



Jane
Goodall
Institute

Learning Resource



Climate Change: Flood waters on the rise

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Climate Change: Flood waters on the rise



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Pakistan has experienced several devastating floods over the past few years, including a major flood in 2022 that affected over 33 million people. The country is prone to flooding due to its geographical location and topography, as well as climate change-induced extreme weather events.

Flooding can cause significant damage to infrastructure, homes, and livelihoods, as well as lead to loss of life. Therefore, it is essential to understand the causes of flooding and ways to mitigate its effects.



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In this activity you and your students will:

- ▶ Find out about the causes of flooding
- ▶ Think about ways to reduce flood risk
- ▶ Raise funds for tree planting project Trillion Trees

What do I need to make it work?

- ▶ Access to the internet for research
- ▶ Collected rubbish or PET bottles (if following one of the fund raising resources)

Causes of Flooding

There are several causes of flooding in Pakistan, some of which are normal natural events, but many either feed into or are caused by climate change.



Climate Change

Climate change is the long-term shift in average weather patterns across the world. Since the mid-1800s, humans have contributed to the release of carbon dioxide and other greenhouse gases into the air. This causes average global temperatures to rise, resulting in long-term changes to the climate – more info on the MET office website (bit.ly/3nfFLTp)

Investigate some of the following causes of flooding in Pakistan:

- ▶ **Monsoon rains:** Pakistan experiences monsoon rains from June to September, which often lead to flooding due to the country's geography, topography, and poor drainage systems. Climate change has meant that monsoons have become stronger and heavier causing more flooding. News for Kids has a good article on monsoon rains causing floods in Pakistan here: bit.ly/3JD98qb and you can find a whole resource on the monsoon from Roots & Shoots here: bit.ly/3ZsDQs9
- ▶ **River overflow:** The Indus River, which is the longest river in Pakistan, often overflows during the monsoon season, causing flooding in the surrounding areas. The normal cycle of the river helps irrigate crops, but flooding as seen in 2022 causes devastation. NASA have a great article on the normal Indus River cycle here: bit.ly/3yZDrSZ and a feature on the flooding around the Indus in 2022 here: bit.ly/3K17GPN

- ▶ **Deforestation:** Deforestation in the Himalayas and the Karakoram range, which are the sources of several rivers in Pakistan, has increased the risk of flooding as there are fewer trees to absorb excess water.
 - ▶ Earth reminder: Deforestation and flooding (bit.ly/3LKzfhG)
 - ▶ Global forest watch: Deforestation in Pakistan facts (bit.ly/3lsn1j6)
- ▶ **Urbanisation:** Rapid urbanisation has led to the construction of roads, buildings, and other infrastructure that prevent water from seeping into the ground, leading to increased runoff and flooding.
 - National Geographic: Urban threats (bit.ly/3FMO8wa)
 - Jahangir's World times: Pakistan's Urbanisation (bit.ly/3LNREtR)

Discuss in your group how the above causes, either feed into climate change, or are caused by climate change.



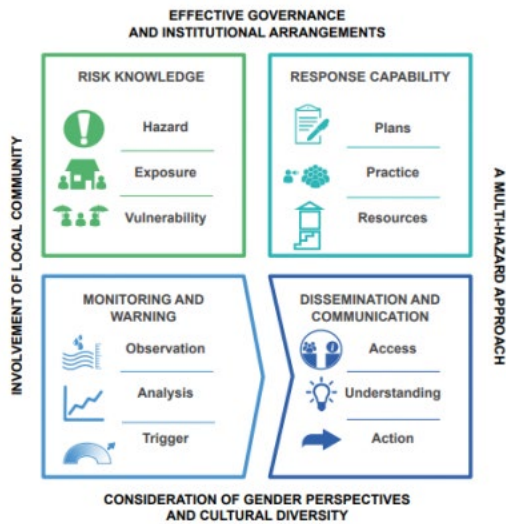
How do we reduce flooding?

We've looked at what may have caused flooding in Pakistan, but what can be done to reduce the risk for future generations?

Here are some ideas for you to think about:

Early Warning Systems: Early warning systems can help to alert people to potential floods, giving them time to evacuate and move to safer areas.

- ▶ Flood Resilience Portal: Good warning systems (bit.ly/40qaWcU)



Elements of an effective early warning system, adapted from World Meteorological Organization (2017)

Improved Drainage Systems: Improved drainage systems, including the construction of drainage channels, can help to prevent water from accumulating in urban areas and reduce the risk of flooding.

- ▶ Singapore National Climate Change Secretariat: Drainage and flood prevention (bit.ly/3LK9qOw)

Afforestation: Afforestation is the opposite of deforestation. Afforestation programs can help to reduce the risk of flooding by increasing the number of trees that absorb excess water, reducing runoff, and preventing soil erosion.

- ▶ Woodland trust: Can trees help? (bit.ly/42BctyQ)
- ▶ Landscape News: Pakistan's 10 billion trees (bit.ly/40vFfPg)

Sustainable urbanisation: Sustainable urbanisation practices, including the construction of green roofs and permeable pavements, can help to reduce the risk of flooding in urban areas. Construction of dams and reservoirs can help to control the flow of water and reduce the risk of flooding.

- ▶ Wavin: 10 ways to reduce flooding in cities (bit.ly/3K2APKq)



Walter Baxter / New tree planting

Money for new woods

Now you have investigated flooding in Pakistan with its causes and possible solutions, why not raise some money for a charity that will help in the long term?

Trillion Trees (trilliontrees.org) has been set up to restore forests all over the world for the benefit of people, nature and climate. This would also help reduce flood risks as we have already discovered.

Ask your group to think about ways you could raise money to donate to trillion trees (trilliontrees.org/reforest-fund)



Here are some fundraising ideas:

Clearing rubbish and putting it to use could help keep drainage clear and prevent flooding in your local area, and you can even use the rubbish to make things and raise money.

- ▶ **Make items** to sell from discarded plastic bottles: Discarded PET bottles (the clear plastic ones that many drinks come in) are everywhere. But did you know that you can use them to make all manner of things from jewellery to greenhouses? Try out our 'My PET Project' activity for lots of ideas on what you could make and sell to raise funds: bit.ly/rs-pet
- ▶ **Sell tickets** to a Trashion show: Trashion is fashion made from things that others have discarded! Today, it's quite the trend and you can make all sorts of things, like a dress made of old ties and shorts made from discarded bags. Get inspired by our 'Run a Trashion Show' activity: bit.ly/rs-trashion

What other ways can you think of to raise money for new trees?

Want to help improve this activity?

This activity is a living document! Help us by editing this activity to make it as good as possible, just use this short link (just type it into your web browser's address bar): bit.ly/40bvk1B – full instructions are provided. Any edits that can make this resource easier to use in the classroom are very welcome, so please follow the link and make your contribution!



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JGI & DP World

The Jane Goodall Institute has partnered with DP World to support the growth of the Roots & Shoots programme. DP World are a leading provider of worldwide smart end-to-end supply chain logistics with a presence in 55 countries, enabling the flow of trade across the globe. This exciting partnership supports the creation of resources on the wider marine ecosystem as well as supporting the expansion of Roots & Shoots groups around the world. **Find out more:** bit.ly/jgi-dpw



Tell us how you got on

When your project is finished we'd love to see what you did! If you already have an account you can upload a story with images to the Jane Goodall's Roots & Shoots UAE website (find us at www.rootsnshoots.ae) to show off pictures and videos of your ships to a wider audience. If your school or youth group does not already have an account then just fill in the form on the website and we can set you up.

UAE Year of Sustainability

2023 is the Year of Sustainability in the UAE where we ask the question how can we be sustainable as a **community**, with our **nature**, and our **resources**? Through knowledge-sharing and storytelling, together we can spread essential information about sustainability and its importance, so share your work as wide as you can and tag/mention the campaign on Instagram, Facebook, Twitter, YouTube and TikTok with the account @UAEYearOf and the hashtags #UAE52 and #TodayForTomorrow. Learn more at UAEYearOf.ae.

Keep up to date with Jane Goodall's Roots & Shoots UAE

As well as the website you can also find us on Facebook at facebook.com/RootsnShoots.ae or on Twitter as @JaneGoodallUAE

