

Europe

At A Glance

Population: 726 million

Percent of World's Population: 11.83%

Land area: 9,938,000 sq km

Percent of Earth's Land: 6.7%

Key Environmental Issues:

Land degradation

Desertification

Loss of natural forest

Habitat loss

Rapid urbanization

Greenhouse gas emissions and climate change

Bio-invasion

Sites for Europe

Gabcikova, Slovakia/Hungary

IJsselmeer, Netherlands

Taiga Forest, Russia





Gabcikovo, Slovakia/Hungary

Damming The Danube River

Rising from the Black Forest of Germany and traveling 2,840 km to the Black Sea, the Danube River is a living ribbon between east and west Europe. In the middle of the 19th century, the Danube was a wide, branching river whose course was always changing and which had a year-round dynamic exchange with its floodplain. In 1977, The Gabcikovo Dam Project was started under the auspices of an international treaty between Hungary and the former Czechoslovakia to divert the Danube River. The goal was to dam the Danube all the way from Bratislava to Budapest, providing for a tremendous amount of clean hydroelectric energy.

Damming the river and the associated diversion of the water endangers 130 species of birds; 30 mammal species; 8 reptile species; 6 amphibian species and 28 species of fish. Many are endemic to this ecosystem. The lower water table resulting from the diversion threatens this complex wetland ecosystem and the largest drinking water supply in the region. The dam on the Danube River threatens the river's once-flourishing alluvial plains, floodplains, wetlands and its biodiversity.





1992 (left)

The satellite image shows the Gabčíkovo area before the construction of the dam and the Gabčíkovo hydroelectric project.

2000 (right)

Damming the Danube has dramatically altered the flow and volume of water in the old river channel, greatly disrupting the once dynamic ecosystem of Europe's largest river. Prior to Gabčíkovo, water flowed at an average annual discharge of 2,000m³/sec. After the project, the flow in the old river bed was reduced to less than 400m³/sec. The diversion of the navigational channel into Slovakia raises international navigation and trade issues.





IJsselmeer, Netherlands

Land Reclamation

These images show changes in the IJsselmeer, a lake on the coast of the Netherlands. Until 1932, this area was the Zuiderzee, a saltwater inlet of the North Sea. In 1932 the Dutch completed a dike across the mouth of the Zuiderzee to create the IJsselmeer. The freshwater from the IJssel River flushed out the saltwater creating a lake.

By 1968, the Dutch had transformed 1980 sq. km. of the Zuiderzee into five blocks of usable land, called polders. The land reclamation decreased the coastline by 300 km, reducing the impact of storm surges and flooding onto the mainland. The dikes bear the brunt of the storms, while the mainland urban areas benefit from the buffer provided by the dikes. The first of the five polders (Wieringermeer, off the image to the northwest) was actually diked directly from the sea, not from the IJsselmeer.





1964 (left)

Noordoost, top-right, was completed in 1942. East Flevoland, right-center, was completed in 1957. Both Noordoost and East Flevoland can be seen in the 1964 Argon satellite image to be cultivated. Southern Flevoland, the southernmost of the polders, can barely be seen in the 1964 image, diked but undrained.

1973 (uper right)

By 1973, Southern Flevoland had been drained and the soil was being cultivated to make it suitable for commercial agriculture. The dike separating Markerwaard from the rest of the IJsselmeer is partially completed in 1973 and appears as light-toned water.

2000 (lower left)

The 2000 image shows Southern Flevoland covered with active farming. The Markerwaard was completed, but was not drained. Markerwaard is used as a freshwater reservoir and a buffer against flood waters. The original plan was to drain the area as well, but the idea was abandoned due to lack of public support.

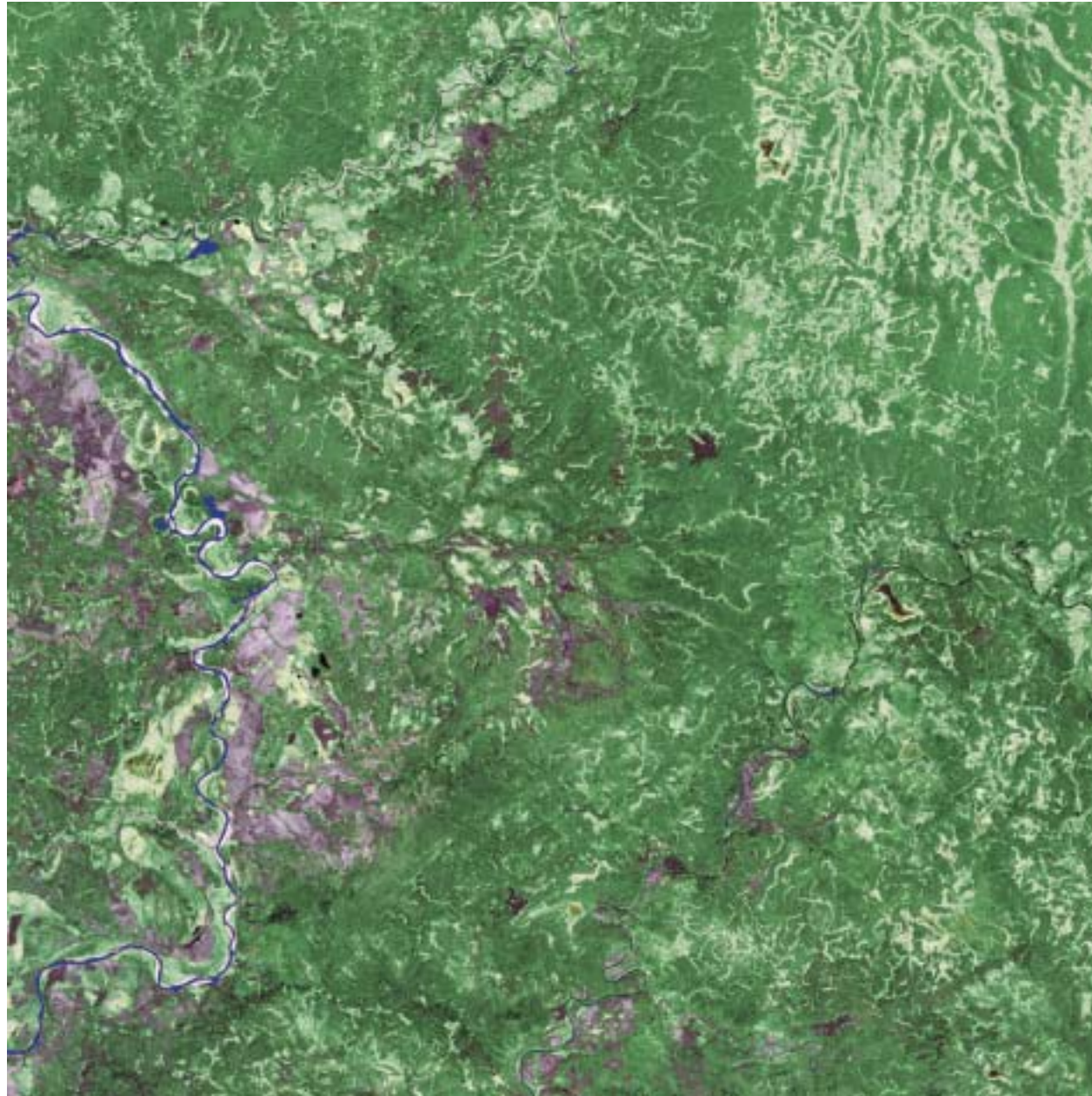




Taiga Forest, Russia

Deforestation in the Boreal Forest

Russia is home to more than 20% of the world's forests, which serve not only as a carbon sink but also as an important source of biological diversity. The Taiga forests of the Arkhangelsk region of Russia are old growth broad-leaf forests that have been a haven for a diversity of species. The satellite images show dramatic deforestation in this region. The dark green color in the images represents forest, light green represents low growth, grass and brush in clearcut areas, brown and tan areas represent bare ground and blue represents water.





1973 (left)

Only limited logging of the old growth forest is visible in the 1973 Landsat image.

1987 (upper right)

The 1987 Landsat image shows expansion of clear-cutting in these Siberian forests.

2000 (lower right)

The 2000 Landsat image shows continued deforestation of the old growth Taiga forest.



