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Geography

Orange and Yellow Alerts

The orange and yellow alerts announced by the India Meteorological Department (IMD), which are crucial, especially during intense weather phenomena like the active southwest monsoon currently affecting Kerala.

Yellow Alert (Be Aware):

• **About** – This is a cautionary alert, indicating that weather conditions are potentially adverse and could cause minor disruptions to daily activities.

• **Rainfall Criteria** – For rainfall, a Yellow Alert is typically issued when 24-hour rainfall is expected to be between 64.5 mm and 115.5 mm (heavy rain).

• **Action Advised** – People are advised to "Be Aware" of the weather situation, stay updated with forecasts, and be prepared for possible inconveniences like localized flooding in low-lying areas or traffic congestion.

• It's a signal to exercise caution, but doesn't necessarily call for immediate drastic action.

Orange Alert (Be Prepared):

• **About** – An Orange Alert signifies a higher level of threat, indicating a strong likelihood of severe weather conditions that could cause significant disruption and damage.

• **Rainfall Criteria** – For rainfall, an Orange Alert is typically issued when 24-hour rainfall is expected to be between 115.6 mm and 204.4 mm (very heavy rain).

Current Situation in Kerala:

• As per the latest reports, the active southwest monsoon in Kerala has already brought heavy to very heavy rainfall, with Sengulam Dam in Idukki recording a significant 14 cm.

• Given the continuing active monsoon conditions expected for the next seven days due to an upper air cyclonic circulation over the Bay of Bengal, the IMD has issued:

- ***Orange Alert*** for Kannur and Kasaragod districts for Thursday, indicating a high likelihood of very heavy rain and urging residents to be prepared.

- ***Yellow Alert*** for most other districts, excluding Thiruvananthapuram, Kollam, Pathanamthitta, and Alappuzha, advising isolated heavy rain and the need for caution.

Economy

Additional Surveillance Measures (ASM) framework

The National Stock Exchange (NSE) has recently placed the shares of BSE Ltd (Bombay Stock Exchange) under the Additional Surveillance Measures (ASM) framework.

• **Additional Surveillance Measures (ASM) framework** – Is a crucial *regulatory tool used by the Securities Exchange Board of India (SEBI)* and stock exchanges (like NSE and BSE) to protect investors and maintain the fairness and integrity of the market.

• It's designed to curb excessive speculation and volatility in certain stocks.

• **Objective** – The primary goal of ASM is to alert investors to unusual price movements and discourage speculative trading that isn't backed by fundamental factors.

• It aims to *prevent market manipulation* and safeguard retail investors from potential losses.

• **Triggering Factors** – Stocks are placed under ASM if they show unusual price or volume variations, high volatility, or other suspicious trading patterns.

Categorization: ASM has two categories:

• **Short-Term ASM** – For immediate, rapid fluctuations.

• **Long-Term ASM** – For sustained unusual activity. (BSE shares were recently placed under the long-term list).

Agriculture

Community Seed Banks (CSBs)

Community Seed Banks are increasingly in focus as a crucial mechanism for climate change adaptation and biodiversity conservation in agriculture.

• **Core Role:** Safeguard diverse crop varieties and build agricultural resilience.
• **Effective Models:** Driven by local ownership, often led by women's SHGs and individual farmers.
• **Sahaja Samrudha's Approach** – Evolved from simple exchange to structured conservation and production.
• Uses **Participatory Variety Selection (PVS)** to identify best-performing varieties.
• Trained producers multiply chosen seeds; others are conserved for biodiversity.
• Revenue from organic grain sales funds future operations.
• Successfully promotes climate-resilient crops like millets.
• **Challenges** – Climate change impacting seed viability, maintaining purity.
• **Solutions** – Separate conservation from multiplication roles.
• **Government Support (Crucial)** – Formal recognition for "custodians of biodiversity."
• Subsidies for conservation and storage.
• Integration into national seed distribution systems.
• **Overall Impact** – Transforms local economies, ensures food security through local ownership and support.

National Mission on Natural Farming (NMNF)

The Union Cabinet's recent approval of the NMNF highlights a significant national push for sustainable, chemical-free agriculture.

• **Approval & Budget** – Recently approved by the Union Cabinet with 24.81 billion rupees allocated.
• **Scope** – Aims to cover 10 million farmers and 0.75 million hectares across 15,000 clusters.
• **Objective** – Promote natural, chemical-free farming, reducing farmer dependence on chemical inputs.
• **Key Features** – A Centrally Sponsored Scheme focused on capacity building for farmers transitioning to natural farming.
• Emphasizes on-farm bio-inputs and livestock-integrated models.
• Includes setting up Bio-input Resource Centres (BRCs) and Natural Farming Model Demonstration Farms.
• Focuses on peer-to-peer learning and farmer-led extension, utilizing tools like Participatory Videos (PVs).
• Aims to establish common standards, farmer-friendly certification, and a national brand for natural produce.
• **Benefits** – Reduced input costs, improved soil health, enhanced biodiversity, nutritious food, and a healthier environment.

Participatory Videos (PVs)

With the approval of the National Mission on Natural Farming (NMNF), Participatory Videos (PVs) are gaining prominence as they are seen as an innovative, farmer-centric approach to overcome traditional challenges.

• **Participatory Videos (PVs)** – Also known as **community videos**.
• Engage farmers and communities in creating their own content (user-generated).
• Document experiences, share knowledge, and voice perspectives to drive social change.
• Empower marginalized communities, build confidence, and foster creative expression.
• Serve as powerful tools for local training and communication.
• **History of PVs –** Originated in the late 1960s with the **"Fogo Process"** in Canada.
• **Relevance in Natural Farming** – Crucial for a **farmer-led extension system** in natural farming.
• Sensitize farmers quickly through peer-to-peer learning.

Support learning in three ways:

• **Horizontal Learning** – Farmers share practical experiences within and across villages.
• **Vertical Learning** – Farmers share experiences with government authorities, who can respond via video.
• **Exchange Learning** – Facilitate dynamic information exchange through discussions and feedback.
• Scientific research shows farmers are **seven times more likely to adopt practices** when exposed to PVs.

The Way Forward

• **Integrate PVs** – Embed them into existing natural/sustainable farming schemes (e.g., NMNF, PKVY).
• **Capacity Building** – Train farmers, local youth, and extension workers in video production (smartphones, editing, storytelling).
• **Dissemination** – Utilize platforms like WhatsApp, YouTube, and social media.
• **Digital Library** – Curate categorized PVs for wide access (e.g., MANAGE, ASCI).
• **Rural PV Entrepreneurs** – Support progressive farmers, SHG members, and youth to become PV entrepreneurs.

Environment

Women Entrepreneurs Leading the Fight Against Climate Change (The WECCA Project)

A recent study highlights the critical and often overlooked role of women entrepreneurs as strategic actors in climate change adaptation, particularly in sub-Saharan Africa.

• **Countering the narrative of vulnerability** – While women are often framed as highly vulnerable to climate change, the WECCA project's new research suggests they are actively leading efforts in climate resilience.
• **Demonstrating sustainable adaptation** – The project's findings indicate that businesses led by women are more likely to adopt sustainable, long-term adaptation strategies (like diversifying income) compared to male-led businesses, which may resort to short-term, unsustainable "coping" mechanisms.
• **Highlighting the impact of support** – The research shows that when women-led businesses receive financial or technical adaptation assistance, they not only catch up with male-led counterparts but also often outperform them.
• This suggests a high return on investment for supporting women in this area.
• **Policy implications** – The findings strongly advocate for governments and donors to develop targeted policies and programs that empower women entrepreneurs, recognizing their potential to drive inclusive and climate-resilient development.
• **Ongoing relevance** – Climate change impacts are increasing, making the need for effective adaptation strategies more urgent.
• The WECCA project offers a unique and valuable perspective on how to achieve this by focusing on a historically underserved but highly capable demographic.

Forest Rights Act (FRA) Cells

For the first time since the Forest Rights Act (FRA) of 2006, the Union government is directly funding dedicated structures, FRA Cells which can facilitate the law's implementation.

• **Central Funding** – Sanctioned under the *Dharti Aba Janjatiya Gram Utkarsh Abhiyaan (DAJGUA) scheme*.
• These cells are *funded by the Union Ministry of Tribal Affairs* but will *operate under the direction of State governments*.
• **Purpose** – Their primary aim is to "facilitate" and "assist" the implementation of the FRA.
• This includes helping claimants and Gram Sabhas prepare paperwork for claims, assist with data management and expedite pending claims.
• **No Decision-Making Role** – Officials emphasize these cells will not interfere with the statutory decision-making bodies (Gram Sabhas, Sub-Divisional, or District Level Committees) established under the FRA.
• **Addressing Pendency** – The initiative comes as a significant number of FRA claims (14.45% of 51.11 lakh, with over 42% rejections) remain pending across States.
• **Concerns Raised** – Activists worry these cells, being outside the FRA's direct legal framework, could create a "parallel mechanism," potentially leading to confusion and overlapping functions with existing committees.
• **Focus Areas** – High numbers of cells are sanctioned in States like Madhya Pradesh, Chhattisgarh, and Telangana.

India's First E-Waste Eco-Park

Delhi is set to establish India's first integrated E-Waste Eco-Park at Holambi Kalan, a significant step towards sustainable e-waste management and fostering a circular economy.

• **Pioneer Initiative** – This is India's first such integrated facility, demonstrating a proactive approach to a growing environmental challenge.
• **Capacity** – Spread over 11.4 acres, it aims to process up to 51,000 metric tonnes of e-waste annually and addressing a significant portion of Delhi's 9.5% share of India's total e-waste, (India is the world's third-largest generator).
• **Public-Private Partnership (PPP)** – The park will be developed under a PPP model (Design, Build, Finance, Operate, and Transfer - DBFOT), highlighting government-private sector collaboration in critical infrastructure.
• **Comprehensive E-Waste Management** – Beyond simple recycling, the park will feature zones for dismantling, refurbishing, component testing, plastic recovery and a second-hand electronics market, promoting resource recovery and reuse.
• **Circular Economy & Sustainable Development** – This project embodies the principles of a circular economy by minimizing waste, conserving resources, and creating a closed-loop system for electronic goods.
• It aligns with India's sustainable development goals.
• **Green Jobs & Skilling** – It will formalize the informal e-waste sector by establishing training centres to upskill workers, ensuring safer practices and creating thousands of "green jobs."
• **National Benchmark** – As one of four planned facilities nationally, it will serve as a model for other states, aiming to process 25% of Delhi's e-waste within five years.
• **Environmental Impact** – It directly tackles the hazards of improper e-waste disposal, reducing pollution (soil, water, air) from toxic elements and conserving valuable metals.

Security

Observe, Orient, Decide, and Act (OODA) loop

Air Marshal Ashutosh Dixit highlighted China's growing military space program, stressing the need for deep surveillance in modern warfare. He stated that future conflicts would be won by those who can observe, orient, decide, and act (OODA) loop the fastest.

• **OODA Loop** – It's a decision-making cycle for individuals and organizations in combat, involving four stages:
1. **Observe** – Gathering information about the environment and threats.
2. **Orient** – Analyzing and understanding the observed information, shaping perception and predicting future events.
3. **Decide** – Forming a hypothesis and selecting a course of action.
4. **Act** – Implementing the chosen action.

• **Speed is Paramount** – Winning wars now depends on completing this cycle fastest.
• Modern weapons have compressed the OODA loop from hours to mere seconds.
• **China's Strategic Threat** – China's military space program has rapidly grown to over 1,000 satellites, including 360+ for Intelligence, Surveillance, and Reconnaissance (ISR).
• Their "dogfighting" satellite manoeuvres aim to disrupt adversaries' observation capabilities.
• **Surveillance is Foundation** – Deep, accurate surveillance of threats, even deep within enemy territory, is now the bedrock of military operations.
• Past conflicts show: "the side that sees first...prevails."
• **Technological Advantage** – AI-driven data fusion, small satellite constellations, and integrated Electro-Optical, SAR, and SIGINT capabilities create a 24/7, predictive battlefield view.
• Electronic warfare and precise intelligence are equally vital.
• **Lessons from India** – Operation Sindoor demonstrated that India's Integrated Air Command and Control System (IACCS) significantly compressed "sensor-to-shooter" timelines, outpacing adversaries.
• **Future Focus** – Success demands sensors across all domains, cloud-based data, embedded technology, and AI-driven analysis to ensure superior situational awareness and OODA loop speed.

Miscellaneous

HKU5 Virus

A new study indicates that a group of bat coronaviruses, known as HKU5 viruses, are closely related to the deadly MERS coronavirus.

• **Proximity to Human Infection** – These viruses could be just one small mutation away from infecting humans.
• **ACE2 (Angiotensin-converting enzyme 2) receptor** – Is a protein found on the surface of various cell types, including those in the intestines, kidneys, testes, gallbladder, and heart.
• **ACE2 Receptor Utilization** – Crucially, HKU5 viruses were found to be capable of using the ACE2 receptor.
• **SARS-CoV-2 Connection** – ACE2 is the same receptor that SARS-CoV-2 (the virus causing COVID-19) uses to infect human cells.
• **Pandemic Potential** – This ability raises significant concerns about the potential for HKU5 viruses to trigger the next human pandemic.

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