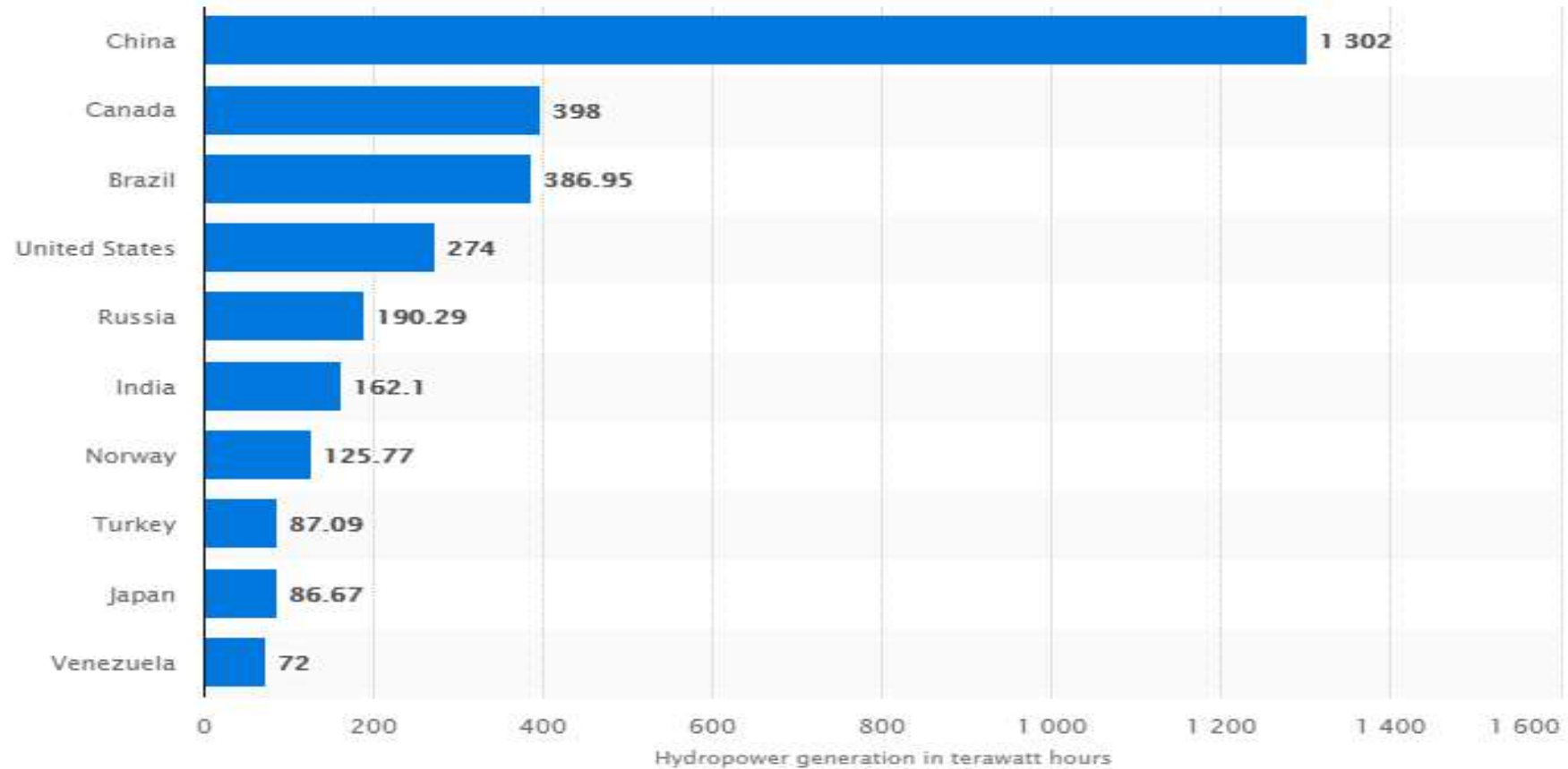


Environmental impacts
of
hydropower energy

Hydropower generation by country



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It is a clean energy source, but there are environmental ramifications of harnessing it for large amounts of power.

Impacts

- Damage to wildlife habitats and migratory paths
- Land use
- Greenhouse gas emissions from reservoirs
- Impacts due to construction activities.

Damage to wildlife habitats and migratory paths

- Constructing large storage or pumped storage hydropower plants involves blocking, diverting, or changing the natural course of river systems.
- Many species of fish depend on inland rivers for reproduction; by blocking a river's flow with dams, fish cannot reach their breeding grounds.
- lead to drastically reduced fish populations, which has negative implications for the health of river ecosystems as well as for human food stocks.
- damming rivers also often reduces water and sediment flow to dangerous levels, which impacts downstream wildlife populations. Low water flow downstream, as well as low nutrient flow, can lead to loss of habitat and healthy water for animals.

Land use

- many large hydropower facilities lead to an altering of the surrounding landscape, especially around reservoirs created by damming rivers.
- Just as reducing downstream water flow can cause a loss of habitat, creating reservoirs to generate electricity in storage and pumped storage hydropower systems often cause upstream flooding that destroys wildlife habitats, scenic areas, and prime farming land.
- These type of instances of flooding can even force human populations to relocate.

Greenhouse gas emissions from reservoirs

several recent studies have shown that reservoirs created by damming rivers contribute significantly to atmospheric greenhouse gases. This is because organic material trapped in the reservoirs, such as dead plants, breaks down and releases gases like carbon dioxide and methane into the reservoir water.

Impacts due to construction activities

Loss of wild lands, wetlands and wildlife habitat

Effects of stopping the flow of nutrients downstream

Reduced biological activity downstream

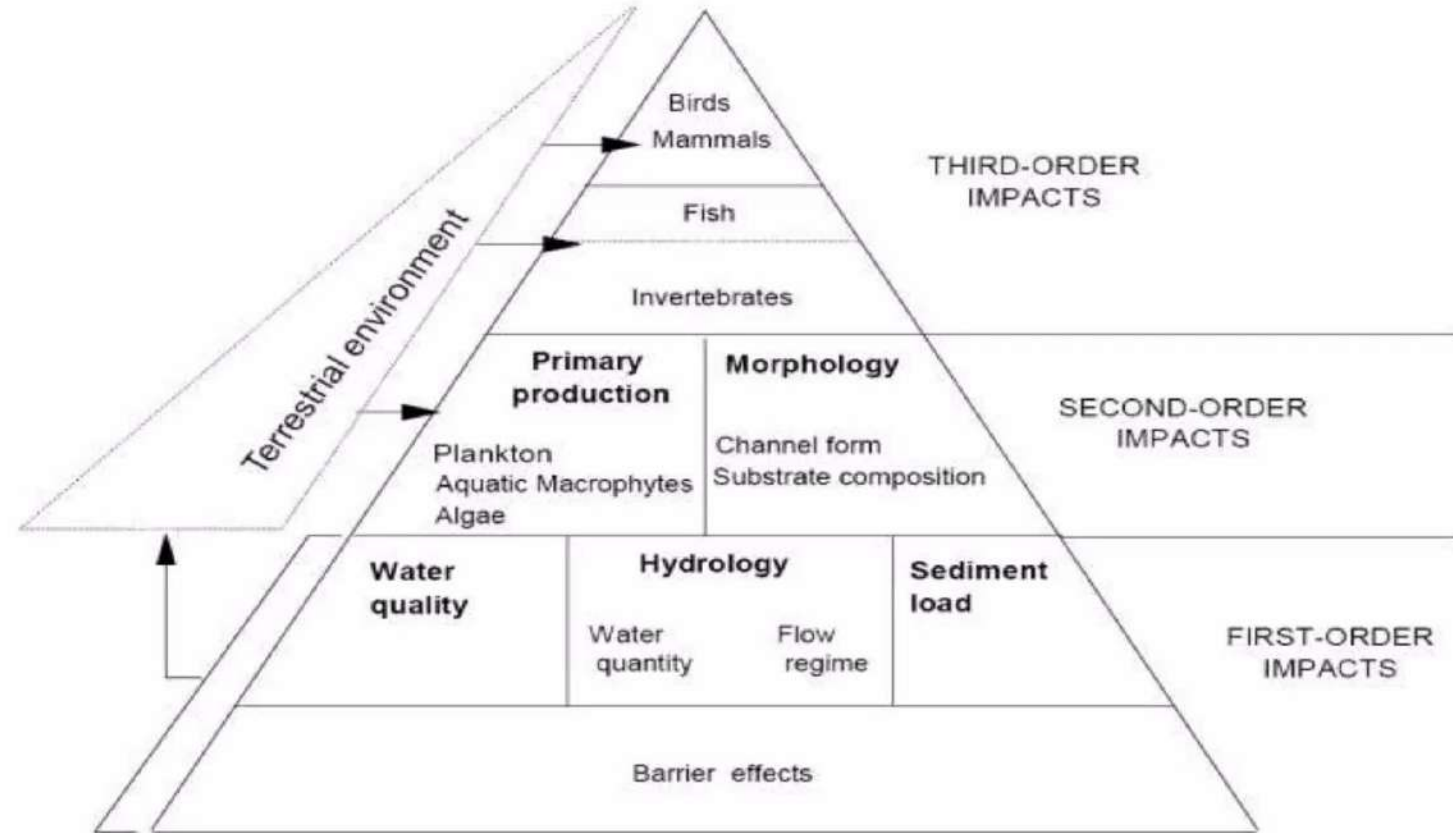
Anaerobic decomposition of vegetation and production of greenhouse gases.

Water-loss due to evaporation

Changes in water quality due to lack of dissolved oxygen near the bottom of reservoirs. This is toxic to fish and can lead to death of aquatic life. It is also corrosive to turbines.

The impact of dams on river ecosystems

THE PYRAMID OF IMPACTS



Social and environmental impacts

- Population displacement
- Loss of social networks and changing way of living
- Dams can facilitate development of diseases
- Reduction in flow of soil and nutrients
- Loss of cultural heritage
- Vegetation rotting under water produces methane
- Erosion of river bed
- Eutrophication
- Algae flourish creating HABs (hazardous algal blooms) which are highly toxic.

Thank you