



INSIGHTSIAS

SIMPLIFYING IAS EXAM PREPARATION



**INSIGHTS
DAILY
CURRENT
AFFAIRS + PIB
SUMMARY**

4 DECEMBER 2024

TABLE OF CONTENTS

GS Paper 3:

- AI in Academia 3

Content for Mains Enrichment (CME)

- Value Additions 5
- SheSTEM, 2024 6

Facts for Prelims (FFP)

- Lok Sabha Seating Arrangement 6
- Proba – 3 Mission 7
- MNREGA Job Card Deletion 8
- Extrachromosomal DNA (ecDNA) 8
- Pardon Power 9
- High Risk Foods 10
- Nano Bubble Technology 11

Mapping:

- South Korea 11

AI IN ACADEMIA

Syllabus: Science and Technology

Context: The rise of Generative AI in academia raises ethical concerns. A Punjab and Haryana High Court case underscored challenges in regulating AI-driven submissions, balancing its benefits with risks to academic integrity.



Key Applications of AI in Academia:

1. **Personalized Learning:** AI-powered platforms like Coursera adapt to individual student needs, offering tailored lessons and progress tracking for better learning outcomes.
2. **Automated Grading and Feedback:** Tools like Gradescope streamline evaluation, providing instant feedback and reducing educators' workload.
3. **Research Assistance:** AI systems such as Semantic Scholar enhance research by suggesting relevant studies, analyzing data, and identifying research gaps.
4. **Plagiarism Detection and Academic Integrity:** Tools like Turnitin ensure originality in submissions by detecting AI-generated or plagiarized content, upholding academic standards.
5. **Accessibility and Inclusivity:** AI tools, including text-to-speech and language translation, make education more inclusive for differently-abled and multilingual students.
6. **Data-Driven Academic Insights:** AI analytics identify at-risk students, monitor engagement, and optimize institutional strategies for improved academic performance.

Consequences of AI in Academia:

Positive Consequences:

1. **Improved Access:** AI tools democratize access to resources, enabling students from underserved areas to learn effectively.

E.g. Duolingo AI provides affordable language learning globally.

2. **Efficient Research:** AI accelerates literature reviews, identifying key research gaps.

E.g. PubMed uses AI to enhance biomedical research searches.

3. **Enhanced Writing Skills:** Tools like Grammarly refine academic drafts, improving readability and coherence.

4. **Data Analysis Support:** AI simplifies complex data interpretation, essential for empirical studies.

E.g. Climate researchers use AI to predict environmental patterns.

5. **Innovative Teaching:** AI-powered simulations and virtual labs provide hands-on experiences.

E.g. Virtual dissection in biology labs.

Negative Consequences:

1. **Academic Malpractice:** Unethical use of AI-generated content compromises originality.

E.g. Instances of AI plagiarism detected by tools like Turnitin.

2. **False Positives:** Over-reliance on AI detection tools can lead to unfair accusations.

E.g. Students flagged incorrectly by AI-based plagiarism software.

3. **Skill Erosion:** Excessive dependence on AI undermines critical thinking and writing skills.

4. **Bias in Algorithms:** AI models trained on biased datasets perpetuate inequities in academic evaluations.

E.g. Gender-biased recommendations in AI-generated hiring solutions.

5. **Overburdened Faculty:** Rigorous oral evaluations to counteract AI misuse increase faculty workloads.

Way Ahead:

1. **Define AI Guidelines:** Establish clear rules on permissible AI use in academic work, with discipline-specific nuances.

2. **Transparency and Disclosure:** Encourage mandatory declarations of AI usage in submissions.

E.g. Including "AI-assisted" tags in research papers.

3. **Robust Assessments:** Blend written evaluations with oral exams to ensure originality.

4. **Faculty Training:** Equip educators with tools and strategies to handle AI-generated submissions.

5. **Policy Reforms:** Shift focus from "publish-or-perish" to quality-oriented evaluations.

E.g. Encouraging open-access research over journal metrics.

Conclusion:

Navigating the role of AI in academia requires a balanced approach that values innovation while upholding academic integrity. By fostering transparency, redefining evaluation methods, and empowering educators, institutions can harness AI's potential responsibly.

Insta Links:

1. [Artificial-intelligence-and-robotics](#)

PYQ:

1. The emergence of the Fourth Industrial Revolution (Digital Revolution) has initiated e-Governance as an integral part of government". Discuss. (UPSC- 2020)

Meta data:

Explore UPSC Current Affairs for 4 December 2024, including GS Paper 2 and GS Paper 3 topics. Learn about AI in Academia and Education more. Gain insights for Prelims, Mains, and Mapping with key linkages and strategies.

Content for Mains Enrichment (CME)

VALUE ADDITIONS

GS-2: Governance

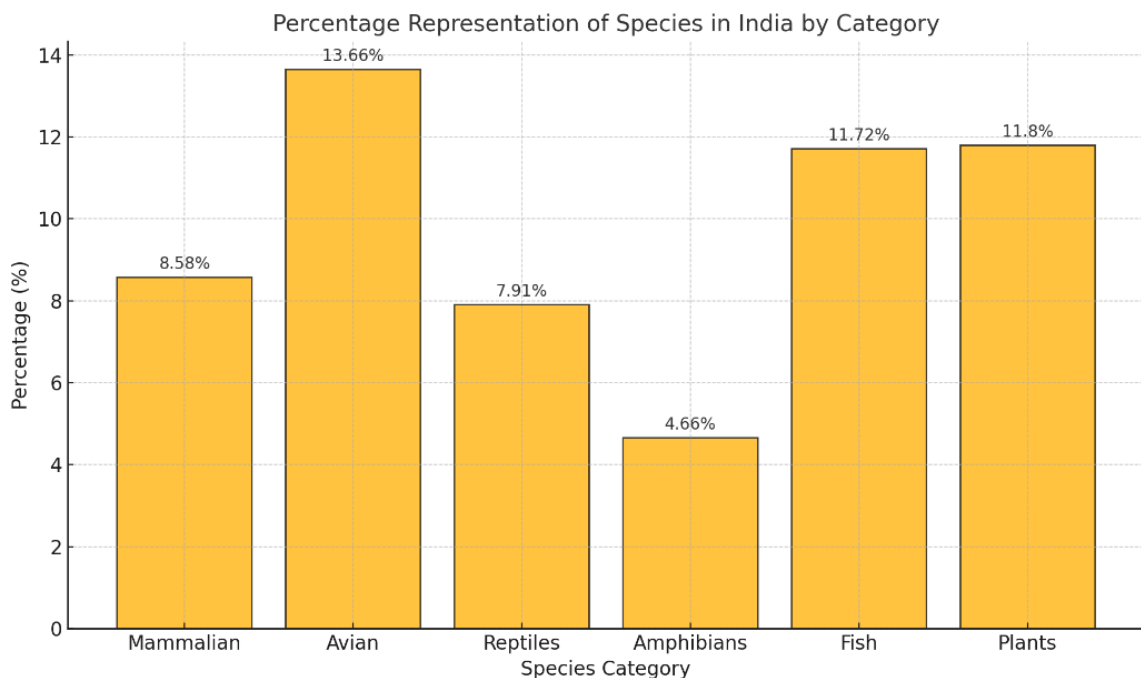
- **Context:** Sewer deaths, caused by the hazardous manual cleaning of sewers and septic tanks, remain a grim reality in India, particularly in Delhi.
- **Data point:** (Source: RTI Response)
 - With **75 deaths recorded over 15 years and only one conviction.**

GS-3: Agriculture

- **Context:** The Supreme Court-appointed committee’s interim report highlights the dire state of Indian agriculture, underlining the economic hardships faced by farmers.
- **Data points:**
 - Farmers relying solely on **agriculture earn Rs 27 per day**, showcasing extreme financial stress.
 - Over **400,000 suicides** among farmers and agricultural laborers have been reported in the past three decades.

GS-3: Environment

- **Context:** Despite possessing only 2.4% of the world’s land area, India accounts for 7-8% of all recorded species, which includes 45,000 species of plants and 91,000 of animals.
- **Data points:**
 - India has **10 biogeographic zones** and is home to **8.58% of the mammalian** species documented so far.



SHESTEM, 2024

Context: SheSTEM 2024, an annual event organized by Atal Innovation Mission (AIM) and the Office of Science and Innovation at the Embassy of Sweden, showcased energy storage and sustainability innovations from students across India.

About SheSTEM 2024:

- **Organizers:** Atal Innovation Mission (AIM), NITI Aayog, and the Embassy of Sweden.
- **Objective:** To inspire youth and promote STEM careers, focusing on innovative solutions for sustainability.
- **Theme for 2024:** Battery Technology and Energy Storage (BEST) systems.
- **Event Highlights:** Showcased youth-driven energy solutions with sustainability goals.
- **Mission:** Empower students to become future STEM leaders and address pressing global issues.

Relevance in UPSC Syllabus:

- **General Studies III:**
 - **Science and Technology:** Role of innovation in sustainable energy solutions.
 - **Environment:** Addressing energy storage challenges for sustainability.
 - **Education:** Promoting STEM as a tool for national development.
- **Essay:**
 - Themes of sustainability, innovation, and youth empowerment.
- **Ethics (GS IV):**
 - Promoting inclusive growth through education and innovation.

Facts for Prelims (FFP)

LOK SABHA SEATING ARRANGEMENT

Context: The seating arrangements for the 18th Lok Sabha have been finalized, reflecting the allocation of seats in the chamber as per parliamentary rules.

About Seating Arrangement in Lok Sabha:

- **What It Is:**
 - The systematic allocation of seats for Members of Parliament (MPs) in the Lok Sabha chamber. It reflects the party's strength and promotes organized conduct of proceedings.
- **Law Governing:**
 - **Rule 4** of the Rules of Procedure and Conduct of Business in Lok Sabha.
 - **Direction 122(1)(a)** under Directions by the **Speaker provides the framework** for seat allocation.
- **Who Does It:**
 - The **Speaker of the Lok Sabha** determines the seating arrangement.
- **Procedure:**
 - Seats are allocated based on the **proportionate strength of parties**.

- Ruling party members sit on the right side of the Speaker; opposition parties sit on the left.
- Smaller parties (**fewer than 5 members**) and independents are placed at the Speaker's discretion.
- The following formula is applied to decide allotment of seats for parties that have a **strength of 5 or more** members in the house.

$$\text{Number of Seats in each Row for a Party/Group} = \frac{\text{Strength of the Party or Group} \times \text{Seats available in that row}}{\text{Total Seats in the Chamber}}$$

- Parties submit recommendations, and the Speaker finalizes the individual placements.

Insta links:

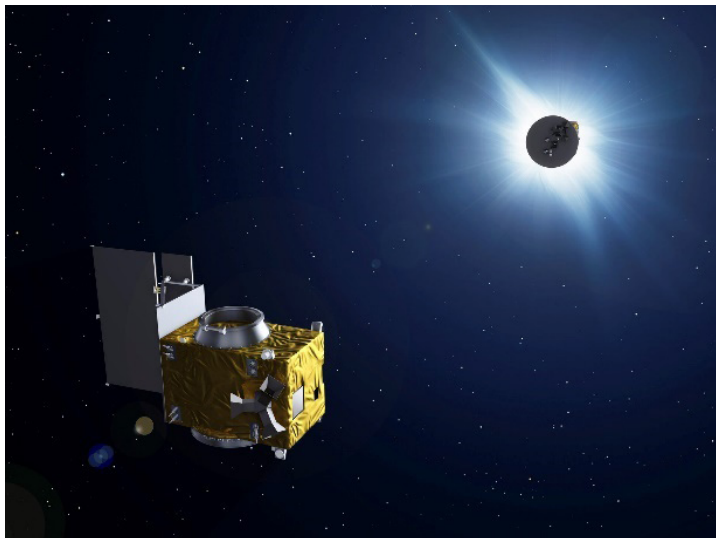
1. [Parliament-and-state-legislatures](#)

Meta data:

Explore UPSC Current Affairs for 4 December 2024, including GS Paper 2 and GS Paper 4 topics. Learn about Lok Sabha seating and Parliament and more. Gain insights for Prelims, Mains, and Mapping with key linkages and strategies.

PROBA – 3 MISSION

Context: The Proba-3 mission, a joint venture between ESA and ISRO, marks a milestone in space technology. Set to launch on December 4, 2024, from Sriharikota, India.



About Proba-3 Mission:

- **Agency Involved:**

- Led by the European Space Agency (ESA).
- Launch facilitated by ISRO under its commercial arm, [NewSpace India Ltd](#) (NSIL).

- **Full Form:**

- **Proba-3:** “Project for Onboard Autonomy.”

- **Aim:**

- To demonstrate high-precision formation flying in space.
- To study the Sun's corona and its influence on space weather.

- **Features:**

- **Two Spacecraft:** Coronagraph and Occulter designed for tandem operation.
- **Formation Flying:** Precision down to the millimeter to create artificial solar eclipses.
- **Scientific Goals:** Advanced study of the solar corona and its impact on Earth.
- **Solar Eclipses on Demand:** Allowing extended observation periods for solar phenomena.

- **India's Role:**

- Providing the [PSLV-XL launch vehicle](#), renowned for reliability and payload capacity.
- Managing satellite deployment and mission execution.

- Enhancing expertise in solar science following ISRO's Aditya-L1 mission.

Insta links:

1. [Proba-3-space-satellite](#)

Meta data:

Explore UPSC Current Affairs for 4 December 2024, including GS Paper 3 and GS Paper 2 topics. Learn about Proba 3 mission and ISRO Collaboration and more. Gain insights for Prelims, Mains, and Mapping with key linkages and strategies.

MNREGA JOB CARD DELETION

Context: The recent surge in the deletion of job cards under the Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA) has sparked concerns about transparency, right to work, and implementation issues.



About MNREGA Job Card Deletion:

- **Law Governing:**
 - Governed under **Schedule II, Paragraph 23 of the MGNREGA Act, 2005.**
 - Supported by **Master Circulars** issued by the Ministry of Rural Development (MoRD).
- **Authority Responsible:**
 - Deletions are primarily handled by **State Governments.**
 - The **Program Officer** verifies and oversees the deletion process.
- **Criteria for Deletion:**
 - **Permanent Migration:** When households relocate permanently outside

the Gram Panchayat.

- **Duplicate Job Cards:** If a card is found to have been issued based on duplicate or forged records.
- **Fake Applicants:** If job cards were issued fraudulently.
- **Reclassification of Area:** Job cards are deleted if a Gram Panchayat is upgraded to a Municipal Corporation.
- **Not Willing to Work:** Workers explicitly expressing disinterest in continuing under MGNREGA.
- **Procedure:**
 - **Verification:** All deletions require independent verification of reasons by the Program Officer.
 - **Opportunity to Be Heard:** Workers facing deletion must be allowed to present their case before two independent witnesses.
 - **Documentation:** Reasons for deletion must be documented and updated in the **MGNREGA Management Information System (MIS).**
 - **Transparency:** Deletion reports must be shared with the **Gram Sabha** or **Ward Sabha.**

Insta links:

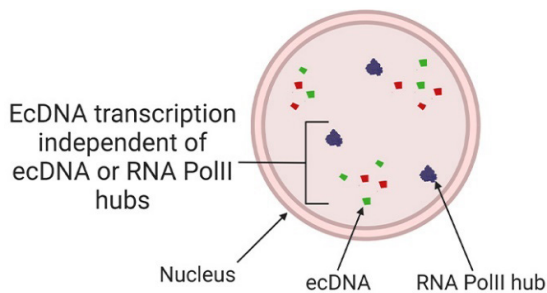
1. [MNREGA](#)

Meta data:

Explore UPSC Current Affairs for 4 December 2024, including GS Paper 2 and GS Paper 3 topics. Learn about MNREGA card deletion and Governance and more. Gain insights for Prelims, Mains, and Mapping with key linkages and strategies.

EXTRACHROMOSOMAL DNA (ecDNA)

Context: Extrachromosomal DNA (ecDNA) has emerged as a groundbreaking area in cancer biology, challenging foundational genetic principles and offering new insights into **cancer** progression and drug resistance.



About Extrachromosomal DNA (ecDNA):

- **What is ecDNA?**
 - **Definition:** ecDNA is a circular fragment of genetic material that breaks away from chromosomes and floats freely in the cell nucleus.
 - **Formation:** Created by DNA damage, chromosomal rearrangements, or errors during cell replication.
- **Where is ecDNA Found?**
 - Commonly present in **cancer cells**.
 - Detected in **17% of tumor samples**, with higher prevalence in liposarcomas, brain tumors, and breast cancers.
- **Key Features of ecDNA**
 - **Carries Oncogenes:** Contains multiple copies of cancer-causing genes.
 - **Dynamic Interactions:** Moves freely in the nucleus, forming concentrated hubs that amplify oncogene expression.
 - **Violates Mendel's Third Law:** ecDNA clusters are inherited together, preserving advantageous genetic combinations.
- **Significance of the Study**
 - **Challenges Genetic Dogma:** Overturns the assumption that non-linked genes inherit independently.
 - **Accelerates Cancer Progression:**

Additional info: Mendel's law of independent assortment states that the alleles of two (or more) different genes get sorted into gametes independently of one another. In other words, the allele a gamete receives for one gene does not influence the allele received for another gene.

Enhances tumor evolution and drug resistance by increasing oncogene activity.

- **New Drug Development:** Researchers identified **BBI-2779**, a CHK1-inhibiting drug, that selectively targets ecDNA-driven cancer cells, paving the way for novel treatments.

Insta Links:

1. [Environmental-DNA](#)

Meta data:

Explore UPSC Current Affairs for 4 December 2024, including GS Paper 3 and GS Paper 2 topics. Learn about ecDNA and Extrachromosomal DNA and more. Gain insights for Prelims, Mains, and Mapping with key linkages and strategies.

PARDON POWER

Context: President Joe Biden recently made history by becoming the first US president to pardon his son, sparking debates about the use of clemency powers.

About US President's Pardon Procedure:

- **Constitutional Basis:** Article II, Section 2, Clause 1 of the U.S. Constitution grants the President power to pardon federal offenses, except impeachment.
- **Scope:**
 - Applies to **federal crimes only**.
 - Does not erase the criminal record but relieves penalties and restores specific rights.
- **Discretionary Nature:** The President exercises clemency **independently**, without needing Congressional approval.
- **Conditions:**
 - Acceptance of a pardon implies an admission of guilt (**Burdick vs. U.S., 1915**).
 - Does not shield against civil lawsuits or related investigations.

Comparison of US and Indian Pardon Powers:

| Aspect | US | India |
|-----------------------------|--|---|
| Constitutional Basis | Article II, Section 2, Clause 1 | Article 72 |
| Scope | Federal crimes only | Union and state offenses, including military and death penalties. |
| Independence | Fully independent | Based on advice from the Council of Ministers. |
| Death Sentences | State governors may pardon death sentences for state crimes. | The President can pardon death sentences. |
| Governors' Role | Can pardon state crimes | Limited to state crimes, excluding death sentences (Article 161). |
| Process | President exercises authority unilaterally. | President follows ministerial advice under Article 74. |

NOTE: Article is important also from mains perspective specially GS2.

Insta Links:

1. [Pardoning-powers-of-president](#)

Meta data:

Explore UPSC Current Affairs for 4 December 2024, including GS Paper 2 and GS Paper 4 topics. Learn about Pardon Power, India vs USA pardon and more. Gain insights for Prelims, Mains, and Mapping with key linkages and strategies.

HIGH RISK FOODS

Context: The Food Safety and Standards Authority of India (FSSAI) has recently categorized packaged **drinking water and mineral water** as “high-risk foods,” intensifying regulatory measures to ensure safety and quality.

- This decision follows the **removal of mandatory BIS certification**, focusing instead on regular inspections and audits under the FSSAI’s purview.



About High-Risk Food Classification:

- What it is:** High-risk foods are those requiring stringent safety protocols due to their potential to impact public health if mishandled.
- Authority:** Governed by the **Food Safety and Standards Authority of India (FSSAI)**.
- Law Governing:** Regulated under the **Food Safety and Standards Act, 2006**.
- Why Classification:**
 - To ensure enhanced consumer safety through rigorous testing and monitoring.
 - To replace the dual certification process, streamlining regulatory requirements.
- Other Products Under High-Risk Category:**
 - Dairy products and analogues.
 - Meat, poultry, fish, and seafood.
 - Eggs and egg products.
 - Prepared and fortified foods (e.g., fortified rice kernels).
 - Specialised food products for nutritional uses.
- Significance of Classification:**
 - Promotes higher safety standards via mandatory inspections and audits.
 - Simplifies industry compliance by eliminating redundancy, such as BIS certification.
 - Increases consumer trust in food safety measures.

Insta Links:

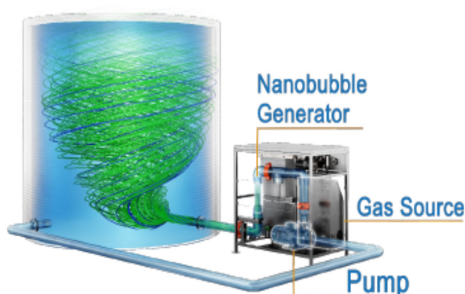
1. [General-risks-associated-with-food-processing](#)

Meta data:

Explore UPSC Current Affairs for 4 December 2024, including GS Paper 3 and GS Paper 2 topics. Learn about High-risk food, FSSAI and more. Gain insights for Prelims, Mains, and Mapping with key linkages and strategies.

NANO BUBBLE TECHNOLOGY

Context: Union Minister of State for Forest, Environment, and Climate Change launched the innovative 'Nano Bubble Technology' at the National Zoological Park, Delhi.



Robust technology with best-in-class oxygen transfer efficiency

MOLEAER
ADVANCING NANOBUBBLE TECHNOLOGY

About Nano Bubble Technology:

- **What is Nano Bubble Technology?**
 - **Definition:** It uses nanobubbles, which are ultra-tiny bubbles less than 200 nanometers in diameter, to purify water.
 - **Innovative Nature:** Nanobubbles are neutrally buoyant and remain suspended in water for months, enabling efficient gas transfer and surface reactions.
- **Properties of Nanobubbles:**
 - **Size:** 70-120 nanometers, 2500 times smaller than a grain of salt.
 - **Surface Charge:** Strong negative charge prevents coalescing and supports microbiological stimulation.
 - **Neutral Buoyancy:** Ensures prolonged interaction with water for effective cleaning.
 - **Hydrophobic Nature:** Repels water, helping to lift organic and inorganic impurities.

- **How Does it Clean & Purify Water?**

- **Algae Removal:** Breaks down algae and prevents buildup in stagnant water.
 - **Waste Treatment:** Efficiently digests biological waste and separates particles like oils and grease.
 - **Gas Transfer:** Facilitates hyper-efficient oxygen transfer, improving water quality.
 - **Surface Cleaning:** Removes organic materials without the use of harmful chemicals.
- **Significance of Nano Bubble Technology:**
 - **Aquatic Health:** Ensures clean water, benefiting aquatic animals and preventing diseases.
 - **Environmental Impact:** Provides a chemical-free, sustainable solution for water purification.
 - **Wider Applications:** Useful in wastewater treatment, fermentation, and improving biological processes in diverse industries.

Insta Links:

1. [Nanotechnology](#)

Meta data:

Explore UPSC Current Affairs for 4 December 2024, including GS Paper 3 and GS Paper 2 topics. Learn about Nano Bubble Technology, Water Purification and more. Gain insights for Prelims, Mains, and Mapping with key linkages and strategies.

Mapping:

SOUTH KOREA

Context: South Korea faced a political crisis as President Yoon Suk Yeol declared martial law over alleged "anti-state forces." however parliament swiftly overturned the declaration, restoring democracy.



Insta Links:

1. [Korean-peninsula](#)

Meta data:

Explore UPSC Current Affairs for 4 December 2024, including GS Paper 1 and GS Paper 2 topics. Learn about South Korea, Martial law and more. Gain insights for Prelims, Mains, and Mapping with key linkages and strategies.

About South Korea:

- **Location:** East Asia, forming the southern half of the Korean Peninsula.
- **Capital City:** Seoul
- **Governance:** Presidential system of governance.
- **Neighbours:**
 - **Land Borders:**
 - **North Korea:** Separated by the Korean Demilitarized Zone (DMZ).
 - **Maritime Borders:**
 - **Yellow Sea** (West),
 - **Sea of Japan** (East),
 - **East China Sea** (South).
- **Rivers:**
 - Major rivers include the **Han River**, flowing through Seoul, and the **Nakdong River**, the longest river in the country.
- **Demilitarized Zone (DMZ):**
 - A **250-kilometer-long** buffer zone established between North and South Korea post the Korean War.
 - The **38th parallel** north formed the border between North and South Korea prior to the Korean War.
- **Island in news:** Yeonpyeong Island, near the maritime border with North Korea, has faced military tensions, including North Korean artillery fire and evacuations.