Rising Urban Rats and Global Warming Study

Why in News?

A study examined how urban rat populations are affected by global warming, human density, and food waste.

What are the Key Points?

• Rat populations rose in 11 of 16 cities studied.

• Warmer temperatures help rats survive, increasing disease risks.

• The study recommends improved waste management and public awareness.

What are Rodents?

- **Definition**- Rodents are small mammals belonging to the order Rodentia, characterized by a single pair of continuously growing incisors in each jaw.

What are the Common Species in India?

- **House Rat (*Rattus rattus*)** - Often found in urban settings, particularly in homes and commercial establishments.
- **Norway Rat (*Rattus norvegicus*)** - Prefers subterranean habitats like sewers and basements.
- **Bandicoot Rat (*Bandicota bengalensis*) -** Commonly inhabits agricultural fields and urban areas.
- **Habitats** - These rodents thrive in diverse environments, including residential buildings, commercial spaces, agricultural fields, and urban infrastructures.

What are the Factors that led to the rising urban rat population?

- **Global Warming -** Rising temperatures due to global warming create favourable conditions for rats.
- **Urban heat island –** It effect exacerbates this, allowing rats to survive and reproduce more efficiently.
- **Warmer temperatures -** lead to lower mortality rates among rats,

enabling them to stay active for longer periods.

- **Human Density -** High population density in cities leads to increased food waste and shelter opportunities for rodents.
- More urban structures provide numerous hiding and breeding spaces for rats.
- **Food Waste -** Abundant food waste supports a growing and thriving rat population.
- More waste means a steady and accessible food supply, ensuring better survival and reproduction rates.

What are the Legal Framework for Controlling Rodent Pests in India?

The Insecticides Act, 1968

- **Purpose** - Regulates the import, manufacture, sale, transport, distribution, and use of insecticides, including rodenticides.
- **Implementation** - Accompanied by the Insecticides Rules, 1971, which provide a structured framework for enforcement.

The Destructive Insects and Pests Act, 1914

- **Objective** - Empowers the government to prevent the introduction and spread of pests and diseases destructive to crops and plants.
- **Provisions**- Allows for quarantine measures and control strategies against both indigenous and exotic pests.

The Environment Protection Act, 1986

- **Scope** - Provides a framework for the protection and improvement of the environment, indirectly influencing rodent control through waste management regulations.

The Food Safety and Standards Act, 2006

- **Mandate** - Ensures the safety and hygiene of food products, which includes measures to prevent rodent contamination in food storage and processing units.

What are the Impacts of Rodent Pests, Especially in Urban Areas?

Public Health Risks

- **Disease Transmission** - Rodents are vectors for diseases such as leptospirosis, hantavirus, and salmonellosis, posing significant health risks

in densely populated urban areas.

Economic Damages

- **Infrastructure Damage** - Rodents gnaw on electrical wiring, leading to potential fire hazards and costly repairs.
- **Food Contamination** - Contamination of stored food products results in economic losses for businesses and increased public health concerns.

Environmental Impact

- **Biodiversity Threats** - Rodent infestations can disrupt local ecosystems, leading to a decline in native species and overall biodiversity.

What are Control Measures and Shortcomings in the Existing Framework?

Current Control Strategies

- **Chemical Control** - Use of rodenticides regulated under the Insecticides Act, 1968.
- **Biological Control** - Encouraging natural predators, though less effective in urban settings.
- **Physical Control** - Implementation of traps and barriers.
- **Sanitation and Waste Management** - Proper waste disposal to eliminate food sources.

Shortcomings

- **Resistance Development** - Over-reliance on chemical rodenticides has led to resistance in rodent populations.
- **Lack of Integrated Approach** - Absence of a comprehensive Integrated Pest Management (IPM) strategy in urban planning.
- **Inadequate Public Awareness** - Limited community engagement and awareness about effective rodent control measures.

What are steps to be taken?

Integrated Pest Management (IPM)

- **Implementing**- IPM strategies that combine biological, chemical, and physical control methods.
- **Policy Support** - Formulating policies that promote IPM practices in urban planning and development.

Strengthening Legal Frameworks

- **Regular Updates** - Periodic review and updating of existing laws to address emerging challenges in rodent control.
- **Enforcement -** Enhancing the enforcement mechanisms to ensure compliance with rodent control regulations.

Public Participation and Awareness

- **Community Engagement -** Encouraging public participation in sanitation drives and rodent control programs.
- **Educational Campaigns -** Launching awareness campaigns to inform citizens about preventive measures and the importance of rodent control**.**

Research and Development

- **Innovative Solutions-** Investing in research to develop new, eco-friendly rodent control methods.
- **Monitoring and Surveillance -** Establishing robust systems for monitoring rodent populations and assessing the effectiveness of control measures.

What Lies ahead?

- The study highlights significant concerns regarding urban rat populations as influenced by environmental and social factors.
- Addressing these challenges requires coordinated efforts in management and public involvement to mitigate risks.

To Solve Mains question – **Click here**

Reference

Indian Express | Rodent Pests