In 50 years' time?	

2. Populations in the wild

In 2009, Unguja Island had a population of 1,408 Indian house crows and no Pied crows whereas Pemba Island had a combined population of 159 Indian house crows and 238 Pied crows.

Draw a pie chart to show the percentage of Indian house crows and Pied crows in Zanzibar.

3. What is the difference between a 'native species' and an 'exotic species'?

"With humans occupying every square inch of land, now in larger concentrations the crows are thriving, at the expense of other more 'specialized' bird species. We have only ourselves to blame. Without population control sooner or later every other species is going to suffer" (Ali A. Mwinyi and Tamrini A. Said, 2009).

What does this tell us about the impact of human populations on wildlife populations?

4. Populations and resources

Ask learners to list what Zanzibar flat land is needed for.

(Answers: to grow food, to build houses, for tourism activities, for parks and gardens, for recreation or leisure activities, to build roads and factories, for treating and dumping wastes).

What are the consequences of the expansion of these activities on nearby habitats (environmental area that is inhabited by species of animal, plant or other type of organisms)?

Review:

The following questions or points may be used to review the activity:

- An increasing population means everyone will need and use more resources e.g. food, water, homes, land, jobs, clean air, and electricity.
- Can we provide extra resources to meet everyone's needs?
- Put the following in order of what you think will be most important in 10 years time:

Clean water	1.
Jobs	2.
Energy	3.
Space to build houses	4.
Space to grow food	5.

Activity 7: Group discussion and poster

Resources required:

- Paper
- Pens, pencils

Set up:

Learners can work in groups or pairs to answer the questions below:

Activity:

1. Answer the following questions:

Mosquitoes

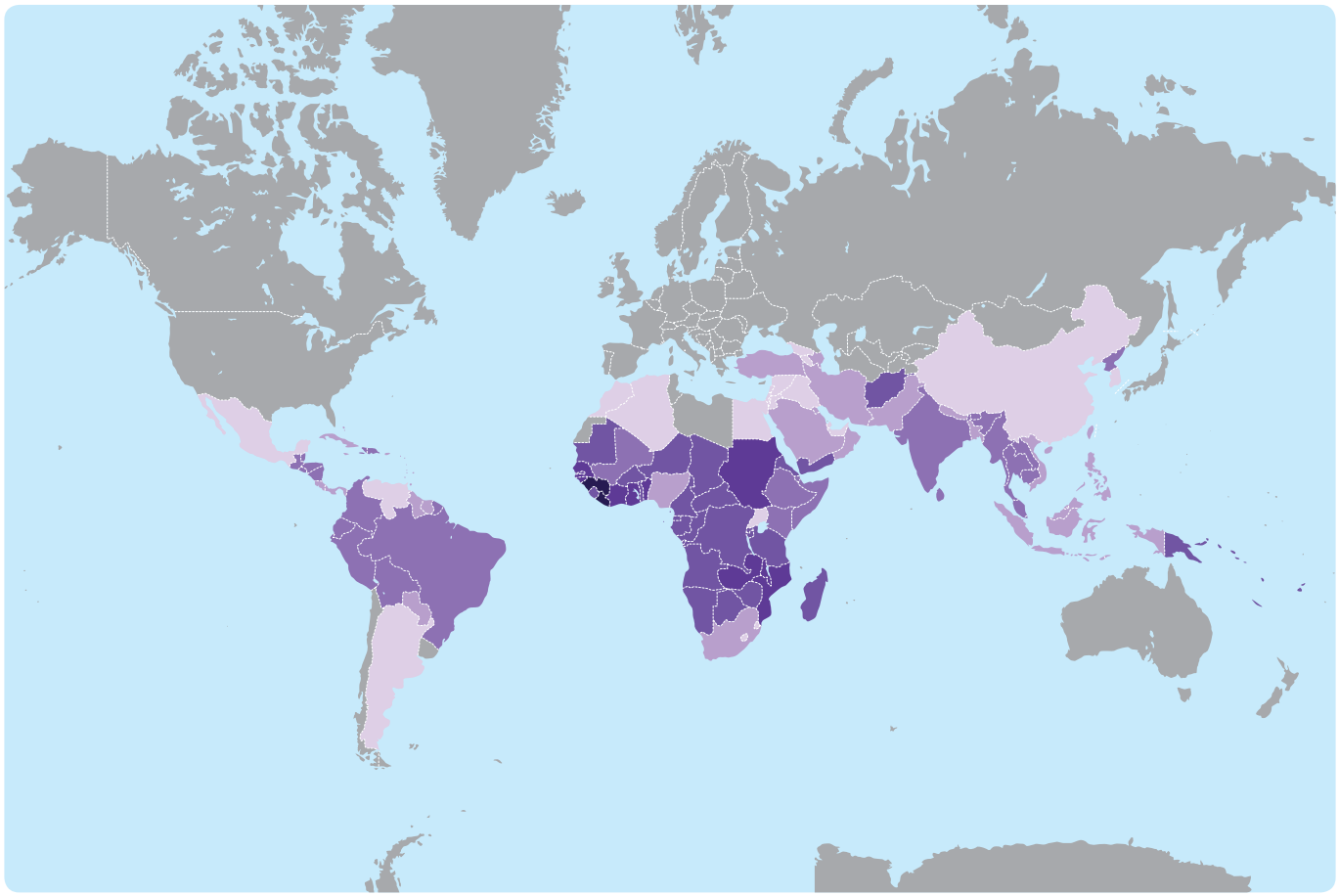
- When do mosquitoes bite?
- What does a mosquito bite feel like (both at the time and after being bitten)?
- What can you do to stop mosquitoes biting?
- What can you do if you are bitten by a mosquito?

Malaria

- What is malaria?
- How does it feel when you have malaria?
- What can you do to prevent catching malaria?

2. This map shows which countries are affected by malaria:

- What might all these countries have in common?
- What is similar about the climate of these countries?
- What is similar about the economies of these countries?
- Why might people in these countries have difficulty preventing and treating malaria?



Maleria cases per 100,000

- 10
- 10 < 100
- 100 < 1,000
- 1,000 < 10,000
- 10,000 < 25,000
- 25,000 +

Figure 5. Source: Image created by: Sazani Associates. Information from: http://www.who.int/malaria/publications/world_malaria_report_2013/en/

Activity 8: Hygiene

Resources required:

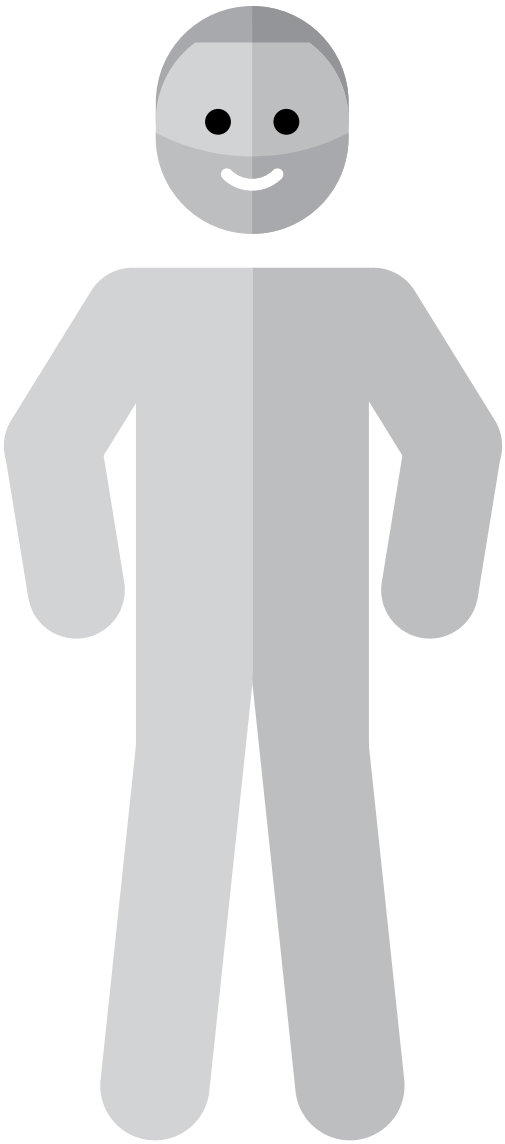
- Paper
- Pens, pencils

Set up:

Ask learners to draw a similar figure to the one below.

Activity:

Circle areas of the body at risk from poor hygiene at home, at work, and at school.



Which body part?	Why is it at risk?	What can I do about it?
Feet	Bare feet can get dirty and injured, or catch hookworms.	Wash them regularly and wear shoes.
Stomach	Uncooked meat can make you ill.	
Mouth		
Hands		

Look at the examples then fill out the rest of the table explaining your choices!

Review:

The following questions or points may be used to review the activity:

- What can learners do to minimise their own risk?

Activity 9: Hand washing

Resources required:

- Pens / pencils
- Paper cut into cards

Set up:

This activity can be acted out or done with cards.

Cut the following cards out or ask the class to recreate each card opposite.

Activity:

- Put the following pictures in the correct order to show how you should wash your hands.
- If learners have made cards ask them to get into groups with other card holders and form lines in order of how to correctly wash hands.

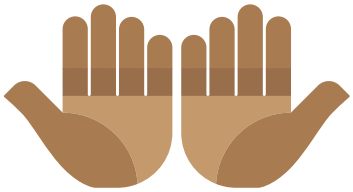
Review:

The following questions or points may be used to review the activity:

- Ask learners to guess how much hand washing with soap can reduce things like diarrhea!
- Answer: Hand-washing with soap can reduce diarrhoea by up to 47%.

Number:

Number:



Number:

Number:

Number:

Number:

Sazani Associates

UK office
Units 1 & 2 Darkgate Buildings
3 Red Street
Carmarthen
SA31 1QL

Zanzibar office
SH/S/C/091
Mombassa Kwa Mchina
P.O. Box 3720
Zanzibar

Tel: **UK: 0044 (0)1267 243576**
Web: **www.sazaniassociates.org.uk**
Email: **info@sazaniassociates.org.uk**