ECONOMICS/AGRICULTURE

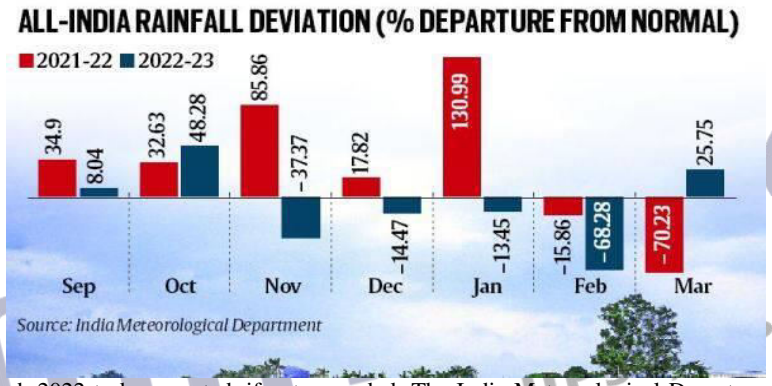
❖ **How excess rains in March could affect the wheat crop in India**

➢ **CONTEXT: 2021-22 and 2022-23 have both seen unusual rabi (winter-spring) cropping seasons in terms of weather and yield loss, especially in wheat. But the patterns of rainfall and temperature variation — and the damage to the standing crop as a result — have been different in the two seasons.**

- The 2021-22 season was marked by too much rain. The country received rainfall that was way above the "normal" long period average in every month from September 2021 to January 2022. This was followed by the hottest ever March in terms of average maximum temperatures.
- The unusual heat of March 2022 led to lower wheat production, as the spike in temperatures happened during the grain formation and filling stage when the kernels were accumulating starch and proteins. That stage, which determines the size and weight of the harvested grains, was cut short with maximum temperatures crossing 35 degrees Celsius by mid-March.
- While the Agriculture Ministry claimed in 2022 wheat output at 107.74 million tonnes (mt) (a marginal decline of 1.7% from the all-time-high 109.59 mt of 2020-21) the private trade estimated the crop to be 10-15% lower at 93-98 mt.
- This was borne out by the government's own procurement falling to 18.79 mt, as against 43.34 mt in the previous marketing season, and wholesale wheat inflation crossing 20% year-on-year by December even after a ban on exports.

➢ **Why has 2022-23 been different?**

- If 2021-22 was largely wet, with five consecutive months of excess/surplus rain, 2022-23 was quite the opposite. The winter was exceptionally dry, with the four months from November 2022 to February 2023 registering deficient rainfall. February 2023 not only recorded 68.3% below-normal rain, it was also the hottest ever February in terms of the average maximum temperature, just as March was in 2022.



- Given how hot and dry February was, it wasn't unnatural to expect March 2022 to be repeated, if not exceeded. The India Meteorological Department (IMD) on February 28 forecast both maximum and minimum temperatures for March 2023 to be "above normal" over most parts of the country. Its monthly outlook for March also predicted average rainfall over the county to be normal, and "below normal" over most areas of northwest and west central India, and some parts of east and northeast India.
- But March turned out to be neither hot nor dry. In 2022, the maximum temperature in Delhi hit 35 degrees on March 15, 38 degrees on March 20, and 40 degrees on March 30. This year (2023), the highest was 34 degrees on March 12 and 15, and the maximum on March 31 was 26 degrees. Contrary to initial fears, temperatures remained well within the 35-degree limit that is the most conducive for grain-filling in wheat.
- The surprise element was rain — a 25.8% surplus in March 2023. But while the first half of March (1-15) reported 77.6% deficient rainfall, the second half (16-31) saw a 120.5% surplus. The so-called "Ides of March", seen in the heat wave that forced premature ripening and drying of the wheat crop in 2022, manifested itself in the form of unseasonal rain this year(2023).

➢ **Will the rain affect wheat yields?**

- Wheat is sensitive to both heat stress and rain/ thunderstorms during the terminal grain filling and ripening period. This is the time when the crop's earheads are heavy with grains. The more the weight accumulated from grain-filling, the more vulnerable is the crop to rain. These, when accompanied by high-velocity winds, make the stems prone to "lodging" or bending and even falling flat on the ground.
- The crop flattened by the first rain did not get a chance to revive.
- The yield losses were likely to be the highest in areas that saw waterlogging and hail.
- The moist grains from even the fully-matured crops here may suffer discolouration and lustre loss, with poor milling quality.
- When the crop gets wet and then dries in the sun, its earheads (bearing the grains) become brittle, and tend to break from the stem. Such earheads may not be picked up by the combine harvester machines.
- Lodging of wheat has taken place mostly after March 22, by which time grain-filling was nearly complete for the crop sown before mid-November in much of Punjab and Haryana.
- While the wheat in Madhya Pradesh was harvest-ready by mid-March itself, the crop sown in December in eastern Uttar Pradesh and Bihar may even benefit from the current rain that has brought down temperatures and prolonged the time for grain-filling.

➢ **Would wheat prices go up if production falls?**

- It is unlikely — because wheat prices at the Chicago Board of Trade futures exchange are now at just over $254 per tonne compared to the $500-plus peaks that were scaled last March.
- In 2022 failed domestic crop came at a time when global commodity prices were on fire following Russia's invasion of Ukraine.

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- The world has since overcome the effects of the war. Even in the unlikeliest possibility of India's wheat output falling to the 2021-22 level or lower, a resurgence of cereal inflation looks improbable.

ENVIRONMENT

❖ **Project Tiger Reserve**

➢ **CONTEXT: Recently, Bandipur completed 50 years as Project Tiger Reserve.**

➢ **About**

- Bandipur was among the first nine reserves to be brought under the flagship programme of Project Tiger in 1973, it included most areas that were already a protected area as Venugopal Wildlife Park.
- It is situated in two contiguous districts (Mysore and Chamarajanagar) of Karnataka and is located at the tri-junction area of the States Karnataka, Tamil Nadu and Kerala.
- The Bandipur Tiger Reserve is an important component of the country's first biosphere reserve – Nilgiri Biosphere Reserve and the landscape spanning Bandipur, Nagarahole, Mudumalai, and Wayanad complex is home not only to the large number of tigers in the country but is also to the largest Asian Elephant population.
- It lies in one of the richest biodiversity areas of the country. It is surrounded by

✓ Mudumalai Tiger Reserve (Tamil Nadu) in the South,
✓ Wayanad Wildlife Sanctuary (Kerala) in the South-west &
✓ The Kabini Reservoir separates the Bandipur and Nagarahole Tiger Reserve on the North-west.

➢ Project Tiger :

- The government passed the Wildlife Protection Act in 1972 for the protection and preservation of different species of flora and fauna.
- The Project Tiger was launched by the Indira Gandhi government in 1973 from the Jim Corbett National Park in Uttarakhand with an ambitious aim of increasing the population of the tiger in the country.
- The initial reserves covered under Project Tiger were the Jim Corbett, Manas, Ranthambore, Simlipal, Bandipur, Palamau, Sundarbans, Melghta and Kanha national parks.

➢ **Tiger reserves:**

- From 9 tiger reserves since its formative years, the Project Tiger coverage has increased to 54 at present, spread out in 18 of our tiger range states.
- The tiger reserves are constituted on a core/buffer strategy. Core areas have the legal status of a national park or a sanctuary. Whereas, buffer or peripheral areas are a mix of forest and non-forest land, managed as a multiple use area.

➢ **Government Initiatives:**

- The government has set up a Tiger Protection Force to combat poachers and funded relocation of villagers to minimise human-tiger conflicts.
- National Tiger Conservation Authority was established in 2005 following a recommendation of the Tiger Task Force, to reorganise management of Project Tiger and the many Tiger Reserves in India. It is the overarching body for conservation of tigers in India.
- Various Centrally Sponsored Schemes, such as Project Tiger and Integrated Development of Wildlife Habitats, provide financial and technical assistance to states.
- 54 Tiger Reserves in India generate approximately 4.3 million man-days of employment, and funds from the Compensatory Afforestation Fund Management and Planning Authority (CAMPA) are being used to promote voluntary village resettlement from core areas of the Tiger Reserves.
- Increased punishment for offences involving a tiger reserve or its core area.
- Increased anti-poaching activity, including a special strategy for monsoon patrolling.
- State-level steering committees chaired by Chief Ministers, as well as the establishment of the Tiger Conservation Foundation.

➢ **Conclusion**

- Project Tiger has been undertaken by more than fifty national parks, and every park is putting an equal effort to save the endangered species.
- Increasing four thousand tigers in the past few years is one of the landmark achievement of the project.
- People have become more aware of the wildlife problem and have taken steps to stop them from decreasing.
- Project Tiger also generated jobs for many individuals.

ECONOMICS

❖ **De-dollarization**

➢ **CONTEXT: India and Malaysia have agreed to settle trade in the Indian rupee which indicates that India is willing to take concrete steps towards de-dollarisation of its international trade.**

- The Union Bank of India has become the first bank in India to operationalise this option by opening a Special Rupee Vostro Account through its corresponding bank in Malaysia, India International Bank of Malaysia.
- Trade between India and Malaysia can now be settled in Indian Rupee (INR) in addition to the current modes of settlement in other currencies.
- This initiative by RBI is aimed at facilitating the growth of global trade and to support the interests of the global trading community in Indian rupees.
- Trading in the U.S. dollar has faced growing difficulties, especially after the Russian economy was sanctioned by the Western powers.

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- As a fallout of the sanctions and war-making, payments to Russia in U.S. dollars became increasingly difficult, which in turn triggered a search for solutions in national currencies and de-dollarisation worldwide.
- India-Malaysia Trade: The India-Malaysia bilateral trade touched $19.4 billion during 2021-22.

✓ Malaysia is the third largest trading partner of India in the ASEAN region, after Singapore and Indonesia that account for $30.1 billion and $26.1 billion bilateral trade with India respectively.

➢ **What is de-dollarization?**

- This refers to the process of reducing the reliance on the US dollar as a means of international trade and investment and moving towards using their own currencies or other alternatives.
- With the ongoing Russia-Ukraine conflict, many countries are beginning to explore the possibility of moving away from the dollar for trade purposes, raising concerns about the future dominance of the currency.
- According to the IMF's Currency Composition of Official Foreign Exchange Reserves (COFER) survey the share of reserves held in U.S. dollars by central banks fell from 71 percent in 1999 to 59 percent in 2021.

➢ **Why de-dollarization?**

- The de-dollarisation by several central banks is imminent, driven by the desire to insulate them from geopolitical risks, where the status of the US dollar as a reserve currency can be used as an offensive weapon. Thus, the war in Ukraine and the subsequent economic sanctions will trigger central banks to reassess their dependency on the greenback.
- Efforts are already underway for the possible introduction of a new Russia-China payment system, bypassing SWIFT and combining the Russian SPFS (System for Transfer of Financial Messages) with the Chinese CIPS (Cross-Border Interbank Payment System).
- The notion of de-dollarisation sits well in the thought experiment of a multipolar world where each country will look to enjoy economic autonomy in the sphere of monetary policy.

➢ **Which countries are de-dollarizing?**

- Leading geopolitical adversaries of the US (Russia and China) have already started this process of de-dollarisation.
- Other smaller powers are also joining the ranks.
- India has also had to work out alternative arrangements, including a barter arrangement, with certain sanctioned countries in the past.

➢ **What Russia has done in this direction?**

- Russia had started its three-pronged efforts towards de-dollarisation in 2014 when sanctions were imposed on it for the annexation of Crimea.
- Russia reduced its share of dollar-denominated assets to about 16 per cent in 2021.
- It reduced its share of trade conducted in USD by prioritising national currencies in bilateral trade. The use of USD in Russia's exports to BRICS crashed from about 95 per cent in 2013 to less than 10 per cent in 2020.
- Russia also developed a national electronic payments system called "Mir" in 2015 after several payment processing firms denied services to Russian banks.

➢ **What China has done in this direction?**

- China aims to use trading platforms and its digital currency to promote de-dollarisation.
- China has established RMB trading centres in Hong Kong, Singapore and Europe.
- In 2021, the People's Bank of China submitted a "Global Sovereign Digital Currency Governance" proposal at the Bank for International Settlements to influence global financial rules via its digital currency, the e-Yuan.
- The IMF has already added Yuan to its SDR (Special Drawing Rights) basket in 2016.
- In 2017, the European Central Bank exchanged EUR 500 million worth of its forex reserves into Yuan-denominated securities. However, the lack of full RMB convertibility will hinder China's de-dollarisation ambition.

➢ **How the dollar cemented its position in the global market:**

- Despite these efforts, the US dollar continues to reign, having sealed its position in the early 1970s with a deal with the oil-rich Kingdom of Saudi Arabia to conduct global energy trade in dollars.
- The status of the dollar was enhanced by the collapse of the Bretton Woods system, which essentially eliminated other developed market currencies from competing with the USD.
- This status of the reserve currency allows the US government to refinance its debt at low costs in addition to providing foreign policy leverage.

➢ **Way forward**

- Currently, about 60 per cent of foreign exchange reserves of central banks and about 70 per cent of global trade is conducted using USD.
- The association of the USD as a "safe-haven" asset also has a psychological angle to it and like old habits, people continue to view the currency as a relatively risk-free asset.
- Given this psychological bias, the world will continue to prefer the USD as a "store of value" and a "medium of exchange", fulfilling the basic functions of money.
- Additionally, sudden dumping of dollar assets by adversarial central banks will also pose balance sheet risks to them as it will erode the value of their overall dollar-denominated holdings.
- Thus, despite triggers to the move away from the dollar, in reality, it will be a protracted process.
- Central banks are left with very few choices to diversify.

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PRELIMS

1. AMOGHA III

➢ **CONTEXT: Bharat Dynamics (BDL) has successfully conducted a field firing test of its latest 3rd generation man-portable Anti Tank Guided Missile (ATGM), Amogha-III**.

➢ **About**

- Amogha-III is a third generation fire-and-forget Anti-Tank Guided Missile designed and developed by the in – house R&D Division of BDL.
- This indigenous missile has been developed under Integrated Guided Missile Development Programme (IGMDP).
- The whole missile system comes with a command launch unit (CLU), remote operation capability and a tripod.
- Amogha-III ATGM boasts a fire-and-forget capability, requiring no external intervention following launch.
- Developed by BDL's Research and Development Division, the missile also features a dual-mode IIR Seeker with a range of 200 to 2500 meters.
- Assisted by the Defence Research and Development Organisation (DRDO), Amogha-III showcases a tandem warhead, consisting of two separate explosive charges that are detonated in sequence.
  - ✓ The first charge, known as the precursor charge, penetrates the target's armour, creating a hole for the second charge, the main charge, to detonate inside, maximizing damage inflicted on the target.
  - ✓ The use of a tandem warhead significantly enhances the missile's ability to defeat heavily armoured targets.
- The missile can be fired in lock-on-before launch (LOBL) mode and its anti-armour tandem warhead can penetrate in excess of 650 mm beyond Explosive Reactive Armour (ERA).

➢ **Feature**

- Range: 200 – 2500 m.
- Attack mode: Top / direct attack
- Man-portable.
- Tandem warhead with penetration in excess of 650 mm beyond Explosive Reactive Armor (ERA).
- Dual Mode Imaging Infra-Red (IIR) Seeker.
- Aerodynamic and Thrust Vector Control.
- Smokeless, Signature-free Propulsion System.
- Soft launch.

➢ **ATGMs in India**

- **Laser guided ATGM:** indigenously developed by DRDO, it employs a tandem High Explosive Anti-Tank (HEAT) warhead to defeat Explosive Reactive Armour (ERA) protected armoured vehicles.
- **Helina:** maximum range of seven kilometers and has been designed and developed for integration on the weaponized version of the Advanced Light Helicopter.
- **Nag:** third-generation fire-and-forget missile developed for mechanized formations to engage heavily fortified enemy tanks.
- **Man-Portable ATGM:** range of 2.5 kilometers, with fire-and-forget and top attack capabilities for infantry use.
- **Smart Stand-off Anti-Tank Missile (SANT):** is being developed for launch from the Mi-35 Helicopter.

2. Cope India Exercise

➢ **CONTEXT: The `Cope India' exercise between India and US from April 10 to 21 will "further enhance operational capability and interoperability between the two air forces".**

➢ **About the exercise**

- It is a bilateral exercise between the air forces of the two countries.
- The exercise comes amid India's continuing three-year-long military confrontation with China in eastern Ladakh as well as the ongoing Russia-Ukraine war, which has seen Beijing and Moscow get into a tighter strategic clinch.
- The IAF will be fielding the French-origin Rafale, Russian-origin Sukhoi-30MKI and indigenous Tejas fighters as well as AEW&C (airborne early-warning and control) planes, C-17 Globemaster-III strategic airlift aircraft and IL-78 mid-air refuellers for the exercise.
- The US, in turn, will deploy F-15 Strike Eagle jets.

➢ **Background**

- Cope India began in 2004 as a fighter training exercise held at Air Station Gwalior, India.
- The exercise has evolved to incorporate subject matter expert exchanges, air mobility training, airdrop training and large-force exercises, in addition to fighter-training exercises.
- The exercise showcases U.S. and India's efforts and commitment to a free and open Indo-Pacific region.

ANSWER WRITTING

Q. Discuss the significance and potential environmental risks associated with the deep-sea mining projects.

Deep seabed mining (DSM) is a potential commercial industry that is attempting to mine mineral deposits from the seafloor, in the hopes of extracting commercially valuable minerals such as manganese, copper, cobalt, zinc, and rare earth metals from rocks called "polymetallic nodules". The deep seabed is the seabed at ocean depths greater than 200 meters and covers about two-thirds of the total seafloor. However, researchers have also flagged widespread concern about the impact of deep-sea mining on marine ecosystems, habitats and biodiversity.

Significance of deep-sea mining:

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- Source for clean energy: The deep-sea environment holds a wealth of minerals, such as manganese, cobalt, copper, and nickel, which could be used for rapidly growing renewable energy technologies including solar panels, wind turbines, and electric-vehicle batteries.
- Can help in meeting rising global demand for critical minerals: Experts expect the global metals and minerals market to have a compound annual growth rate of more than 8% between now and 2026 as the energy transition accelerates. Given the rising demand for metals and minerals, there has been a greater push for deep-sea mining to meet these demands.
- Deep-sea mining is advantageous over land-based mining: Deep-sea mineral extraction may have some economic and environmental advantages over its land-based counterpart.
    - There is no use or pollution of freshwater sources, limited or no effect on local communities and metal grades and quantities are often higher than terrestrial ores.
- Application in various sectors: The minerals extracted from deep sea mining have applications in diverse sectors such as transportation, defence, aerospace, electronics, energy, construction, and health care.
- Important for technological innovation: Several technological innovations are expected to drive innovation in metals over the next decade such as from 3D printing to artificial intelligence and big data analytics.

Potential environmental risks associated with deep sea mining projects:

- The negative impact of sediment plumes: Plumes are caused when the tailings from mining (usually fine particles) are dumped back into the ocean, creating a cloud of particles floating in the water. The floating particles increase the turbidity, or cloudiness, of the water, clogging filter-feeding apparatuses used by benthic organisms.
- Impact on marine life: On the abyssal plains, sucking up nodules would involve the destruction of the seabed, leading to the potential extinction of species. The Polymetallic nodules themselves support complex ecosystems, which would be lost.
    - A rare species called 'Scaly foot snail', also known as sea pangolin, has become the first species to be threatened because of deep-sea mining.
- Disturbance of seafloor: Sediment on the ocean floor accumulates at a rate of 1 millimetre a millennium, meaning that areas disturbed by mining would take a very long time to recover. This could have a significant biological impact.
- Noise pollution: Deep Sea mining efforts will increase ambient noise in the normally quiet pelagic environments. Anthropogenic noise is known to affect deep-sea fish species and marine mammals.
- Light Pollution: The areas where deep sea mining may take place are normally devoid of sunlight and anthropogenic light sources. Mining efforts employing floodlighting would drastically increase light levels. Previous studies show that deep-sea shrimps found at hydrothermal vents suffered permanent retinal damage when exposed to floodlights.

Under the United Nations Convention on the Law of the Sea (UNCLOS), the deep sea and its mineral resources are the common heritage of humankind. Therefore, they must be managed on behalf of and in the interests of all humanity, including the sharing of economic benefits; support for marine scientific research; and the effective protection of the marine environment.

MCQ

1. With reference to Exercise Cope India consider the following
    1. It is a bilateral joint exercise between Indian Air Force (IAF) and the United States Air Force (USAF).
    2. Cope India began in 2004 as a fighter training exercise.
    3. The exercise conducts every year since 2004.

    Which of the above statement/s is/are not correct?
    a) 1 and 2 only
    b) 2 only
    c) 2 and 3 only
    d) 3 only
2. With reference to Malabar naval exercise consider the following
    1. The exercise started as a bilateral exercise between India and the United States.
    2. The India-U.S. bilateral Malabar naval exercise became trilateral with the addition of Japan in 2015

    Which of the above statement/s is/are correct?
    a) 1 only
    b) 2 only
    c) Both 1 and 2
    d) Neither 1 nor 2
3. With reference to Amogha-III consider the following
    1. Amogha-III ATGM boasts a fire-and-forget capability, requiring no external intervention following launch.
    2. The missile can be fired in lock-on-before launch (LOBL) mode
    3. Its anti-armour tandem warhead can penetrate in excess of 650 mm beyond Explosive Reactive Armour (ERA).

    Which of the above statement/s is/are correct?
    a) 1 and 2 only
    b) 2 and 3 only
    c) 1 and 3 only
    d) 1,2 and 3
4. With respect to Organisation of the Petroleum Exporting Countries Plus (OPEC+), consider the following statements
    1. The non-OPEC countries which export crude oil are termed as OPEC Plus countries.
    2. The headquarters of OPEC is located in Vienna, Austria.
    3. India is a member of the OPEC+ countries.

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Select the correct statement.

a) 1 only
b) 1 and 2 only
c) 2 and 3 only
d) 1,2 and 3

5. Which is/are the Advantages of De-Dollarisation?
   1. Countries can reduce their dependence on the US dollar and the US economy
   2. Countries can reduce their exposure to currency fluctuations and interest rate changes
   3. Countries can increase trade and investment with other countries that may not have a strong relationship with the US
   4. Countries can reduce the influence of US monetary policy on their own economies

Choose the correct answer using the codes given below

a) 1 and 2 only
b) 2 and 3 only
c) 3 and 4 only
d) 1,2,3 and 4

6. With reference to Tiger Reserves in India, consider the following statements:
   1. They aim to conserve both the habitat and prey base of a tiger.
   2. Bandipur Tiger Reserve was established in 1973 under Project Tiger..
   3. Project Tiger aims for in-situ conservation of wild tigers.

Which of the statements given above is/are correct?

a) 1 and 2 only
b) 2 and 3 only
c) 1 and 3 only
d) 1,2 and 3

7. Consider the following statements about Securities Transaction Tax (STT)
   1. The point of incidence and impact of STT is not same.
   2. Government securities are exempted from STT.

Which of the statements given above is/are correct?

a) 1 only
b) 2 only
c) Both 1 and 2
d) Neither 1 nor 2

8. Consider the following statements with reference to Public Interest Litigations (PILs).
   1. Public Interest Litigation purely based on newspaper reports are maintainable in courts.
   2. PIL need not be filed by the aggrieved party only.
   3. PILs can help develop the law by giving judges the opportunity to interpret legislation.

Which of the statements given above is/are correct?

a) 1 and 2 only
b) 2 and 3 only
c) 1 and 3 only
d) 1, 2 and 3

9. With reference to PM SVANidhi scheme, consider the following statements:
   1. It was launched by the Ministry of Housing and Urban Affairs
   2. National Bank for Agriculture and Rural Development (NABARD) is the implementation agency.

Which of the statements given above is/are correct?

a) 1 only
b) 2 only
c) Both 1 and 2
d) Neither 1 nor 2

10. Pobitora Wildlife Sanctuary, recently seen in news is located in?

a) West Bengal
b) Assam
c) Tripura
d) Odisha

11. Consider the following statements on wheat cultivation in India.
   1. It is known as 'Golden Fibre'
   2. It requires moderate temperature and rainfall during the growing season.
   3. It thrives best in black soil.
   4. In India it is grown in the winter season.

   Which of the above statement/s is are correct?

a) 1 and 2 only
b) 2 and 3 only
c) 1 and 4 only
d) 2 and 4 only

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