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1. The Grave Threat of Antimicrobial Resistance (AMR)

Overview of Antimicrobial Resistance

Antimicrobial resistance (AMR) occurs when microbes evolve into drug-resistant "superbugs" due to the misuse or overuse of antibiotics. This growing problem in India poses significant health risks, especially for patients with multiple diseases.

Key Pathogens in India

A recent report by the Indian Council of Medical Research (ICMR) highlights the most common pathogens found in patients:

- **E. coli:** Causes gut infections.
- **Klebsiella pneumoniae:** Can cause pneumonia and urinary tract infections.
- **Acinetobacter baumannii:** Often responsible for hospital-acquired infections.

Global Concerns and WHO's Guidance on AMR

The World Health Organization (WHO) issued its first-ever guidance on antibiotic pollution from manufacturing, which is contributing to the spread of AMR. This threatens the effectiveness of antibiotics globally, including medicines produced at manufacturing sites.

Why AMR is Increasing

1. Individual Misuse of Antibiotics

Many people in India misuse antibiotics by taking them for viral infections like the flu, where they are ineffective. This increases resistance in the population.

2. Doctors' Prescribing Practices

Doctors often prescribe broad-spectrum antibiotics that treat a wide range of infections, contributing to resistance. A report from the National Centre for Disease Control found that 71.9% of patients were prescribed antibiotics, with over half being used to prevent, not treat, infections.

3. Lack of Diagnostics

Doctors frequently prescribe antibiotics based on symptoms rather than confirming the cause with diagnostic tests, leading to unnecessary or inappropriate antibiotic use.

4. Pharmaceutical Pollution

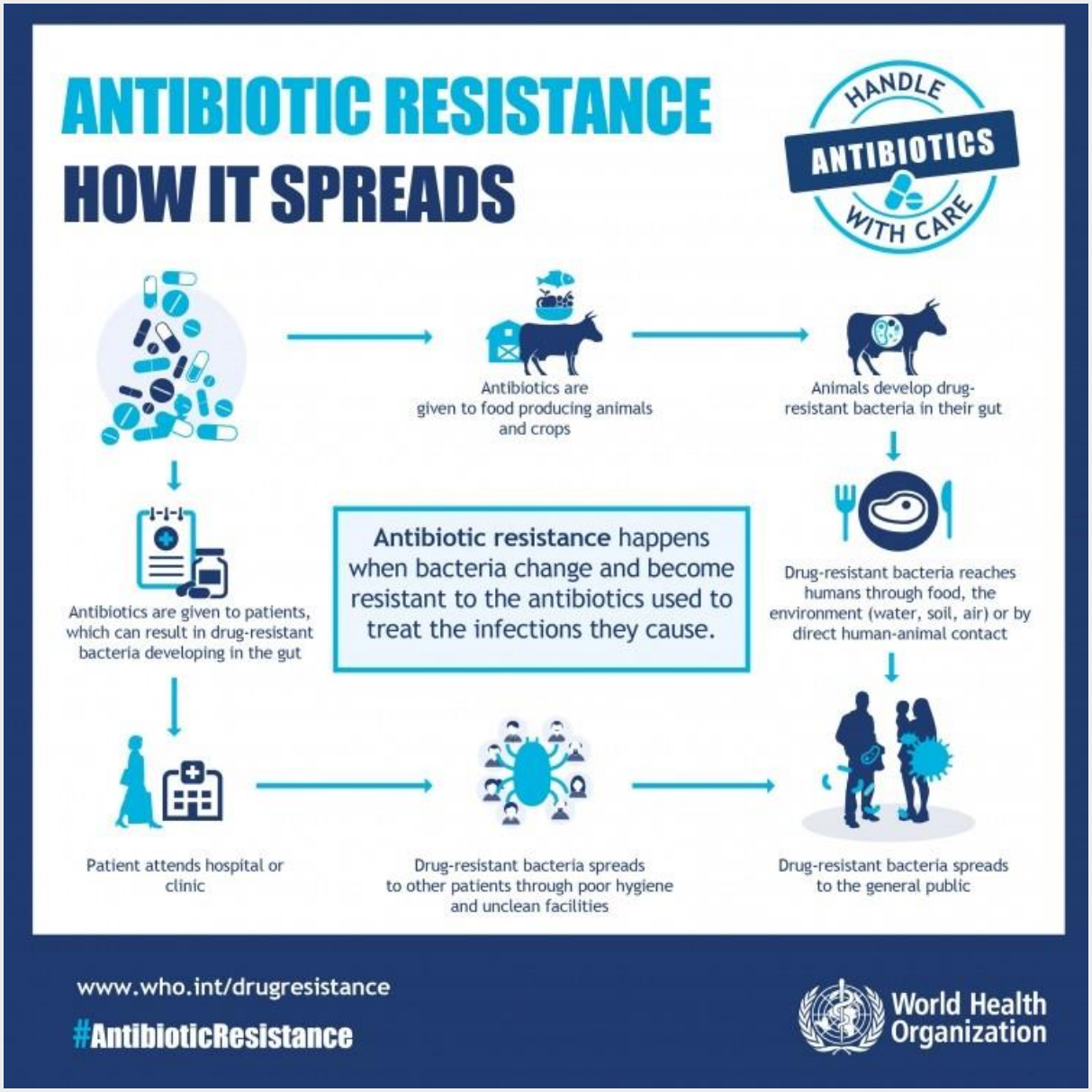
The WHO's guidelines on antibiotic manufacturing highlight the environmental impact of pharmaceutical waste, which can promote the development of drug-resistant bacteria.

Common Resistant Pathogens in India

• **E. coli:** Resistance to the antibiotic carbapenem dropped from 81.4% in 2017 to 62.7% in 2023.

• **Klebsiella pneumoniae:** Resistance to carbapenem fell from 58.5% to 35.6% over the same period.

• **Acinetobacter baumannii:** Resistant to 88% of carbapenem treatments in 2023.



Measures to Combat AMR

1. Prevention

Hygiene improvements, sanitation, and vaccinations can reduce infections and, consequently, the need for antibiotics.

2. Education of Doctors

Doctors should use antibiotics judiciously, reserving stronger medications for severe hospital-based infections and encouraging diagnostic tests before prescribing.

3. Regulation of Pharmaceutical Manufacturing
Stronger regulations are needed to control antibiotic pollution from manufacturing facilities, which contributes to the spread of resistance.

Relevance: GS Prelims & Mains Paper III; Science & Technology
Source: Indian Express

2. Controversy Over Mumbai's Salt Pans: Why These Lands Matter

Introduction
The recent decision to transfer 256 acres of salt pan land in Mumbai to the Dharavi Redevelopment Project Pvt Ltd (DRPPL), a joint venture between Adani Realty and the Maharashtra government, has sparked controversy. Opposition leaders and environmentalists argue that this move could harm Mumbai's fragile ecosystem.

Source: Downtoearth

What are Salt Pan Lands?
Salt pans are low-lying areas where seawater accumulates and evaporates, leaving behind salt and minerals. These lands, along with mangroves, are crucial in protecting Mumbai from flooding. According to the 2011 Coastal Regulation Zone (CRZ) notification, these ecologically

sensitive areas fall under the CRZ-1B category, where economic activities other than salt extraction and natural gas exploration are restricted.

Mumbai's Salt Pan Lands at a Glance

Mumbai has approximately 5,378 acres of salt pan land, nine times the size of Dharavi slum. A 2014 study by the state government found that 1,672 acres of this land could be developed, with about 31% located in residential and commercial belts. Nationally, 60,000 acres of salt pan lands are spread across Maharashtra, Andhra Pradesh, Tamil Nadu, Odisha, Gujarat, and Karnataka.

Why are Mumbai's Salt Pan Lands at Risk?

In land-scarce Mumbai, salt pans are one of the few undeveloped areas. Successive state governments have sought to acquire these lands from the Centre for development projects, particularly for low-cost housing. Former Chief Minister Devendra Fadnavis proposed using 400 acres for relocating slum dwellers, but his plans were paused under Uddhav Thackeray's leadership. The current Mahayuti government has resumed efforts to build affordable housing on salt pan lands.

Environmental Concerns

Environmentalists warn that construction on salt pan lands could increase the risk of flooding, especially in Mumbai's eastern suburbs. These areas act as natural water catchments during heavy rains and high tides, preventing flooding. Covering these lands with buildings could submerge neighborhoods like Vikhroli, Kanjurmarg, and Bhandup.

Impact on the Ecosystem

Salt pans, along with mangroves, play a critical role in protecting Mumbai from natural disasters and serve as habitats for various species of birds and insects. Critics argue that the government’s development plans ignore the ecological value of these lands and the threats posed by climate change.

Concerns for Slum Dwellers

There are questions about the suitability of salt pan lands for affordable housing. Environmentalists argue that relocating slum dwellers to low-lying, flood-prone areas could compromise their quality of life. Additionally, the high costs of making these lands habitable may render the project financially unviable.

Conclusion

The ongoing controversy highlights the tension between development needs and environmental conservation in Mumbai. The debate over salt pan lands underscores the importance of balancing urban growth with ecological sustainability. In late August, Vietnam and the Philippines agreed to enhance defense cooperation, focusing on maritime security. This development came after Vietnam’s Defense Minister Phan Van Giang met with his Philippine counterpart, Gilberto Teodoro, in Manila. Both ministers signed letters of intent to boost maritime and disaster response collaboration and committed to resolving disagreements peacefully under international law.

Relevance: GS Prelims;

Source: Indian Express

3. GNSS: The New Satellite-Based Highway Toll Collection System

Introduction

India is set to introduce the Global Navigation Satellite System (GNSS) for toll collection on highways, aiming to replace the existing FASTag system. This system will allow vehicles to pay tolls based on the distance traveled, eliminating the need to stop at toll plazas.

How GNSS Works

Vehicles equipped with GNSS will have their movement tracked by satellite, and tolls will be calculated based on the distance covered. This is a shift from the current system where drivers pay fixed toll amounts. Vehicles can pass through designated GNSS lanes without stopping for a boom barrier, as required in the FASTag system.

Implementation Timeline

GNSS tolling is expected to be introduced by April 2025. Initially, it will run alongside the existing FASTag system. The Ministry of Road Transport and Highways (MoRTH) has already amended rules to accommodate GNSS tolling, and pilot projects have been completed on highways in Karnataka and Haryana.

On-Board Unit (OBU) Installation

For GNSS tolling, vehicles will need to be fitted with a non-transferable "on-board unit" (OBU). These OBUs may eventually come factory-fitted in new vehicles, similar to the current FASTag installation process.

Benefits of GNSS

The GNSS system is expected to reduce congestion at toll plazas, as vehicles will no longer need to stop to have their tolls scanned. This system could significantly cut down wait times at toll booths, which currently cause traffic pile-ups and delays due to the time taken for FASTag barcode scanning.

Penalties for Non-GNSS Vehicles

Vehicles without GNSS OBUs that enter GNSS lanes will face penalties, including paying double the toll amount. This is designed to encourage wider adoption of the new system.

What Happens to FASTag?

FASTag will continue to operate alongside GNSS during the initial phase. However, as GNSS adoption increases, all toll lanes will eventually be converted to GNSS lanes. FASTag, which uses RFID technology, has been the primary toll collection method in India since 2015 and remains mandatory for toll payments.

Conclusion

The GNSS-based toll collection system is set to modernize India's highway tolling infrastructure, offering a more efficient, distance-based tolling system that reduces traffic congestion at toll plazas.A Delhi court has granted interim bail to Lok Sabha MP Sheikh Abdul Rashid (Engineer Rashid) until October 2, allowing him to campaign for the Jammu and Kashmir Assembly elections. Rashid, who has been in Tihar Jail since 2019 in connection with a terror funding case, won the Baramulla Lok Sabha seat as an Independent candidate.

Relevance: GS Prelims & mains Paper III; Economics
Source: The Hindu