Chapter 1

Traditional use of plants

Among the most widespread early societies in Africa included the **hunter–gatherers** who used temporary shelters and harvested all their plant and animal food from the wild. Following the hunter–gatherers were the **nomadic–pastoralists** who migrated every season with their domesticated animals from one grazing area to another. During the past 6 000 years **early agriculturists**, the subsistence farmers, emerged and began developing what would become a dominant social system in Africa. All three of these early societies developed extensive knowledge of the wild plants around them. They depended on them for food, medicine, charms, essential crafts and shelter.

Hunter–gatherers

Modern humans evolved in Africa as hunter–gatherers. They moved every season with the wild animals they hunted for food and gathered the rest of their diet from the wild. Although their technology was essentially Stone Age, hunter–gatherers developed advanced skills in selecting and shaping stone, bone and wood for their tools. About 10 000 years ago they also developed pottery – the shaping of suitable containers from clay, which was then air-dried and fired to make it hard and resistant.

AbaThwa

The archaeological record shows that successive waves of modern humans arrived in southern Africa from the north, starting more than 100 000 years ago. The only survivors of these early hunter–gatherers are the **AbaThwa** (also known as the San, or Bushmen) who reached South Africa at least 20 000 years ago and were well established across KwaZulu-Natal by 10 000 years ago. Although few are still alive in KwaZulu-Natal today, they left the world's richest record of hunter–gatherer cave paintings showing their beliefs and the animals they hunted.

Kalahari bushmen lived as hunter–gatherers.

Cave painting in the Kalahari.

Modern AbaThwa

Most AbaThwa who survive today are found in small groups in the Northern Cape, Botswana, Angola, Namibia, Zambia and Zimbabwe. Not many are able to carry on their traditional way of life. Anthropologists and botanists have studied the AbaThwa's way of life intensively for several decades, not just because of their ancient lineage and heritage, but also because of their extensive knowledge of indigenous biodiversity and its ecology. New genetic evidence suggests that the AbaThwa possibly reached South Africa as long ago as 40 000 years.

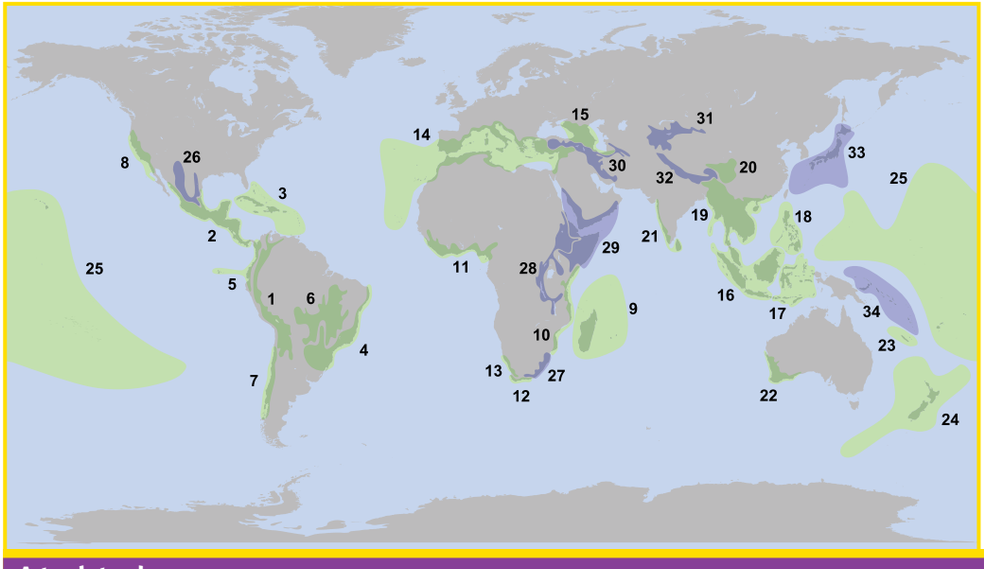
Did you know?

All living things have complex relationships with other species and with their environment. The study of these interactions is called ecology.

Coral reef in Papua New Guinea.

Did you know?

A coral reef is an example of biodiversity. It has high biodiversity because it contains large numbers of different species. Deserts have low biodiversity because they have far fewer species. Humans have reduced biodiversity in many ecosystems by harmful activities, such as overfishing.



A task to do

This map shows the different biodiversity hotspots around the world. Find all the hotspots in Africa.

1. The Tropical Andes
2. Mesoamerica
3. The Caribbean Islands
4. The Atlantic Forest
5. Tumbes-Chocó-Magdalena
6. The Cerrado
7. Chilean Winter Rainfall-Valdivian Forests
8. The California Floristic Province
9. Madagascar and the Indian Ocean Islands
10. The Coastal Forests of Eastern Africa
11. The Guinean Forests of West Africa
12. The Cape Floristic Region
13. The Succulent Karoo
14. The Mediterranean Basin
15. The Caucasus
16. Sundaland
17. Wallacea
18. The Philippines
19. Indo-Burma
20. The Mountains of Southwest China
21. Western Ghats and Sri Lanka
22. Southwest Australia
23. New Caledonia
24. New Zealand
25. Polynesia and Micronesia
26. The Madrean Pine-Oak Woodlands
27. Maputaland-Pondoland-Albany
28. The Eastern Afromontane
29. The Horn of Africa
30. The Irano-Anatolian
31. The Mountains of Central Asia
32. Eastern Himalaya
33. Japan
34. East Melanesian Islands

Nomadic–pastoralists

The change from hunter–gathering to pastoralism started in the Mediterranean region as the last Ice Age was almost at its end some 12 000 years ago. By 7 800 years ago domesticated cattle of African origin, and sheep and goats from the Near East, were present in northeast Africa.

Early pastoralists combined the hunting and fishing activities of their hunter–gatherer ancestors with their new way of life. They moved back and forth across North Africa along a belt of savannah grassland south of the Sahara Desert called the Sahel. This stretches from Mauritania in the west across Mali, Niger, Chad, Sudan (with its wide, well-watered Nile River valley), to Ethiopia.

Historical climate studies show that rainfall in North Africa until some 6 000 years ago was much higher than today. As a result, the Sahel was far wider and well supplied with rivers, lakes and grassland. This covered much of what is arid desert today.

The picture changed dramatically as the climate became increasingly dry and arid about 5 200 years ago. The Sahara region became increasingly drier and the Sahel belt narrowed, surrendering much of its original area to desert. Despite this, pastoralism remained a way of life along the West African Sahel.

Growing trees without irrigation in the Sahel.

A modern-day nomadic Tuareg family continue their daily life on the fringes of the Sahara Desert.

West African Sahel desert.

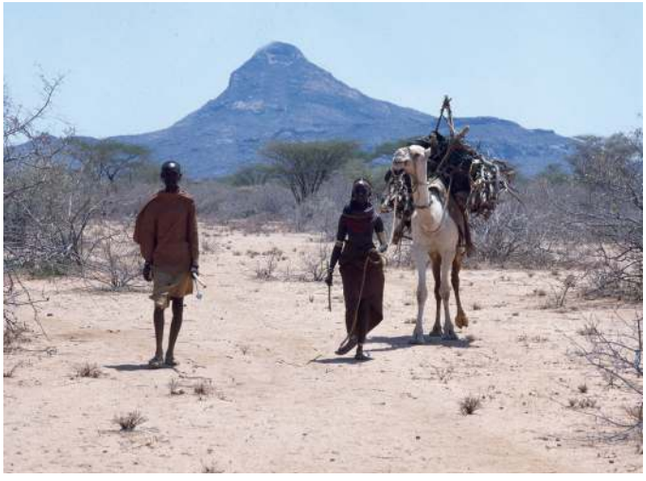
Modern-day pastoralists

The Toubou of Niger and Chad and the Fulani people still travel the ancient routes in search of pastures for their stock despite the difficulty of frequent droughts during which many cattle die. Other pastoralists still live in the Horn of Africa (the Afar, Bedouin, Beja, Oromo, Rendille, Saho, Somali and Tigre) and in the north central Sahara (the Tuareg). Remaining pastoralists in East Africa include the Maasai, Pokot, Turkana and Samburu of Kenya and the Karimojong of Uganda.

Oromo girls come to town from nearby villages to sell produce in the market, Harer, Ethiopia.

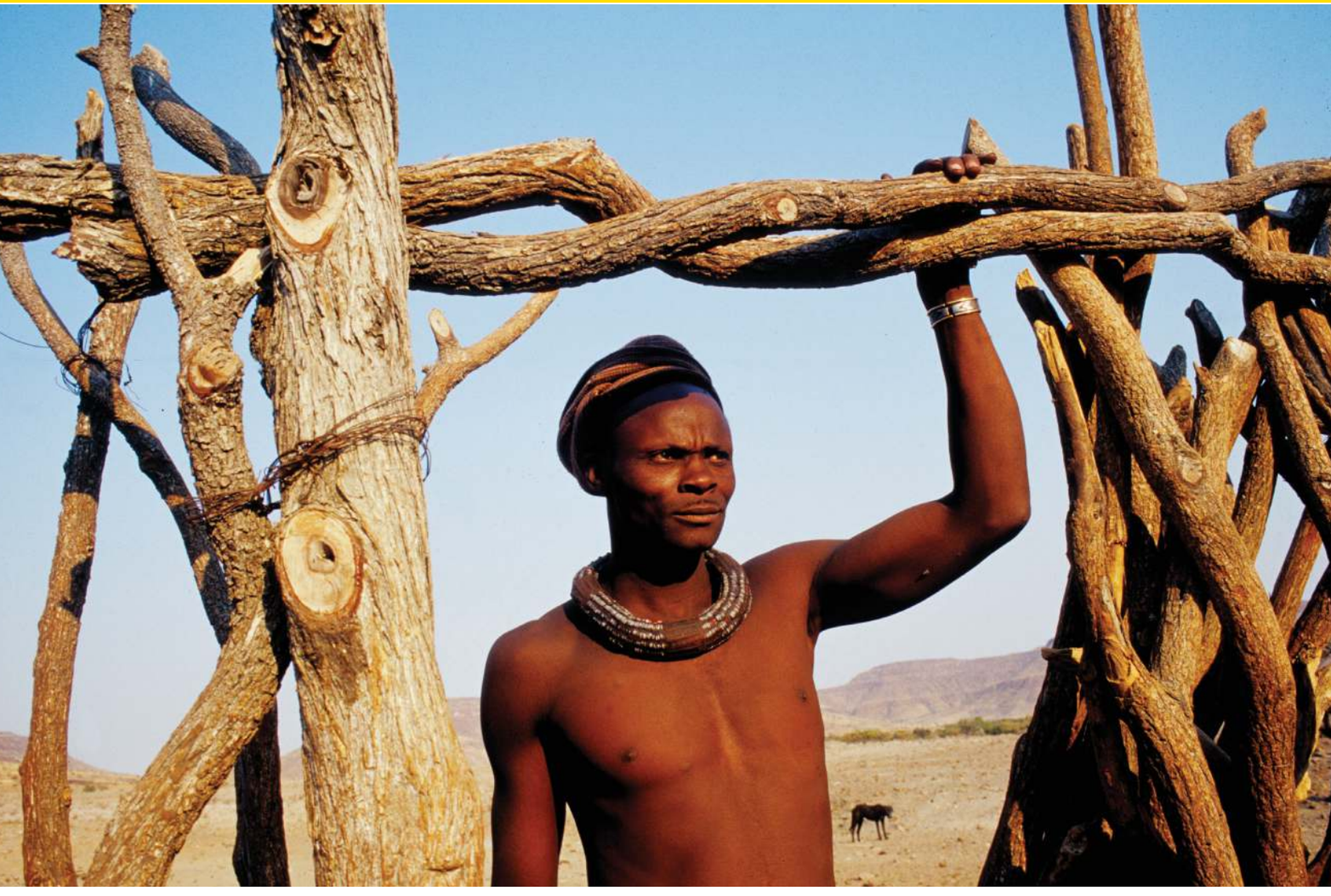
Southern African pastoralists

The earliest pastoralists to reach southern Africa were the Chariguriqua Khoekhoen (also known as Hottentot) pastoralists who moved down Africa to live in the Cape interior with their cattle, sheep and goats some 2 000 years ago. They are genetically related to the AbaThwa, but have a different culture. Their movement was limited only by suitable grazing for their livestock. To take advantage of different rainfall patterns they had to move with the seasons. They would move from the interior summer rainfall region at the end of each summer to the winter rainfall coastal areas of the Western Cape, returning to the interior at the end of winter.



Rendille couple lead their camel home through the stony Kaisut Desert.

Korah Hottentots preparing to move, 1831.



Himba elder in the Kaokoveld, Namibia.

Ova-Himba pastoralists

Fewer than 50 000 Ova-Himba nomadic pastoralists still survive in the remote desert lands of Kunene Province (formerly Kaokoland) in northern Namibia and southern Angola.

They tend cattle, goats and fat-tailed sheep, moving seasonally with their herds in pursuit of grazing. Their diet is largely vegetarian consisting of fruit, nuts and roots (tubers) gathered in the wild and, during the summer rainy season, cultivated sorghum (*Sorghum bicolor*), pearl millet (*Pennisetum glaucum*) and cowpea (*Vigna unguiculata*). They also grow gourds (*Lagenaria siceria*) for containers and serving utensils.

The characteristic red colour of the Himba comes from smearing themselves with *otjize*, a mixture of butterfat, red ochre and the resin of the *oMumbiri* tree (*Commiphora wildii*). This helps to protect their skin from the harsh desert sun and climate.

The Himba are most closely related to the Herero people, a scattered group of some 240 000 people living in Namibia, Angola and Botswana. The Herero were once a traditionally pastoralist people connected with the people of East Africa. The Himba speak Otji-Himba, a dialect of Herero.

Did you know?

The only southern African pastoralists that survive today are the Ova-Himba of Namibia and Angola.

Pearl millet.

Products made from weaving plant material.

Modern-day project, growing pearl millet in Namibia.

Modern-day subsistence farmer in KwaZulu-Natal, South Africa.

Early farmers

We do not know exactly when some of the Sahel pastoralists settled down and began experimenting with harvesting and selecting seed for planting for the next growing season. However, we do know that by 3 700 years ago domesticated pearl millet (different in shape and size to its wild relative) appears in the archaeological record and that its centre of diversity lies in the West African Sahel region. From these early experiments came a whole new way of life as a series of useful wild plants were successfully domesticated by subsistence farmers.

The early farmers domesticated animals and plants, and lived in permanent settlements. They were able to learn the necessary technologies such as:

- building permanent shelters
- working the soil with hand tools for their crops
- firing clay pots for storage of water, seed and food
- weaving plant materials to make mats, baskets and other essential household items.

They are called subsistence farmers because they were able to produce enough for their own needs, but did not grow surplus food for the local market.

As the climate became drier, many subsistence farmers followed the old Sahel migration route eastwards and then southwards into East Africa. The archaeological record shows that iron-working, cattle-keeping, fired clay pot-making and early agriculture were well established in East Africa by 2 500 years ago. It is from the pottery record left by these early farmers that we can track their movement southwards into southeastern Africa, arriving in Zimbabwe and northern Mozambique some 2 000 years ago, and finally reaching KwaZulu-Natal about 1 600 years ago.

Did you know?

Millet, sorghum and yams were among the first crops cultivated in Africa. Millet was very important as it did not need as much water as sorghum to grow.

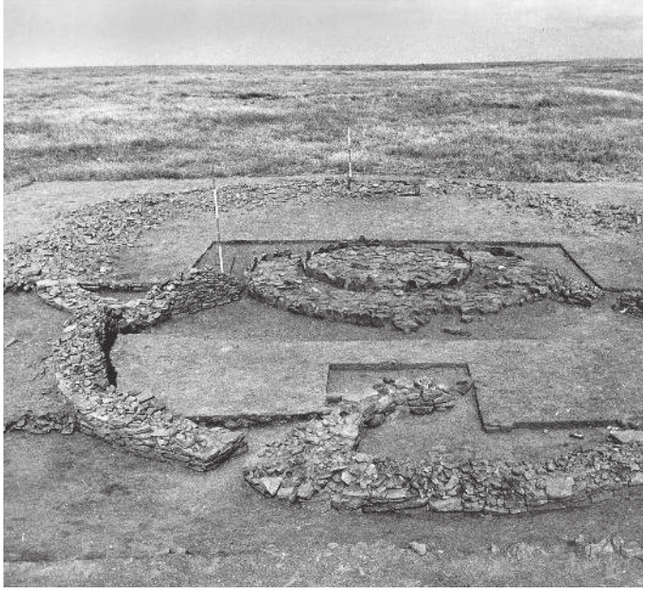
Early farmers in southern Africa

The first farmers in southern Africa (known as Mzonjani) arrived in KwaZulu-Natal, bringing with them domesticated cattle, goats, chickens and summer rainfall crops. They also came with skills in smelting and forging iron to make tools and weapons, and clay-firing to make long-lasting pots for cooking and storing food and water.

Early Shona-speaking farmers (known archaeologically as Kulundu) arrived from further north about 1 200 years ago and settled in coastal and bushveld KwaZulu-Natal. They were followed, and absorbed, during the mid-11th century CE (around 1050 CE) by the earliest Nguni-speaking farmers who spread down the coast and then into the inland grasslands from the 1300s onwards.

Their patterns of settlement were always around a central focal point, the cattle kraal, where significant members of the settlement were buried and where it was believed that the ancestors lived. Cattle, which represented wealth, were used as part of the marriage agreement. They strengthened bonds with other settlements and played an important sacrificial role in maintaining communication with ancestors. Some of the descendants of these early farmers are the Zulu, Xhosa, Sotho, Swathi and Tswana-speaking people of today.

Although the Nguni-speaking people really liked meat and admired the Nguni cattle (*Bos taurus africanus*), the archaeological evidence suggests that the diet of the early subsistence farmers was largely vegetarian.



Stone walls built between 1300 and 1650 by Nguni speakers in what were once grasslands, KwaZulu-Natal.

Nguni cattle grazing in the veld.

Timeline

2,5 million – 500 000 BCE
Early Stone Age

500 000 – 50 000 BCE
Middle Stone Age

400 000 BCE
early humans use stone axes as a tool

50 000 – 2 000 BCE
Late Stone Age

8 500 BCE
rock paintings of wild animals in Saharan Africa

7 000 BCE
hunter–gatherers in Africa begin making pottery

Did you know?

Nitrogen-fixers are normally cover crops from the legume family. A cover crop is planted to keep nutrients from leaching, soil from eroding and land from weeding over. The roots of a nitrogen-fixer are taken over by certain bacteria that extract nitrogen from the air and convert or 'fix' it into a form needed for their growth. When the bacteria are done with this nitrogen, it becomes available to the cover crop itself.

Peanuts are a legume cover crop planted to keep nutrients in the soil.

Example of intercropping where suitable plants are grown together.

A seed fair in Niger, West Africa.

Traditional crops

Traditional African crops were well adapted to growing in local soil and needed little or no extra water. They were pest-resistant (did not need toxic pesticides) and had a less negative impact on the natural environment. The fields of subsistence farmers were typically small and were maintained by a handful of people, who worked the land by hand and often intercropped nitrogen-fixers such as indigenous beans. (Intercropping involves growing suitable plants together.) The decision to settle in a particular area was influenced by how much water was available for crops and if the soil was suitable. Farmers also chose areas with good grazing for their domesticated livestock such as Nguni cattle, sheep and goats. Areas that had human and livestock disease (such as fly-borne sleeping sickness and malaria) needed to be avoided.

Propagation

Most subsistence farm crops were propagated from seed that was harvested and stored from the previous season. However, tubers (such as the Livingstone potato, *Plectranthus esculenta*), were lifted at the beginning of the dry winter and stored until the spring rains. Seeds were sown directly into the lands with the first spring rains (first crop) and mid summer (second crop), without irrigation. The subsistence farmer relied on rainfall to start and maintain crops.

7 800 – 4 000 BCE
What is now the Sahara Desert is a wet area. Communities herd cattle in North Africa rather than hunt them.

4 100 BCE
Sorghum and rice are cultivated in the Sudan in Africa.

900 BCE
mining and smelting of copper and iron in East and West Africa

200 BCE
mining and use of copper and iron in southern Africa

Clay pot used for beer (above).

Sorghum bicolor (below).

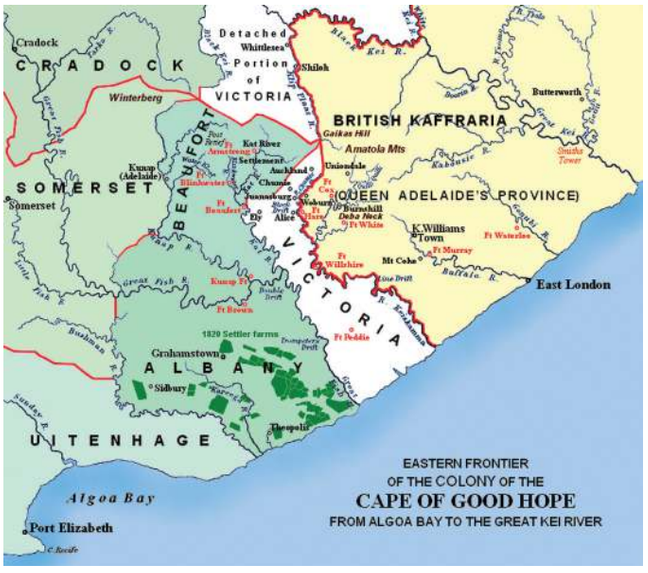
Perennial rivers

In times of peace, subsistence farm settlements were developed on flat land next to, or near, a perennial river. The inner bends of the river where silt settled provided a source of clay for their clay pots (*izinkhamba*), which they hardened in a fire or furnace. These pots were used for carrying water, storage, preparing food, brewing and serving beer. The river also provided a source of reeds and rushes for weaving mats, and water for livestock, washing and household use. Land was cleared, farmed for three to five seasons and then left fallow to recover before being re-used.

Tilling and harvesting

Tilling the soil and harvesting was all done by hand using simple wooden and stone tools. Seeds of *amabele* (*Sorghum bicolor*) were often harvested as complete inflorescences and then hung to dry in the upper areas of a hut. The smoke from the open fireplace in the centre of the hut acted as a fumigator to keep insects away. Other seeds were either stored underground in small granary pits or above ground in small huts with legs.

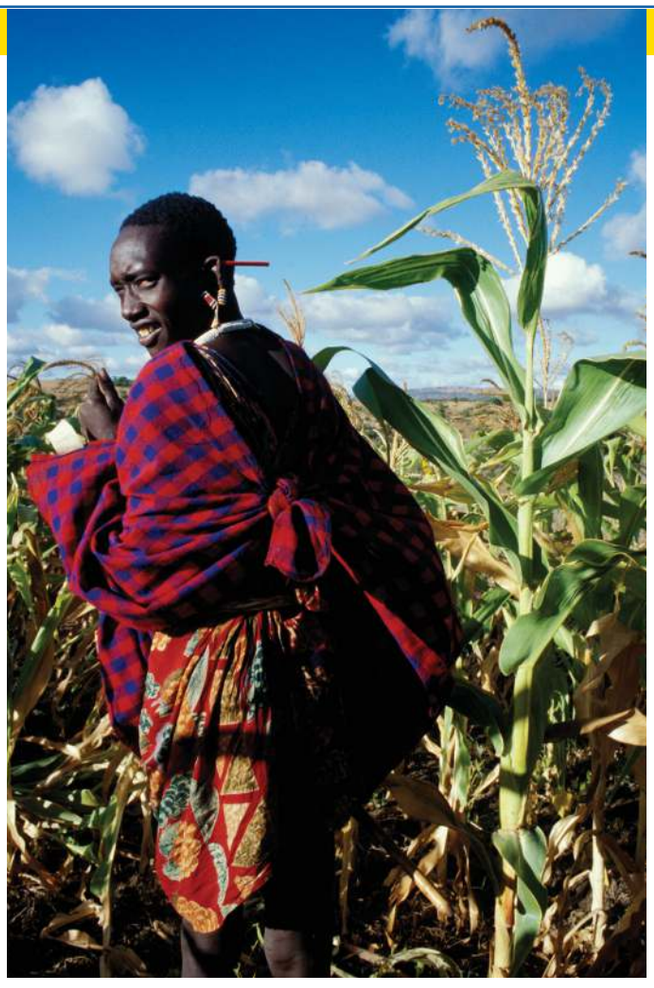
Settlement with the Amathole mountains in the background between Middledrift and King William's Town, South Africa.



Eastern frontier of the Cape of Good Hope colony, ca 1835.

Settlement patterns

This pattern of subsistence farming was sustainable where populations remained relatively small and where there was comparatively little competition for land. Note that these settlements were larger than those of the more vulnerable hunter–gatherers. As communities grew they moved, first eastwards and then southwards. Settlements of early farmers expanded as far as the Indian Ocean on one side, and the natural climate barrier of the Eastern Cape. The wide dry belt extending deep inland from the Port Elizabeth region marked the transition from a summer rainfall to a winter rainfall climate. Summer-rainfall crops could only grow where more than 500 mm of rain fell during the summer growing season and where temperatures did not drop below 15 degrees centigrade at night.



Maasai Moran cultivating maize in Maasailand, Kenya.

Modern farming

Today large-scale commercial farmers in Africa have abandoned most of the traditionally grown crops as large-scale farming of maize (*Zea mays*), rice (*Oryza sativa*), wheat (various *Triticum* species) and potatoes (*Solanum tuberosum*) give higher profits. These crops can be harvested easily with mechanical equipment. However these modern mass-farming practices negatively affect the fertility of the soil and the sustainability of the ecology. New energy-rich foods and new lifestyles have replaced the old as the influence and technology of the West has spread across Africa.

Urbanisation

Rural farming areas, which have been over-used, over-grazed, cleared for firewood and eroded, cannot supply what was once a wide range of traditional plant foods harvested from the wild. There is an increasing reliance on starch food crops such as maize, the indigenous West African yam (*Dioscorea cayenensis*) and cassava (*Manihot esculenta*). Depopulation of rural areas has taken place as people move to the cities for better economic opportunities, different kinds of work and a more sophisticated lifestyle.

Irrigation on a farm in the Northern Cape, South Africa.