**ASIA**

Statistical information (as of 2021)

Area: 44.58 million square kilometers

Population: 4.6 billion

Total Countries: 49 sovereign countries

Natural Resources:

Minerals Energy Resources Agriculture Land

Forests Water Biodiversity

Fisheries Renewable Energy

**WATER**

This map depicts water use in Asia during the last three decades ending 2021.

Population growth, industrialization and agriculture were the major contributors to increased water demand in Asia during the 30 years between 1992-2021. Rapid population growth created increased municipal demands to provide drinking and sanitation water.

64% of Asia is surrounded by water. This approximation includes not just the water surrounding the coastlines, but also Asia’s many islands, and peninsulas near bodies of water. As a matter of fact, Asia has one of the longest coastlines in the world.

A few of the extreme water events occurring during the 30 years we analyzed were:

* The flooding of the Yangtze River in China in 1998. The Yangtze river is the longest in Asia and third longest in the world. When it flooded in 1998, it was because of long periods of rainfall, rapid snowmelt from the mountains and tributaries that flowed over. The cities, towns and rural areas of the Jiangxi, Hunan, Hubei, and Anhui Provinces were impacted.
* The 2004 Tsunami in the Indian Ocean. Triggered by a massive undersea earthquake with a magnitude of 9.1-9.3 and an epicenter in Indonesia, this tsunami was recorded as one of the most disastrous in recorded history. Fourteen countries along the ocean’s rim from South Asia to the East Coast of Africa were impacted by fast traveling, far reaching waves. As the waves flowed inland, they picked up massive amounts of debris. As the waves receded, the debris was deposited into the ocean. This displaced debris became pollutant in the ocean.
* 2013 Typhoon Haiyan in the Philippines. Recorded as one of the strongest cyclones in history, they typhoon caused damage to coastal ecosystems like coral reefs and mangroves. The storm surges and heavy rainfall caused flooding and landslides. While the Philippines suffered the most, parts of Southeast Asia and Vietnam did as well, just to a lesser extent.

Because the area of Asia is so vast and is so densely populated the common outcomes of these major water events have had are difficult to analyze without considering the local impact. The loss of life, the disruption of ecosystems such as coral reefs mangroves and wetlands, and water pollution have occurred.

Asia’s water use vulnerabilities are greatly impacted by human causes such was rapid urbanization and major population increases. As a matter of fact, the population of Asia between 1992-2021 increased by nearly 2 billion people! These two factors alone contribute water pollution, the overuse of groundwater for drinking and agriculture. The vulnerabilities to water caused by natural sources are the fluctuations in precipitation leading to droughts and floods, and glacial retreat. Glacial retreat caused by rising temperatures impacts the distribution of water.

**LAND**

This map depicts water use in Asia during the last three decades ending 2021.

With over 17.2 million square miles of land area, extreme weather events affecting land in Asia are varied. Like the other continents analyzed in this project, we focused on the extreme weather events that affected land in Asia.

A few of the extreme water events occurring during the 30 years we analyzed were:

* The Tsunami of 2004 in the Indian Ocean. The part of the land most affected by the tsunami was along the coastline. As the waves flowed inland and back out to sea, the shorelines were washed away taking significant amounts of sand and soil. As the waters receded, mud and sediment were left. Mud and sediment covered fertile soil and negatively impacted sanitary drainage.
* The Southeast Asian Haze which occurred between 1997-1998 affected Indonesia, Thailand, Malaysia, and Singapore. The haze was a man-made event caused by the intentional burning of land and forests and the unintentional occurrences caused while clearing land during dry season. The thick smoke caused by the fires, created the haze, damaged the environment, caused a loss of biodiversity, and released carbon dioxide into the air.
* Gobi Desert Storms of China and Mongolia are naturally occurring, and are the result of the flat terrain, low precipitation and the creation of loose, fine sand and dust in the desert. When strong winds pick up, the loose sand and dust travel across the Mongolian region damaging crops by burying them, disrupting transportation with reduced visibility and even contribute to soil erosion and land degradation.

With a large land area and a large population, vulnerabilities created by climate-change have presented major challenges and opportunities for Asian countries. Natural vulnerabilities, those out of control of the people living in the region, such as earthquakes and volcanic eruptions have disrupted agriculture and infrastructure, while the man-made vulnerabilities like population density have put strains on the land resources.

**FORESTRY**

This map depicts water use in Asia during the last three decades ending 2021.

Asian forests account for nearly 28% of the world’s total forest area. Due to the vast size of the Asian continent, there are many different types of forests within its regions, Siberian, tropical, temperate, and boreal.

Climate related events occurring in the forests of Asia impact the ecological, economic, and social balance of the region:

* As the temperatures increase, prolonging the dry periods, the frequency of wildfires increased. The peatland areas of Indonesia when set ablaze release large amounts of carbon dioxide which contributes to the Greenhouse Effect
* While you may not consider pests and disease in forests to be outcomes of climate-change, they are the result of rising temperatures and changing humidity levels. In the forests of Bhutan, pests and disease have spread and have caused tree mortality and the spread of bark beetles during warmer winters.
* Continued illegal logging of forest trees contributed rising temperatures throughout Asia. One of the most devastating practices of illegal logging has been the cutting down of trees in remote areas to avoid detections. Found in the most remote areas of Asian forest are rare and endangered species, some found only in Asia.

The impact of climate changes on the forests of Asia have caused forest erosion which led to landslides, soil degradation and habitat disruption. Habitat disruption particularly have negatively affected wildlife species because of the loss of shelter, food, and sites for breeding.

Vulnerabilities which have resulted from deforestation, forest degradation and climate-changes are primarily borne by the wildlife and forest dependent communities living in the forests.