Science & Technology · GS - III

Examine the importance of microbiological surveillance and quality assurance in ensuring the safety of packaged drinking water in India.

EXAM YEAR	PAPER	SUBJECT
DAILY PRACTICE 28/11/2026	GS - III	Science & Technology

MARKS	WORD LIMIT
15	~250 words

Answer Hint

Microbial indicators, waterborne diseases, laboratory testing, quality standards, regulatory monitoring, consumer protection

Model Answer

Packaged drinking water is widely consumed because of its perceived safety and convenience. However, contamination during sourcing, treatment, bottling or distribution can expose consumers to waterborne diseases.

Importance of microbiological surveillance:

1. **Early detection:** Testing for indicator organisms such as coliforms helps identify possible failures in sanitation and processing.
2. **Disease prevention:** Monitoring microbial contamination reduces the risk of gastrointestinal illnesses and other waterborne infections.
3. **Process assessment:** Regular testing of raw water, treated water and finished products helps identify contamination at different stages.
4. **Consumer confidence:** Transparent testing and quality certification strengthen public trust in packaged drinking water.

Strengthening quality assurance:

- Enforce applicable food safety and product-quality standards through regular inspections.
- Strengthen accredited laboratory capacity and scientifically validated testing procedures.
- Ensure traceability of batches and prompt investigation of non-compliant samples.
- Improve hygiene, equipment maintenance and sanitation at bottling facilities.
- Establish effective complaint mechanisms and timely public communication during contamination incidents.

The Food Safety and Standards Authority of India (FSSAI), along with relevant regulatory and testing institutions, has an important role in food safety oversight.

Conclusion: Safe drinking water requires continuous monitoring rather than reliance on occasional inspections. A preventive, science-based quality assurance system is essential for protecting public health.

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