



[www.planetware.com](http://www.planetware.com)

## HISTORY OF DIKES AND POLDERS IN THE NETHERLANDS

In 1986, the Netherlands added their new 12th province: Flevoland. But they didn't get this land by taking it from neighbor countries. And they didn't create Flevoland by dividing two province they already had. The Netherlands actually grew.

The Dutch and their ancestors have been working to hold back and reclaim land from the North Sea for over 2000 years. Over 2000 years ago, the Frisians who first settled the Netherlands began to build the first dikes to hold back the water.

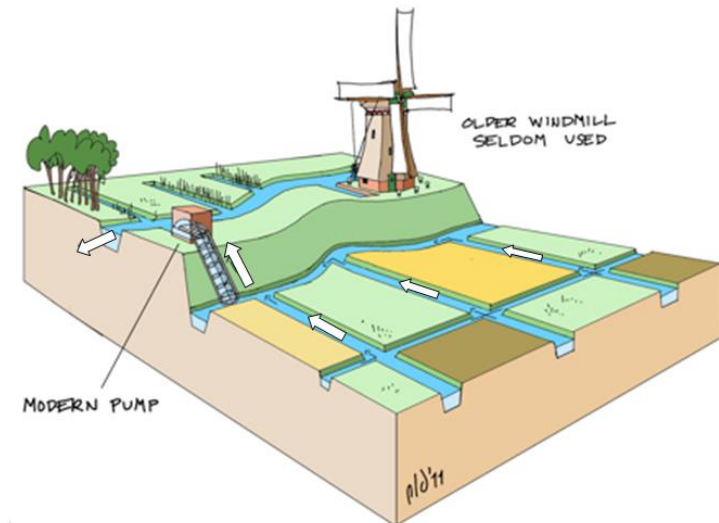
In 1287 the dikes that held back the North Sea failed, and water flooded the country. The flooding created new bay. This land had been farmland before the flood.

Over the next few centuries, the Dutch worked to again push the water back out. They built dikes to create polders (the word used to describe land reclaimed from below sea level). Once dikes were built,

canals and pumps drained the land and to keep it dry. From the 1200s, windmills had been used to power those pumps. This worked well most of the time.

But in 1916, storms and floods scared the Dutch into starting a major project to push more water back into the North Sea. From 1927 to 1932, a 30.5 km (19 mile) long dike called *Afsluitdijk* (the Closing Dike) was built. It was built 24 feet high to hold back the North Sea.

More protective dikes and works were built, creating more polders. The new land led to the creation of the new province of Flevoland. The collective North Sea Protective Works is one of the Seven Wonders of the Modern World, according to the American Society of Civil Engineers.



[https://getintouch eindhoven.files.wordpress.com/2014/10/polder\\_2.png](https://getintouch eindhoven.files.wordpress.com/2014/10/polder_2.png)

Today most of the windmills have been replaced with electricity- and diesel-driven pumps. However, modern windmills are also being used to create electricity to power those pumps.



<http://www.fredhoogervorst.com/oni.app/local/upload/0/034.jpg>

Approximately 27 percent of the Netherlands is actually below sea level. This area is home to over 60 percent of the country's population of 15.8 million people. The Netherlands, which is approximately the size of the U.S. states Connecticut and Massachusetts combined, has an approximate average elevation of 11 meters (36 feet).

Adapted from <http://geography.about.com/od/specificplacesofinterest/a/dykes.htm>



## Polders and Dikes along the North Sea, the Netherlands

This satellite image over the Netherlands shows us how hard humans have worked to control the natural environment.

The tan patches of land that you see used to be underwater. This land is still below sea level, but it was reclaimed from the North Sea (the dark blue in the image). Sections of land reclaimed like this are called *polders*.

Some of the newest polders are on the right-hand side of

the photo. You can also see a long, thin line across the bay. This is a 19-mile-long dike built about 80 years ago.

More dikes were built inside the bay, and sea water was pumped out of those areas. These areas eventually were drained and turned into polders.

After draining, these polders are still not very useful. They are wet and mushy with salty sea water. Plants are added. As they grow, the plants remove the extra water as they grow. The plant roots also help the soil bind together. Rainfall helps remove the salt from the soil. Eventually the plants are burned off and plowed under. But it is a slow process. It takes about 15 years of this work until the land is ready for farming. Since the 1300s, more than 7800 square kilometers of land has been reclaimed from the sea by the Dutch.

Reclaiming coastal lands has been done around the world using different methods. Often, low areas of coastal land has simply been built up higher by bringing in dirt, clay, and rocks. This method has been used around cities such as Boston (U.S.), Belfast (Ireland), and Tokyo (Japan).

Barrier islands fringed with white beaches are found offshore in the lower left. The white streak originating in the upper left-hand (northeast) corner of this scene is an airplane trail. *(A visible trail of streaks of condensed water vapor or ice crystals sometimes forming in the wake of an aircraft. Also called vapor trail.*  
<http://education.yahoo.com/reference/dictionary>)

adapted from [http://www.lpi.usra.edu/publications/slidesets/humanimprints/slide\\_11.html](http://www.lpi.usra.edu/publications/slidesets/humanimprints/slide_11.html)