African Elephant dying due to Cyanobacteria

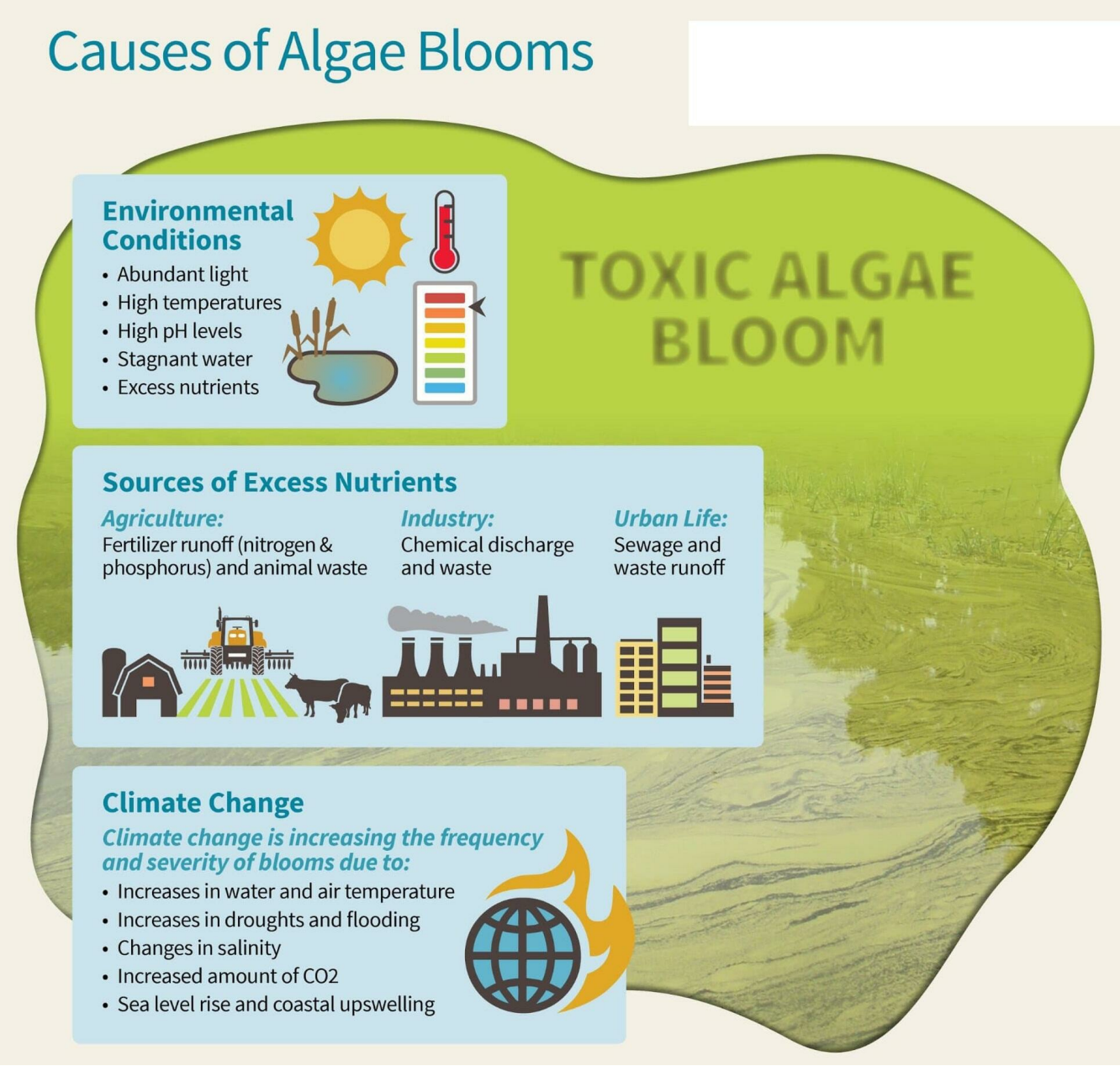
Why in News

Neuro-toxins in water **produced by cyanobacteria** killed more than 300 African elephants in the **Okavango delta region, Botswana** (country in Southern Africa).

> **Neuro-toxins** are substances that damage, destroy, or impair the functioning of neural tissue.

Key Points

- **Cyanobacteria:**
  - **Cyanobacteria**, also called **blue-green algae**, are microscopic organisms found naturally in soils and all types of water.
  - These **single-celled** organisms (bacteria) live in fresh, brackish (combined salt and freshwater), and marine water.
  - These organisms use sunlight to **make their own food.**
  - In **warm, nutrient-rich (high in phosphorus and nitrogen) environments,** cyanobacteria can **multiply quickly.**
  - Not all produce toxins but scientists say toxic ones are occurring more frequently as **climate change** drives up global temperatures.
- **Climate Change and Algal Bloom:** An **algal bloom** is a rapid increase in the population of algae or cyanobacteria in an aquatic system.



- **Warming water temperature:**
  - Toxic blue-green algae thrive in warm, slow-moving water.
  - Warmer water due to climate change might favor harmful algae.

    Warmer temperatures prevent water from mixing, allowing algae to grow thicker and faster.
- **Changes in salinity:**

  Climate change might lead to more droughts, which make freshwater saltier. This can cause marine algae to invade freshwater ecosystems.
- **Higher carbon dioxide levels:**

  Algae need carbon dioxide to survive. Higher levels of carbon dioxide in the air and water can lead to rapid growth of algae, especially toxic blue-green algae that can float to the surface of the water.

- **Changes in rainfall:**

  Climate change might affect rainfall patterns, leading to alternating periods of drought and intense storms. This can cause more nutrient runoff into water bodies, feeding more algal blooms.

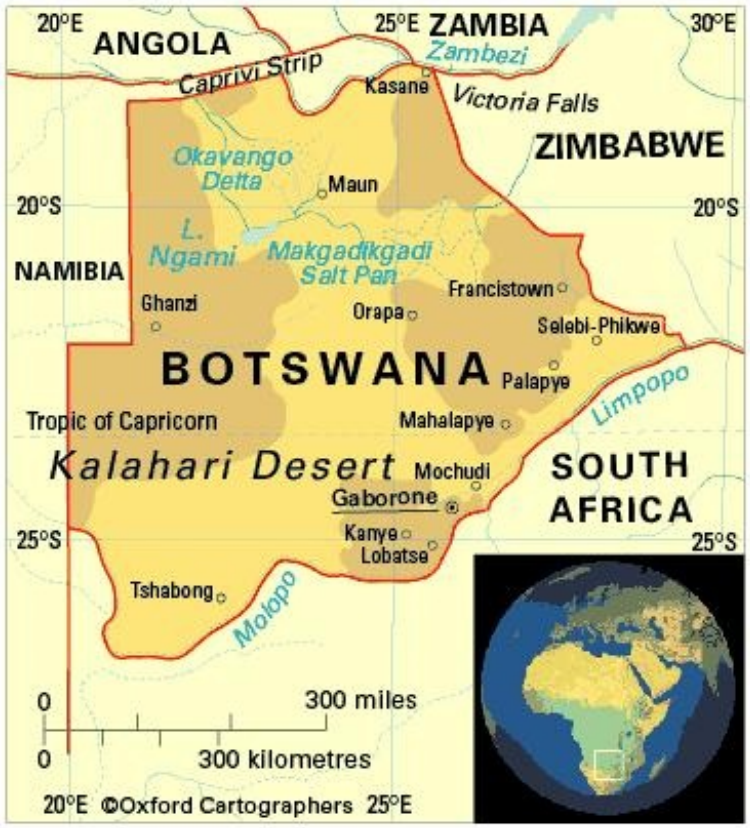
The African elephant:

- It is the **largest** animal walking the Earth.
- Their herds wander through 37 countries in Africa.
- They are **vulnerable** as per the International Union for Conservation of Nature **(IUCN) Red List.**
- African elephants in Botswana, Namibia, South Africa and Zimbabwe are included in the Convention on International Trade in Endangered Species of Wild Fauna and Flora **(CITES) Appendix II.**

  Appendix II includes species not necessarily threatened with extinction, but in which trade must be controlled in order to avoid utilization incompatible with their survival.
- **Two Subspecies:** The **Savanna (or bush) elephant** and the **Forest** elephant.
  - Savanna elephants are larger than forest elephants, and their tusks curve outwards.
  - Forest elephants, a distinct subspecies of African elephants, are uniquely adapted to the forest habitat of the **Congo Basin,** but are in sharp decline due to poaching for the international **ivory trade.**
- The **World Elephant Day** is celebrated on **12th August** every year to spread awareness for the conservation and protection of the largest mammal on land.

  The day was launched in 2012 to bring attention to the urgent plight of **Asian and African elephants.**

Botswana



- It is a **landlocked** country of southern Africa.
- Botswana is **mostly flat with a few hills,** most of its highest points located along the south-east section of the country (the eastern edge of the Kalahari Basin).
- The **semi-arid Kalahari Desert** covers about **70%** of Botswana's surface.
  While Kalahari does receive about **500 millimetres** in the wettest parts per annum, the Kalahari is considered a desert because it has a vast surface area covered with sand.
- **Biodiversity:** It is home to plants and animals, mostly different types of acacia trees, animals like lion, cheetah, leopard, hyena, antelopes, meerkats, as well as many birds species and reptiles.
- **Indegenous People:** It is also home to the **tribes** like- San people (Bushmen), Tswana, Kgalakgadi, and Herero people.
- **Okavango Delta:** It is one of the world's largest **inland** deltas.
  It spans about 15,000 square kilometres and is relatively flat topography.

Source: TH