UPSC Syllabus Topic : GS Paper 3 Agriculture – Storage, transport and marketing of agricultural produce.

Agriculture and Stocking Policy in India in 2024

Introduction: The current state of wheat stocks in Indian government warehouses, hitting a 7-year low, has raised concerns about future implications for food inflation. This article examines the measures implemented to manage foodgrain stocks and curb inflation, highlighting existing drawbacks and proposing a way forward.

Steps Taken to Maintain Stocks and Prevent Food Inflation:
1. **Export Curbs:**
   - Implementation of export bans on wheat and non-basmati white rice.
2. **Stocking Limits:**
   - Restrictions on large retailers and traders, limiting them to holding not more than 1,000 tonnes of wheat.
3. **Sale of Buffer Stock:**
   - Selling grain from the Food Corporation of India's stocks in the open market to regulate prices.
4. **Usage Restrictions:**
   - Imposing curbs on the diversion of cane juice and intermediate-stage molasses for ethanol production by sugar mills.
5. **Selective Import Allowance:**
   - Allowing imports with nil or low duties for pulses and edible oils to address supply-side challenges. However, this approach has not been extended to wheat, rice, and sugar, potentially influenced by political considerations.

Emerging Challenges:
1. **Low Wheat Crop Yield:**
   - Concerns arise if the yield of the current wheat crop, scheduled for harvesting from March-end, is below expectations, leading to supply challenges.

Recommendations for a Way Forward:
1. **Avoid Export or Stocking Controls:**
   - Allow imports across all agri-commodities without imposing export and stocking controls, fostering a more open and dynamic market.
2. **Policy Consistency:**
   - Address the historical issue of policy instability and unpredictability in India's farm sector. Consistent policies are vital to encourage investments in processing, warehousing, marketing, and research.
3. **Long-Term Vision:**
   - Develop a strategic and comprehensive vision for Indian agriculture that extends beyond short-term concerns like food inflation. A holistic approach should consider factors such as sustainability, technology adoption, and global market dynamics.

In conclusion, reassessing the agriculture and stocking policy in India is imperative to navigate the evolving challenges in the sector. By embracing a more open approach to imports, ensuring policy consistency, and adopting a long-term vision, India can build a resilient and dynamic agricultural system that addresses both immediate concerns and future sustainability.

Recent Concerns with India's Science Management in 2024

Introduction: The pivotal role of scientific advances in driving economic progress underscores the importance of effective science management. Despite recent efforts, concerns persist regarding India's science management framework. This article delves into the steps taken, existing issues, challenges with assuming scientists as leaders, and proposes recommendations for reform.

Steps Taken in Science Management:

1. **National Research Foundation (NRF):**
   - Establishment of NRF aimed at transforming India's research landscape.
2. **DRDO Restructuring:**
   - Ongoing efforts to restructure the Defence Research and Development Organisation (DRDO) for enhanced efficiency.

Issues with India's Science Management:

1. **Low R&D Expenditure:**
   - India's R&D expenditure at 0.7% of GDP contrasts starkly with global counterparts (3.5% for the USA, 2.4% for China).
2. **Slow Progress in Key Fields:**
   - Certain critical fields, including space, nuclear energy, genomics, robotics, and AI, witness slow progress.
3. **Public Sector Dominance:**
   - Bureaucratic hurdles and slow funding approvals hinder the agility of scientific initiatives.
4. **Long-Term Funding Issues:**
   - Lack of sustained commitment to long-term funding for vital projects hampers progress.
5. **Leadership Challenges with Senior Scientists:**
   - Micromanagement of institutional accounts and a lack of accountability among senior scientists in leadership positions.
6. **Concentration of Power:**
   - Monopolization of scientific equipment access and potential abuse of power within a few institutions.

Challenges with Scientist-Leaders:

1. **Administrative Complexity:**
   - Administering a complex organization requires dedicated focus, which might conflict with a working scientist's individual considerations.
2. **Decision-Making Prioritization:**
   - Scientists may lack training in prioritizing between time, cost, and precision in administrative decisions.
3. **Conflict of Interest:**
   - Administrative control held by scientists within the same institution may lead to potential conflicts of interest and power abuse.

Recommendations for Reform:

1. **International Best Practices:**
   - Emulate models such as the separation of administrators and scientists in science administration observed in US universities.

2. **Constitute a Central Service:**
   - Establish an all-India science administration central service to select and train scientists for administrative roles.

In conclusion, addressing the concerns in India's science management is imperative for the nation's economic and strategic aspirations. By learning from international best practices, establishing a dedicated science administration central service, and fostering a commitment to long-term funding, India can nurture a robust scientific ecosystem that aligns with global standards and accelerates progress.

UPSC Syllabus Topic : GS Paper 3 Science & technology – Indigenization of technology and developing new technology.

Advancing Air Quality Management in India: A Comprehensive Plan for 2024

Introduction: India faces a critical challenge with air pollution, evident in high pollution levels observed during events like COP 28. This article explores the need for an advanced air quality management plan, addressing existing challenges and proposing a detailed framework to monitor and manage air pollution effectively across diverse regions of India.

Rationale for a Detailed Air Quality Management Plan:

1. **Severe Air Pollution:**
   - Indian cities grapple with alarming levels of air pollution, necessitating urgent intervention.
2. **Mixed Results from Existing Plans:**
   - The National Clean Air Action Plan (NCAP), initiated in 2019, shows varied outcomes, emphasizing the need for more effective strategies.
3. **Health and Climate Risks:**
   - Air pollution, stemming from various sources, poses significant health risks and contributes to climate change.
4. **Diverse Climatic Conditions:**
   - India's diverse micro-environments and climatic variations require tailored approaches for effective air quality management.
5. **Lack of Comprehensive Data:**
   - Current efforts predominantly focus on urban areas, lacking systematic emissions inventory and monitoring across the country.
6. **Baseline Pollution Levels:**
   - Research by the National Institute of Advanced Studies (NIAS) indicates baseline pollutant levels exceeding WHO guidelines, underscoring the need for localized standards.

Existing Initiatives to Address Air Pollution:

1. **National Clean Air Action Plan (NCAP):**
   - Launched in 2019, NCAP represents a significant national effort to reduce air pollution in urban areas.
2. **Air Quality Monitoring Networks:**
   - Enhanced monitoring systems in urban areas provide regular updates on air pollution levels.
3. **NIAS Research Initiatives:**
   - NIAS conducted research to establish baseline pollutant levels in different climatic zones.
4. **Technology Integration:**
   - In Bengaluru, drone-based artificial intelligence identified emission hotspots, demonstrating technological integration for pollution source identification.

5. **Urban Policy Formulation:**
   - Cities have initiated policy measures to analyze and manage air pollution at the local level, acknowledging the severity of the issue in urban regions.
6. **15th Finance Commission Funding:**
   - Allocated funds to states for air quality management, encouraging state-level initiatives.

Proposed Strategies for Effective Air Quality Management:

1. **Strengthen Key Input Parameters:**
   - Prioritize creating a detailed emission inventory and conducting comprehensive air-shed mapping as foundational steps for accurate forecasting and management.
2. **Tailor Strategies to Diverse Environments:**
   - Develop region-specific strategies for rural, urban, and industrial areas, considering the unique climatic conditions of each region.
3. **Incorporate Advanced Technology:**
   - Utilize innovative tools such as drone-based AI and CubeSats for pinpointing emission hotspots and detailed environmental monitoring, respectively.
4. **Expert Collaboration:**
   - Establish a consortium comprising domain experts, health scientists, and policy specialists to ensure integrated air quality management.

In conclusion, advancing air quality management in India requires a multifaceted approach encompassing technology, data-driven strategies, and collaborative efforts. By implementing these proposed measures, India can make significant strides in mitigating air pollution and safeguarding public health and the environment.