Nutritional Insecurity - The Silent Famine

Why in news?

A study led by Indian Council of Agricultural Research (ICAR) scientists has found the grains that we eat have lost food value and are accumulating toxins that would worsen India's growing burden of non-communicable diseases (NCDs) by 2040.

What are the key findings of the study?

- The Green Revolution has helped India achieve food security, but by compromising its nutritional security.
- **Nutrient loss** - During the Green Revolution, the traditional varieties or landraces were crossed to make the new varieties, leading to the *loss of the trait of taking more nutrient* by the grain.
    - Rice and wheat, which meet over 50% of the daily energy requirements of people in India, have lost up to 45% of their food value in the past 50 years or so.
- **Toxin accumulation** – Due to continuous genetic tampering under the modern breeding programme, the plants have *lost their natural evolutionary defence mechanisms against toxicants.*
    - For instance, in the past 50 years, the concentration of arsenic, a toxic element, in rice has increased by 1,493%.

Green revolution refers to the large increase in production of food grains resulting from the use of high yielding variety (HYV) seeds especially for wheat and rice.

What are the impacts of nutrient loss and accumulating toxins?

- The depleted concentration of these essential nutrients in the staple grains could result in ***higher prevalence of diseases*** related to the neurological, reproductive and musculoskeletal systems.
- Oral ***ingestion of metal toxicants***, such as arsenic, chromium, barium and strontium has toxic effects like chronic respiratory diseases, cardiovascular diseases, hyperkeratosis, renal toxicity and impaired bone calcification.
- They also put the Indian population at a higher risk of ***nutritional insecurity.***

Nutrition security refers to the condition where "all people have consistent and equitable access to healthy, safe, affordable foods essential to optimal health and well-being."

Health Condition of Indians
• An Indian Council of Medical Research (ICMR) report indicates a 25% ***rise in NCDs*** among the Indian population from 1990 to 2016. • Estimates show that India is home to one-third of the 2 billion global population suffering from ***micronutrient deficiency.*** • Though the NFHS report show a decline in ***child stunting*** between 2015-16 and 2019-21, the rate is still significantly high at 35% among children under 5 years of age.

What efforts were taken to promote nutritional security?

> *Biofortification is the process by which the nutrient density of food crops is increased through conventional plant breeding, improved agronomic practices or modern biotechnology without sacrificing any characteristic that is preferred by consumers or farmers.*

- So far, institutes under ICAR have developed 142 ***biofortified varieties.***
  - During the past 6 years, about 10 million ha, or 6% of the country's total area under farming, has been brought under biofortified varieties.
- A few scientists are also experimenting with ***agronomic biofortification,*** which involves using micronutrients as fertiliser or spraying it directly on the leaves.
- Schemes for ensuring nutrition security includes
  - **National Food Security Act, 2013** that anchors Targeted Public Distribution System (TPDS)
  - **PM POSHAN scheme** (earlier known as Mid-Day Meals scheme)
  - **Integrated Child Development Services (ICDS)**

References

1. Down to Earth | Silent famine: Nutritional insecurity
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3. Down to Earth | Silent famine: Nutritional insecurity

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