Science & Technology · GS - III

Evaluate the role of scientific risk assessment and regulatory enforcement in preventing contamination of commercially 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

FSSAI, Food Safety and Standards Act 2006, microbiological standards, coliform bacteria, laboratory surveillance, consumer protection, accountability, food safety governance

Model Answer

Packaged drinking water is widely consumed in India, making its microbiological quality a critical public health concern. Contamination can expose consumers to waterborne infections and undermine confidence in food safety regulation.

The Food Safety and Standards Authority of India (FSSAI), established under the Food Safety and Standards Act, 2006, plays a central role in prescribing standards and overseeing food safety compliance.

Importance of scientific risk assessment and enforcement:

1. **Microbiological testing:** Detection of indicator organisms such as coliform bacteria helps identify possible contamination and deficiencies in treatment processes.
2. **Laboratory verification:** Testing through recognised laboratories and referral mechanisms strengthens the reliability of regulatory findings.

3. **Preventive surveillance:** Regular inspections and risk-based sampling can identify unsafe products before widespread distribution.
4. **Legal accountability:** Prosecution, penalties and restrictions on unsafe batches create deterrence against violations.
5. **Consumer protection:** Product traceability, recall mechanisms and transparent communication help limit public exposure.

The reported case involving Bisleri's Jalpaiguri facility illustrates the importance of laboratory-confirmed findings and enforcement action against alleged food safety violations.

Nevertheless, effective implementation requires adequate laboratory infrastructure, trained personnel, consistent inspections and coordination between central and State authorities.

Manufacturers must also strengthen quality-control systems, sanitation, water treatment and batch-level traceability.

Ultimately, food safety requires a preventive regulatory approach in which scientific evidence, industry accountability and effective enforcement work together to protect public health.

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