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1 Bulgaria (Source: The Hindu)

- **Location**: Southeastern Europe; eastern part of the Balkan Peninsula
- **Capital**: Sofia
- **Border Countries**: Romania, Turkey and Greece, Serbia and North Macedonia.
- **Bordering Waterbodies**: Black Sea.
- **Major River**: Danube River
- **Mountains**: Balkan Mountains (Central Spine), Rila and Rhodope Ranges.
- **International Grouping**: European Union, NATO, Schengen Area



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2 Human Papillomavirus (HPV) (Source: The Hindu)

- *HPV is a **DNA virus** that spreads via sexual contact and causes cervical cancer, and can affect other areas like the throat, skin, etc.*
- No specific cure is available, but the vaccine exists.

Few Steps Taken to Counter HPV

- **WHO**: '**90-70-90**' targets for 2030 to combat cervical cancer.
- The Union government has proposed to add the HPV vaccine under the Universal Immunisation Programme.
- India's development of the indigenous quadrivalent vaccine, Cervavac
  - The vaccine has to be administered in adolescent girls before they are sexually active between the ages of 9 and 14 years. This is because the vaccine can only prevent the entry of the virus.
  - Screening from the age of 30 can detect cervical disease, which, when treated, also prevents cervical cancer.

Virus

- A virus is a submicroscopic infectious agent that can replicate only inside the living cells of a host organism.
- It infects all forms of life, including animals, plants, fungi, bacteria, and archaea.
- A virus particle (virion) consists of genetic material—either DNA or RNA—enclosed inside a protective protein shell called a capsid.

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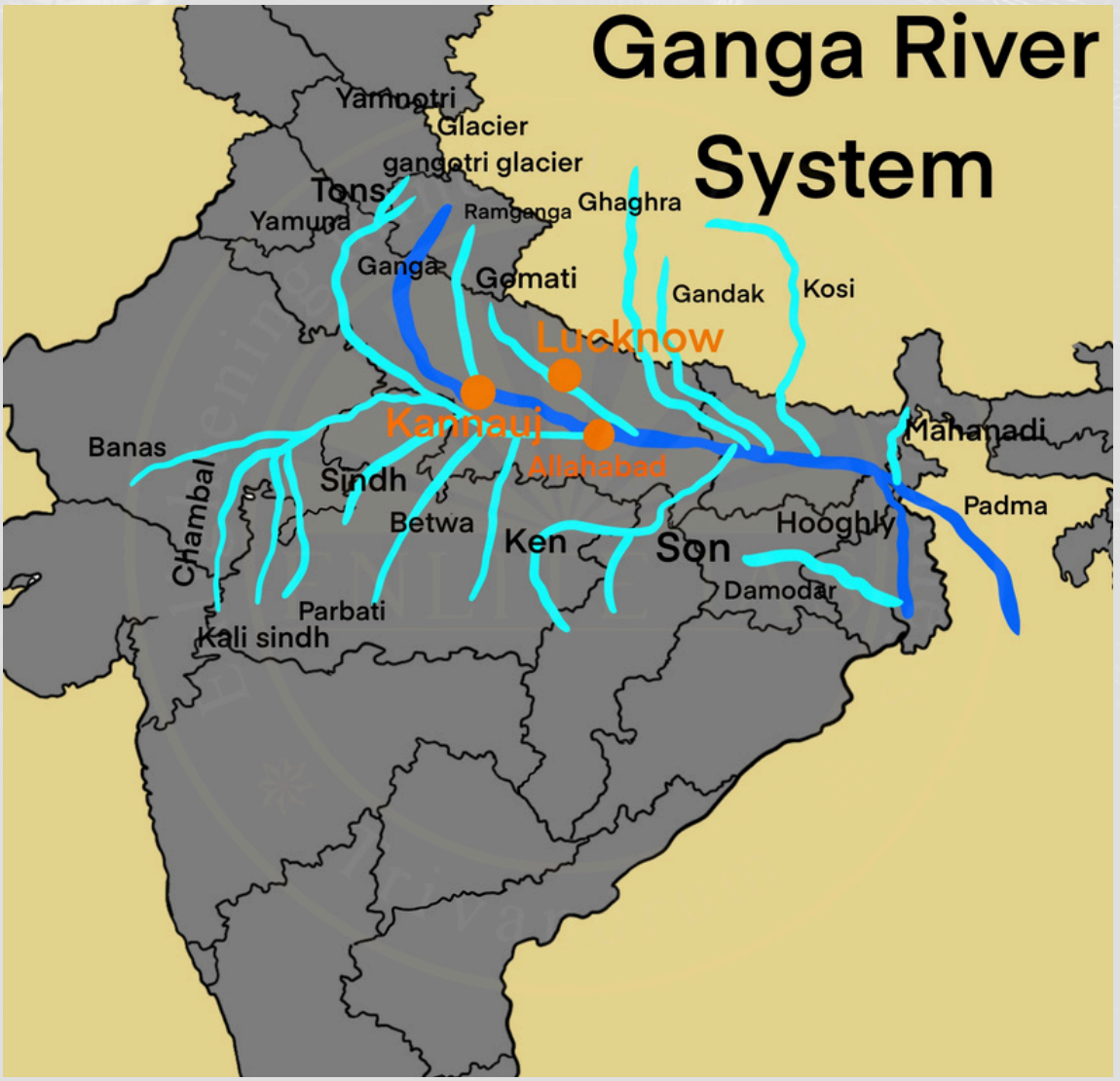
3 Ganga River System (Source: The Hindu)

- The Ganga river system is spread over India, Tibet, Nepal and Bangladesh.
- It is the largest river basin in India and accounts for one-fourth of the total area of the country.
- Its basin covers the states of Uttar Pradesh, Madhya Pradesh, Rajasthan, Bihar, West Bengal, Uttarakhand, Haryana, Chhattisgarh, Himachal Pradesh and the UT of Delhi.
- Ganga river flows through the states of Uttarakhand, Uttar Pradesh, Bihar, Jharkhand, and West Bengal.
- The Bhagirathi, considered to be the source stream of Ganga rises at the foot of the Gangotri Glacier, at Gaumukh.



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Himalayan Tributaries of the Ganga River

- **Alaknanda River**
  - It rises at the confluence and feet of the Satopanth and Bhagirath glaciers in Uttarakhand.
  - It meets the Bhagirathi River at Devprayag, after which it is called the Ganga.
  - Its main tributaries are the Mandakini, Nandakini, and Pindar rivers.
  - The Hindu pilgrimage centre of Badrinath and the natural spring Tapt Kund lie along the banks of the Alaknanda River.
- **Bhagirathi River**
  - It rises at the foot of Gangotri Glacier, at Gaumukh, at an elevation of 3892 m in Uttarakhand.
- **Dhauliganga River**
  - It originates from Vasundhara Tal, perhaps the largest glacial lake in Uttarakhand.
  - Dhauliganga is joined by the Rishiganga river at Raini.
  - It merges with the Alaknanda at Vishnuprayag
  - Tapovan Vishnugad Hydro Power Project is being constructed on the Dhauliganga.
- **Rishiganga River**
  - It springs from the Uttari Nanda Devi Glacier on the Nanda Devi Mountain.
  - It is also fed by the Dakshini Nanda Devi Glacier.
  - It flows through the Nanda Devi National Park and merges into the Dhauliganga River
- **Yamuna River System**
  - It originates from the Yamunotri Glacier on the southwestern slopes or Bandarpoonch Peak in the Mussoorie range of the lower Himalayas.
  - Flows through the states of Uttarakhand, Himachal Pradesh, and Haryana. It then enters Delhi and merges with the Ganga near Prayagraj.
  - It is the largest tributary of the Ganga in the northern plains.
  - It creates the highly fertile alluvial Yamuna-Ganges Doab region between itself and the Ganges in the Indo-Gangetic plain.
  - The cities of Bhagpat, Delhi, Noida, Mathura, Agra, Firozabad, Etawah, Hamirpur, and Allahabad lie on its banks.
  - Major Tributaries are Chambal , Banas, Kali Singh, Ken , Betwa and Sindh rivers.

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Tributaries of the Ganga River in the Plains

- **Ramganga River**
  - Ramganga River originates in the southern slopes of Dudhatoli Hill in Uttarakhand.
  - It also flows through the Doon Valley of Corbett National Park.
  - It meets the Ganga near Kannauj.
- **Gomati River**
  - It originates from Gomat Taal, Pilibhit, in Uttar Pradesh.
  - Meets the Ganges River in Ghazipur.
  - At the Sangam of Gomti and Ganga, the famous Markandey Mahadeo temple is situated.
- **Ghaghariya River**
  - The Ghagra originates in the glaciers of Mapchachungo.
  - It is a transboundary perennial river originating from the Tibetan plateau near Lake Mansarovar.
  - It is a major left-bank tributary of the Ganga and joins it at Chhapra in Bihar.
  - Rapti, Chhoti Gandak, Sharda, and Sarju are the major tributaries of this river.
- **Gandak River**
  - It is formed by the union of the Kali and Trisuli rivers, which rise in the Great Himalayan Range in Nepal.
  - It enters the Ganga River opposite to Patna in a place called Sonepur.
- **Burhi Gandak River**
  - Originates from Chautarva Chaur near Bisambharpur in the district of West Champaran district of Bihar.
  - It flows parallel to and east of the Gandak River in an old channel.
- **Kosi River**
  - Also called Saptakoshi for its 7 Himalayan tributaries.
  - It is an antecedent transboundary river flowing through Nepal and India.
  - The highest peak in the world, Mt. Everest, and the Kanchenjunga are situated in the Kosi catchment.
  - It is also termed “The Sorrow of Bihar”.
- **Son River**
  - Originates near the Amarkantak hills in Madhya Pradesh
  - It joins the Ganga near Patna in Bihar.