

Draft South Asia Roadmap for Sustainable Nitrogen Management

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Nitrogen

N_r compounds—
essential for the very
existence of life on
this planet—



Current Status of Nitrogen pollution in South Asia

1. Population vs. Land Area

- South Asia: 1.9 billion people (25% of global population)
- **Land Area:** Only 4.8% of the world's total land area

2. Environmental Pressures

- South Asia faces severe environmental pressures
- Key issue: Ineffective management of nitrogen

3. Emission Increases (2000-2015)

- NH₃ (Ammonia) Emissions: Increased by 36%
- NO_x (Nitrogen Oxides) Emissions: Soared by 107%
- N₂O (Nitrous Oxide) Emissions: Rose by 36%

4. Fragmented Policies

- Multiple ministries handle nitrogen policies
- Lack of coordination among ministries hinders effective action

5. Coherent Policy Framework

- Urgent need for a unified policy framework
- Essential for sustainable nitrogen management

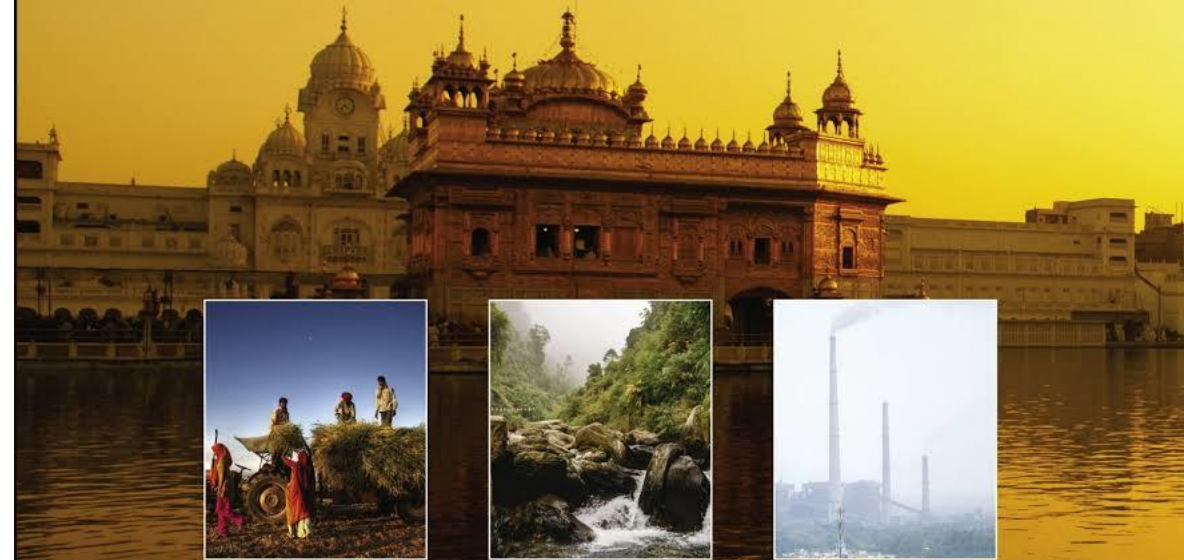
6. UNEA Resolutions

- Aligns with UNEA 4/14 and 5/24 resolutions
- Reinforces the importance of coordinated action



THE INDIAN NITROGEN ASSESSMENT

Sources of Reactive Nitrogen, Environmental and Climate Effects,
Management Options, and Policies



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Nitrogen Assessment

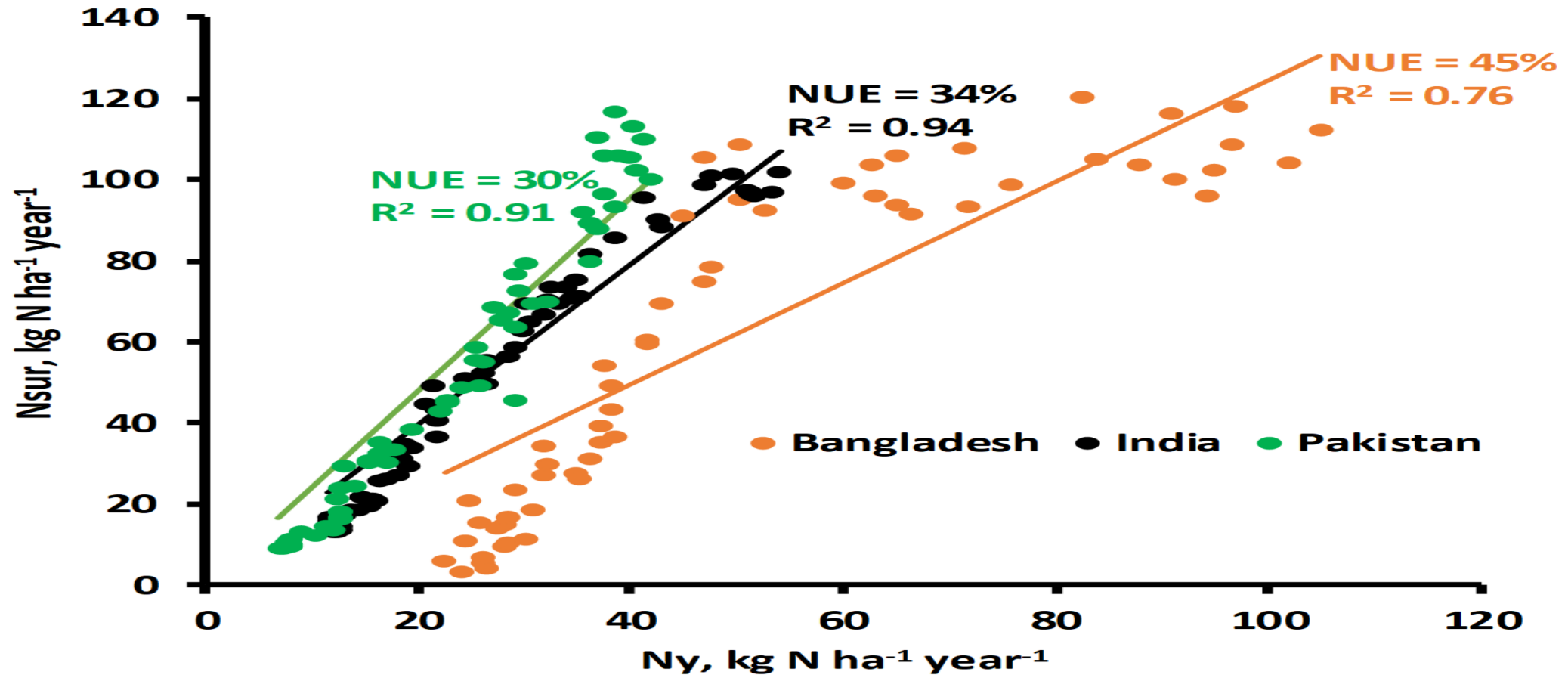
Pakistan as a Case-Study

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N use efficiency in South Asia



Halving N waste; Is it possible? Wayforward

- Science Solutions
 - Farm management solutions
 - Genetic solutions (Enhancing NUE)
 - Efficient fertilizers development
 - Efficient and precise use of fertilizers
 - Education and awareness with logics

More ambitious,
transformative change

Dynamic policies are
needed

Are these available?

Key elements of the South Asia Nitrogen Management Roadmap

1. Background

- | Facilitated by SACEP and SANH
- | Based on a joint report on South Asia's nitrogen policy landscape

2. Scope

- Involves all eight-member countries in South Asia

3. Vision

- Sustainable Nitrogen Future
- Healthy environment & Climate-resilient society
- Economically effective nitrogen benefits for all

4. Mission

- | Promote national coordination
- | Encourage regional cooperation
- | Catalyze coordinated actions by governments
- | Involve all stakeholders, including the scientific community
- | Support evidence-based policy and decision making
- | Focus on environmental protection and natural resource conservation through efficient nitrogen use

Objectives

- **Reduce adverse effects of nitrogen pollution** to the levels that are not harmful to the environment and human health
- **Enhance the efficiency of nitrogen use** to harness multiple environmental benefits,
- **Improve food supply, reduce food wastage and save money** enhancing food waste management, and promoting recovery and reuse of existing nitrogen resources
- **Promote innovation in sustainable nitrogen management** that can contribute to economic development while building smart connections across the nitrogen cycle
- **Secure adequate means of implementation** including financial resources, capacity building, technical and scientific cooperation

Targets



1. Shared Targets across society

based on Kunming Montreal BDF agreement and Columbo Declaration with a focus on at least halving wasteful nitrogen pollution, while simultaneously recognizing the multiple co-benefits



Reduced nitrogen pollution from all sources



Incentivize sustainable nitrogen management

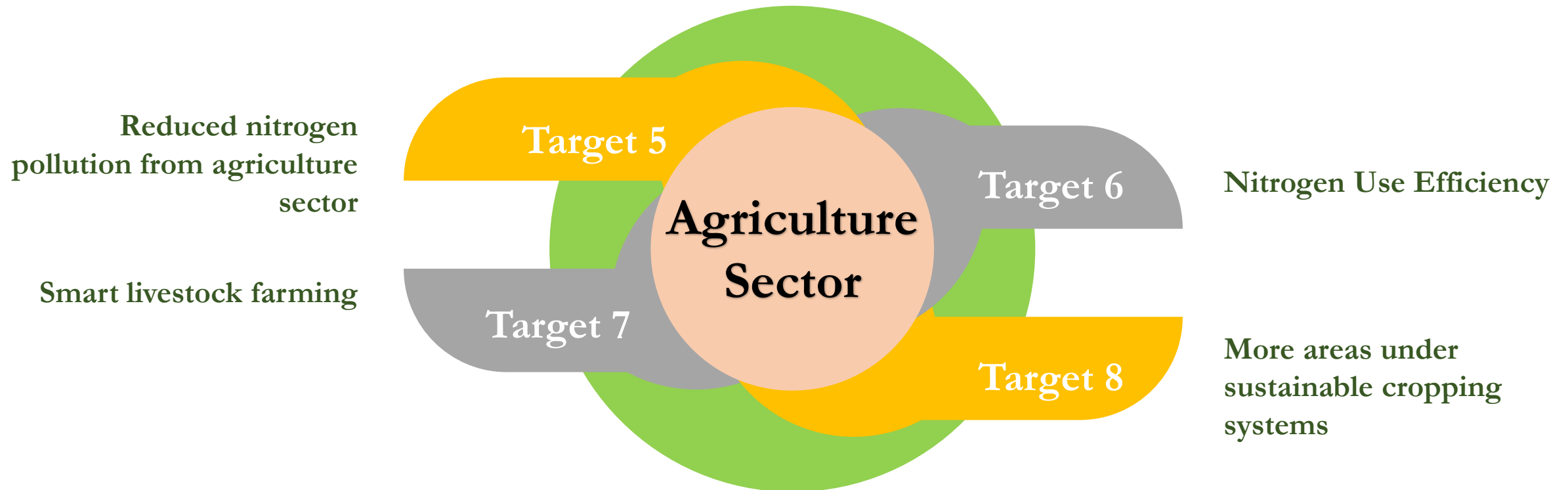


Benefit of actions identified

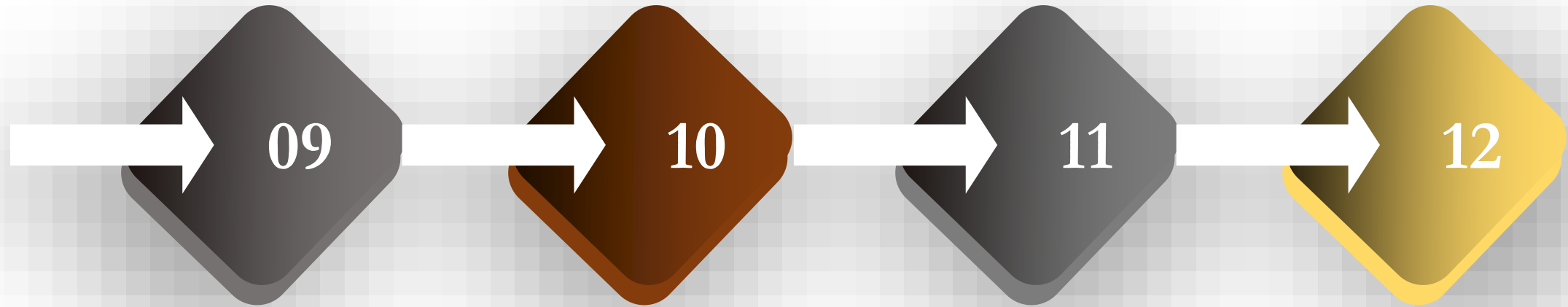


Improved public awareness

Sector Based Targets



Sector - Transport, energy and Industry



**Reduced NO_x
emissions from
transport and
industry**

**Increase the
share of clean
energy**

**Reducing energy
related nitrogen
emissions**

**Regional
cooperation on
research and
technology**

Wastewater

Target 13:

Improved wastewater management

Target 14:

Established standards of nutrients

Target 15:

Reduced nitrogen pollution from coastal and marine sources and activities

CONSUMPTION



Target 16

Dietary change and reduction of food waste

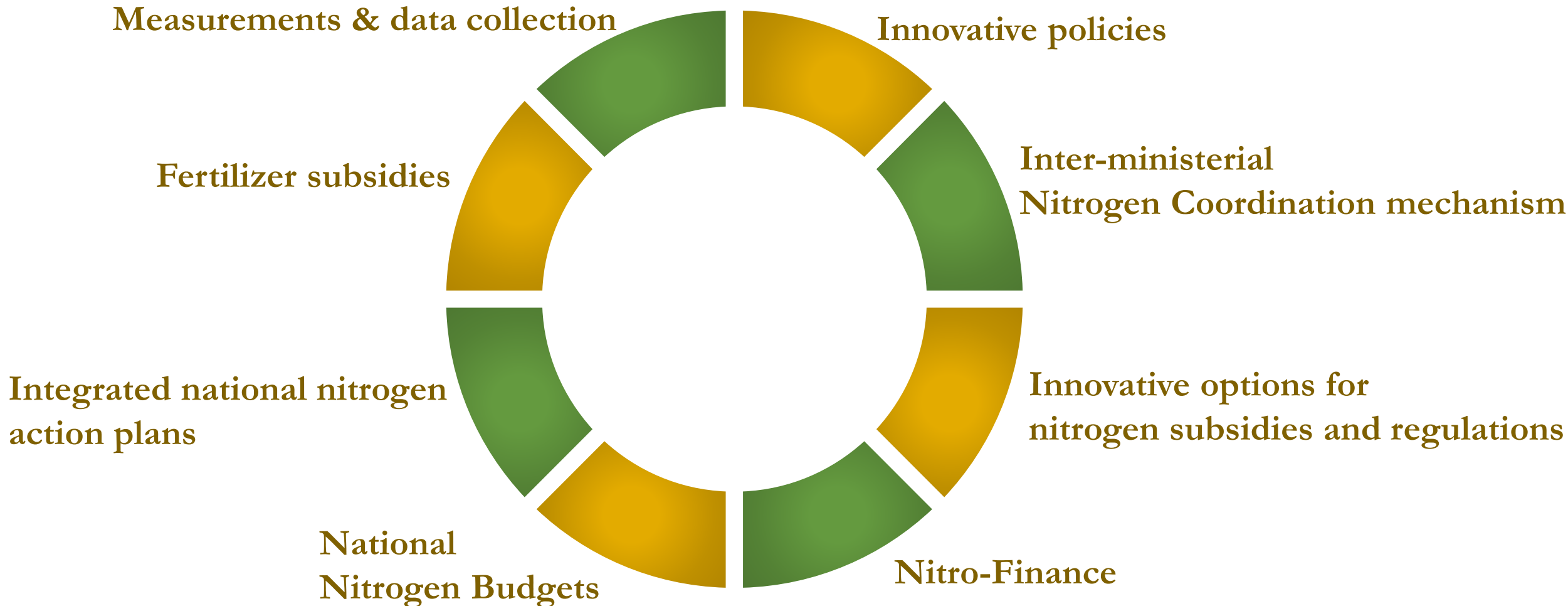
MUNICIPAL SOLID WASTE AND RECYCLING



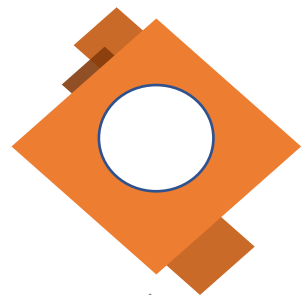
Target 17

Reduced emissions from organic residues

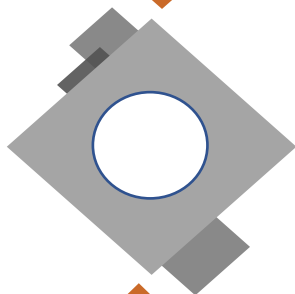
Key actions : Shared actions across the society



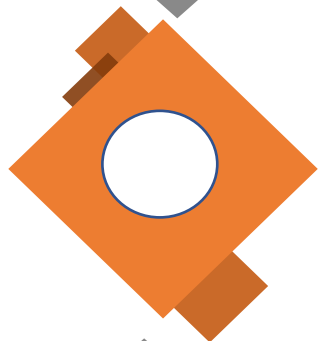
Key actions: Agriculture Sector



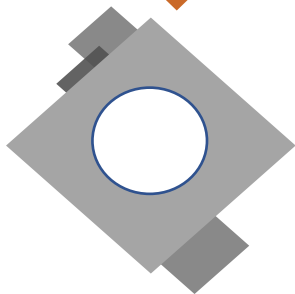
Use of N₂ fixing crops



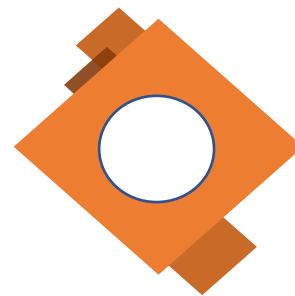
Make better use of on-farm nutrient management



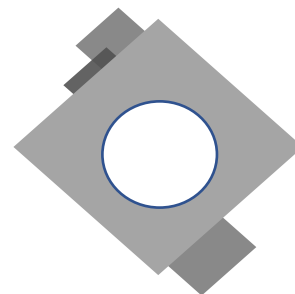
Promote the use of fertilizer deep placements, enhanced efficiency fertilizers and site based fertilizer guidance



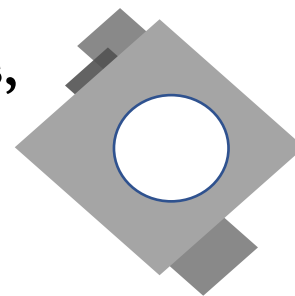
Livestock housing, Fee management, and manure management



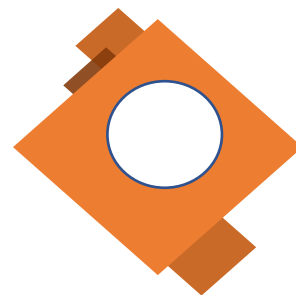
Reform and enforce the fertilizer regulations



Reducing N loss from aquaculture (adoption of techniques, nitrogen inputs, guidance)

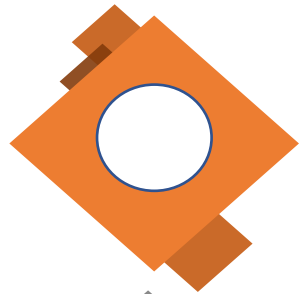


Research and evidence gathering, Assessment of barriers

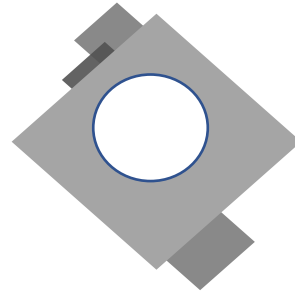


Reduce burning of manures/crop residues

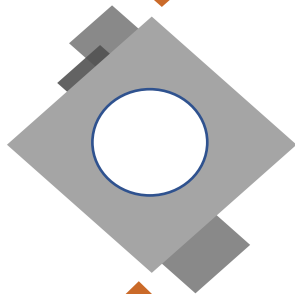
Key actions: Transport and Industry Sector, wastewater management



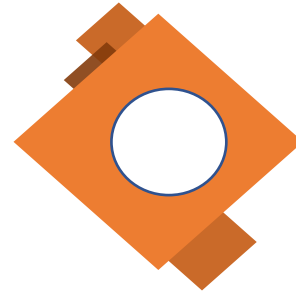
Develop sustainable transportation systems



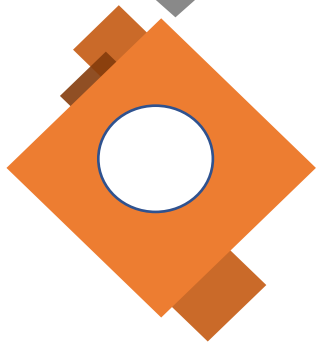
Develop nutrient recovery technologies



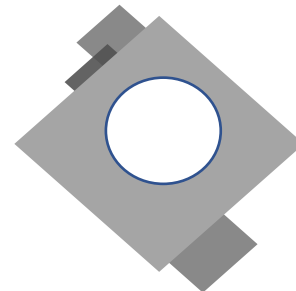
Strengthen emissions standards



Improve marine and coastal water quality standard and pollution reduction strategies



Improve wastewater management strategies



Develop best management practices to restore and maintain coastal water quality



Resources/Residues/Waste and Recycling

- Assess the value of nitrogen wasted
- Implement zero burning of forestry and crop biomass
- Implement recovery of organic residues/waste to drive the circular economy
 - Implement pilot projects for the nitrogen recovery



Consumption

- Understand the value of nitrogen loss through food production and consumption
- Develop integrated food policy for diet change
- Reduce of food waste



Exchange of knowledge and best practices

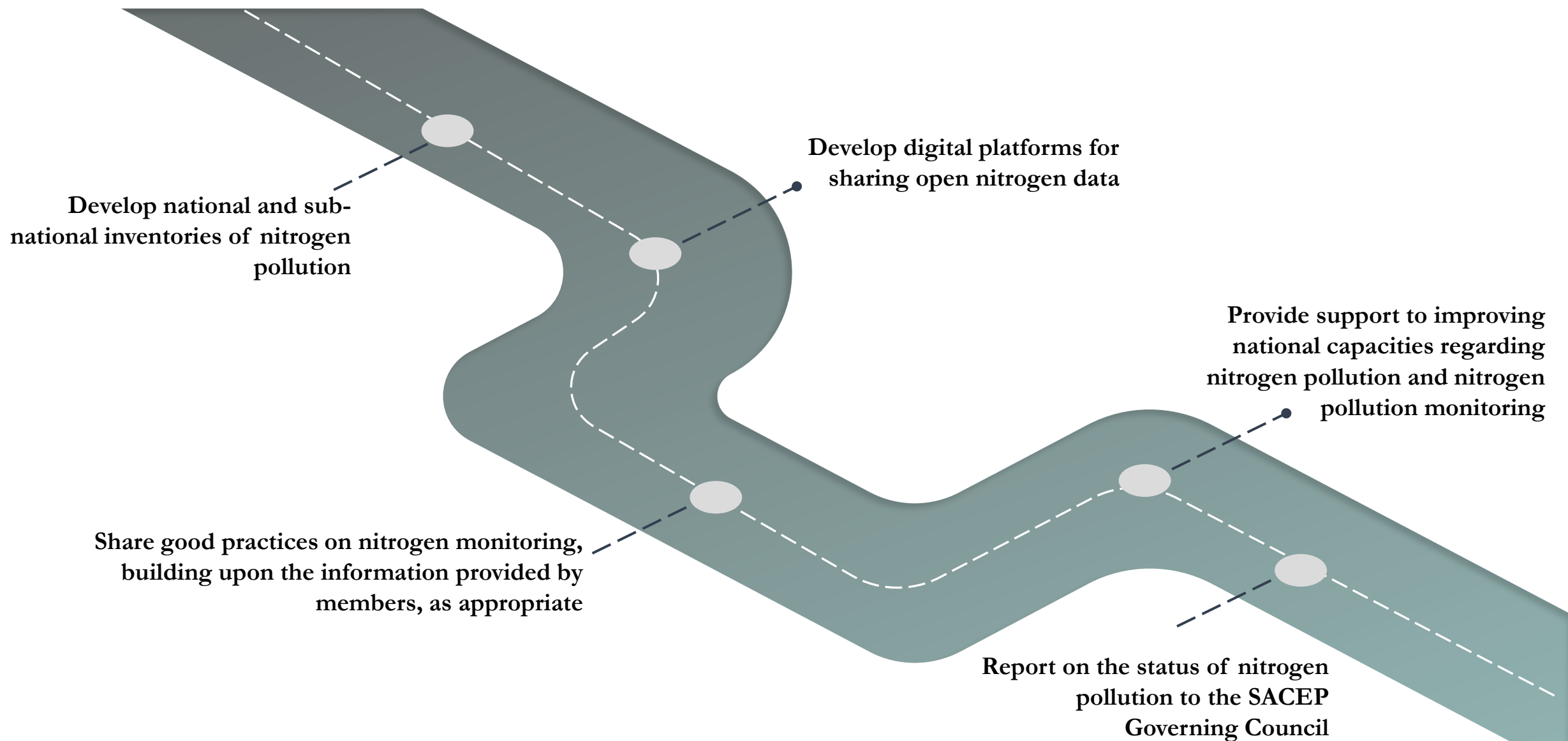


Public awareness/capacity building and technical support

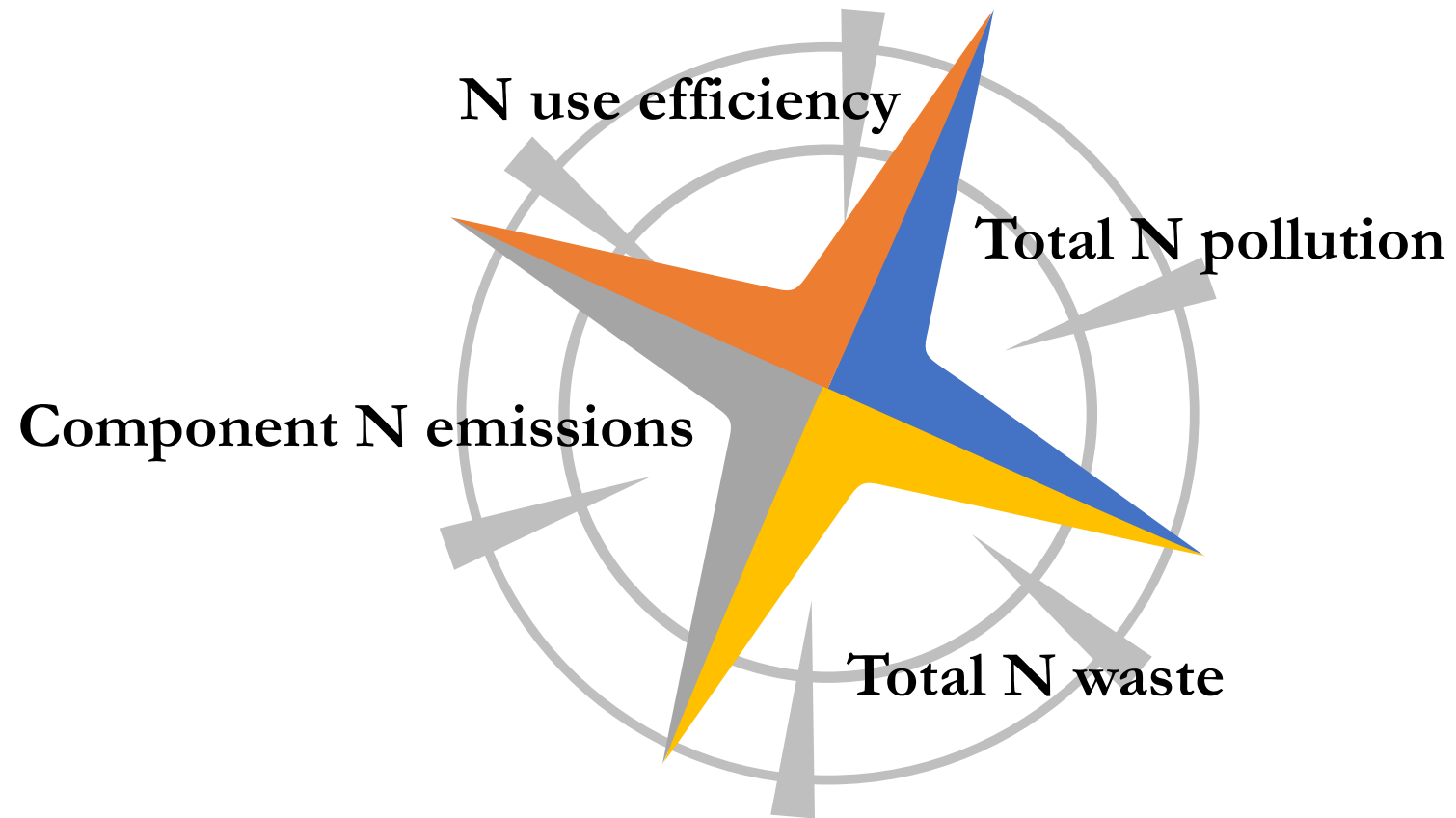


Partnership

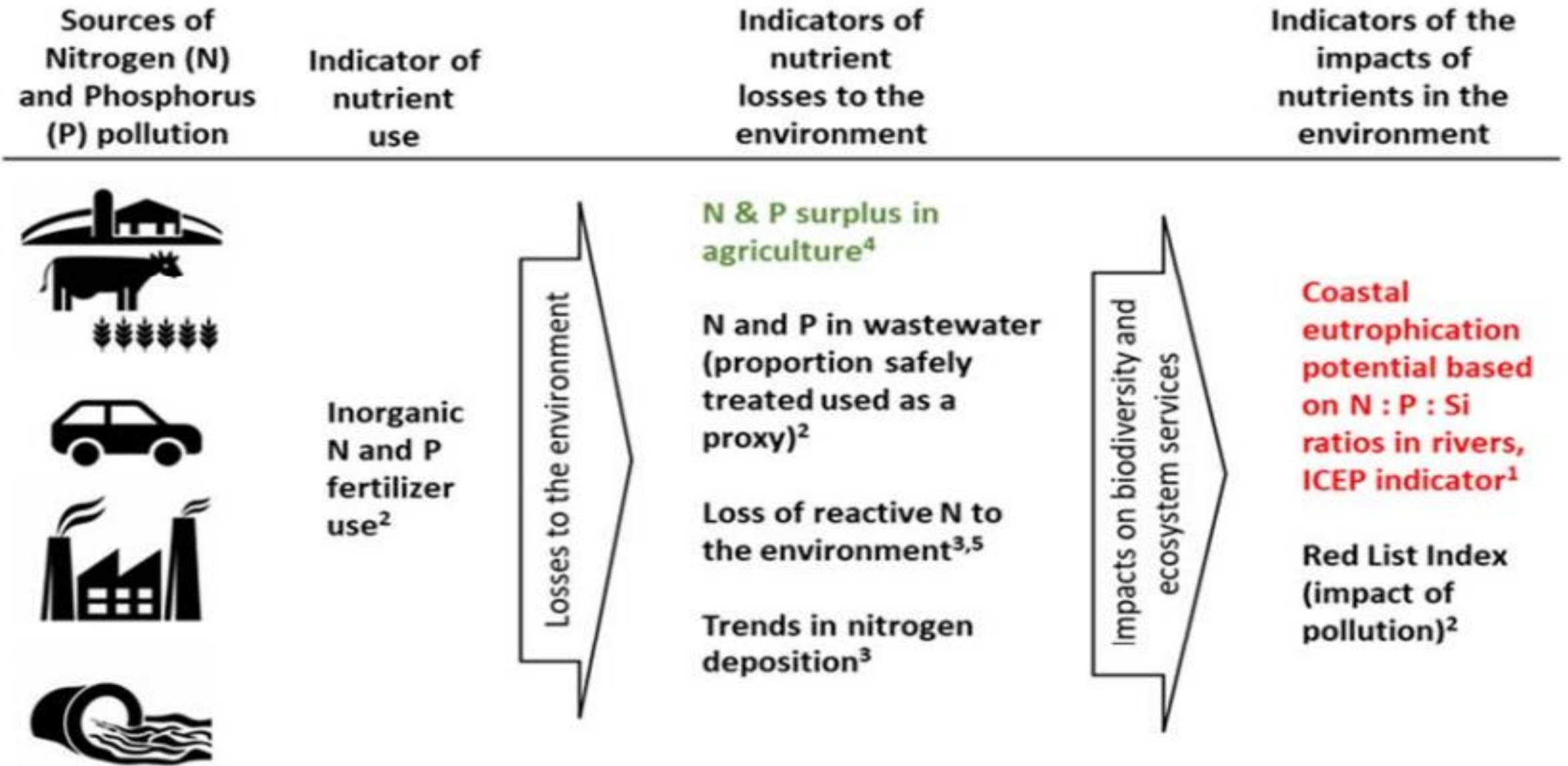
Monitoring, evaluation and reporting



Indicators






A



FINANCIAL SUPPORT



- **National Funds**
 - **Economic instruments like taxes, fees, debt, funds for nature swaps**
 - **Private sector investments**
 - **Market based solutions**
 - **Development banks investment**
 - **External Funds**
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Thank you all

