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## News Analysis (23 Jul, 2020)

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### Kakrapar Atomic Plant Achieves Criticality

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#### Why in News

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Recently, the third unit of the **Kakrapar Atomic Power Project (KAPP-3)** in Tapi district of Gujarat achieved its first **criticality**.

#### Key Points

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- **Criticality:**
  - Criticality is the **first step towards power production.nuclear reactor** is said to be critical when the nuclear fuel inside a reactor sustains a **fission chain reaction**.
  - Each fission reaction releases a **sufficient number of neutrons** to sustain a series of reactions. **Heat is produced in the event**, which is used to **generate steam** that **spins a turbine** to create electricity.
    - **Fission** is a process in which the **nucleus of an atom splits into two or more smaller nuclei**, and some byproduct.
    - When the nucleus splits, the **kinetic energy** of the **fission fragments (primary nuclei)** is transferred to other atoms in the fuel as heat energy, which is eventually used to produce steam to drive the turbines.

- **KAPP-3:**
  - KAPP-3 is the **country's first 700 MWe (megawatt electric) unit**, and the **biggest indigenously developed** variant of the **Pressurised Heavy Water Reactor (PHWR)**.
    - Until now, the biggest reactor size of indigenous design was the 540 MWe, two of which have been deployed in Tarapur, Maharashtra.
    - **PHWR is a nuclear power reactor**, commonly using unenriched **natural uranium as its fuel**, that uses **heavy water (deuterium oxide DO) as its coolant and moderator**.
    - PHWR technology was started in India in the late 1960s with the construction of the first 220 MWe reactor, Rajasthan Atomic Power Station (RAPS-1).
  - State-owned **Nuclear Power Corporation of India Ltd (NPCIL)** had awarded the reactor-building contract for both KAPP-3 and 4 in 2010.
- **Safety Features:**

The 700 MWe PHWRs have advanced safety features like **steel lined inner containment, passive decay heat removal system, containment spray system, hydrogen management system**, among others.

  - The '**passive decay heat removal system**' can remove decay heat (released as a result of radioactive decay) from the reactor core without requiring any operator actions.
  - This is on the lines of similar technology adopted for **Generation III+ plants** to negate the possibility of a **Fukushima-type** accident that happened in Japan in 2011.
- **Significance:**
  - KAPP-3 addresses the issue of excess **thermal margins**.  
Thermal margin refers to the extent to which the operating temperature of the reactor is below its maximum operating temperature.
  - KAPP-3 would constitute the **biggest component in the nuclear power capacity expansion plan**.
    - India is working to ramp up its existing nuclear power capacity of 6,780 MWe to 22,480 MWe by 2031.
    - Currently, nuclear power capacity constitutes less than 2% of the total installed capacity of 3,68,690 MW (end-January 2020).
  - It will also **help for the future construction** for the PHWRs.

## **Nuclear Power Corporation of India Limited**

- The Nuclear Power Corporation of India Limited (NPCIL) is an Indian public sector undertaking, Headquartered at Mumbai.
- It is wholly owned by the Government of India and is **responsible for the generation of nuclear power for electricity**.

- NPCIL is administered by the **Department of Atomic Energy (DAE)**.

**Source: IE**

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## **Appointment of Government Servants as Gram Panchayat Administrator**

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### **Why in News**

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Recently, the Bombay High Court passed an interim order directing that a **government servant of the local authority** be appointed as an **administrator of gram panchayats** in Maharashtra.

- It is for the 15,000 panchayats where the terms of these officers have ended or would be ending.
- These administrators include **sarpanch, secretary of the panchayats and gram sevaks**.

### **Key Points**

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- **Petition Against Recent Decisions:** The order came after petitions were filed against a recent **Government Resolutions (GR)** issued by the State Rural Development Department and **Maharashtra Village Panchayat (Amendment) Ordinance, 2020**.
  - Through these, the Maharashtra government **ordered appointment of administrators to all gram panchayats** by zilla parishad chief executive officers (CEO) in consultation with their **respective district ministers**.
  - The resolution and ordinance **were challenged on various grounds** related to the **appointment of private individuals** as administrators of gram panchayats.
  - It also challenged the **section 151 of the Maharashtra Village Panchayats Act** by allowing **appointment of administrators** in case the **State Election Commission (SEC)** could not hold **elections** due to a **natural calamity, pandemic** financial emergency or administrative emergency.

- **High Court's Argument:**
  - **Questioned Private Appointments:** The Court ordered that the **administrator to be appointed, should be a government servant** or an officer from the local authority.
    - If not available and the appointment of a **private individual is to be made**, then each such order **shall record the reasons** because of which such officer was not available.
    - The criteria that administrators have to be “a resident of the village and on the voters’ list” is **directory**, not **mandatory** in nature.
  - **Local Authority Officers:** The court emphasised that **local authority offices** should be the first choice for appointment as an administrator.
  - **Impact on Local Governance:** The Court admitted that **working of the gram panchayat** will be affected if the administrator is not appointed, however it also emphasised the need to address the concerns regarding the appointment of the private individual.
 

According to the court **private individuals appointment** is not warranted in law and such mass appointments will **have a lasting adverse impact** on the local governance in **terms of efficiency, impartiality** and **effectiveness** of the work.
- **State Government’s Argument:**
  - **Urgent Need:** It stated that there is an urgent need for administrators to run the panchayats as pandemic has halted the election process.
  - **Overburdened Officers:** There are a large number of gram panchayats in the State and the government servants are already overburdened. So, it is difficult to appoint them as administrators.

## Gram Panchayat

- These are the part of the **Panchayati Raj System** which has been granted constitutional status by the **rd Amendment act**.
- This scheme of the PRI system increases cooperation among people, **democratic participation and decentralization**.
- The 2.5 lakh Gram Panchayats (GPs) in the country have been entrusted to provide basic services in the villages and plan for local economic development and **good governance**.
- The **Gram Sabha (GS)** discusses the development work plans of the GP called **Gram Panchayat Development Plan (GPDP)** and the elected representatives execute the plans.

## Gram Sabha

- Gram Sabha is a body consisting of **all persons whose names are included in the electoral rolls** for the Panchayat at the village level.
- The term is defined in the Constitution of India under **Article 243(b)**.
- All eligible voters of the village can participate in the Gram Sabha.
- The **decisions** taken by the Gram Sabha **cannot be annulled** by any other body except itself.

**Source: TH**

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## **G20 Digital Economy Ministers Meeting**

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### **Why in News**

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Recently, a **virtual meeting of G20 Digital Economy Ministers** was hosted by **Saudi Arabia** in which Indian Union Minister for Electronics and Information Technology represented India.

**Saudi Arabia is holding the presidency** of currently.

### **Key Points**

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- **Few major initiatives taken by India to tackle Covid-19 were highlighted:**
  - Early **lockdowns** which helped in curbing the spread of the virus as well as preparing for the upcoming challenges effectively.
  - **Digital innovations for managing Covid-19:**  
Initiatives like **Aarogya Setu mobile app****Covid-19 Quarantine Alert System** (geofencing system for monitoring quarantined patients) and **Covid-19 Savdhan** (bulk messaging systems).
  - **Digital innovations for helping people in general:**  
**Direct Benefit Transfers** and **digital payments** ensured that even the weakest in the society was provided various financial relief during the lockdown.

- **India Emphasised Upon:**

- Emerging technologies like **Artificial Intelligence** should be **leveraged for inclusive growth and development** especially in healthcare and education.
- In the wake of a **pandemic** like **Covid-19**, there is a need for **building a resilient global supply chain.**

**India's potential as an attractive destination for investment**

closely integrated with global supply chains was also brought into focus.

- All **digital platforms need to be accountable and sensitive** towards concerns related to defence and data privacy of citizens of sovereign countries.

The comments follow the **Indian government's move to ban 59**

**Chinese applications** citing a threat to national security and sovereignty.

- **India's Step for Data Protection:**

India is soon going to put in place a robust **personal data protection law (Personal Data Protection Bill 2019)** which will not only address the data privacy-related concerns of citizens but also ensure availability of data for innovation and economic development.

## Way Forward

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- The digital economy must go hand in hand with the data economy because data is an important component to accelerate the digital economy.
- There is a need to acknowledge who has sovereignty over data. Data must belong to the sovereign nation concerned, to protect the privacy of its people, to protect digital concerns for its people.
- Digital platforms having a presence in many countries must become trustworthy, safe and secure.
- Digital platforms anywhere in the world should be responsive and accountable towards the sovereign concerns of countries including defence, privacy and security of citizens.

## Source: PIB

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## Display of 'Country of Origin' Must for e-Commerce Site

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### Key Points

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Recently, the Central government has told (via an affidavit) the Delhi High Court that all **e-commerce** entities have to **ensure the mandatory declaration of 'country of origin'** of imported products sold on their site.

The **Consumer Protection Act 2019** also mandates to display the ‘country of origin’ by the e-commerce entities.

## Key Points

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- The affidavit came in response to a **Public Interest Litigation (PIL)** seeking directions to the Centre to ensure that the name of the manufacturing country is displayed on products being sold on e-commerce sites.
- The petitioner has sought implementation of the **Legal Metrology Act, 2009** and the **Legal Metrology (Packaged Commodities) Rules, 2011**, which **mandate that country of origin be displayed** on products being sold on e-commerce sites.  
Enforcement of the provisions of the said Act and Rules rests with the States and Union Territories governments.
- The petitioner has contended that enforcement of the mandate is in sync with the recent ‘**Vocal for Local**’ and ‘**Atma Nirbhar**’ **Bharat** push by the government of India.

Earlier, the Central government has also **mandated for all sellers on the Government e-Marketplace (GeM) to list the Country of Origin** while registering new products.

GeM is a **platform for public procurement**.

## Issues Involved

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- Most of the e-commerce sites function as a ‘**marketplace-based**’ e-commerce model in which they **only act as an ‘intermediary’** i.e they merely provide their information technology platform to connect third-party sellers with their potential consumers.  
The other form of e-commerce model is ‘**Inventory-based,**’ where the entities offer services or goods for sale from their **own inventory**.
- The e-commerce entities say that they **have ensured that a data field** pertaining to ‘country of origin’ is available on their system, which may be filled in by a seller when creating a new product listing.
- However, they **have not made it mandatory**, because the law does not mandate a disclosure of the ‘country of origin/manufacture/assembly’, in the case of India-manufactured goods.
  - In many cases, finished goods sourced from different countries are packed together or assembled in a third country, prior to their shipment into India.
  - Therefore, it could not be presumed that the rules intended that the last country of export alone be declared as the ‘country of origin,’ unless the law is amended or clarified to expressly state so.

**Source: TH**

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# Concerns Over Drilling in Dibru-Saikhowa National Park

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## Why in News

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The **National Green Tribunal (NGT)** has issued notices to the Ministry of Environment, Forest and Climate Change (MoEFCC), Oil India Limited (OIL) and two concerned state entities to explain **how environmental clearances for the seven proposed drilling sites in the Dibru- Saikhowa National Park were given.**

The NGT took note of the petitioners' contention that OIL **did not carry out a biodiversity assessment study** for the seven-well exploratory drilling project besides **not conducting a public hearing** as mandated by the **Environment Impact Assessment (EIA) Notification of 2006.**

## Key Points

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- **OIL** has clarified that its **exploratory drilling project is “under” and not “in” the 765 sq km Dibru-Saikhowa National Park.** This argument is based on **Extended Reach Drilling (ERD)** enabled drilling of wells up to a depth of approximately 4 km from an existing well plinth **without entering the protected area.**
  - OIL had obtained permission for the seven wells in 2016 on the basis of the **ERD** technology.
  - ERD is drilling a well horizontally to at least twice its vertical depth.
  - It is extensively used to intersect hydrocarbon targets far from the surface or areas of the reservoir that otherwise were difficult to access.
- The notice has been issued following **a gas leak that occurred at OIL's baghjan oil field**, located near the Dibru-Saikhowa National Park.

The disaster at Baghjan has **impacted the surrounding ecological life** and **displaced close to 11,000 people** from their homes.
- Earlier, the NGT had also ordered the formation of a committee to probe **allegations of large-scale illegal coal mining** by North Eastern Coalfields inside **Dehing Patkai Elephant Reserve** in Assam's Tinsukia district.



- **Natural Resources in Assam:**

- The State is **one of the richest biodiversity zones** in the world and consists of tropical rainforests, deciduous forests, riverine grasslands, bamboo orchards and numerous wetland ecosystems.
- Assam has wildlife sanctuaries, the most prominent of which are two **UNESCO World Heritage sites**-the **Kaziranga National Park** and the **Manas Wildlife Sanctuary**. There are **three other National Parks** in Assam namely **Dibru Saikhowa National Park, Nameri National Park and the Orang National Park**.

Kaziranga is a home to **Indian one-horned rhinoceros** which has also been recognized as the **State Animal of Assam**.

- Assam has **abundant mineral resources**- coal, petroleum; limestone and natural gas are the principal mineral resources.
  - It is also the **largest producer of crude oil in India**.
  - **OIL** is the second largest hydrocarbon exploration and production Indian public sector company with its operational headquarters in Duliajan, Assam under the administrative control of the Ministry of Petroleum and Natural Gas.

## **Dibru-Saikhowa National Park**

- Dibru-Saikhowa is a **National Park as well as a Biosphere Reserve** situated in the south bank of the river Brahmaputra in Assam.
- The forest type of Dibru-Saikhowa comprises semi-evergreen forests, deciduous forests, littoral and swamp forests and patches of wet evergreen forests.

It is the **largest swamp forest in north-eastern India**.
- It is an **identified Important Bird Area (IBA)**, notified by the Birdlife International. It is most famous for the rare white-winged wood ducks as well as feral horses.
- Mammals found in the Park include **Tiger**, Elephant, Leopard, Jungle Cat, Bears, Small Indian Civet, Squirrels, **Gangetic DolphinHoolock Gibbon**, etc.
- **Maguri Motapung wetland** is a part of the Reserve.

**Source: TH**

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## **Reasons Behind Pink Water of Lonar Lake**

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### **Why in News**

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According to the **Agharkar Research Institute**, the **colour of Lonar lake water** in Maharashtra's Buldhana district **turned pink** due to a **large presence of the salt-loving 'Haloarchaea' microbes**.

- The colour of the lake water **recently turned pink**, which not only surprised locals, but also nature enthusiasts and scientists.
- The water samples have been tested by the **Nagpur-based National Environmental Engineering Research Institute (NEERI)** and the **Agharkar Research Institute in Pune.**



## Key Points

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- It has been assumed that the **absence of rain, less human interference** (owing to lockdown) and **high temperature** resulted in the evaporation of water which **increased its salinity and pH.**  
pH is a measure of how acidic/basic water is.
- The increased salinity and pH facilitated the growth of **halophilic microbes**, mainly **Haloarchaea.**  
Halophiles are a group of microorganisms that **can grow and often thrive in areas of high salt (NaCl) concentration.**
- **Haloarchaea or halophilic archaea** is a bacteria culture which **produces pink pigment** and is found in water saturated with salt.  
Because of the biomass of Haloarchaea microbes, the surface of the water turned red or pink. As the biomass subsides, the colour will disappear.
- The colour of the lake is **now returning to original** as the rainy season has kicked in, allowing dilution of the water. The salinity and pH/alkalinity levels have also come down and green algae have started growing in the water body.

- Further, it was noted that **Haloarchaea microbes were ingested by Flamingos.**
  - These microbes **acted as carotenoid (pigment) rich food for the birds.**
  - Flamingos get their red-pink colour from special colouring chemicals called pigments found in the algae and invertebrates they eat.

## **Lonar Lake**

- Lonar Lake, also known as **Lonar crater**, is a saline and alkaline lake located at Lonar in Buldhana district, **Maharashtra.**
- It is situated inside the **Deccan Plateau**—a massive plain of volcanic basalt rock created by eruptions.
- It is an **oval shaped** and has a **mean diameter of 1.2 km.** It is a popular tourist hub.
- It is a notified **National Geo-heritage Monument.**
  - Geo-heritage refers to the geological features which are inherently or culturally significant offering insight to earth's evolution or history to earth science or that can be utilized for education.
  - **Geological Survey of India (GSI)** is the parent body which is making efforts towards identification and protection of geo-heritage sites.
- It is believed to have been **created over 52,000 years ago** when a **meteorite hit the Earth.**

**Source: TH**

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## **Stubble Burning and Pollution**

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### **Why in News**

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According to a recent study, **Delhi's meteorology and the quantity of chaff (crop residue or stubble) burnt** in Punjab and Haryana play a **more important role in worsening air quality than the time chosen** by farmers to start **stubble burning**

### **Key Points**

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- **Crop Burning:**
  - It is a **traditional practice in Punjab and Haryana** to clean off the rice chaff to prepare the fields for winter sowing.
  - It **begins around October and peaks in November**, coinciding with the **withdrawal of southwest monsoon**.
  - The pollutants and the **particulate matter (PM)** from the chaff, along with other sources of pollution in Delhi, get stuck in the lower atmosphere worsening the winter pollution.
- **Reasons:**
  - **Subsidies and assured procurement of rice** have led to a rise in the rice acreage.
  - **Increased and modernised farm mechanisation** extract the rice grains only and leave large quantities of rice stubble behind.
  - **Punjab Preservation of Subsoil Water Act 2009**
    - This mandated farmers to delay sowing of paddy to late June to **discourage groundwater extraction**.
    - This led to a **delay of an average of 10 days** compared to 2002-2008 and now due to the delayed harvesting, rice chaff burning coincides perfectly with the withdrawal of southwest monsoon.
- **Findings of the Study:**
  - Crop burning **contributed nearly 40% of the near-surface PM 2.5 in Delhi in 2016**, which saw one of Delhi's severest pollution episodes.
  - The study largely relies on **mathematical modelling**.
    - **Data on the number of crop burning episodes and levels of PM** were plugged into a mathematical model.
    - In results, it emerged that crop residue contribution to PM over Delhi in 2016, **increased only marginally (1%)** when compared to a hypothetical scenario of crops being burned 10 days earlier.
  - **Early burning** while reducing PM burning by 20g/m<sup>3</sup> **did not reduce the number of days of significant PM exposure** in Delhi, which hovered around 55 days.
  - However, the study showed that **delaying rice burning 10 days beyond what is currently practised could be harmful** leading to an **increase in peak PM emissions** as well as **increase the number of pollution days**.

## Way Forward

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- Stopping crop residue burning will aid the **National Clean Air Programme** (NCAP), which aims to reduce pollution by 20-30% in annual PM concentration by 2024.
- Further, governments can go for a combination of incentives and prosecution. Give incentives to farmers who use green methods and penalise the ones who do not.

- The role of legislation appears to be minimal yet it plays an important role in decreasing or increasing the air quality problems depending on the meteorological conditions of the time.

**Source: TH**

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## **Madhubani Paintings**

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### **Why in News**

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Recently, artists from **Madhubani district of Bihar** became famous for making masks with **hand-painted Madhubani motifs**.

**Motif** is a **decorative image or design**, especially a repeated one forming a pattern.



### **Key Points**

- **Origin:** Madhubani painting has its origins in **Mithila region of Bihar**.
  - The painting is one of the oldest and most famous Indian art forms which is also practised in Nepal.
  - Traces of Madhubani art can also be noticed in the Ramayana, the Indian epic.
  - It is also known as **Mithila or Madhubani art**.
- **Characteristics:** These paintings are popular because of their **tribal motifs and use of bright earthy colours**.
  - Traditionally the **women of the village** drew these paintings on the walls of their dwelling, as a demonstration of their feelings, hopes, and ideas.
  - Today men are also involved to meet the demand.
- **Style:** It includes **geometrical patterns, floral, animal and bird motifs**.

- **Colours:** The colours used in paintings comprise **natural extracts from plants and other natural sources**. E.g.: Black colour is obtained by mixing soot with cow dung; blue from indigo; white from rice powder; orange from palasha flowers, etc.
  - The colours are applied flat with no shading and no empty space is left.
  - These are usually **dark and bright with pigments** like lampblack (obtained from coal) and ochre (earthy yellow pigment).
  - These paintings are not made with modern brushes but rather with twigs, matchsticks, and fingers.
  - But now artists use brushes, nib-pens and synthetic colours as well to paint.
- **Themes:** It is based on the **mythological characters** which depict the life of **Hindu deities** like Krishna, Rama, Lakshmi, Shiva, Durga, and Saraswati.
  - The designs widely painted are of Tulasi plant, court scenes, wedding scenes, social happenings etc.
  - Also, **heavenly bodies like the Sun and the Moon** often form the centrepiece of paintings.
- **Eminent Artists:** Karpuri Devi, Mahalaxmi and Dulari.

**Source: TH**

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## **Indian Bullfrog**

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- **Scientific Name:** Hoplobatrachus tigerinus.
- **Common Names:** Bullfrog, Golden Frog, Green Frog, Tiger Frog etc.
- **IUCN Red List:** Least Concern.



- **Indian Wildlife Act 1972:** Schedule IV.

Schedule IV along with Schedule III **provide protection with lesser penalties.**

- It is **native to the Indian subcontinent** (Afghanistan, Bangladesh, India, Myanmar, Nepal and Pakistan) and is the **largest frog in India.**

- These are **prolific breeders** (producing many offspring), have **short breeding seasons**, and each egg clutch can contain up to 5,750 eggs.
    - Indian bullfrog tadpoles **are carnivorous** and eat other tadpoles (including their own species).
    - The tadpoles **grow to be the largest** (around 20 millimetres) and also **grow the fastest**.
  - Adult bullfrogs pose a **threat to small endemic vertebrates** because they can eat **everything which fits into their mouths** like centipedes, leeches, native frogs, lizards, small snakes and even chicks and ducklings.

Bullfrogs eat the native frogs as well and their **diets overlap, indicating a possibility of competition**.
  - It is **one of the invasive species on the islands of Andaman and Nicobar**.
    - An invasive species is a species that is **accidentally or artificially introduced into a biosphere** where it is not normally found.
    - In the **absence of a natural predator**, as it generally happens, the invasive species **thrive and causes economic and environmental damage** due to the imbalance created by its introduction.
-