



4 August, 2023

Rajmargyatra

Context: The NHAI has introduced 'Rajmargyatra,' a comprehensive mobile application designed for the convenience of national highway users.

- NHAI launched 'Rajmargyatra' app for national highway users.
- Aims to enhance user experience with highway info.
- Available on Google Play Store and iOS App Store.
- User-friendly interface in Hindi and English.
- Efficient complaint resolution system.
- Focuses on safer and enjoyable highway travel.

Key Features

- Comprehensive Highway Information:
 - 'Rajmargyatra' offers a central hub for essential National Highway information.
 - Real-time weather updates and timely broadcast notifications are provided.
 - Access details about nearby services like toll plazas, petrol pumps, hospitals, hotels, etc.
 - Ensures a smooth and secure journey on National Highways.
- Hassle-Free Complaint Redressal:
 - The app includes an inbuilt mechanism for reporting and resolving complaints.
 - Users can submit highway-related issues along with geo-tagged videos/photos.
 - Complaints are addressed promptly; delays trigger automatic escalations.
 - Grievance tracking is available for transparent complaint resolution.
- Seamless FASTag Services:
 - 'Rajmargyatra' integrates with various bank portals.
 - Users can recharge FASTags, obtain monthly passes, and access FASTag-related banking services.
 - All FASTag services consolidated within a single platform.
- Over-speeding Notifications and Voice-Assistance:
 - Users receive over-speeding alerts for responsible and safe driving.
 - Voice-assistance feature enhances driving behavior and safety awareness.

National Highways Authority of India

- NHAI established under NHAI Act, 1988, under the Ministry of Road Transport and Highways.
- Manages National Highways Development Project (NHDP) and minor projects for development and maintenance.
- NHDP, initiated in 1998, upgrades major Indian highways.
- NHAI maintains highways to global standards, promoting economic well-being.
- Completed 3,979 km of national highways in 2019-20.
- Developing around 27,500 km of national highways in Bharatmala Pariyojana Phase-I.

Port Health Organisation (PHO)

Context: Union Government has launched Port Health Organisation (PHO) under Sagar Setu for faster & simpler Ease of Doing Business.

About

- The Port Health Organisation (PHO) is now part of the Sagar Setu - National Logistics Portal (Marine) to enhance Ease of Doing Business (EODB).
- PHO ensures disease surveillance, health inspections, and quarantine measures for citizen and port worker safety.
- The PHO module includes features like online clearance certificates and streamlined certification generation.
- Collaboration among stakeholders like Shipping Agents, PHOs, Port Authorities, and Customs is facilitated for efficient approval processes.

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- Emphasis on paperless transparency and data mobility for modernized monitoring and approval practices.
- The PHO integration in Sagar Setu (NLP-M) is set to advance maritime trade through business ease and digital transformation.

Sagar Setu

- The SAGAR-SETU app in the National Logistics Portal (Marine) offers real-time vessel-related data, gate info, container freight stations, and digital payment transactions.
- This app aims to elevate maritime trade, boost the national economy, and enhance operational visibility and tracking.
- Benefits for Traders:
 - Streamlined processes lead to quicker approvals and compliance.
 - Enhanced visibility in operations and tracking.
- Benefits for Service Providers:
 - Efficient record and transaction tracking.
 - Prompt notifications for service requests.

National Logistics Portal (Marine)

- The National Logistics Portal (Marine) serves as a comprehensive national maritime single window platform.
- It offers end-to-end logistics solutions, enabling smooth document exchange and seamless business transactions for exporters, importers, and service providers.
- The Maritime India Vision 2030, set to surpass the Sagarmala Scheme, is focused on port development and digitizing the nation's maritime infrastructure.

Einstein's Cross

Context: Astronomers have found a remarkable and uncommon instance of an Einstein cross, where distant universe's light is split and amplified.

- **Einstein's Cross Phenomenon:**
 - Predicted by Einstein in 1915, Einstein crosses are a rare occurrence observed by astronomers.
 - Einstein's theory of general relativity explains the influence of massive objects on space-time, causing gravitational effects.
- **Space-Time Distortion and Gravity:**
 - General relativity reveals that gravity is the curvature of space-time caused by matter and energy.
 - The curvature determines the movement of energy and matter within it.
- **Curved Path of Light:**
 - Despite traveling in a straight line, light passing through a curved region of space-time, like around massive galaxies, follows a curve.
 - This phenomenon causes light to bend around the galaxy, creating a halo-like shape.
- **Gravity's Influence on Light:**
 - The appearance of the halo depends on the strength of the galaxy's gravity and the observer's viewpoint.
 - Gravitational lensing is the broader effect, while the specific instance with perfect alignment is called an Einstein ring.
- **Einstein Ring and Gravitational Lensing:**
 - An Einstein ring occurs when Earth, a lensing galaxy, and a quasar align to replicate the quasar's light along a circular pattern.
 - This phenomenon, known as gravitational lensing, results in the unique case called the Einstein Cross.



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Gravitational Lensing

- **General Relativity Effect:** Gravitational lensing stems from Einstein's theory, where massive objects warp space-time and alter light paths.
- **Massive Object Distortion:** Massive objects like galaxies bend light due to gravity, creating a lensing effect.
- **Multiple Images:** Lensing can produce multiple images of a background object, seen as Einstein rings or crosses.
- **Strong and Weak Lensing:** There are two types: strong (distinct images) and weak (subtle distortions).
- **Cosmological Applications:** Lensing helps map dark matter, measure cosmic expansion, and study dark energy in cosmology.

Sovereign Credit Rating

Context: Fitch, a global credit rating agency, has recently lowered the US Sovereign rating from AAA to AA+.

- Global credit rating agency Fitch has reduced the US Sovereign rating from AAA to AA+.
- Reasons include anticipated fiscal decline over three years, increasing government debt, and governance deterioration in the last two decades.
- Fitch highlights repeated debt limit disputes and late resolutions affecting governance.
- Notably, in 2011, Standard & Poor's (S&P) downgraded US rating from AAA to AA+, citing inadequate budget measures.
- S&P's 2011 downgrade was due to concerns about US financial outlook and debt stability. S&P's rating has remained unchanged since then.

Sovereign Credit Rating

- Sovereign credit rating is an independent assessment of a country's creditworthiness, indicating its ability to repay debt without default.
- Governments issue debt instruments like bonds to raise funds, and creditworthiness reflects the government's repayment capability.
- These ratings help investors gauge risk when investing in a country's debt instruments, considering factors like political stability.
- Key credit rating agencies include Standard & Poor's, Moody's, and Fitch Ratings.
- Assessment factors encompass economic growth, fiscal policies, public debt, political stability, and trade position.
- Ratings aid in making informed investment decisions and understanding a country's financial health.
- Sovereign credit rating holds **key significance**:
 - **Funding Access:** Crucial for global development project funding via bonds.
 - **Foreign Investments:** Attracts more foreign direct investments with a strong rating.
 - **Borrowing Costs:** Influences borrowing expenses; higher ratings mean lower interest rates.
 - **Economic Growth:** Facilitates cost-effective borrowing for growth initiatives.
 - **Investor Confidence:** Boosts credibility, fostering investor trust.
 - **Financial Stability:** Supports stability in managing economic challenges.

Credit Rating Grades

Moody's	S&P	Fitch	Description
Aaa	AAA	AAA	Highest credit quality, minimum credit risk
Aa1, Aa2, Aa3	AA+, AA, AA-	AA+, AA, AA-	Very high credit quality, very low credit risk
A1, A2, A3	A+, A, A-	A+, A, A-	High credit quality (upper-medium grade)
Baa1, Baa2, Baa3	BBB+, BBB, BBB-	BBB+, BBB, BBB-	Good credit quality, currently low credit risk
Ba1, Ba2, Ba3	BB+, BB, BB-	BB+, BB, BB-	Speculative elements, issuer faces major uncertainties and adverse conditions
B1, B2, B3	B+, B, B-	B+, B, B-	High credit risk, but issuer still able to meet its financial commitments
Caa1, Caa2, Caa3	CCC+, CCC, CCC-	CCC	Issuer currently vulnerable, default likely
Ca	CC	CC	Issuer currently highly vulnerable, near default
C	R, SD, D	C, RD, D	Lowest rating, typically in default on some (SD, RD) or all of its financial obligations

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NEWS IN BETWEEN THE LINES

Naya Savera Scheme



Naya Savera Scheme is a government initiative that offers free coaching and support to students for minority communities

Objective: to provide special coaching for minority students to qualify for professional courses & government competitive exams (Group A, 'B', & 'C' services).

Launched By: The Ministry of Minority Affairs

Beneficiary Communities: Sikh, Jain, Muslim, Christian, Buddhist, and Parsi.

Scheme Name: Naya Savera (Free Coaching and Allied) Scheme

Implementation: Nationwide through empaneled Project Implementing Agencies (PIAs).

Total Beneficiaries: 1,19,223 minority students benefited from the scheme so far.

Andhra Pradesh Impact: 12,155 students from Andhra Pradesh received support through Naya Savera so far.

Himalayan Vulture



Researchers have achieved the first-ever instance of captive breeding of the Himalayan vulture (*Gyps himalayensis*) in India at the Assam State Zoo, Guwahati.

Conservation Status: IUCN Red List

Species: Himalayan vulture (*Gyps himalayensis*)

Successful Breeding: Recorded on March 14, 2022

Artificial Brooding: Nestling was shifted to an artificial brooding facility on March 15, 2022.

Nestling Care: Kept in a plastic box with regulated temperature, lamp, water bowl and monitored with a thermo-hygrometer.

Unique Success: Second instance of breeding the species in captivity in the world.

Collaboration: Vulture Conservation Breeding Centre (VCBC) at Rani, Assam, involved in conservation efforts.

Iberian Wolf



The Iberian wolf (*Canis lupus signatus*) has been declared extinct in Andalusia, the southern region of the Iberian Peninsula since 2020.

Subspecies of Grey Wolf: It is a subspecies of the Grey wolf, isolated from other wolf populations for over a century.

Largest Wolf Population: The Iberian wolf forms the largest wolf population in Western Europe.

Native to Iberian Peninsula: It is native to the Iberian Peninsula, comprising Spain and Portugal.

Habitat: Iberian wolves inhabit various areas, including forests, wetlands, grasslands and mountainous regions.

Social Structure: They live in small packs led by alpha male and female, along with their young and older offspring.

Conservation Status: IUCN Vulnerable.

Iberian Peninsula:

Political Boundaries: It is situated in southwestern Europe, the Iberian Peninsula is the southernmost peninsula of Europe.

Geographical Feature:

Borders: The Pyrenees mountain range separates the Iberian Peninsula from France.

Highest Mountain: Mount Mulhacén (3,478 meters)

Lactose Intolerance



Lactose intolerance is the digestive system's inability to digest lactose, the sugar in milk, leading to symptoms like bloating, cramps and diarrhea.

Prevalence: Common in adults, especially Asians, with varying degrees of intolerance. 75-95% among African American and Asian ethnicities, 18-26% among Europeans.

Causes: Decline in lactase enzyme production with age. Secondary lactose intolerance may occur after surgery, chemotherapy or certain intestinal diseases.

Symptoms: Common symptoms include diarrhea, gas, bloating, stomach cramps, nausea, and sometimes vomiting.

Digestive Tract: The small intestine and colon are involved in the digestion process, where lactose intolerance affects nutrient absorption.

Nutrition: Adults can get calcium from plant-based milk, lactose-free milk, yoghurt, tofu, nuts, vegetables and legumes.

NASA launched the Voyager probes (Voyager 1 and Voyager 2) in 1977 to explore the outer planets of our solar system.

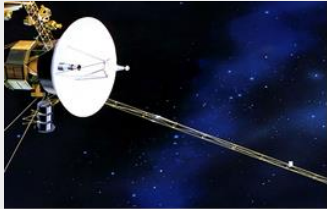
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NASA Voyager Mission



Purpose: The primary mission was to study Jupiter and Saturn, and later Uranus and Neptune. The mission took advantage of a rare planetary alignment for efficient travel.

Distance: Currently, Voyager 1 is approximately 24 billion km away from Earth, while Voyager 2 is 19.9 billion km away, both having reached interstellar space.

Instruments: Both spacecraft are equipped with 10 different experiments, including cameras, sensors, magnetometers and plasma detectors.

Power Source: The spacecraft use small nuclear reactors powered by plutonium pellets.

Golden Record: Carries encoded images, sounds and greetings from Earth for potential encounters with extraterrestrial life.

Jupiter Mission: Reached Jupiter in 1979, discovered new moons, geological activity on Io and disproved Titan's largest moon assumption.

Saturn Mission: Explored Saturn in 1980 and 1981, made significant findings about Titan and Saturn's moons and rings.

Uranus and Neptune: Visited Uranus in 1986, captured images of new moons and rings. Reached Neptune in 1989, discovering the Great Dark Spot.

Interstellar Space: Voyager 1 entered in 2012, Voyager 2 in 2018, still transmitting essential data.

Places in News

Kuril Islands

Location:

- The Kuril Islands are a group of four islands located between the Sea of Okhotsk and the Pacific Ocean, near Japan's northernmost prefecture, Hokkaido.

Names:

- Japan refers to them as the "Northern Territories," Russia calls them the "Kuril Islands" and South Korea names them the "Dokdo Islands."

Geological Characteristics:

- The islands are part of the Pacific Ring of Fire belt and have over 100 volcanoes having 35 being active volcanoes, along with hot springs.

Historical Background:

- The Soviet Union seized the islands at the end of World War II and expelled its Japanese residents by 1949.
- Tokyo claims that the islands have been part of Japan since the early 19th century, citing historical treaties like the Shimoda Treaty (1855), Treaty of St. Petersburg (1875) and Portsmouth Treaty (1905) after the Russo-Japanese War.



POINTS TO PONDER

- ❖ The Indian Institutes of Management (Amendment) Bill proposes which personality as the 'Visitor' to all the IIMs? – President
- ❖ Which company is preparing to launch the world's largest privately-owned satellite called JUPITER-3? - Space X
- ❖ What geographical feature lends its name to Niger and Nigeria? - The Niger River.
- ❖ What was India's first satellite launched on its own rocket in 1980? - Rohini Satellite (RS-1)
- ❖ What famous variety of rice is cultivated in the delta region of Tamil Nadu using the Cauvery River? - Thanjavur Ponni Rice

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