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Cancer in India:

The projected cancer cases were computed using projected incidence rates and population (person-years), said a note to the table annexed by the government to its reply.

What does data says?

- Uttar Pradesh and Maharashtra, the country's most and second-most populous states, also recorded the highest incidence of cancer by absolute numbers in the three years between 2016 and 2018,
- The estimated incidence of cancer cases (for both men and women) in Uttar Pradesh were 2,45,231; 2,57,353; and 2,70,053 for the years 2016, 2017, and 2018 respectively.
- The corresponding numbers for Maharashtra were 1,32,726; 1,38,271; and 1,44,032. Among the lowest estimated incidence was seen in Haryana and Assam, the smaller among the major states.
- The projected cancer cases were computed using projected incidence rates and population (person-years), said a note to the table annexed by the government to its reply.
- The absolute numbers suggested the fastest year-on-year increase in the incidence of cancer was estimated for Bihar (5.38% from 2016 to 2017, and 5.37% from 2017 to 2018), the country's third most populous state as per the 2011 Census.

Steps taken by govt

- The Health Ministry's reply said the central government was "implementing Strengthening of Tertiary Care Cancer facilities scheme to support setting up of State Cancer Institutes (SCI) and Tertiary Care Cancer Centres (TCCC) in different parts of the country".

Dengue and Rainfall:

Mumbai registered its first dengue death this year with 32-year-old Mulund resident on July 20. Health officials are seeing a surge in the viral infection, transmitted by Aedes Aegypti mosquito. The mosquito-borne infection has successively risen in the last few years in Mumbai.



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What is dengue?

Dengue is a mosquito-borne viral infection that peaks from Monsoons every year. In Mumbai, the cases have risen from 919 in 2015 to 1003 in 2018. In the same period, the suspected dengue cases significantly rose from 12,447 to 14,110.

This year already 71 dengue cases have been confirmed by the BMC till July 14.

Role of weather

- Unlike malaria mosquito (Anopheles) that breeds in water accumulating in open areas, Aedes aegypti mosquito breeds in freshwater in the peri-domestic atmosphere, meaning petri
- The dishes, under refrigerator plates, water containers, on sagged tarpaulin sheets, in households. The mosquito's reach to human beings becomes closer.
- During heavy rainfall, water continuously accumulates and gets washed away, thus sweeping away any mosquito larvae.
- In Mumbai, however, the last fortnight has seen a dry spell, forcing rainwater to remain stagnant.
- This kind of weather is best suited for mosquitoes to breed and multiply. "The mosquito's life cycle is 7-8 days, to grow from larvae to adult stage.
- With the dry spell, the water is not washed away and remains stagnant allowing the larvae to develop into an adult mosquito,).

Situation in India

- Dengue is prevalent in Maharashtra, Gujarat, Rajasthan towards west, Delhi, Harayana, Punjab in north, West Bengal towards east and most of southern India. Till May 26, 2019, 5,504 dengue cases have been recorded by the National Vector Borne Disease Control Programme (NVBDCP).
- In 2018, provisional records show 172 people died due to dengue and 1.01 lakh people were infected. Punjab (14,980), Maharashtra (11,011) and Gujarat (7,579) accounted for maximum cases.



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- “The reason for these states to have higher cases is not only weather but also infrastructure to confirm dengue diagnosis. Maharashtra has 42 laboratories that help in more case detection,” Jagtap said.
- This year, 23,000 samples have already been screened for dengue virus.

Inter-State River Water Disputes (Amendment) Bill, 2019

Why in news?

The Inter-State River Water Disputes (Amendment) Bill, 2019 seeks to amend the Inter State River Water Disputes Act, 1956 to streamline the adjudication of inter-State river water disputes.

Salient features

- A key feature of the Bill is the constitution of a single tribunal with different benches, and the setting of strict timelines for adjudication.
- Benches will be set up under the single tribunal. A retired Supreme Court judge will head the tribunal.
- There will be benches formed as and when required. The benches though will be wound up once a dispute is resolve, sources said. The 2017 Bill could not get parliamentary nod.
- The tribunal will be mandated to deliver final award in two years and it is proposed that whenever it gives order, the verdict gets notified automatically, the sources said.
- As per the current provisions of the 1956 Act, a tribunal can be formed after a State government approaches the Union government with such a request and the Centre is convinced of the need to form the tribunal.
- At present, there are nine Tribunals including those on Cauvery, Mahadayi, Ravi and Beas, Vansadhara and Krishna rivers.



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Global Innovation Index 2019

Why in news?

India has jumped five places to rank 52 in the Global Innovation Index 2019, up from the 57 it had in last year's rankings.

Earlier Performance

- India's rise in the rankings has been a consistent trend over the last few years. It had ranked 81 in 2015, which rose to 66 in 2016, 60 in 2017 and 57 in 2018.
- "The performance improvement of India is particularly noteworthy," the report, brought out by the UN World Intellectual Property Organisation, INSEAD and CII, said.

Most innovative

- "India continues to be the most innovative economy in central and southern Asia — a distinction held since 2011 — improving its global rank to 52 in 2019.
- "India is consistently among the top in the world in innovation drivers such as ICT services exports, graduates in science and engineering, the quality of universities, gross capital formation — a measure of economy-wide investments — and creative goods exports," the report added.
- The report also highlighted that India stands out in the world's top science and technology clusters, with Bengaluru, Mumbai, and New Delhi featuring among the top 100 global clusters.



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- “Given its size — and if progress is upheld — India will make a true impact on global innovation in the years to come.
- Commerce Minister Piyush Goyal, who released the report, said that India’s hope of increasing the size of the economy to \$5 trillion cannot happen without significant innovation.

Sovereign bonds

Why in news?

In her maiden Budget speech earlier in this month, Finance Minister Nirmala Sitharaman announced something that no previous FM had done. She said that the Indian “government would start raising a part of its gross borrowing programme in external markets in external currencies”. According to most reports, this type of borrowing is likely to start by October with the initial amount of \$10 billion.

What exactly are sovereign bonds?

- A bond is like an IOU. The issuer of a bond promises to pay back a fixed amount of money every year until the expiry of the term, at which point the issuer returns the principal amount to the buyer.
- When a government issues such a bond it is called a sovereign bond.

- Typically, the more financially strong a country, the more well respected is its sovereign bond.
- Some of the best known sovereign bonds are the Treasuries (of the United States), the Gilts (of Britain), the OATS (of France), the Bundesanleihen or Bunds (of Germany) and the JGBs (of Japan).

And what is the controversial part?



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- The current controversy relates to India's sovereign bonds that will be floated in foreign countries and will be denominated in foreign currencies.
- In other words, both the initial loan amount and the final payment will be in either US dollars or some other comparable currency.
- This would differentiate these proposed bonds from either government securities (or G-secs, wherein the Indian government raises loans within India and in Indian rupee) or Masala bonds (wherein Indian entities — not the government — raise money overseas in rupee terms).

So, why is India borrowing in external markets in external currency?

- Possibly the biggest of these is that the Indian government's domestic borrowing is crowding out private investment and preventing the interest rates from falling even when inflation has cooled off and the RBI is cutting policy rates.
- If the government was to borrow some of its loans from outside India, there will be investable money left for private companies to borrow; not to mention that interest rates could start coming down.
- Moreover, at less than 5%, India's sovereign external debt to GDP is among the lowest globally. In other words, there is scope for the Indian government to raise funds this way without worrying too much about the possible negative effects.
- Thirdly, a sovereign bond issue will provide a yield curve — a benchmark — for Indian corporates who wish to raise loans in foreign markets.
- This will help Indian businesses that have increasingly looked towards foreign economies to borrow money.
- Lastly, the timing is great. Globally, and especially in the advanced economies where the government is likely to go to borrow, the interest rates are low and, thanks to the easy



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monetary policies of foreign central banks, there are a lot of surplus funds waiting for a product that pays more.

- In an ideal scenario, it could be win-win for all: Indian government raises loans at interest rates much cheaper than domestic interest rates, while foreign investors get a much higher return than is available in their own markets.

Then why are so many cautioning against this move?

- The biggest potential fly in the ointment is the element of risk that comes into the picture when a government borrows in foreign markets and in foreign currency.
- As N R Bhanumurthy and Kanika Gupta (both of NIPFP) have shown recently, the volatility in India's exchange rate is far more than the volatility in the yields of India's G-secs (the yields are the interest rate that the government pays when it borrows domestically).
- This means that although the government would be borrowing at "cheaper" rates than domestically, the eventual rates (after incorporating the possible weakening of rupee against the dollar) might make the deal costlier.

- Rajan has also questioned the assumption that borrowing outside would necessarily reduce the number of government bonds the domestic market will have to absorb.
- That's because if fresh foreign currency comes into the economy, the RBI would have to "neutralise" it by sucking the exact amount out of the money supply.
- This, in turn, will require selling more bonds. If the RBI doesn't do it then the excess money supply will create inflation and push up the interest rates, thus disincentivising private investments.

- Lastly, based on the unpleasant experience of other emerging economies, many argue that a small initial borrowing is the thin end of the wedge.



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- It is quite likely that the government will be tempted to dip into the foreign markets for more loans every time it runs out of money.
- At some point, especially if India does not take care of its fiscal health, the foreign investors will pull the plug on fresh investments, creating dire consequences for India.

Formation of Milky way

Why in news?

The Milky Way, home to our sun and billions of other stars, merged with another smaller galaxy in a colossal cosmic collision roughly 10 billion years ago, scientists said on Monday based on data from the Gaia space observatory.

How did it happen?

- The union of the Milky Way and the so-called dwarf galaxy Gaia-Enceladus increased our galaxy's mass by about a quarter and triggered a period of accelerated star formation lasting about 2 to 4 billion years, the scientists said.
- Galaxies of all types, including the Milky Way, began to form relatively soon after the Big Bang explosion that marked the beginning of the universe some 13.8 billion years ago, but were generally smaller than those seen today and were forming stars at a rapid rate.
- Subsequent galactic mergers were instrumental in configuring galaxies existing now.
- Certain stars with higher content of elements other than hydrogen or helium arose in the Milky Way, they found, and others with lower such content originated in Gaia-Enceladus, owing to its smaller mass.
- While the merger was dramatic and helped shape the Milky Way, it was not a star-destroying calamity.

Distance between Galaxy



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- The distances between stars in a galaxy are so huge — a galaxy is basically empty space — that the two galaxies intermix, change their global shape, more star formation may happen in one, and maybe the small one stops forming stars.

Dragon tree in India:

Why in news?

Researchers discover *Dracaena cambodiana* in Assam's West Karbi Anglong dist.

Assam has added to India's botanical wealth a plant that yields dragon's blood — a bright red resin used since ancient times as medicine, body oil, varnish, incense and dye.

This is for the first time that a dragon tree species has been reported from India.

- **About the tree**
- In India, the *Dracaena* genus belonging to the family Asparagaceae is represented by nine species and two varieties in the Himalayan region, the northeast and Andaman and Nicobar Islands. But *Dracaena cambodiana* is the only true dragon tree species, the study said.
- *Dracaena cambodiana* is an important medicinal plant as well as an ornamental tree. It is a major source of dragon's blood, a precious traditional medicine in China.
- Several antifungal and antibacterial compounds, antioxidants, flavonoids, etc., have been extracted from various parts of the plant.

Threats to tree

- "Recent overexploitation to meet the increasing demand for dragon's blood has resulted in rapid depletion of the plant. For this reason, the species is already listed in the inventory of Rare and Endangered Plants of China.
- The population size of the dragon tree species in Assam was estimated to be fewer than 50 mature individuals.
- "The habitat of the plant is severely fragmented due to open excavation of a stone quarry and there is continuing decrease in its area of occupancy and number of mature individuals," he said.



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- The Dracaena seeds are usually dispersed by birds.
- But due to the large fruit size, only a few species of birds are able to swallow the fruits, thus limiting the scope of its natural conservation.
- The study advocates conservation programme for Dracaena cambodiana in view of its medicinal, ornamental and ecological values.