The Challenge of Anti-Microbial Resistance

Why in news?

Anti-Microbial Resistance (AMR) is one of the biggest challenges which threatens the global public health.

What is AMR?

- **Antimicrobials**- It includes antibiotics, antivirals, antifungals and antiparasitics that are medicines used to prevent and treat infections in humans, animals and plants.
- Anti-Microbial resistance occurs when bacteria, viruses, fungi and parasites change over time and no longer respond to medicines making infections harder to treat.
- It also increases the risk of disease, leads to severe illness and death.

World Health Organisation (WHO) has declared that AMR is one of the top 10 global public health threats facing humanity.

Present Situation of AMR

- **Global-** In 2019, 1.*27 million deaths* were directly attributed to drug-resistant infections globally.
- By 2050, up to 10 million deaths could occur annually.
- If unchecked, AMR could *save US$ 3.4 trillion off GDP annually* and push 24 million more people into extreme poverty in the next decade.
- As per Lancet report, globally AMR is killing more people than AIDS or malaria.
- **India**- India has the *highest infectious disease burden* in the world, including infections due to multi-resistant pathogens.
- India has been referred to as ***AMR capital of the world.***
- It is also the *world's largest consumer of antibiotics* in terms of total volume.

What are the causes of AMR?

- **Unregulated access to antibiotics-** Use of antibiotics in animal husbandry, dairying, and poultry sectors enters the food chain of other organisms and human beings naturally become victims to it.
- 3economic sector value chains profoundly influence AMR's development and spread - *Pharmaceuticals and other chemicals, Agriculture and food, Healthcare.*
- **Usage of antibiotics-** Irrational and improper use of drugs leads to under-use and over use of antibiotics.

- **Lack of hygiene-** Effluents and waste from pharmaceutical industry, healthcare facilities and animal husbandry leads to the spread of microbes.
- **Lack of awareness-** It leads to misuse of antibiotics resulting in a major public health threat.
- **Containment of COVID-** The entire focus of health sector is shifted to the management and containment of COVID, this had impact on public health programs.

What are the issues with AMR?

- **Impact on Health sector-** It undermines the advancement made in the health sector and threatens the ability to treat common infection.
    - For example, Multi Drug Resistant Tuberculosis (MDR-TB) is increasing at an alarming rate.
- It makes the treatment expensive and costly which people cannot afford in the long run.
- It will lead to increase in mortality rate ultimately leading to a global health challenge.
- **Impact on Environment-** Dumping of effluents and waste from pharma and health sector industry affects the environment.
- ***Superbugs*** can be created due to the global spread of multi and pan resistant bacteria which cause infections that are not treatable with existing AMR.

> *"AMR challenges cannot be understood or addressed separately from the triple planetary crisis – the crisis of climate change, the crisis of nature and biodiversity loss, and the crisis of pollution and waste"*
>
> *- UNEP Executive Director Inger Andersen*

What steps were taken to contain AMR?

International efforts

- **Global-One Health Approach:** A Quadripartite initiative of UNEP, WHO, FAO and World Organisation for Animal Health that promotes best practices to reduce the level of AMR.
- **AMR Multi stakeholder Partnership Platform-** An inclusive international and multi stakeholder approach.
- **Global Action Plan on AMR-** It is comitted to the development and implementation of multisectoral national action plans which was launched by World Health Assembly in 2015.
- **World Antibiotic Awareness Week-** A global campaign that aims to raise awareness of AMR worldwide.
- **Global Anti-Microbial Resistance and Use Surveillance (GLASS) –** Launched by WHO in 2015 to strengthen AMR surveillance.
- **Muscat Ministerial Manifesto**- It has 3 goals - to protect the efficacy of

antimicrobials and curb the development of AMR worldwide, reduce environmental pollution and lower the spread of AMR.
- **Access, Watch and Reserve (AWaRe)** – An initiative of WHO that takes into account the impact of different antibiotics.

National efforts

- **National Action Plan on AMR (NAP-AMR) for 2017-2021** addresses 6 critical issues.
- The country is in the process of updating its NAP-AMR for the period 2022-2026 through an extensive consultative process.
- The Indian Council of Medical Research-National Institute for Cholera and Enteric Diseases, with support from UNEP, has collated scientific studies on the environmental aspects of AMR to support the process.
- **One health consortium**- Country's first one health consortium that enhance medical surveillance.
- **Delhi Declaration on AMR-** A multi-sectoral initiative to recognize the emergence and spread of AMR and to adopt a collaborative approach for preventing AMR.
- **Indian priority pathogen list-** Implemented to guide, research, discovery and development of new antibiotics.
    - **Types of priority**- Critical, High, Medium.
    - Example of critical priority- Colistin-R.
- **Red Line Campaign**- Aimed at discouraging unnecessary prescription and over the counter sale of antibiotics.
- **Chennai Declaration**- To formulate recommendations to tackle AMR.

What measures are needed to combat AMR?

- **Increase the investment-** There is a need to increase the finance to study AMR and to bring advancements in Research and development.
- **Use of digital Technology**- There is a need to leverage integrated disease surveillance for monitoring the use of antibiotics, prescription audits, movement of antibiotics from the production source to the ultimate user.
- It can also be used for surveillance of incidence and prevalence of AMR including state-wise or interspatial variations, etc.
- **Improve R&D –** Discovery and commercialisation of new antibiotics is needed to deal with AMR and Superbugs.
- **Community realisation**- Creating social awareness campaign about the consequences of AMR is the way forward.
- **Strict regulations-** Strict control on dumping of effluents from healthcare sector, pharma and strict is needed.

References

1. Indian Express| Explained about AMR

2. Down to Earth| Steps to contain AMR
3. WHO| About AMR

