

1

secondary level

lesson 1

What are Hunger and Malnutrition and Who are the Hungry?

The lesson has been designed to be covered in 45 – 60 minutes, but it can be covered in greater or less detail to fit the needs of the class.

Teachers are encouraged to cover all objectives and content areas.

For each objective, a variety of activities and discussion points are provided from which teachers can select those most appropriate for their students.

The materials for each lesson can be found in the Materials section beginning on page 75.



Information for teachers

Students should understand that nutritionally adequate food is fundamental for good health, growth and development and that hunger and malnutrition are serious problems with long-term threats to the well-being of people, nations and the world.

Objective 1 provides an overview of basic nutrition concepts and their relationships to hunger and malnutrition. Students may or may not have studied nutrition previously. This is an opportunity either to review or to introduce basic nutrition concepts and discuss the role of food in the body. Food is presented as essential for life, growth and development and such basic body functions as breathing and blood circulation. Food also provides the energy to work, learn and play. The contributions of nutrients are presented in simple, non-technical form; more advanced nutrition concepts can be introduced as appropriate. Additional resources include nutrition education information and dietary guidelines developed by FAO, the World Health Organization (WHO) and individual countries.

Objective 2 provides data on hunger throughout the world and helps students to identify those areas in greatest need.

Objective 3 identifies special groups that experience the most difficulty with hunger and malnutrition, and identifies those most at risk of health consequences.

Additional information providing an overview of the current world situation is available in “Hunger and Malnutrition in the World” in the Introduction.



Objective 1 To understand the consequences of hunger and malnutrition

Materials



Fact Sheets:

- Food Gives Us...
- Vitamins and Minerals

Concept

Adequate food is essential for an active and healthy life

Content



Food is essential for life. To be healthy and well nourished, we must have adequate amounts of a variety of good-quality, safe foods. Without adequate nutrition, children cannot develop their potential to the fullest and adults will experience difficulty in maintaining or expanding theirs.



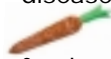
Food provides us with the energy we need for growth, physical activity and the basic body functions (breathing, thinking, temperature control, blood circulation and digestion). Food also supplies us with the materials to build and maintain the body and to promote resistance to disease.



These different functions are made possible by the nutrients contained in food. The types of nutrients in food are carbohydrates, proteins, fats, vitamins, minerals and water. All foods contain one or more of these nutrients in varying amounts. Each type of nutrient serves particular functions. This is why diversity in our diets is important for good health. We need all of the nutrients, provided by a variety of foods, for all of our body processes.



Too much food or an improper balance of food can contribute to poor health and the risk of chronic diseases such as obesity, heart disease and diabetes.



Good nutrition also depends on keeping food safe to eat and preserving its nutritional quality.

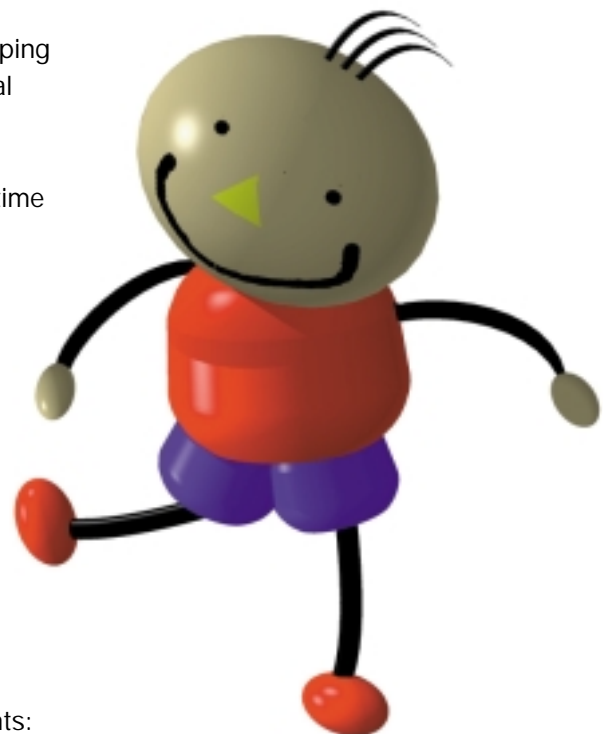
Activities



Discuss the points listed above, as time allows, according to the students' background and needs. Tell students that food contains substances that are essential for life. Some of these are in quantities that are so tiny that we cannot see them, but without them our body systems will not work. These substances are all found in food, but in many different foods, so we must eat a variety of foods to make sure that we get all of them in our diets.




The fact sheet *Food Gives Us...* provides general information on nutrition, including the functions of the energy nutrients:



proteins, carbohydrates and fats. Food sources are listed for these three energy nutrients, as well as for four vitamins and minerals: vitamin A, B vitamins, vitamin C and iron. Ask students to make a list of the foods eaten in a typical day, to see if they provide the variety needed to obtain the nutrients listed. For instance, do their lists contain foods rich in protein, vitamin A, iron? If they do not contain foods rich in one or more of the listed nutrients, discuss with students what foods could be added to their diets to provide the needed nutrients.

Concept Poor health, growth and development can result from hunger and poor nutrition

Content  Major health and nutritional consequences of insufficient food and poor nutrition include:

- **Protein-energy malnutrition (PEM)** results in poor growth, fluid imbalances and lower resistance to infections because our food is not sufficient to meet body needs for energy and protein. Nearly 200 million children under the age of five suffer from acute or chronic PEM.
- **Vitamin A deficiency** can lead to poor night vision, eye lesions and, in severe cases, permanent blindness. Vitamin A deficiency can also lead to increased illness and death from infections. More than 200 million children under the age of five are at risk of Vitamin A deficiency.



- **Iodine deficiency** can cause goitre (swollen thyroid gland), mental retardation, brain damage and reproductive failure. Worldwide, 2 billion people are at risk of iodine deficiency.
- **Iron deficiency** can cause nutritional anaemias, problem pregnancies, stunted growth and lower resistance to infections, as well as long-term impairment in mental and motor development. Worldwide, 3.5 billion people suffer from iron deficiency.
- **Low-birth-weight babies** (less than 2.5 kg) who survive being born too small are likely to remain underweight and sickly throughout childhood and adolescence. About 30 million infants are born each year in developing countries with impaired growth caused by poor nutrition in the womb.



Major health risks associated with the dietary excesses of overnutrition include cardiovascular disease, strokes, obesity and diabetes. The problems are on the rise in both developing and developed countries.



Food contamination is a serious obstacle to nutritional well-being. Children are especially vulnerable to food-borne diseases, which rob them of crucial nutrients through diarrhoea.

Activity



The fact sheet *Vitamins and Minerals* provides information about each of the eight major nutrients or nutrient groups, their role in the body, deficiency symptoms and food sources. Pick one or two (or as many as time will allow) of the nutrients that might be a problem in your area, discuss the nutrient and health symptoms listed in the fact sheet and ask students to identify local food sources of the nutrient. Ask students to suggest ways in which people might receive more of the nutrients through their diets. To determine specific nutrient problems in your area, contact your local health care or extension worker or the Department of Health.

Concept

Hunger affects the well-being of people, nations and the world

Content



The strength of a nation depends on the strength of its people. When people are healthy, strong and well nourished, they have the energy, creativity, security and courage to work and learn, solve problems and live their daily lives with dignity and joy, ultimately advancing civilization to new heights. Well-fed citizens are productive citizens who contribute to their society. People who are not well nourished do not have the energy to work or to learn and often need constant medical care. The costs of hunger in term of lost potential, health care and possible civil unrest can be staggering for a society.

Activity



Discuss the issues listed above with students. With the students, create a list of great people in their community, their country, or the world, from either the past or the present, who have helped to create a better world. Their contributions could be social or humanitarian, or through scientific or artistic creations. Ask students to imagine the difference in the world if these people had been too malnourished, hungry or ill to do the work that they did. Tell them how important it is to all of us that each person in the world be able to function at their full potential. Lost potential hurts us all.



Objective 2

To know the magnitude of hunger in the world today

Material



Picture: Map of World Hunger

Concept

Despite significant improvements, many millions of people today are hungry and malnourished

Content



The world population continues to grow at a rapid pace. In 1999, the official United Nations estimate for the number of people in the world exceeded 6 billion. We will see an additional 2 billion in the next 25 years, mostly from the countries that currently have the most difficulty feeding their populations.



Although the world's population increased dramatically (by more than 70 percent) over the last 30 years, great progress has been made in increasing the quantity and quality of the global food supply and in improving the nutritional status of populations.



In the developing world, where the population has nearly doubled during this period, the proportion living in a chronic state of undernourishment has been reduced by half (from 36 to 18 percent in 1995-97).



Nevertheless, 790 million people – one out of five in the developing countries – still do not have enough food to meet their basic daily nutritional needs. Development has not benefited all people; while some countries have made great progress, hunger has increased in others, especially in those that already have the most difficulty feeding their people.



Access to sufficient supplies of a variety of good-quality, safe foods is a serious problem in many countries, even where food supplies are adequate at the national level.

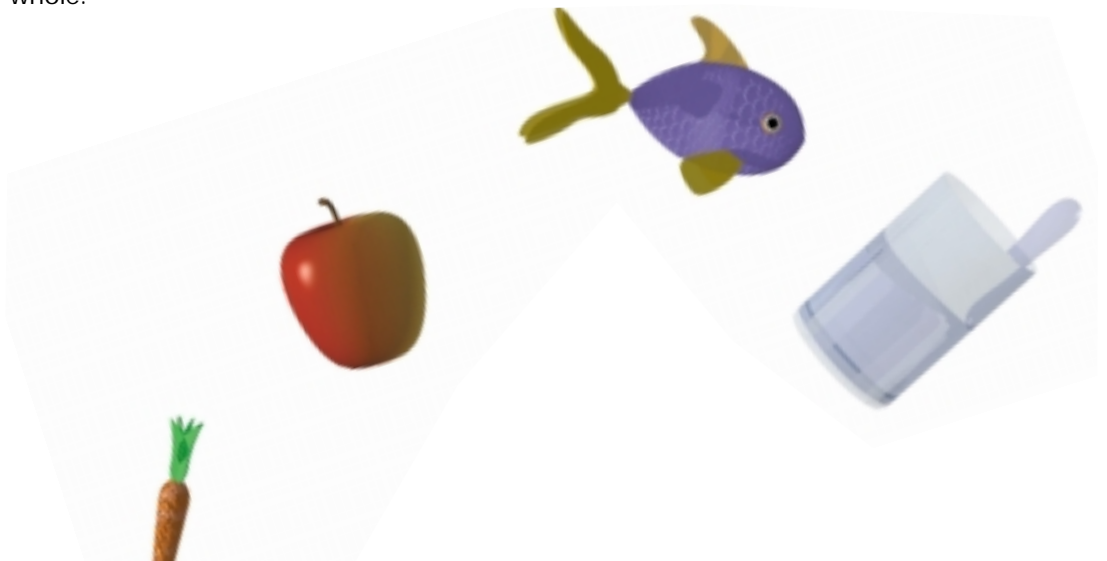
Activities

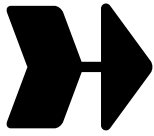


Hold up the picture *Map of World Hunger*, which indicates areas with serious hunger and malnutrition problems. Explain how the map shows the areas where many people do not get all of the foods that they need to eat. Point out the areas with the largest number of hungry people. Explain that all countries have some hungry people.




Identify your area/region of the world, and discuss the degree of your own area's problem with hunger compared with surrounding areas and the world as a whole.








Objective 3 To know who is hungry and malnourished in the world


Material  Fact Sheet: Who is Vulnerable?

Concept Hunger and malnutrition exist in some form in every country

Content  Although some countries have more hungry people – both in terms of total numbers and as a percentage of the population – no country is free from hunger and malnutrition. To work toward solutions to the problem of hunger, we must know who the hungry are.

 The fact sheet *Who Is Vulnerable?* provides a list of vulnerable groups throughout the world.

Activities  Review the list of vulnerable groups given in the fact sheet. As time permits, ask students why each group is vulnerable to hunger and malnutrition.

 Relate the hunger problems in your area to the vulnerable groups. How many of the hungry people are from the vulnerable groups listed? For instance, is your local problem with hunger related more to victims of conflict, to those who are socially disadvantaged or to migrant populations? Ask students if they can think of other groups in their area who might be vulnerable to hunger, and why.

Summary

Lesson 1 introduced students to the importance of food for growth and body functioning, in order to provide a context for the discussion of hunger. An overview of basic nutrition concepts was presented along with their relationships to hunger and malnutrition. The scope and global perspective of hunger were presented, as well as an overview of the groups who are vulnerable to hunger throughout the world. After completion of Lesson 1, students should be able to list:

- Food sources for major nutrients listed in the lesson.
- Problem nutrients in the local diet in their region.
- The health consequences of insufficient protein and energy, vitamin A, iodine and iron.
- Health consequences of dietary excesses.
- The countries with the greatest problems with hunger.
- The groups that are more vulnerable to hunger.



Fact Sheet: Food Gives Us...

Food gives us the energy and nutrients the body needs to maintain health and life, to grow and develop, to move, work, play, think and learn.

The body needs a variety of nutrients – proteins, carbohydrates, fats, vitamins and minerals – and these come from the foods we eat.

- **Proteins** are needed to build and maintain muscle, blood, skin and bones and other tissues and organs in the body.
- **Carbohydrates and fats** mainly provide energy, although some fats are also needed as building materials and to help the body use certain vitamins.
- **Vitamins and minerals** are needed in smaller amounts than protein, fat and carbohydrates, but they are essential for good nutrition. They help the body work properly and stay healthy. Some minerals also make up part of the body's tissues, for example, calcium and fluoride are found in bones and teeth and iron is found in the blood.
- **Fibre** (or roughage) and **clean water** are also needed for a good diet.

All foods contain nutrients but different foods contain different amounts of various nutrients.

- **Foods rich in proteins** are all types of meat, poultry, fish, beans, peas, soybeans, groundnuts, milk, cheese, yoghurt and eggs.
- **Foods rich in carbohydrates** are rice, maize, wheat and other cereals, all types of potatoes, yams and starchy roots and sugars.
- **Foods rich in fats** are oils, some meat and meat products, lard, butter, ghee and some other milk products, margarine, some types of fish, nuts and soybeans.
- **Foods rich in vitamin A** are dark-green vegetables, carrots, dark-yellow sweet potato, pumpkin, mango, papaya, eggs and liver.
- **Foods rich in B vitamins** are dark-green vegetables, groundnuts, beans, peas, cereals, meat, fish and eggs.
- **Foods rich in vitamin C** are fruits and most vegetables, including potatoes.
- **Foods rich in iron** are meat, fish, groundnuts, beans, peas, dark-green leafy vegetables and dried fruits.



Fact Sheet: Who is Vulnerable?

Victims of conflict

- internally displaced people
- refugees
- landless returnees
- landmine disabled
- war invalids
- war widows and orphans

Migrant workers and their families

- migrant herders tending other people's herds
- migrant labourers seeking seasonal work
- female-headed households left behind by migrant male labourers

Marginal populations in urban areas

- school dropouts
- unemployed people
- rickshaw and motorcycle taxi drivers
- recently arrived migrants
- people living in slums on city outskirts
- dock workers and porters and construction workers
- workers in the informal sector
- homeless people
- orphans
- street children and people living alone on small fixed incomes or without support (elderly, pensioners, widows and widowers, divorcees, invalids, handicapped people)
- beggars

People belonging to at-risk social groups

- indigenous people
- ethnic minorities
- illiterate households

Some or all members of low-income households within vulnerable livelihood systems

- subsistence or small-scale farmers
- female-headed farming households
- landless peasants
- agricultural labourers
- fishers
- nomadic pastoralists
- sedentary herders, small-scale livestock producers and agropastoralists
- forest dwellers
- peri-urban small-scale agricultural producers and market gardeners
- day or contract labourers

Dependent people living alone or in low-income households with large family size

- elderly people
- women of childbearing age, especially pregnant and nursing mothers
- children under five years old, especially infants
- disabled and ill people



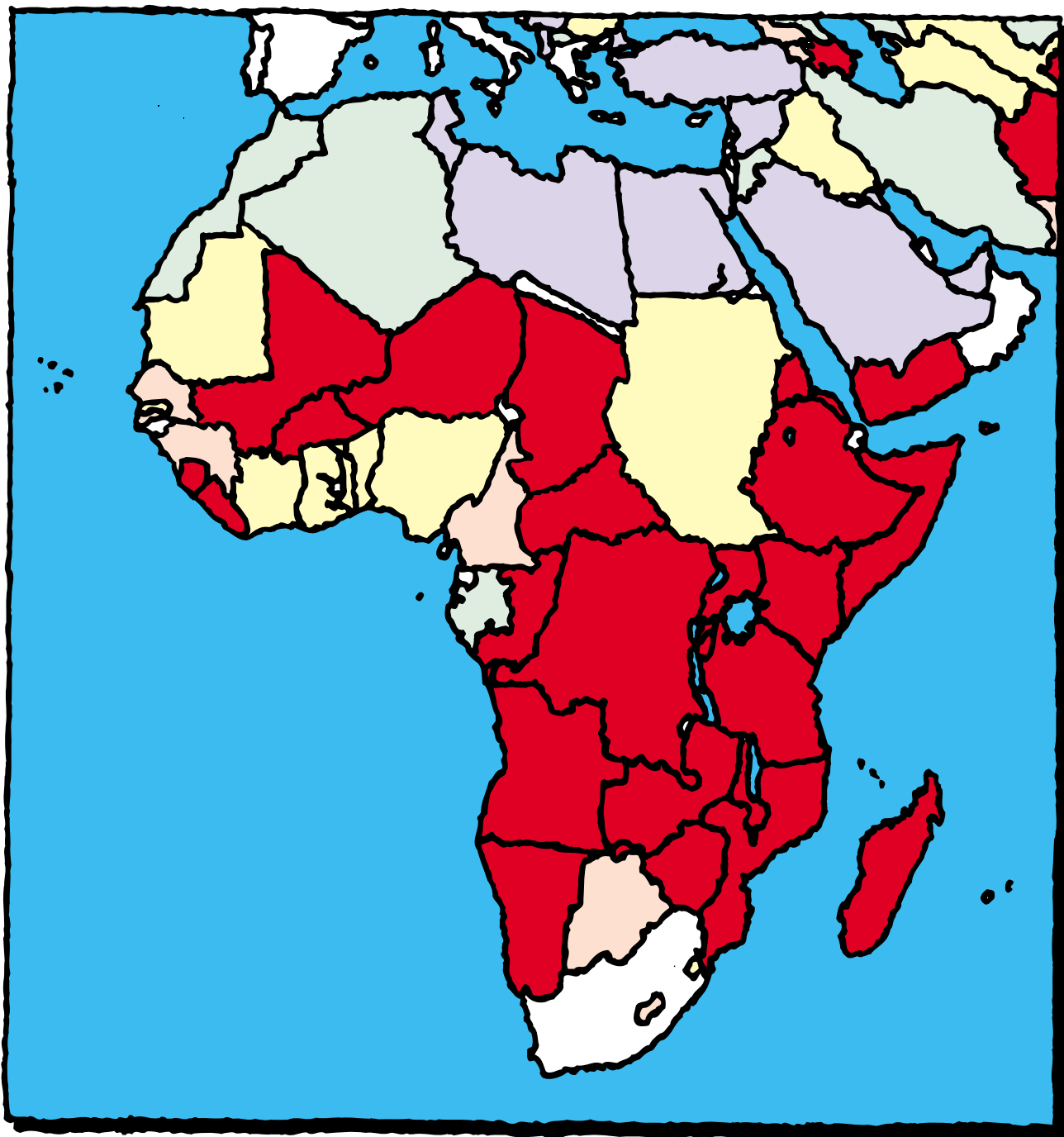
Fact Sheet: Vitamins and Minerals

Vitamins and minerals are called micronutrients. They are needed in much smaller amounts than protein, fat and carbohydrate but are essential for good nutrition. They help the body to work properly and stay healthy. Some minerals also make up part of the body's tissues, for example, calcium and fluoride are found in bones and teeth and iron is found in the blood.

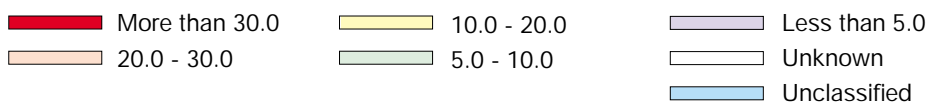
- **Iron** is a major component of red blood cells and is necessary to keep all of the body's cells working properly. Iron deficiency anaemia is the most widespread nutritional problem in the world. It can be very serious in children and women of childbearing age, especially during pregnancy, but it also affects men and older women. It leads to lethargy (low work capacity), learning difficulties, poor growth and development, and increased morbidity (illness) and maternal mortality, especially at childbirth.
The best sources of iron are meat, fish, poultry, liver and other organ meats. Iron is also found in legumes, dark green leafy vegetables and dried fruits, but this iron is not absorbed as well by the body as is the iron from animal products. Increasing the intake of **vitamin C** along with the vegetable sources of iron can help more of the iron to be absorbed and utilized.
- **Vitamin A** is needed for building and maintaining healthy tissues throughout the body, particularly eyes, skin, bones and tissues of the respiratory and digestive tracts. It is also very important for effective functioning of the immune system. Vitamin A deficiency can lead to poor night vision (night blindness), severe eye lesions and in severe cases permanent blindness. This occurs mainly in undernourished children, especially those with measles and other infections. Vitamin A deficiency can also lead to increased illness and death from infections.
Vitamin A is found naturally only in foods of animal origin, notably breast milk, liver, eggs and many dairy products. However, many dark-coloured fruits and vegetables contain pigments, called carotenes, that the body can convert to vitamin A. Foods rich in vitamin A include carrots, dark-yellow and orange sweet potatoes, mangoes and papaya.
- **Thiamin, riboflavin, niacin, vitamin B6, folate, pantothenic acid, vitamin B12 and biotin** belong to what is sometimes called the vitamin B complex. The B-vitamins are necessary for converting carbohydrates, fat and protein into energy and for using them to build and repair the body's tissues. Deficiencies of these vitamins can lead to serious effects including muscular weakness, paralysis, mental confusion, nervous system disorders, digestive problems, cracked and scaly skin, severe anaemia and heart failure.
- **Folate** (folic acid, folacin) is needed to make healthy blood cells and its lack is a common cause of anaemia among women and young children. Folate deficiency during pregnancy can lead to birth defects.
Adequate daily intake of the B-vitamins is important. Food rich in B-vitamins are dark-green vegetables, groundnuts, beans, peas, cereals, meat, fish and eggs.
- **Vitamin C** is needed to increase absorption of dietary iron, to make collagen (connective tissue) which binds the body's cells together, and to serve as an antioxidant. Prolonged vitamin C deficiency can lead to scurvy. The signs of scurvy are bleeding gums and sore, swollen joints, and it can lead to death.
Most fruits, especially citrus and guava, and many vegetables, including potatoes, are good sources of vitamin C. Eating fresh fruit and vegetables is important for both adults and children.
- **Vitamin D** is particularly important in the use of calcium by the body. Vitamin D is found in fish oils, eggs and milk, and is also produced by the body when the skin is exposed to sunlight. Lack of vitamin D can lead to rickets, a disease that causes soft and deformed bones in young children.
- **Calcium and phosphorus** are important to body maintenance and to having strong healthy bones and teeth. Milk and dairy products are excellent sources of calcium and phosphorus.
- **Iodine** is important for proper growth and development. Lack of iodine in the diet can cause goitre (swollen thyroid gland) and mental retardation. Iodine is found in seafood and in foods grown on iodine-rich soils. In areas where soils are low in iodine, steps should be taken to add iodine, to the diet, usually through iodized salt.



Picture: Map of World Hunger
Proportion of undernourished people (1996-98)
Africa



Percentage of undernourished individuals



Source: ESN/WAICENT-KIMS, 2000



Picture: Map of World Hunger
Proportion of undernourished people (1996-98)
South America



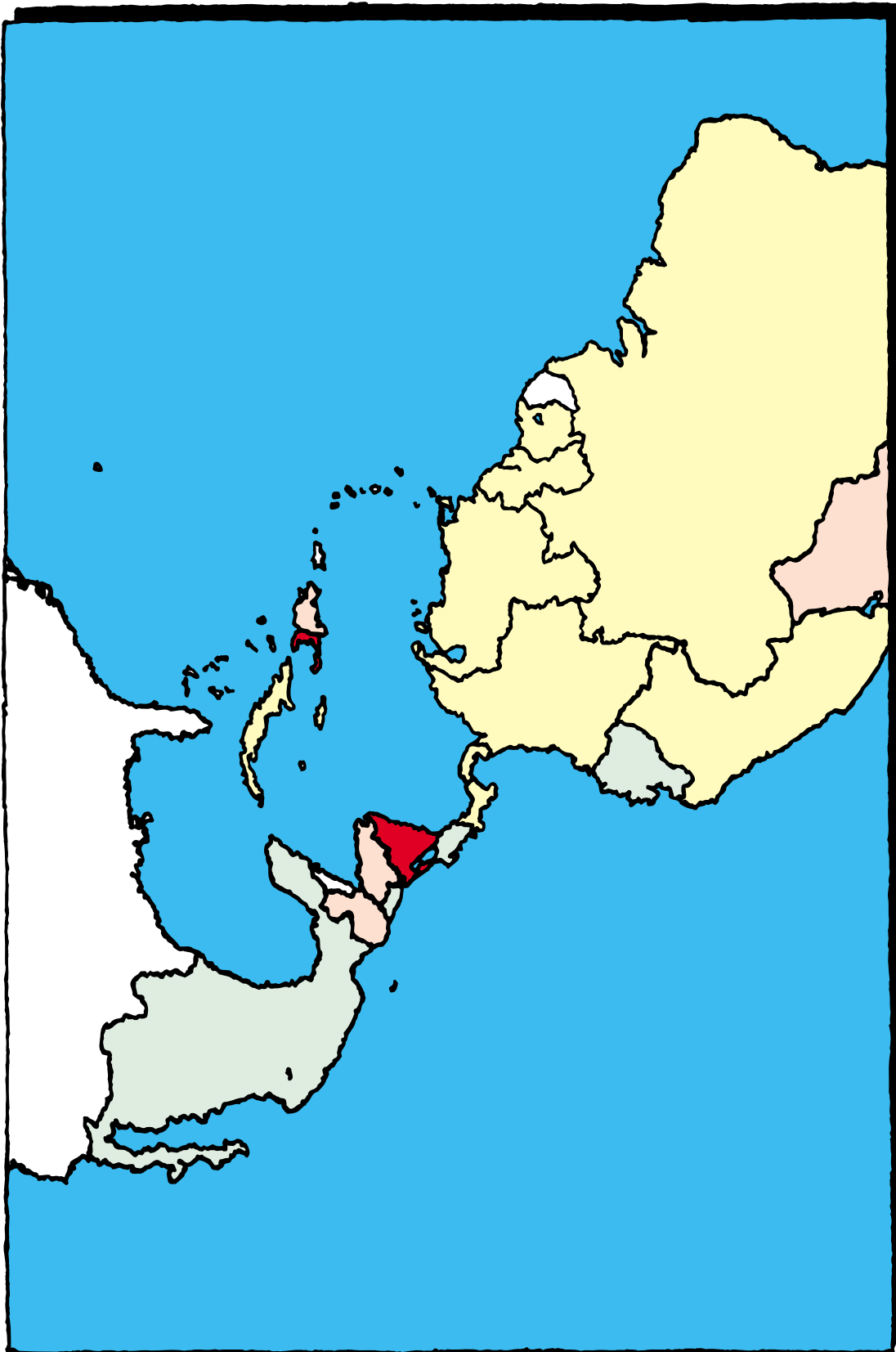
Percentage of undernourished individuals



Source: ESN/WAICENT-KIMS, 2000



Picture: Map of World Hunger
Proportion of undernourished people (1996-98)
Central America



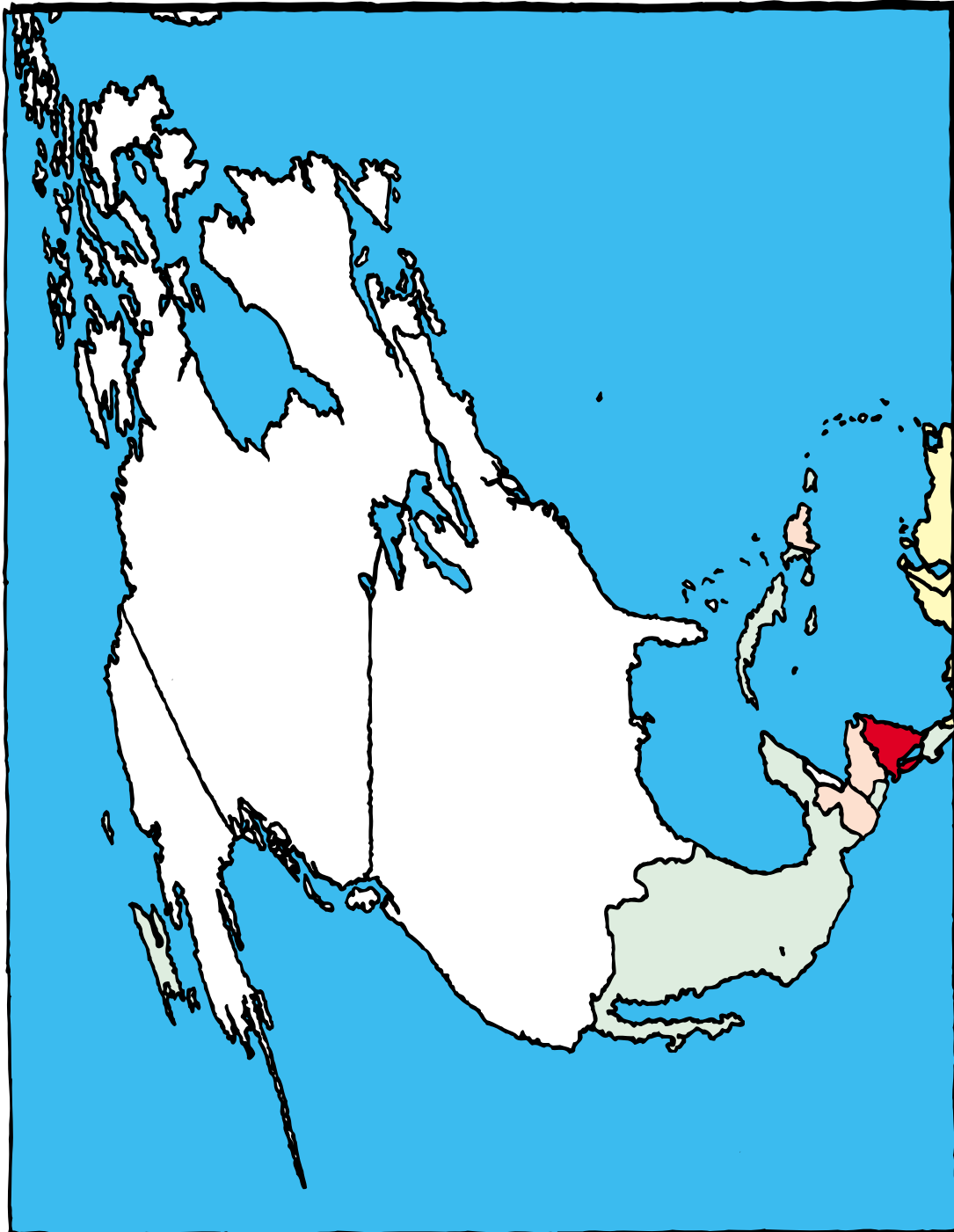
Percentage of undernourished individuals



Source: ESN/WAICENT-KIMS, 2000



Picture: Map of World Hunger
Proportion of undernourished people (1996-98)
North America



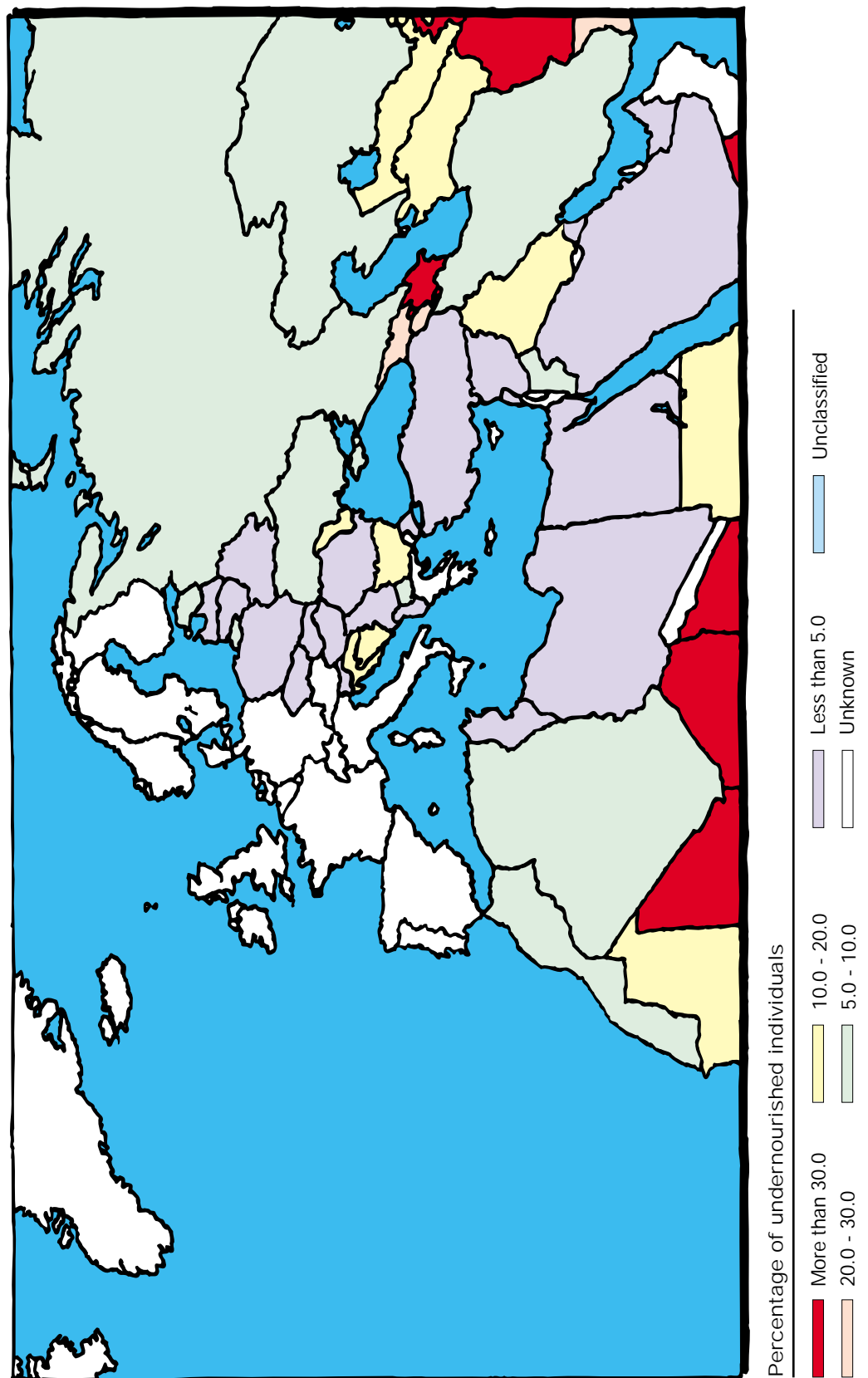
Percentage of undernourished individuals

- More than 30.0
- 20.0 - 30.0
- 10.0 - 20.0
- 5.0 - 10.0
- Less than 5.0
- Unclassified
- Unknown

Source: ESN/WAICENT-KIMS, 2000

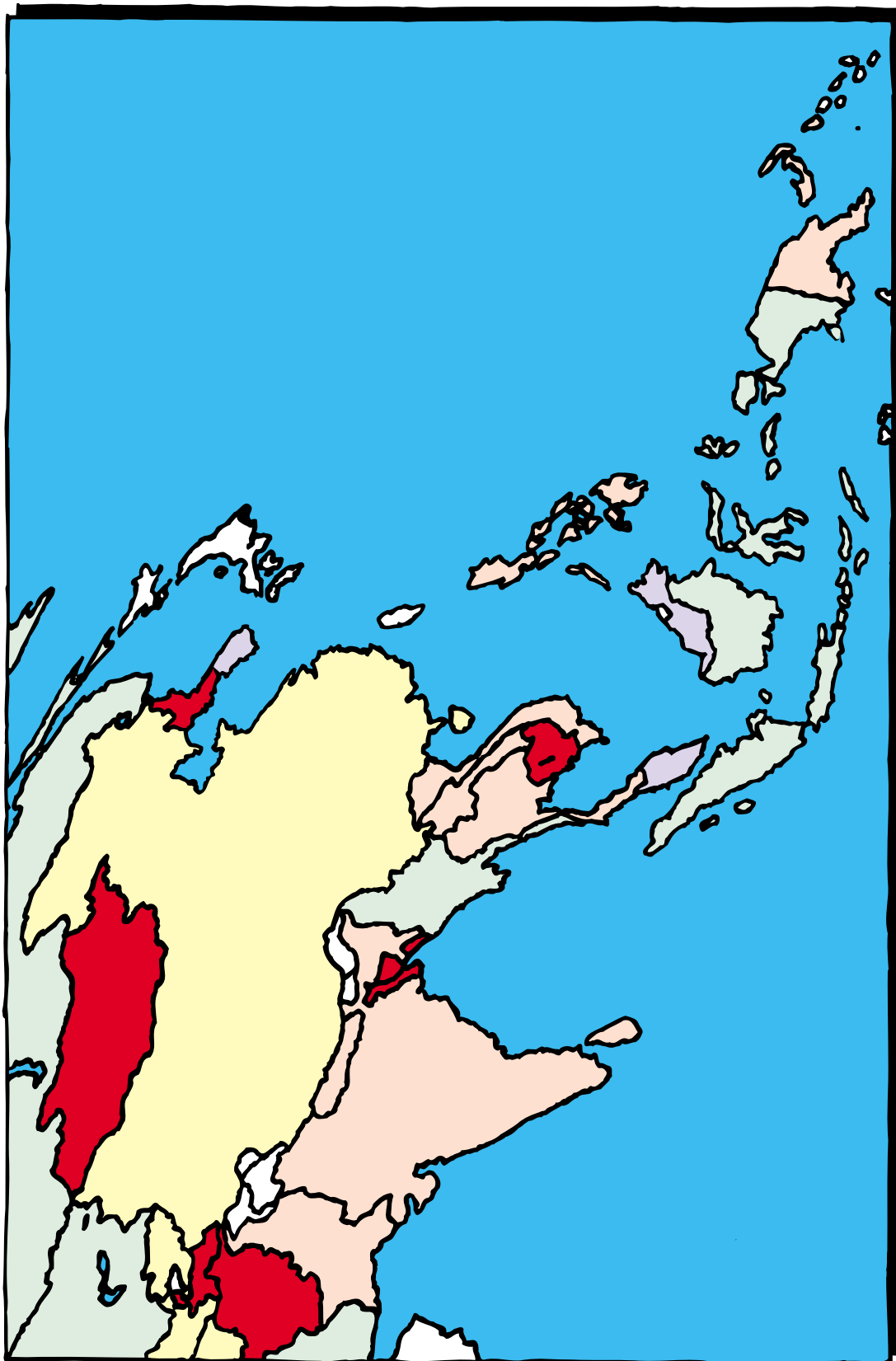


Picture: Map of World Hunger
Proportion of undernourished people (1996-98)
Europe

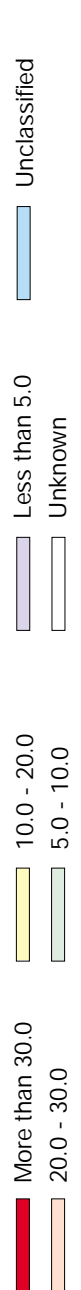




Picture: Map of World Hunger
Proportion of undernourished people (1996-98)
Asia



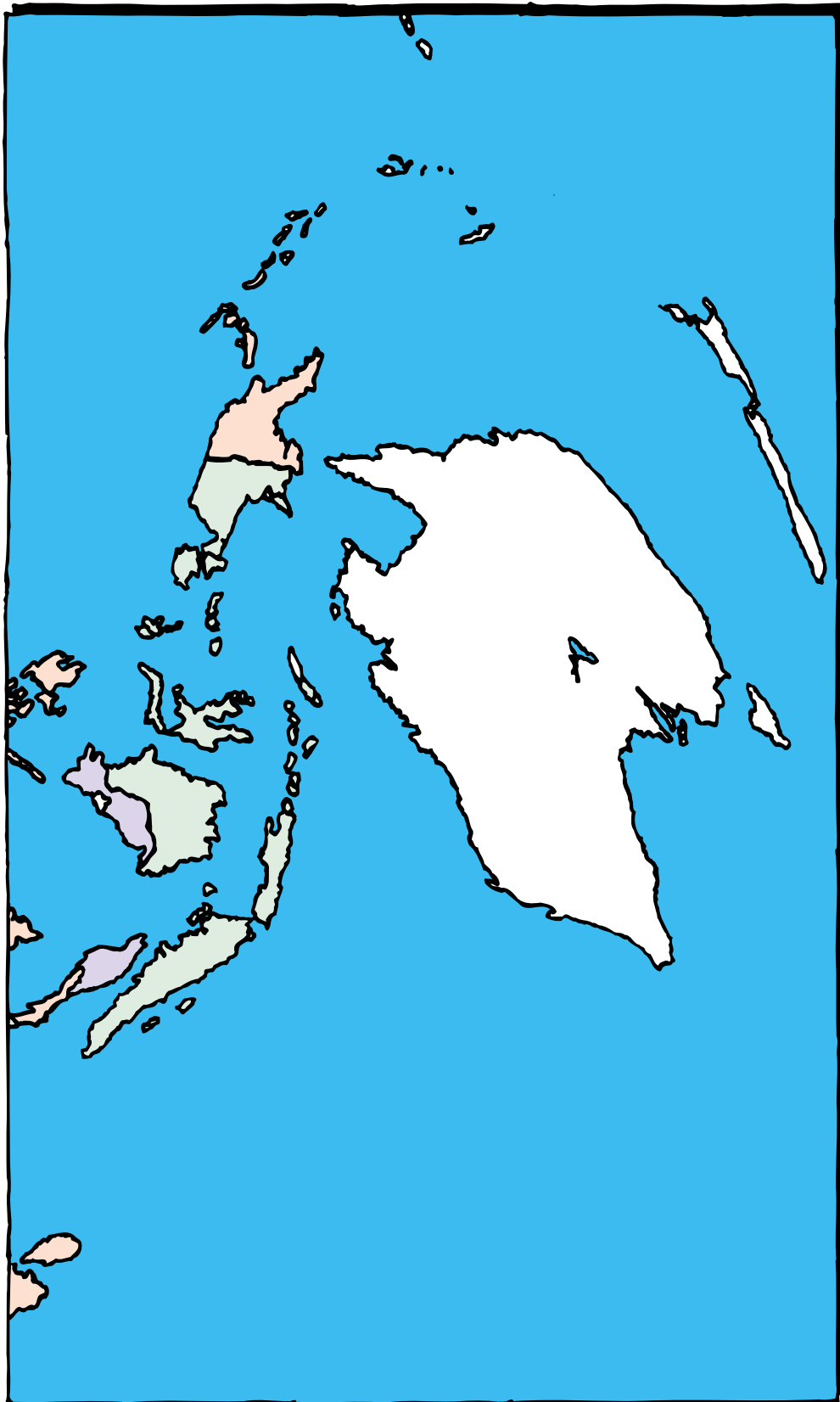
Percentage of undernourished individuals



Source: ESN/WAICENT-KIMS, 2000



Picture: Map of World Hunger
Proportion of undernourished people (1996-98)
Oceania



Percentage of undernourished individuals



Source: ESN/WAICENT-KIMS, 2000