Reservoir-induced seismicity in Kerala.

When you alter the fault line's mechanical state it can cause fault activity to intensify and induce earthquakes.Many scientists believe this link between temblors and dams—called reservoir-induced seismicity.

Water first seeps into the loose soil at the base of the area's rocky cliffs, destabilizing the land and making it prone to slides. Then the reservoir water level fluctuates—partially drain the reservoir in summer to accommodate flood waters and raise it again at the end of flood season to generate power—and the abrupt change in water pressure further disturbs the land.

The effects of the dam's disturbance of whole ecosystems could reverberate for decades. Landslides caused by increased pressure on the surrounding land, a rise in waterborne disease, and a decline in biodiversity. That biodiversity is threatened as the dam floods some habitats, reduces water flow to others, and alters weather patterns. The dam further imperils delicate fish populations. The reservoir could also break up land bridges into small islands, isolating clusters of animals and plants.

Once you dramatically change the climate and change water patterns you change a lot of environmental variables. Almost all infectious diseases are up for grabs. Researchers found that rotting vegetation in the water means that the dams emit about a billion tonnes of greenhouse gases every year. This represents 1.3% of total annual anthropogenic (human-caused) global emissions. When considered over a 100-year timescale, dams produce more methane than rice plantations and biomass burning.

Dams are declining to favor several factors such as strong concerns about dams' environmental and social impacts and emerging ideas for alternative types of water storage, nature-based solutions, and alternative energy sources. It appears that new dam construction globally will continue at a slow pace in the decades to come, and thus an addition to total global water storage behind dams in the future will be relatively small.

According to the Hydropower Reform Coalition (HRC), a consortium of 150 groups concerned about the impact of dams, degraded water quality is one of the chief concerns. Organic materials from within and outside the river that would normally wash downstream get built up behind dams and start to consume a large amount of oxygen as they decompose. In some cases this triggers algae blooms which, in turn, create oxygen-starved "dead zones" incapable of supporting river life of any kind. Also, water temperatures in dam reservoirs can differ greatly between the surface and depths, further complicating survival for marine life evolved to handle natural temperature cycling. And when dam operators release oxygen-deprived water with unnatural temperatures into the river below, they harm downstream environments as well.

Decommissioning dams is a relatively recent phenomenon. The scale of decommissioning varies globally and regionally; for example, it has become quite common in the USA and Europe. The dams removed are, however, primarily of smaller size. Removal of large dams is still in its infancy, although a few cases have been recorded mostly in the last ten years. Decommissioning will also have various positive and negative economic, social, and ecological impacts to be considered. The nature of the implications and feasibility of dam removal will differ between low-income and high-income countries. Therefore, assessing dam removal in a local and regional social, economic, and geographic context is critical to protect the broader, sustainable development objectives for a region.

Removing a medium-size dam requires years (sometimes decades), continuous experts, and public involvement and is often subject to lengthy regulatory approvals. It is essential to develop protocols and policies that will guide and speed up dam removal. Delaying the removal of certain aged dam structures could lead to catastrophic consequences with millions of people and their economies affected. Simultaneously, the magnitude of some large dam removal projects is merely prohibitive, and they will likely continue to operate much longer with recurring investments into repairs despite their advancing age.

Citizenry growth stands still, for culture and creativity take the back seat when fear reigns. Some may say that there is no fear but the man who is so told, may appear to be consoled though his heart or mind may not be convinced. Therefore, it is the duty of the States involved to create a sense of confidence in the real sense of the term and ensure that adequate measures have been taken so that in any event safety of the individuals shall not be affected and well preserved and their life and liberty remain protected.

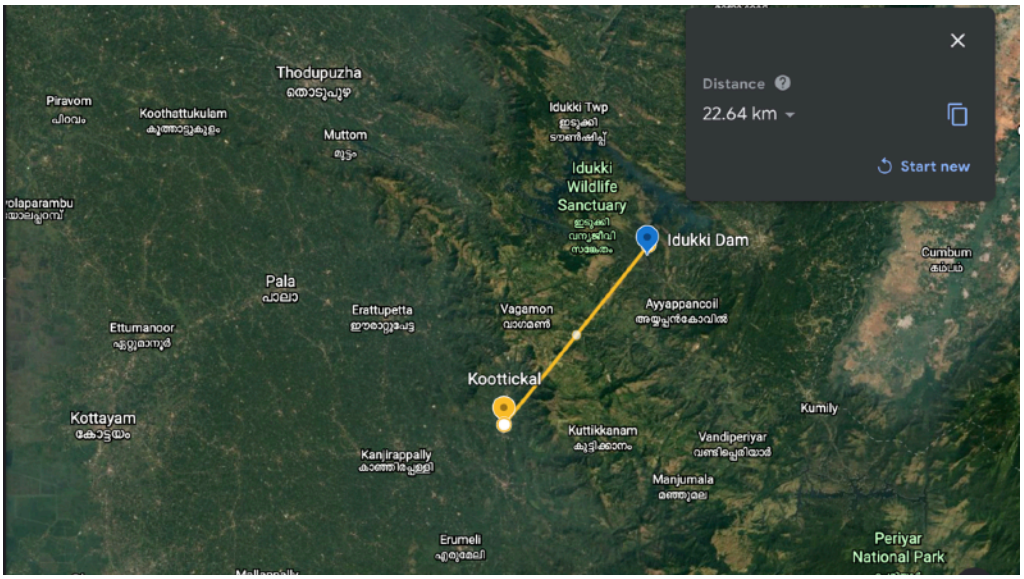
A SIGMA model can be used as an effective early warning system for the region Ultimately, value judgments will determine the fate of many of these large water storage structures. It is not an easy process, and thus distilling lessons from and sharing dam decommissioning experiences should be a common global goal.

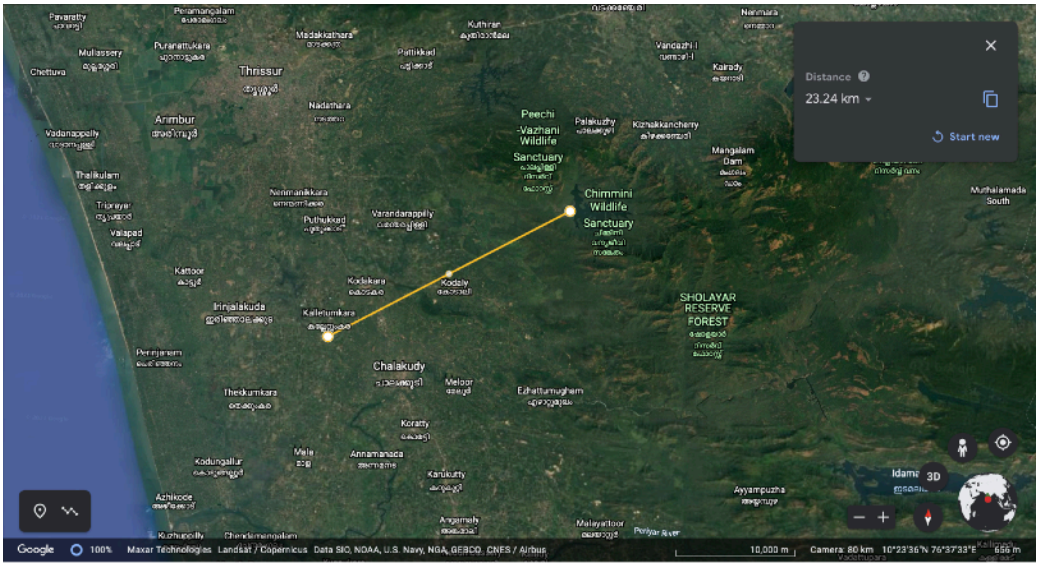
Images below are few Landslides recorded between October 18-28 , 2021. The distance from the nearest reservoir is plotted using Google Earth, measure. The distance can be viewed as radius with equally likely probabilities depending on the top soil. Building intelligence around the reservers and a monetary network using IOT is easily doable solution that only help the people around it.

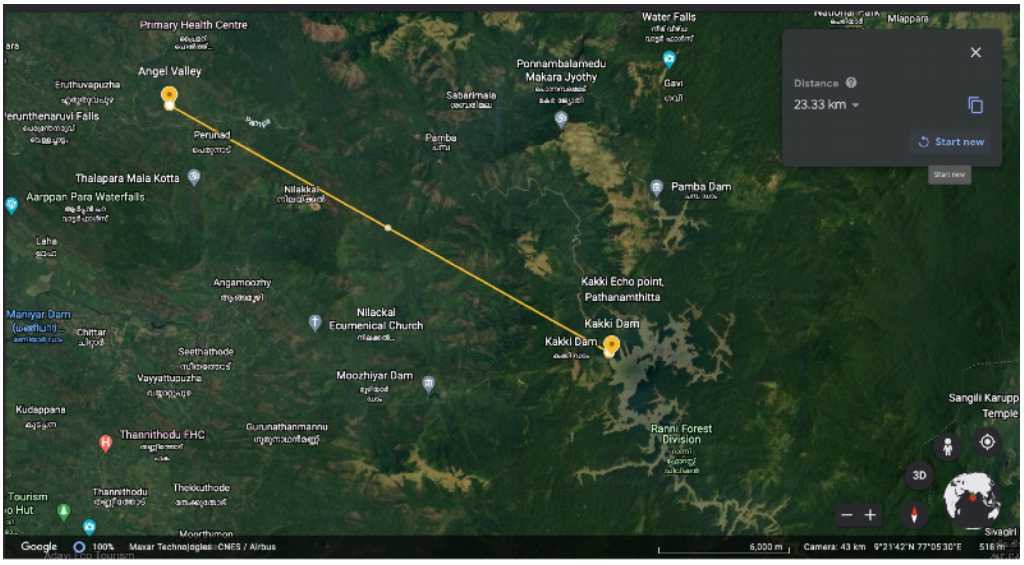
[Courtesy]

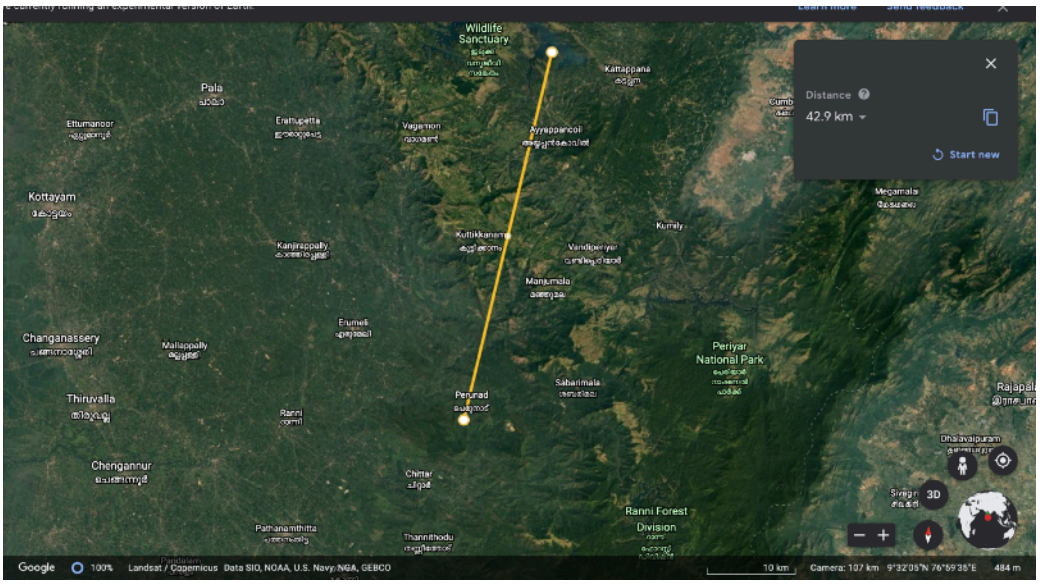
1. https://www.scientificamerican.com/article/chinas-three-gorges-dam-disaster/

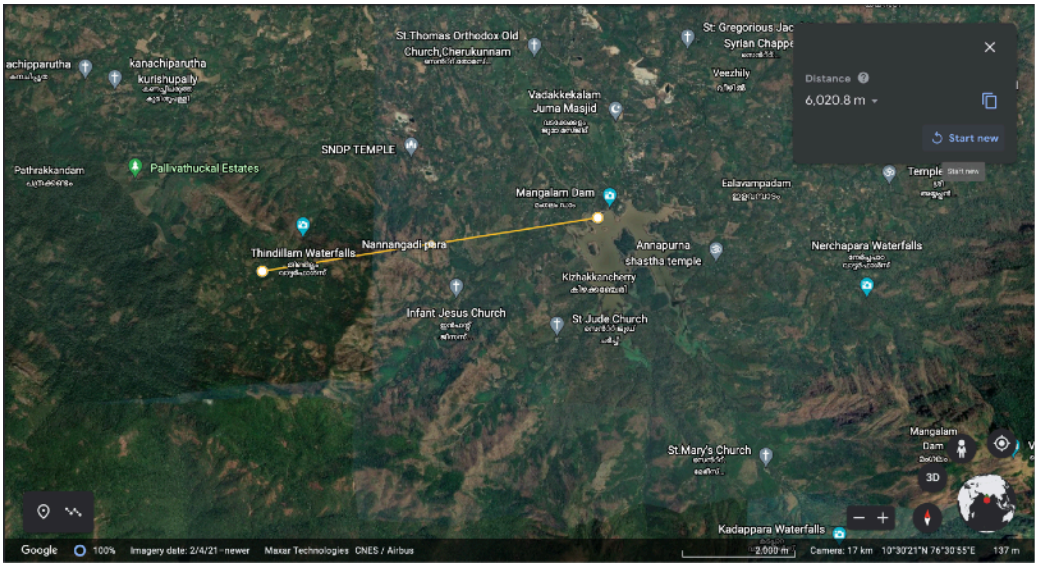
2. http://www.indiaenvironmentportal.org.in/files/Mullaperiyar%20Dam%20de-commission%20Supreme%20Court%20Judgement.pdf

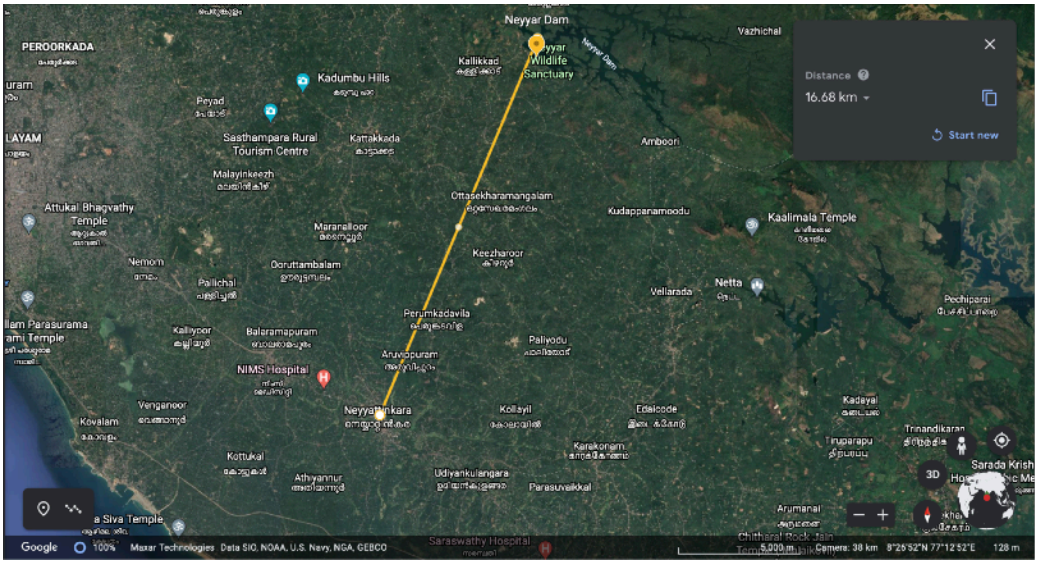

Distance
22.64 km
Start new
Thodupuzha
Piravom
Koothattukulam
Muttom
Idukki Twp
Idukki Wildlife Sanctuary
Idukki Dam
Cumbum
Pala
Erattupetta
Vagamon
Ayyappancoil
Ettumanoor
Koottickal
Kottayam
Kumily
Kuttikkanam
Vandiperiyar
Kanjirappally
Manjumala
Erumeli
Periyar National Park


Distance
23.24 km
Start new
Thrissur
Arimbur
Nadathara
Peechi -Vazhani Wildlife Sanctuary
Chimmini Wildlife Sanctuary
Mangalam Dam
Muthalamada South
Vadanappally
Thalikulam
Varalarappally
Kattoor
Kodakara
Kodaly
Irinjalakuda
Kallerumkara
SHOLAYAR RESERVE FOREST
Chalakudy
Thekkumkara
Ezhattumugham
Koratty
Kodungallur
Annamanada
Kanjkutty
Azhikode
Ayyampuzha
Idamalayar
Malayattoor
Periyar River
Google
Maxar Technologies
Landsat / Copernicus
Data SIO, NOAA, U.S. Navy, NGA, GEBCO
CNES / Airbus
10,000 m


Distance
23.33 km
Start new
Primary Health Centre
Angel Valley
Eruthuvapuzha
Water Falls
Ponnambalamedu Makara Jyothy
Gavi
Mlappara
Sabarimala
Perunad
Pamba
Thalapara Mala Kotta
Aarppan Para Waterfalls
Pamba Dam
Nilakkal
Angamoozhy
Kakki Echo point, Pathanamthitta
Maniyar Dam
Nilackal Ecumenical Church
Kakki Dam
Seethathode
Vayyattupuzha
Moozhiyar Dam
Kudappana
Thannithodu FHC
Gurunathanmannu
Ranni Forest Division
Sangili Karupp Temple
Tourism
Thannithodu
Theekkuthode
Moorthimon
Sivagiri
Google
Maxar Technologies
CNES / Airbus
6,000 m


Distance
42.9 km
Start new
Wildlife Sanctuary
Kattappana
Pala
Ettumanoor
Erattupetta
Vagamon
Ayyappancoil
Kottayam
Kuttikkanam
Kumily
Kanjirappally
Vandiperiyar
Manjumala
Changanassery
Mallappally
Erumeli
Periyar National Park
Thiruvalla
Perunad
Sabarimala
Ranni
Chengannur
Chittar
Ranni Forest Division
Pathanamthitta
Thannithodu
Dhaivaipuram
3D
Google
100%
Landsat / Copernicus
Data SIO, NOAA, U.S. Navy, NGA, GEBCO
10 km
Camera: 107 km 9°32'05"N 76°59'35"E 484 m


Distance
6,020.8 m
Start new
St.Thomas Orthodox Old Church,Cherukunnam
kanachiparutha kurishupally
Vadakkekalam Juma Masjid
Veezhily
SNDP TEMPLE
Pathrakkandam
Pallivathukal Estates
Mangalam Dam
Thindillam Waterfalls
Nannangadi-para
Annapurna shastha temple
Nerchapara Waterfalls
Kizhakkancherry
Infant Jesus Church
St Jude Church
St.Mary's Church
Mangalam Dam
3D
Kadappara Waterfalls
Google
100%
Imagery date: 2/4/21 - newer
Maxar Technologies CNES / Airbus
2,000 m
Camera: 17 km 10°30'21"N 76°30'55"E 137 m


Distance
16.68 km
Start new
Neyyar Dam
Neyyar Wildlife Sanctuary
Vazhichal
PEROORKADA
Kadumbu Hills
Peyad
Sasthampara Rural Tourism Centre
Kattakkada
Amboori
Malayinkeezh
Attukal Bhagvathy Temple
Ottasekharamangalam
Kudappanamoodu
Kaalimala Temple
Maranelloor
Nemom
Keezharoor
Poruttambalam
Pallichal
Vellarada
Netta
Perumkadavila
Kalliyoor
Balaramapuram
Paliyodu
Aruvippuram
NIMS Hospital
Neyyattinkara
Kollayil
Edaicode
Venganoor
Kovalam
Kadayal
Kottukal
Kerakonam
Trivandikaran
Tiruparappu
Udiyankulangara
Athiyannur
Parasuvaikkal
Arumanai
Sarada Krish
3D
Google
100%
Maxar Technologies
Data SIO, NOAA, U.S. Navy, NGA, GEBCO
5,000 m
Camera: 38 km 8°26'52"N 77°12'52"E 128 m