



भारत सरकार

# National Action Plan on Sustainable Nitrogen Management (Learnings & Experiences)



**National Focal Point - INDIA**  
**Ministry of Environment, Forest & Climate Change**  
**Government of India**

# National Action Plan on Sustainable Nitrogen Management

- India established a **National Nitrogen Steering Committee** (NNSC) following UNEA resolutions on “Sustainable nitrogen management” (UNEA Resolution 4/14 and 5/2)

*To review the implementation of the Sustainable Nitrogen Management Resolution in various sectors and report periodically to MoEFCC on India's affirmative actions on the UNEA resolution*

- Composition of the Committee includes – Independent experts, Senior Officials from line-ministries/Pollution Control Boards, Representatives from Multi-lateral, Industries, Academia, Research Organisations
- NNSC to synthesizes the results related to smart nitrogen use solutions for sustainable nitrogen management in India.

# National Action Plan on Sustainable Nitrogen Management

- UNEP Working group circulated the zero draft template for development of Voluntary National Action Plan for Sustainable Nitrogen Management (NAP-SNM)
- A baseline was prepared by screening of existing policies addressing issues related to Nitrogen Management across sector
- Identification of significant action areas for each sector under consideration including the Policy interventions (ongoing / Proposed)
- NNSC examined the template provided by UNEP and developed a draft response for the NAP-SNM based on the inputs received from varied Ministries/Departments
- Draft action points under development as per the template of UNEP WG-SNM

1

## Ensuring leadership and coordination for nitrogen management at Government level

### Key sectors identified

- Agriculture,
- Livestock,
- Industry,
- Transportation,
- Wastewater
- Energy

Nodal agencies and officers were designated for each sector

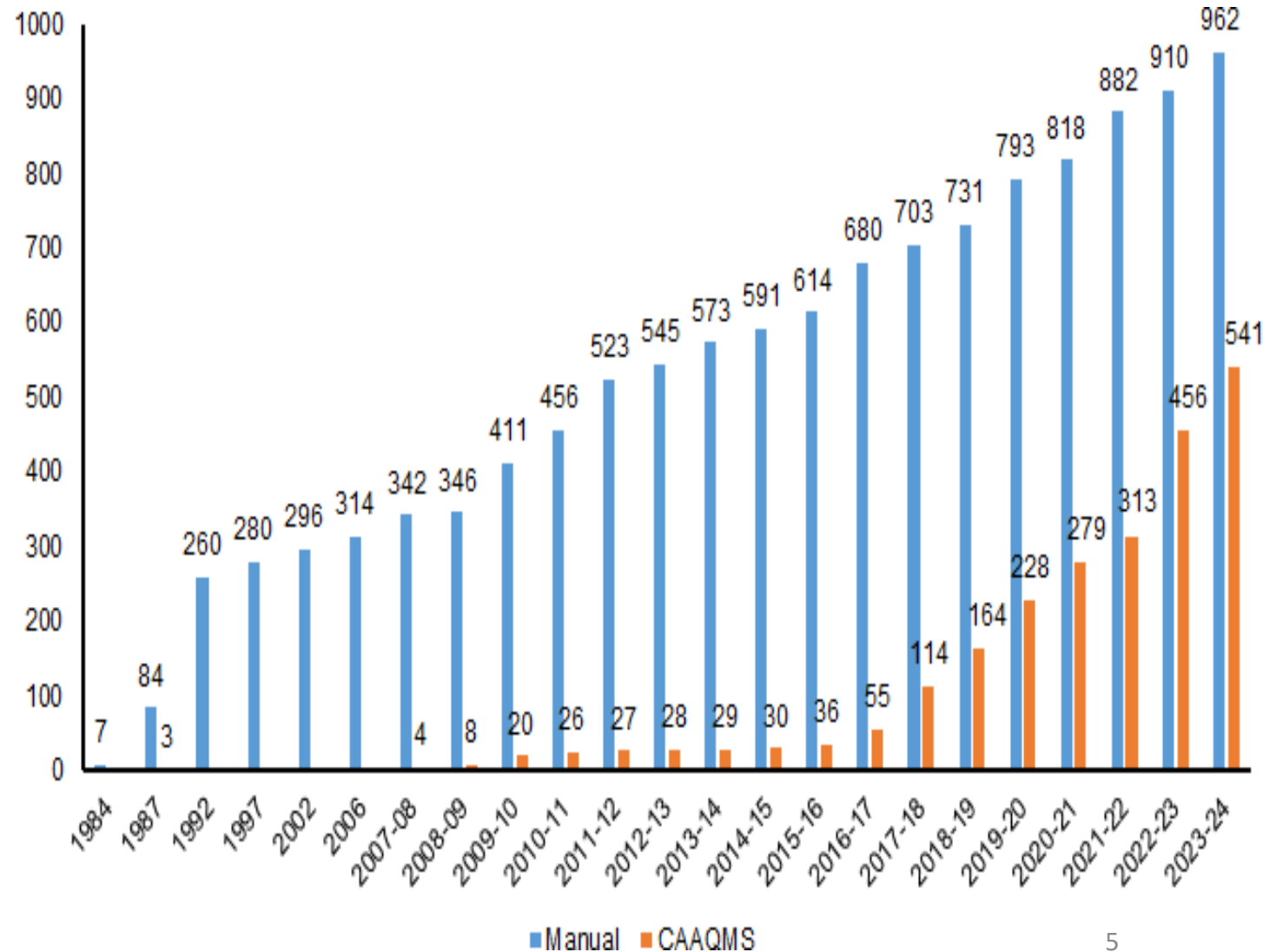
Sector specific template for inputs developed and information sought



# 2

## Establishing and Operating a Comprehensive Air Quality Network

- National Air Quality Monitoring Programme (NAMP)
- Data aggregated on dedicated web-portal with CAQMS data on real time basis
- Ammonia (NH<sub>3</sub>), is monitored at selected locations and being added to monitoring network under NAMP
- 120 cities are implementing city level action plans for improving air quality based on source apportionment studies
- Nitrogen oxides at some location, have been observed as critical precursor to secondary pollutants.



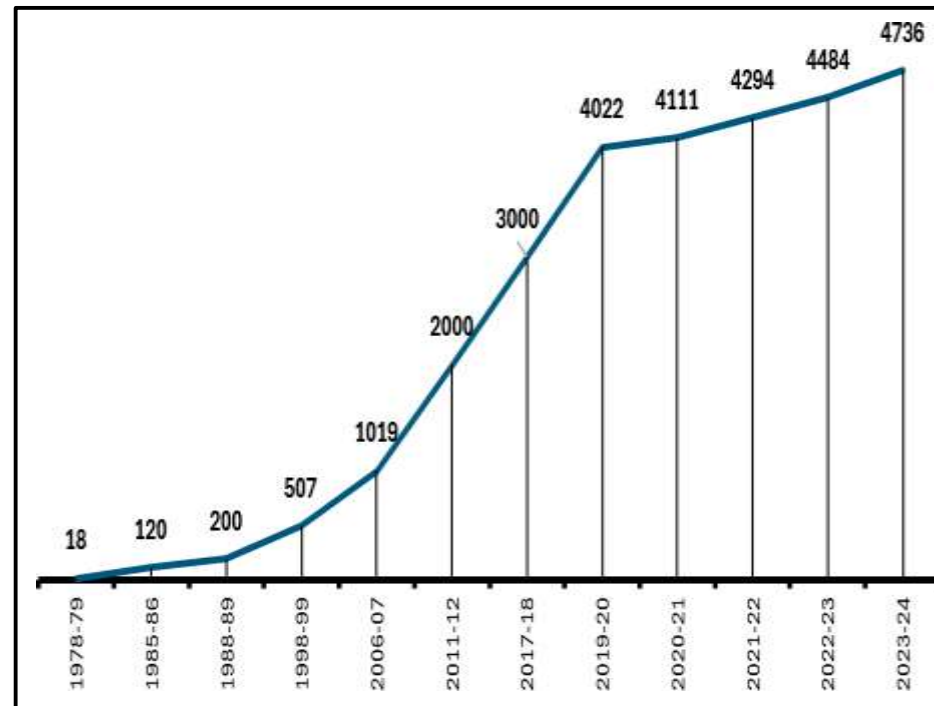
# 2

## Establishing and Operating a Comprehensive Water Quality Network

- National Water quality Monitoring Programme (NWMP) - 1978
- Manual and Real Time monitoring (daily, monthly and quarterly)
- R. Ganga at 112 locations & Real Time Monitoring at 76 locations.
- More than 56 location along the coast of India (Half-yearly)

### COMPREHENSIVE EFFORTS

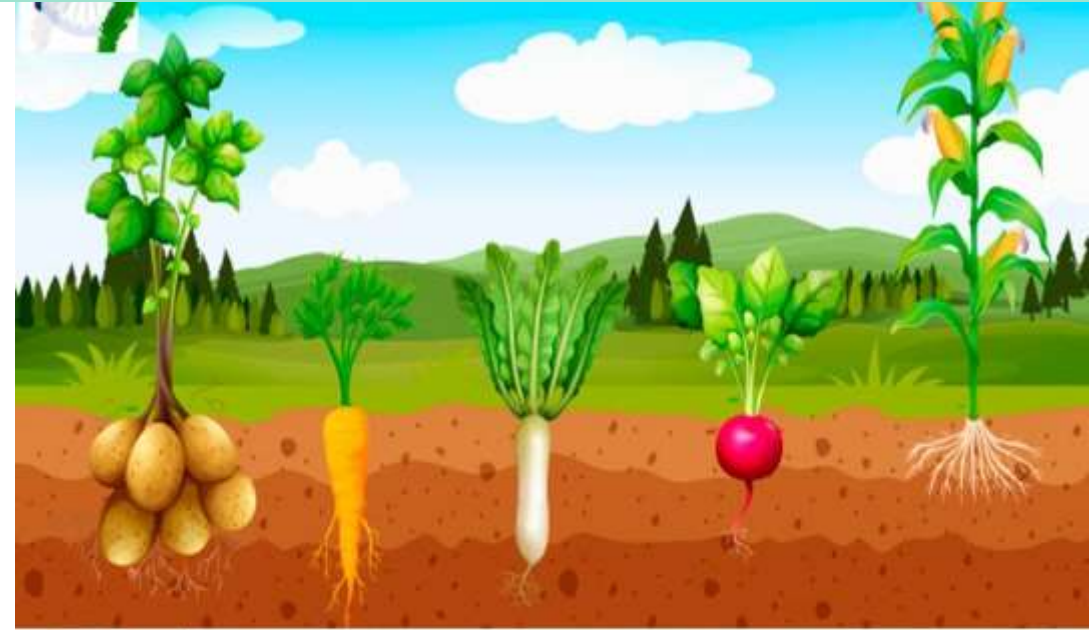
- Tracking & Analyzing data
- Categorizing Polluting River Stretches I to V
- Identification of River Stretches & continual evaluation
- Technically guiding action plans for restoration



## 3

## Preparing voluntary applied Guidelines / Codes of good practices on prevention and reduction of nitrates and ammonia emissions

- Promotion of **organic and natural farming** (National Project on Organic Farming (NPOF))
- Proper storage and scientific use of **livestock manure** to prevent nitrogen leakage into water bodies
- Development, adoption and promotion of new age fertilizers like **Nano urea**, to reduce leaching & increase nitrogen use efficiency.
- **Soil Health Card** to promote farm-specific fertilizer plans and maintaining details of soil records
- Guidelines for drone spraying of liquid fertilizers
- Crop Residue Management guidelines enabling efficient ex-situ management of paddy straw generated and avoiding burning



India ranks 1st in number of organic farmers & 9th in terms of area under organic farming



40,000 clusters are being assisted under Paramparagat Krishi Vikas Yojana covering an area of about 7 lakh ha



Production includes flax seeds, sesame, soybean, tea, medicinal plants, rice & pulses

## 4 Norms on wastewater treatment, reuse and discharge

- Policy to encourage use of treated wastewater as resources
- More than 30 large scale urban sewage treatment had made agreement with industries for reuse or treated sewage
- Use of treated sewage in organic farming is being promoted
- Treated sewage discharge norms (BOD – 10 mg/l, Total Nitrogen – 10 mg/l, Ammonia Nitrogen – < 5mg/l)
- Treated wastewater to be recycle/ reuse for Non-potable activities (flushing of toilets, fire protection, vehicle exterior washing, non-contact impoundments, horticulture, and the restoration of inland water bodies).
- Swachh Bharat Mission-Urban (SBM-U) 2.0 – Cascading use of treated sewage
- Promotion of Sewage Sludge as manure
- Promotion of Bio-composting of press-mud in sugar industries
- More than 1500+ sewage treatment Plants



## 5 Emissions norms on combustion

- Implementation of BS-VI norms (Reduced NO<sub>x</sub> emission Petrol: 80mg/km to 60 mg/km; Diesel vehicles: 250mg/km to 80mg/km.)
- Promotion of Electric Vehicles - incentives and policies support at all level
- National Clean Air Programme
- Emission norms for Industrial sectors
  - Low NO<sub>x</sub> burner in boilers and better fuel quality
  - Installation of inbuilt system for N<sub>2</sub>O abatement in Nitric acid plant
  - Thermal Power Plant
    - New Coal based
      - >500 MW – 300 mg/Nm<sup>3</sup>
      - <500 MW – 450 mg/Nm<sup>3</sup>
    - Gas Based
      - 50 mg/NM<sup>3</sup>
  - Existing Plants to retrofit control technologies to meet 450 mg/Nm<sup>3</sup>
- Environment Clearance before initiating new projects
- Monitoring & Compliances (Online and real-time > 6000 large Industries)

# 6

## Awareness campaigns on reducing nitrogen waste / pollution

- Capacity building & awareness component by community participation based outreach and consultation are inbuilt in Govt. Schemes/projects
- Fertilizer manufacturing industries / association have demonstrative program across the national, directly involving farmers and incentivize best practices on regular basis
- Campaign by Government department, NGOs for promotion of Organic farming through various schemes
- Mission Meri LiFE (Outreach > 800 million) promotes Behavior change and encourages organic farming, judicious use of resource, etc.
- Awareness cum regulatory provision for efficient management of fishing and aquaculture practices for control of Nitrogen pollution
- School curriculum includes importance of organic farming, nutrient management, impacts of chemical fertilizer etc.

## 7

# Training campaigns for farmers on sustainable use of fertilizers

- Indian Council of Agriculture Research (ICAR) imparts trainings, organizes front-line demonstrations programs to educate farmers on Soil health card, Use of Nano Fertilizers, reduce leaching, increase nitrogen use efficiency, etc.
- National Centre for Organic Farming (NCOF) imparts training for promotion of organic farming.
  - Farmers' Training, Orientation programs for officers / staffs of concerned departments
  - 30 Days Certificate course
  - ***Jaivik evam Prakratik Kisan Sammelan***
  - Stakeholder consultations/ conferences on Natural Farming
  - Awareness programmes across country to disseminate information on organic / natural farming
  - On- farm production and use of various kinds of organic and bio-fertilizers.
- Programs for coastal communities on Seaweed farming and its management leading to better nutrient management in coastal and marine environment
- Programs for operators of wastewater/sewage treatment plants for better output efficiency of WWTP/STP
- Programs on crop-specific and area-specific scientific agriculture practices including use of fertilizers

## 8

## Programmes for public investments on reducing nitrogen losses

- “PM - Programme for Restoration, Awareness, Nourishment and Amelioration of Mother Earth (PM-PRANAM)” - Incentivize farmers to reduce overall consumption of fertilizers for improving soil health and fertility and sustainable productivity
- Incentive to States to promote alternative fertilizers and balanced use of chemical fertilizers which provides **50% of subsidy savings** and passed on as a grant to the state that saves the money
- Faster Adoption and Manufacturing of (Hybrid and) **Electric vehicles** (FAME) scheme to promote Electric transport (PII – 1200 Million USD)
  - Purchase incentives,
  - Road tax exemption,
  - Income tax benefits,
  - Interest Subventions,
  - Registration fee exemption,
  - Scrapping incentives

## 9

# Scientific Technologies/ Advancements/ Policy Interventions for Reducing Nitrogen Losses



- India – 1<sup>st</sup> Nation to use Nano Urea, Specification notified  
Required less in quantity & reported 8% increase in crop yield on farmer field trails on 94 crops
- Production of Nano Urea since August, 2021 (> 5 Crore Nano Urea bottles) – target (2025) 44 crores Bottles/yr (eq. to 200 LMT of urea)
- 32 quality testing laboratories have been notified to ensure availability of good quality bio-fertilizers and organic fertilizers,
- Scrapping of 10/15 year vehicles
- Guidelines and regulation for Use of drone for liquid fertilizers
- Strengthening model-based studies to understand the balance of reactive nitrogen in the environment, and linking them with economic models to support evidence-based decision-making.

# Summary

## **Enhance Data Collection and Monitoring**

- Improve the accuracy and coverage of nitrogen-related data
- Robust monitoring systems

## **Strengthen Policies and Regulations**

- Develop and enforce policies and regulations for sustainable nitrogen management
- Ensure alignment with international standards and best practices

## **Promote Research and Innovation**

- Fund research programs focused on reducing nitrogen losses
- Encourage technological advancements and innovative solutions

## **Capacity Building and Training**

- Training programs for stakeholders on best practices
- Increase awareness and education on sustainable nitrogen management

## **Strengthen Collaboration**

- Strengthen partnerships between government, industry, Social Organisation and Academia
- Facilitate knowledge sharing and collaborative projects
- Incorporate new findings and feedback from stakeholders

**Thank  
You**

