

**UPSC Syllabus Topic : GS Paper 3 Environment – Environmental pollution and degradation.**

**On the Issues with Climate Change Treaties**

**Issues with Climate Change Treaties:**

1. **Ineffectiveness of Voluntary Commitments:**
  - Lack of accountability in voluntary commitments.
  - Despite global pledges in 1992, emissions have continued to rise.
2. **Limitations in Economic Models:**
  - Economic models often miscalculate benefits of emissions reductions and overstate costs.
3. **Low Priority Amid Urgent Challenges:**
  - Climate change competes for attention in a world facing numerous urgent challenges.
4. **Non-Cooperative Unilateral Approaches:**
  - Initiatives like the EU's Carbon Border Adjustment Mechanism hinder international cooperation.

**Strategies to Enhance Climate Change Treaties:**

1. **Targeted Approach:**
  - Focus on specific economic sectors crucial for emissions reduction.
  - Exemplified by the success of the Montreal Protocol in protecting the ozone layer.
2. **Legal Obligations:**
  - Establish binding obligations instead of relying on voluntary commitments.
  - Enforcement through international trade markets, as seen in the Montreal Protocol and MARPOL.
3. **Positive Feedback Loop:**
  - Encourage more countries to participate, creating pressure on others to join.
4. **“Common but Differentiated” Responsibilities:**
  - Align international climate agreements with countries' economic strategies.
  - Include provisions for wealthier nations to support financially or technologically challenged counterparts.

**Application to Other Emission Sources:**

- Replicate successful strategies in other major emission sectors, such as Aluminum production.

**Outcome:**

- Implementation of these changes provides a better opportunity for a swift and equitable transition to a net-zero emissions world.

**UPSC Syllabus Topic : GS Paper 3 – Science and Technology/ Internal Security.**

**Vijay Raghavan committee and DRDO functioning**

**Overview of DRDO:**

- **Establishment and Mission:**
  - Formed in 1958, DRDO is the R&D arm of the Ministry of Defence, dedicated to advancing India's defence capabilities and fostering self-reliance.
  - Comprises 50+ labs covering diverse defence disciplines like aeronautics, electronics, and engineering systems.
- **Motto:**
  - "Balasya Mulam Vigyanam" – “The source of strength is science”.

**Important DRDO Programs:**

1. **Integrated Guided-Missile Development Programme (IGMDP):**
  - Initiated by Dr. APJ Abdul Kalam.

- Aims for self-sufficiency in missile technology.
  - Developed missiles: Prithvi, Agni, Trishul, Akash, Nag.
2. **Mobile Autonomous Robot System (MARS):**
    - Smart robot for handling landmines and IEDs.
    - Assists Armed Forces in disarming explosive devices safely.
  3. **Highest Terrestrial Centre in Ladakh:**
    - Located at 17,600 feet near Pangong Lake.
    - Functions as a natural cold storage unit.
  4. **Recent Projects:**
    - Extreme Cold Weather Clothing System (ECWCS).
    - 'Pralay' missiles, Pinaka-ER Multiple Launch Rocket System, SMART, Akash-NG, and MPATGM projects.
    - Developed India's first anti-satellite system (Mission Shakti, 2019).

**Issues with DRDO:**

1. **Inadequate Budgetary Support:**
  - Standing Committee on Defence raised concerns about insufficient funding for ongoing projects.
2. **Inadequate Manpower:**
  - Faces challenges due to a shortage of critical manpower and lack of synergy with the armed forces.
3. **Cost Escalation and Delays:**
  - Projects like Light Combat Aircraft (LCA) Tejas faced significant delays and cost overruns.
4. **Accountability Concerns:**
  - Criticized for making promises without adequate delivery.
  - Lack of accountability and repercussions for project overruns.
5. **Obsolete Equipment:**
  - Accusations of working on outdated equipment rather than cutting-edge technology.
6. **Long-Term Trials:**
  - Criticism for prolonged testing phases without clear assurances of project success.
7. **Comparison with ISRO:**
  - DRDO's broad focus on multiple technologies, contrasting with ISRO's success attributed to a sharp focus on space.

**Recommendations by Vijay Raghavan's Committee:**

1. **Structural Changes:**
  - Formation of the Defence Technology Council (DTC) headed by the Prime Minister.
  - Creation of the Department of Defence Science, Technology, and Innovation (DDSTI).
2. **Research Focus:**
  - Emphasis on Intelligence, Surveillance, and Reconnaissance technologies.
  - Focus on life sciences.
3. **Human Resources:**
  - Recruitment of 100 graduates annually through campus hiring.
  - Strengthening DRDO's lateral entry program.
4. **Laboratory Restructuring:**
  - Restructure 41 DRDO labs into 10 national labs, distributed across key locations.

**Other Suggestions for Improvement:**

- Proposals include a leaner organization structure, a commercial arm for profitability, and a more significant role for DRDO in selecting production partners.
- The 2021 HR policy focuses on knowledge sharing, open-book management, and participative management.

**Way Forward:**

- Implementation of suggested reforms and structural changes to enhance DRDO's efficiency, accountability, and alignment with national security goals.