

Chapter 3

Use with Section 1

ENRICHMENT

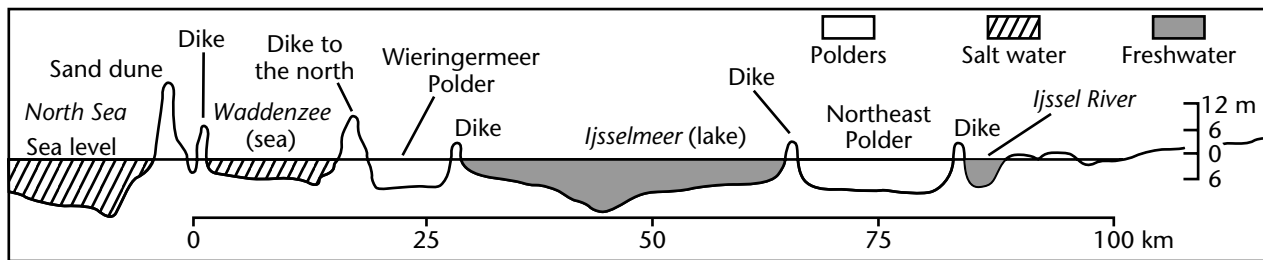
● Landforms

Building New Landforms

People have always changed the land to create more space. San Francisco, New York City, and Boston are examples of places where people have filled in bays with soil to extend their land area. Japan and Hong Kong have built airports in their bays.

One of the best known examples of extending a coastal plain is the Netherlands. Over the centuries, the Dutch have built polders, or tracts of lowland reclaimed from the sea, lakes, or marshes. First dikes of sand and large rocks are built. Then the polder area is pumped dry. In years past, the windmills that dot the Netherlands provided the power needed to pump the sea water out. Now, electrical pumps do the work. The dikes have long been used to keep the sea from flooding the polders and the rest of their land.

The Netherlands occupies a small area of land, and more than 15 million Dutch live there, so the population density is 421 people per square kilometer. (The United States population density is 29 people per square kilometer.) The Dutch need and use every bit of land they have. They even use median strips of highways for crops. In the Netherlands, the largest cities and richest farmland are found on the polders.



Today, the dikes and polders in the Netherlands face several threats. One problem is caused by a seemingly unlikely hazard—muskrats. These rodents tunnel beneath the dikes and can cause a dike to collapse at any time. It takes only a few muskrats to destroy a dike. And the Dutch estimate they have millions of muskrats. With half of their country lying below sea level, the Dutch take the muskrats seriously—they have hundreds of workers whose jobs are to trap the muskrats.

The Dutch also worry that global warming might harm their system of dikes and polders. During a warm winter in 1995, the snow from the Alps melted quickly. This caused the rivers that flow through the Netherlands on their way to the sea to flood. Although the dikes held, about 250 000 people had to leave their homes until the floodwaters receded.

If Earth does grow warmer, more floods will probably occur. After the 1995 flood, the Dutch began a huge project to strengthen the 750 km of dikes. They are also building new kinds of dams. These have sluices, or gates, in them that can be opened or closed as needed. The Dutch hope to direct the floodwaters into open fields rather than toward towns and cities. The Dutch face a huge task, but they have worked for centuries to protect their land. They are confident they will continue to succeed.

Study the diagram that shows a side view of the elevation of the polders. Then answer the questions.

1. From the diagram, what is the approximate elevation of the Wieringermeer and Northeast polders?

2. Along the cross section in the diagram, about how much land is above sea level?

3. Why must the Dutch continue to strengthen the dikes and build new dams?
