FLOATING GARDEN CHALLENGE

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What do you see?

Look at all the photographs given to you by your teacher.

- What do you see in them?
- Where do you think the photos are from?
- What do you think are the main problems for people in the photos?

Now sort your photos into two groups. You decide how.

Flooding and drought

How have you grouped your photos?

Flooding vs drought? UK vs other countries?

Any grouping is correct.

Flooding and drought are affecting people and the environment in the UK and around the world.

Which countries do you know of that experience flooding or drought?

Guess where?

The country you are about to explore is a fascinating country. Guess which country it is. **You have four clues!**

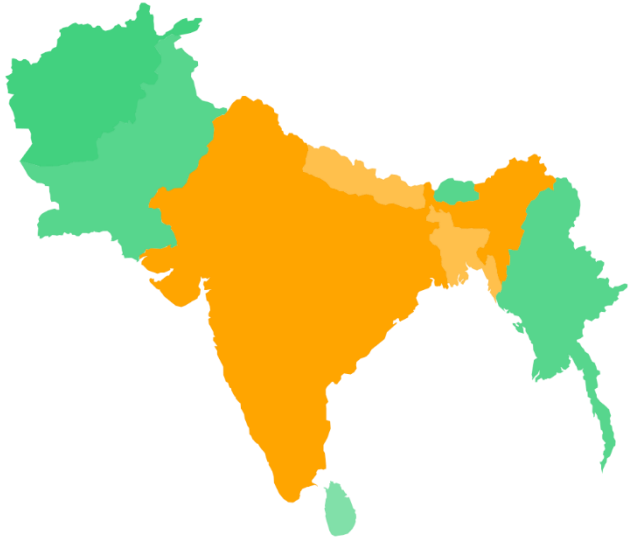
1. The most popular national sport is cricket.

2. Country flag – it represents the sun rising over green fields.

Guess where?

3. The capital city is Dhaka.

4. It shares its land borders with India and Myanmar.



Answer: Bangladesh

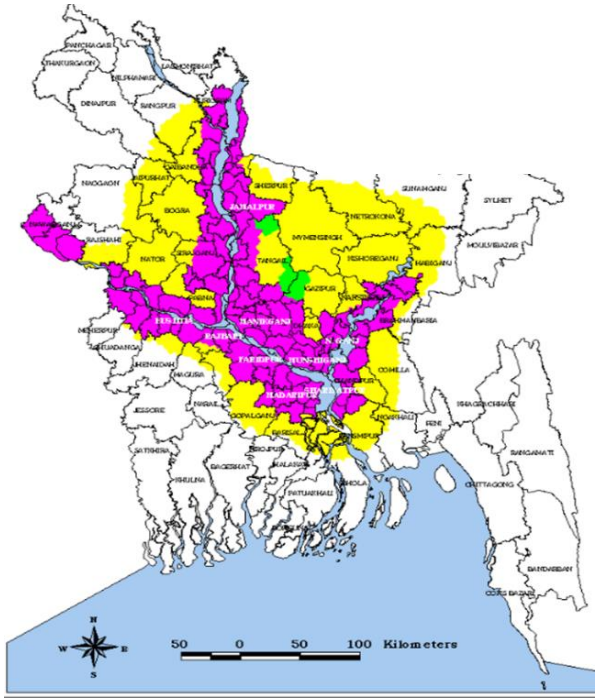
Flooding in Bangladesh

Floods are now affecting over **one million people** in Bangladesh every year.

Due to climate change the rainy season has become longer. It can last up to six months every year.

Many families who used to grow crops to feed their families and sell at market are no longer able to do so.

Map of Bangladesh



The map shows the areas affected by flooding in Bangladesh:

- areas severely affected
- areas affected
- main rivers.

Why do you think the areas in pink are experiencing the worst flooding in Bangladesh?

Tara's story

Tara lives with her family in Gaibandha in Northern Bangladesh.

They have had to move seven times as their home and land have been washed away by floods.

They now live on a piece of land owned by the government which is 800 square metres.

Their land is still prone to flooding so they need to find another way to grow their crops.

The Sustainable Development Goals

So many people around the world are affected by climate change and living in poverty that the United Nations (UN) called a meeting with leaders from over 30 countries to form an action plan to address these big issues.

The leaders agreed on 17 areas that needed to be sorted. They called them the Sustainable Development Goals (SDGs) or Global Goals for short.

THE GLOBAL GOALS
For Sustainable Development

17 global goals

Practical Action

Practical Action is the name of a development organisation that works in many parts of the world including Bangladesh.

This is Asfari Begum. She is the senior specialist working on climate resilience for Practical Action in Bangladesh.

Your new role

Imagine you work for Practical Action in Bangladesh. You spend time talking to people whose land is flooded for 3-6 months every year.

They tell you that they can no longer grow crops on their land. This has led to them not having enough food to feed themselves or to sell at market.

The challenge

Your challenge is to design and build a **model** of a structure that people can grow their crops on, even when their land becomes flooded.

You will be asked to present your work to the rest of your class and to test your model to see how well it floats!

What should you consider?

You will need to think about:

- whether you want your model to float and if so, how you can make it do so.
- how to make the top of your model suitable to grow crops on. Does it need to be flat? Layered?
- the size of your model. It needs to be tested by placing it on water in a washing up bowl or sink.

Present your work

At the end of your challenge you will be asked to give a mini presentation to the rest of the class.

Your presentation should include a bit about the following.

Teamwork: how well did you work together to get the different tasks done?

Research: what were your findings from any areas of research?

Design ideas: what different ideas did you come up with and what was your final idea?

Model: how much weight did it take before tipping over or sinking in the water? How might you improve it?

An ingenious solution

In Bangladesh, Practical Action worked with Tara and other families living in flooded areas to develop an ingenious solution to grow crops on flooded land...

A garden that floats!

People can grow crops and even keep ducks on their raft-like gardens all year round – even during the monsoon.

A garden that floats

The gardens are:

- approximately 8 m x 1 m
- made up of layers of local material: water hyacinth, bamboo and compost
- great for growing crops such as kale, lettuce and okra
- reused as compost for another garden when they start to rot.

Making a difference

Many farmers have now been trained to make their own floating gardens.
So now they are able to grow enough crops to feed their families and to sell at market.

'This has made a great difference to my life. Now I can have enough food when it floods and I can sell some at market and give some away to help my relatives as well.'

Which global goals?

Now that you have learnt about the floating gardens in Bangladesh, how do you think they are helping people?

Look back at the Global Goals. Which of the goals do you think the floating gardens are helping to deliver?

Making the most of the challenge

Why not:

- Grow some cress on your model floating garden by placing damp paper on top of your model, then sprinkle with cress seeds watch your garden grow?
- scale up your garden by making one for use on a pond?

Celebrating

Success

Celebrating success

CREST Awards

The Floating garden challenge can be used to gain a CREST Discovery Award or a Superstar Award (primary).

Big Bang Competition

You can enter your project into the Big Bang Competition, at regional events or online.

Every year 200 projects are chosen every year to attend the Big Bang Fair in Birmingham. Prizes include industrial/scientific visits, mentoring, cash and the chance to represent the UK in international competitions.

This could be you next year!

Celebrating success

British Science Week

Now you have completed the **Floating garden challenge** why not try some of Practical Action's other STEM challenges during a special week in March each year? How about the Squashed tomato challenge, Stop the spread, the Solar challenge or Ditch the dirt?

Great Science Share for Schools

A great opportunity for you to share your science projects with other schools, all on one special day in June each year.

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We hope you have enjoyed the Floating garden challenge.

For more information and resources go to:
practicalaction.org/schools