Science & Technology · GS - III

Explain the potential transboundary environmental and public-health consequences of a nuclear incident in West Asia. How should India prepare for radiological emergencies beyond its borders?

EXAM YEAR	PAPER	SUBJECT
DAILY PRACTICE 04/11/2026	GS - III	Science & Technology

MARKS	WORD LIMIT
10	~150 words

Answer Hint

radioactive fallout; atmospheric dispersion; wind and rainfall; public-health monitoring; emergency preparedness; international cooperation; evidence-based risk communication

Model Answer

Introduction

A nuclear incident in West Asia could have consequences beyond the immediate conflict zone. The extent of transboundary radiation risks would depend on the nature of the event, radioactive material released and prevailing atmospheric conditions.

Potential Consequences

Radioactive particles may travel through the atmosphere and be deposited on land or water. Wind direction, precipitation, particle size and radioactive decay influence their distribution. Significant exposure is not inevitable: distance and atmospheric dispersion may reduce concentrations, but localised contamination remains possible.

For India, potential concerns include environmental monitoring, food and water safety, public anxiety and disruptions to energy supplies and regional trade.

Preparedness Measures

India should strengthen radiation-monitoring networks, meteorological modelling, laboratory capacity and coordination among disaster-management and public-health agencies. Authorities should establish clear protocols for environmental sampling, food-safety testing and public communication. International cooperation can improve access to reliable information and technical assistance.

Conclusion

Radiological preparedness should be based on scientific evidence rather than speculation. Monitoring, transparent communication and coordinated emergency planning can help protect public health while avoiding unnecessary panic.

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