CHEMICAL INDUSTRY – ECONOMY

NEWS: NITI Aayog has released its report **"Chemical Industry: Powering India's Participation in Global Value Chains".**

WHAT'S IN THE NEWS?

Overview of the Sector

- The **chemical industry** involves the production, processing, and distribution of a wide variety of chemical substances critical to various sectors.
- India ranks **6th globally** and **3rd in Asia** in chemicals production, holding a **3.5% share** in global chemical value chains.
- The **market size** was over **$220 billion in 2023**, contributing **~7% to GDP** and serving key sectors like **agriculture, pharma, textiles, construction**, and **automotive**.
- Projected to **reach $400–450 billion by 2030** and **$1 trillion by 2040**.

Key Segments by Market Consumption

- **Petrochemicals ($65–75 billion)**: Largest segment; derived from petroleum/gas; negative production-consumption gap.
- **Specialty Chemicals ($40–45 billion)**: High-value, low-volume; over **50% of exports**; includes agrochemicals, dyes, paints.
- **Inorganic Chemicals ($15–20 billion)**: Includes **metals, salts, minerals**; vital for **water treatment, construction, electronics**.
- **Other Non-Core Segments ($90 billion)**: Fertilizers, pharma products, personal care, and medical devices.

Major Challenges

- **Import Dependence**: Imports at $75 billion vs. $44 billion exports (2023); trade deficit of $31 billion. **China** is the largest source (~30–35%).
- **Low R&D Investment**: India spends only **0.7%** on chemical R&D (vs global avg. 2.3%), limiting innovation.
- **Poor Infrastructure**: Outdated clusters, **logistics costs**, and **lack of modern hubs** reduce competitiveness.
- **Regulatory Complexity**: **Environmental clearance delays**, multi-layered approvals stall expansion.
- **Skilled Manpower Shortage**: **30% shortfall** in skilled talent in **green chemistry, nanotech**, and **safety**.
- **Low Product Diversification**: Heavy focus on bulk chemicals instead of high-value specialized products.

Strategic Vision: Doubling GVC Share by 2030
India aims to **double its global chemical value chain share** with **seven strategic interventions**:

1. World-Class Chemical Hubs

- Empowered central committee.
- Creation of a **Chemical Fund** to support infrastructure, viability gap funding (VGF).
- Revamp existing hubs like **Dahej, Visakhapatnam, Paradip, Cuddalore–Nagapattinam**.

2. Port Infrastructure Modernization

- Set up **Chemical Committees** at ports.
- Develop **8 coastal clusters** to improve connectivity and reduce export-import turnaround time.

3. Opex Subsidy Scheme

- Incentives for **incremental chemical production**, based on:
    - High import bill
    - Export potential
    - Dependency on single source country
    - Critical end-use
- Scheme duration: Fixed number of years with participant-based disbursal.

4. Tech Self-Sufficiency and Innovation

- Establish interface body with **DCPC and DST** for industry-academia R&D collaboration.
- Encourage **MNC tech transfer** and indigenous research.
- Fund innovation in **green chemistry, recycling, and process tech**.

5. Environmental Clearance Reform

- Fast-track clearance via **autonomous EAC**.
- Provision of **"deemed EC"** if no action in 270 days.
- **Merge EAC and EIAA** to reduce duplication.

6. Free Trade Agreements (FTAs)

- **Target FTAs** for tariff concessions and feedstock exemptions.
- Simplify FTA documentation for SME and MSME exporters.

7. Skill and Talent Development

- Expand **ITI network**, design **industry-linked curriculum** in polymers, safety, petrochemicals.
- **Train faculty**, establish **PPP-based apprenticeships**, promote **vocational skilling**.

Global Benchmark: China's Success Story

- **China** expanded its chemical sector share from **6% (2000)** to **35% (2023)**.

- Key strategies:
    - Massive state-led **infrastructure and R&D** investment.
    - Scale achieved via **SOEs**, supported by FDI.
    - Net-export position achieved through **policy consistency** and **supply chain control**.
- India can adopt China's lessons in a **federalized, democratic framework**.

Way Forward: India's Path to $1 Trillion Chemical Industry

- **Leverage domestic demand**, policy thrust, and geopolitical realignment.
- Implement **7-pronged strategy** to:
    - Reduce import dependency.
    - Increase value-added exports.
    - Achieve self-reliance in key chemical sub-sectors.
- India has the potential to become:
    - A **global manufacturing hub**.
    - A leader in **green chemical production**.
    - A key player in **sustainable global supply chains**.
- Supports India's broader **$5 trillion economy** vision and sustainable development goals.

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