

09 October, 2023

Iron Dome

Context: The Iron Dome, Israel's highly advanced defense system, has regained attention due to a video demonstrating its ability to intercept numerous rockets during the Hamas offensive.

- Hamas, a Palestinian militant organization, launched an unprecedented operation with over 5,000 rocket attacks on Israel from Gaza Strip.
- This attack led to casualties among civilians and soldiers, resulting in at least 1,000 deaths.
- The conflict included ongoing gun battles in both Gaza and Israel, with the night sky often lit up by rocket streaks.
- Despite Israel's advanced defense systems, Hamas successfully breached them and struck targets within Israeli territory, escalating the Israel-Gaza conflict significantly.

What is Iron Dome?

- The Iron Dome is a ground-to-air short-range air defense system designed to intercept and destroy incoming missiles, rockets, and Unmanned Aerial Vehicles (UAVs) in mid-air.
- **Deployment:** The system has been in operation since 2011 and is deployed across Israel to protect against various threats.
- **Range:** The Iron Dome has an effective range of 70 kilometres.
- **Background:** The development of the Iron Dome was spurred by the 2006 Israeli-Lebanon war when Hezbollah fired thousands of rockets into Israel.
- **Development:** It is jointly developed by Israel Aerospace Industries and Rafael Advanced Defense Systems.
- **Features:**
 - The system includes a radar and Tamir interceptor missiles designed to track and neutralize incoming rockets and missiles.
 - It can be used for countering rockets, artillery, mortars (C-RAM), as well as aircraft, helicopters, and UAVs.
 - The Iron Dome is operational in all weather conditions, including both day and night.
- **Success Rate:** Rafael claims a success rate of over 90%, with more than 2,000 successful interceptions. However, experts generally agree that the success rate is over 80%.
- **Protection:** The Iron Dome is capable of protecting deployed and manoeuvring forces, Forward Operating Bases (FOBs), and urban areas against a wide range of indirect and aerial threats.

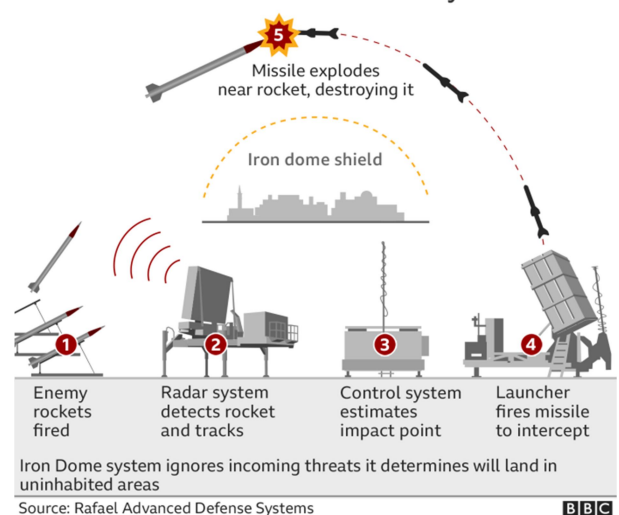
Components:

- **Radar:** It utilizes a detection and tracking radar to identify incoming threats.
- **Weapon Control:** It includes a battle management and weapon control system (BMC) that coordinates the interception process.
- **Missile Fire:** The system also features a missile firing unit that launches the interceptor missile in response to detected threats.

Alternatives of Iron Dome in India

- **S-400 TRIUMF:**
 - **Type:** Mobile, surface-to-air missile system (SAM) designed by Russia.
 - **Range:** Can engage aerial targets within a range of 400km and at altitudes of up to 30km.
 - **Capabilities:** Tracks 100 airborne targets and can engage six of them simultaneously.
 - **Purpose:** Provides air defense against rockets, missiles, and cruise missiles.
- **Prithvi Air Defence (PAD) and Advanced Air Defence (AAD):**
 - **Type:** Double-tiered missile defense system.
 - **Components:** PAD for high altitude interception and AAD for lower altitude interception.
 - **Range:** Can intercept incoming missiles launched up to 5,000 kilometres away.
 - **Features:** Includes an overlapping network of early warning and tracking radars, along with command and control posts.

How Israel's Iron Dome defence system works



Face to Face Centres

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➤ **Ashwin Advanced Air Defence Interceptor Missile:**

- **Type:** Indigenously developed Advanced Air Defence (AAD) interceptor missile by DRDO.
- **Version:** Advanced version of the low altitude supersonic ballistic interceptor missile.
- **Capabilities:** Equipped with a mobile launcher, secure data link, independent tracking and homing capabilities, and advanced radars.
- **Range:** Intercepts ballistic missiles within Earth's atmosphere, at altitudes of 60,000 to 100,000 feet, and across a range of 90 to 125 miles.

Card-on-File Tokenisation

Context: The Reserve Bank of India (RBI) plans to introduce Card-on-File Tokenisation (CoFT) to enhance convenience for cardholders.

- RBI Governor Shaktikanta Das has announced the proposal to introduce Card-on-File Tokenisation (CoFT) creation facilities directly at the issuer bank level.
- This initiative aims to make it easier for cardholders to generate tokens and link them to their existing accounts on various e-commerce platforms.
- Additionally, the central bank has chosen to extend the Payments Infrastructure Development Fund (PIDF) Scheme, which was initially launched in January 2021.

Card-on-File (CoF)

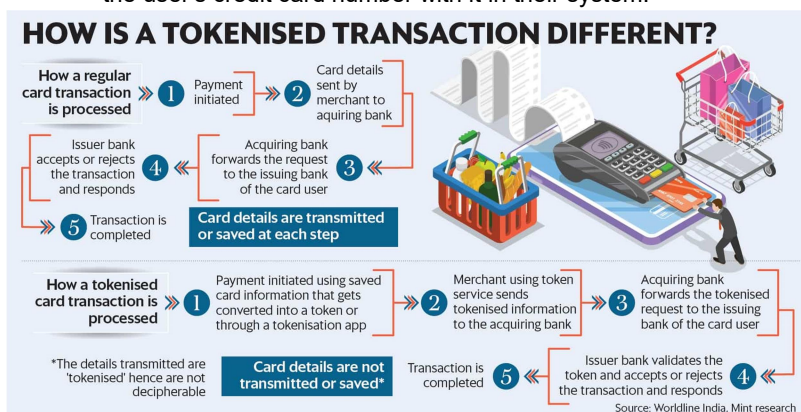
- CoF refers to the practice of merchants storing customer card and payment details for future use, essentially keeping this information "on file."
- In a card-on-file transaction, the cardholder grants a merchant permission to store their card information and charge them when necessary.
- There are two types of card-on-file transactions:
 - **Cardholder-initiated:** The cardholder allows a business to store their card information for future use.
 - **Merchant-initiated:** The cardholder agrees to let the merchant initiate payments using their stored payment information, often used for subscription billing.

Tokenisation Process

- Tokenisation is a security process that replaces a cardholder's original card number with a surrogate term known as a 'token.'
- This process enhances card security by converting card numbers into tokens, making online payments more secure.
- The exchange of tokens occurs between the token requestor and the network, ensuring a secure online payment experience.
- All records of this exchange between the token and essential card information are securely stored in a vault accessible only to card networks.
- This high level of security protects customers' card details from online fraud and hackers.

How Card-on-File Tokenisation Works?

- A customer uses a credit/debit card for transactions at a point-of-sale (POS) device or an e-commerce website.
- The tokenisation system receives and interprets the credit card number.
- The system replaces the original credit card number with a randomly generated 16-digit token for enhanced security.
- The tokenisation system provides this converted 16-digit random token number to the e-commerce platform, which replaces the user's credit card number with it in their system.



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Children Displaced by Changing Climate Report

Context: A recent report titled "Children displaced in a changing climate: Preparing for a future already underway" sheds light on the dire consequences of climate change on children, with a focus on weather-related hazards.

- The report, released by the United Nations Children's Fund (UNICEF), highlights the alarming rate of child displacement due to floods, storms, droughts, and wildfires.

Child Displacements Overview

- Over a six-year period, there were a staggering 43.1 million internal displacements of children linked to weather-related disasters, equivalent to approximately 20,000 child displacements per day.
- An overwhelming 95% of these recorded child displacements were driven by floods and storms.

Recommendations for Action

- The report calls on governments, donors, development partners, and the private sector to take immediate action to protect children and young people at risk of future displacement.
- Key recommendations include ensuring child-critical services are shock-responsive, portable, and inclusive, as well as improving the adaptive capacities, resilience, and participation of children in a climate-changed world.

Weather-Related Hazards and Impact

- **Floods:** The top 10 countries with the most child displacements triggered by floods from 2016 to 2021 include Bangladesh, China, Ethiopia, India, Indonesia, Nigeria, Philippines, Somalia, South Sudan, and Sudan.
- **Storms:** The top 10 countries with the most child displacements triggered by storms from 2016 to 2021 include Bangladesh, China, Cuba, Honduras, India, Madagascar, Mozambique, Philippines, the United States, and Viet Nam.
- **Drought:** Droughts develop slowly and are challenging to detect early. The top 10 countries with the most child displacements triggered by droughts from 2017 to 2021 include Afghanistan, Angola, Brazil, Burundi, Ethiopia, India, Iraq, Madagascar, Somalia, and South Sudan.
- **Wildfires:** Wildfires, often ignited by lightning or human actions, led to child displacements in countries like Australia, Canada, China, France, Greece, Israel, Spain, Syria, Turkey, and the United States.

Impact and Vulnerable Regions

- Floods and storms accounted for 95% of recorded child displacements between 2016 and 2021, severely affecting children's education, access to vaccines, and social networks.
- China, the Philippines, and India witnessed a significant number of child displacements due to their geographical vulnerability and large child populations.
- Vulnerable regions, including small Caribbean islands and the Horn of Africa, faced substantial child displacements, further exacerbated by climate crises and overlapping challenges.

The Climate Crisis Connection

- The report emphasizes the role of climate change in intensifying extreme weather events, making them more destructive and unpredictable.
- Climate-related disasters, the fastest-growing driver of child displacement, are often overlooked in climate policies and discussions.

Hidden Dangers and Future Outlook

- Slow-onset climate impacts like rising sea levels, desertification, and increasing temperatures are underreported.
- Urgent action is required to address the impending crisis, with riverine floods posing the most significant future risk, potentially displacing 96 million children over the next 30 years.
- Phasing out fossil fuels is highlighted as a critical step in mitigating the climate crisis and protecting children from displacement.

NEWS IN BETWEEN THE LINES

Gangetic River Dolphin



About the Gangetic River Dolphin:

- The Gangetic river dolphin is a **freshwater species** and one of the few river dolphins found globally.
- It inhabits the **Ganges-Brahmaputra-Meghna** and **Karnaphuli-Sangu** river systems in **Nepal, India** and **Bangladesh**.
- It is known by various names, including **Blind dolphin**, **Ganges dolphin**, **Ganges susu**, **Hihu**, **side-swimming dolphin** and **South Asian River Dolphin**.
- The Gangetic river dolphin has been officially recognized as **India's National Aquatic Animal**.
- It has a distinctive long **thin snout**, **rounded belly**, **stocky body** and large flippers.
- Its eyes lack lenses, earning it the nickname "**blind dolphin**."

IUCN Status: Endangered

Wildlife (Protection) Act: Schedule-I

CITES: Appendix I

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Phonotaxis



About Phonotaxis:

- Phonotaxis refers to the **movement of an animal** in response to a **sound stimulus**.
- It has been observed among various creatures, including **crickets, moths, frogs, toads** and a few other animals.

Types of Phonotaxis:

There are two types of phonotaxis: **Positive** and **Negative**.

Positive Phonotaxis:

- Positive phonotaxis involves **attraction**, where females of certain species are drawn to the sounds produced by males.

Negative Phonotaxis:

- Negative phonotaxis serves to **repel** or **warn** animals.
- It occurs when animals move away from certain sounds, such as those made by **predators**.

In **1984**, scientists discovered that Mediterranean house geckos (**Hemidactylus turcicus**) utilize positive phonotaxis as a predation strategy.

Yom Kippur War



About Yom Kippur War (1973):

- Yom Kippur war was fought from **October 6 to 25, 1973**, between **Israel** and a coalition of **Egypt** and **Syria**.
- It is also known as the **October War** or the **Ramadan War**.
- The deadliest attack on Israel since the Yom Kippur War, resulting in significant casualties.
- Similar to the Yom Kippur War, the recent attack by **Hamas** on **Israel** was a surprise, catching Israel unprepared.
- In the Yom Kippur War, **over 2,500** Israeli soldiers were killed.
- The recent attack coincided with preparations for **Simchat Torah**, a significant **Jewish** holiday.

Watermeal



About Watermeal:

- Watermeal is an aquatic plant belonging to the **Araceae** family.
- It holds the distinction of being the **smallest flowering plant** globally.
- It is often referred to as "**duckweed**" due to its popularity as a food source for ducks.
- Watermeal thrives in various climate zones, including **temperate, sub-tropical**, and tropical regions.
- It is typically found on the surfaces of **lakes, ponds** and **marshes**.

Physical Features:

- Watermeal measures less than **1 millimeter** in size.
- It has a light **green** color.
- This plant is **rootless** and **free-floating**.

Nutritional Value:

- It is classified as a complete **protein, containing** all nine essential **amino acids**.

Place in News

Israel

Israel (Capital: Jerusalem)

Recently, Israel launched a retaliatory strike on Gaza after enduring its bloodiest attack in years.

Location: Israel is situated in the Southern Levant region of Western Asia, along the eastern shore of the Mediterranean Sea.

Political Boundaries:

- It shares borders with Lebanon to the north, Syria to the northeast, Jordan to the east, Egypt to the southwest and the Palestinian territories of the West Bank and Gaza Strip.

Geographic Features:

Mountain Ranges: The country features several mountain ranges, including the **Galilee, Carmel** and the **Golan Heights** in the north.

Jordan Rift Valley: This geological trench runs through Israel, including the **Jordan River**, the **Sea of Galilee** and the **Dead Sea**, which is the Earth's lowest point.



POINTS TO PONDER

- ❖ **How many unreported human-made earthworks have been recently, discovered in the LIDAR survey data?** -24 unreported human-made earthworks
- ❖ **What has confirmed the antiquity of the ancient human footprints recently in White Sands National Park?** -New radiocarbon (Carbon14)
- ❖ **When and by whom did the era of plastic begin?** -1907 by Belgian scientist Leo Baekeland
- ❖ **Who have recently been awarded the 2023 Nobel Prize for chemistry "for the discovery and synthesis of quantum dots?"** - Alexei I. Ekimov, Louis E. Brus and Mounir G. Bawendi
- ❖ **Who is the author of the book "White Torture," which sheds light on the inhuman conditions in Evin prison?** - Narges Mohammadi

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