INTERNATIONAL RELATION

Chemical Weapons Convention and Biological Weapons Convention

Recently, the US said that Russia could be planning a chemical or biological weapon attack in Ukraine.Earlier, Russian claimed that the US had chemical and biological weapons labs in Ukraine, which was denied by the US.

What are Chemical Weapons?

About:

- A Chemical Weapon is a chemical used to cause intentional death or harm through its toxic properties.
- Munitions, devices and other equipment specifically designed to weaponize toxic chemicals also fall under the definition of chemical weapons.

Related Initiatives:

India's: The Chemical Weapons Convention Act, 2000 was passed to implement the Chemical Weapons Convention (CWC).It provided for the establishment of a National Authority for Chemical Weapons Convention or NACWC. This institution, formed in 2005, is the chief liaison between the government of India and the Organization for the Prohibition of Chemical Weapons (OPCW).

Global:

- Basel, Rotterdam and Stockholm Conventions (Hazardous Chemicals and Wastes):
- The Basel, Rotterdam and Stockholm conventions are multilateral environmental agreements, which share the common objective of protecting human health and the environment from hazardous chemicals and wastes.
- The Australia Group (AG) is an informal forum of countries which, through the harmonisation of export controls, seeks to ensure that exports do not contribute to the development of chemical or biological weapons.

What is the Chemical Weapons Convention?

About:

- It is a multilateral treaty banning chemical weapons and requiring their destruction within the stipulated time.
- Negotiations for the CWC began in 1980 at the United Nations Conference on Disarmament.
- The convention was drafted in September 1992 and opened for signature in January 1993. It became effective from April 1997.
- It makes it mandatory to destroy old and abandoned chemical weapons.
- Members should also declare the riot-control agents (sometimes referred to as 'tear gas') in possession of them.Organisation for the Prohibition of Chemical Weapons is an international organization established by the CWC in 1997 to implement and enforce the terms of the CWC.

Members:

- It has 192 state parties and 165 signatories.
- India is a signatory of the convention.

Convention Prohibits:

- The development, production, acquisition, stockpiling, or retention of chemical weapons.
- Transferring of chemical weapons.
- Using chemical weapons.
- Assisting other States to indulge in activities that are prohibited by the CWC.
- Using riot-control devices as 'warfare methods'.

What is a Biological Weapon?

About:

- Biological weapons use microbiological agents (such as bacteria, viruses or fungi) or toxins to intentionally cause death or harm to humans, animals, or plants.

Related Initiatives:

- The 1925 Geneva Protocol banned the use of biological weapons in war.India ratified the Geneva Convention in 1950.
- Subsequently, the Biological and Toxin Weapons Convention (BTWC), which entered into force in 1975 prohibited the development, production, stockpiling, acquisition and retention of biological weapons.India ratified this in 1974.

What is the Biological Weapons Convention?

About:

- It is a key element in the international community's efforts to address Weapons of Mass Destruction (WMD) proliferation and it has established a strong norm against biological

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weapons.WMD is a weapon with the capacity to inflict death and destruction on such a massive scale and so indiscriminately that its very presence in the hands of a hostile power can be considered a grievous threat.

- Formally known as "The Convention on the Prohibition of the Development, Production and Stockpiling of Bacteriological (Biological) and Toxin Weapons and on their Destruction", the Convention was negotiated by the Conference of the Committee on Disarmament in Geneva, Switzerland.
- It opened for signature on 10th April 1972 and entered into force on 26th March 1975.

Members:

- 183 States Parties and 4 Signatory States.
- India is a signatory of the convention.

Convention Prohibits:

- It effectively prohibits the development, production, acquisition, transfer, stockpiling and use of biological and toxin weapons.
- It was the first multilateral disarmament treaty banning an entire category of Weapons of Mass Destruction (WMD).

ECONOMY

MSME Innovative Scheme

Recently, the Ministry of MSME (Medium, Small and Micro Enterprises) has launched the MSME Innovative Scheme (Incubation, Design and IPR) along with the MSME IDEA HACKATHON 2022.

What are the Key Points?

About:

- It is the combination of existing sub-schemes around incubation, design, and Intellectual Property Rights (IPR) for MSMEs.
  1. The government also announced equity support of up to Rs 1 crore for commercialisation of ideas, designs and patents across all three sub-schemes and also to help MSMEs further scale up to raise subsequent funding.
  2. For this, a separate corpus will be created and managed by SIDBI (Small Industries Development Bank of India) as the fund manager.
  3. SIDBI set up on 2nd April 1990 under an Act of Indian Parliament, acts as the Principal Financial Institution for Promotion, Financing and Development of the MSME sector as well as for co-ordination of functions of institutions engaged in similar activities.
- The new scheme will ensure support through guidance, financial support, technical support, and more to MSMEs to scale up.
- The new scheme would act as a hub for innovation activities facilitating and guiding the development of ideas into viable business propositions that can benefit society directly and can be marketed successfully.

Components:

- **Incubation:** The primary objective of the scheme is to promote and support untapped creativity and to promote adoption of latest technologies in MSMEs that seek the validation of their ideas at the proof-of-concept level.
  1. As part of the incubation scheme, the government announced the launch of an MSME Idea Hackathon to invite ideas from MSMEs, innovators and students through host institutes.
  2. Financial assistance up to Rs. 15 lakh per idea and up to Rs. 1.00 crore for relevant plants and machines will be provided.
- **Design**: The objective of this component is to bring the Indian manufacturing sector and Design expertise/ Design fraternity on to a common platform.It aims to provide expert advice and cost-effective solutions on real time design problems for new product development, its continuous improvement and value addition in existing/new products.
- **IPR (Intellectual Property Rights):** The objective of the scheme is to improve the IP culture in India with a view to enhance the awareness of Intellectual Property Rights (IPRs) amongst the MSMEs and to encourage creative intellectual endeavor in the Indian economy.

1. It also aims to take suitable measures for the protection of ideas, technological innovation and knowledge-driven business strategies developed by the MSMEs for their commercialization and effective utilization of IPR tools through IP Facilitation Centre.
2. Financial assistance upto Rs. 5 lakh for Foreign Patent, Rs. 1.00 lakh Domestic Patent, Rs. 2.00 lakh for GI (Geographical Indication) Registration, Rs. 15,000/- for Design Registration, Rs.10,000/- for Trademark in the form of reimbursement.

What are the other Schemes Related to MSME?

- The Ministry of Micro, Small & Medium Enterprises (M/o MSME) envisions a vibrant MSME sector by promoting growth and development of the MSME Sector, including Khadi, Village and Coir Industries.
- The Micro Small and Medium Enterprises Development (MSMED) Act was notified in 2006 to address policy issues affecting MSMEs as well as the coverage and investment ceiling of the sector.
- **Prime Minister's Employment Generation programme (PMEGP):** It is a credit linked subsidy scheme, for setting up of new micro-enterprises and to generate employment opportunities in rural as well as urban areas of the country.
- **Scheme of Fund for Regeneration of Traditional Industries (SFURTI):** It aims to properly organize the artisans and the traditional industries into clusters and thus provide financial assistance to make them competitive in today's market scenario.
- **A Scheme for Promoting Innovation, Rural Industry & Entrepreneurship (ASPIRE):** The scheme promotes innovation & rural entrepreneurship through rural Livelihood Business Incubator (LBI), Technology Business Incubator (TBI) and Fund of Funds for start-up creation in the agro-based industry.
- **Interest Subvention Scheme for Incremental Credit to MSMEs:** It was introduced by the Reserve Bank of India wherein relief is provided upto 2% of interest to all the legal MSMEs on their outstanding fresh/incremental term loan/working capital during the period of its validity.
- **Credit Guarantee Scheme for Micro and Small Enterprises:** Launched to facilitate easy flow of credit, guarantee cover is provided for collateral free credit extended to MSMEs.
- **Micro and Small Enterprises Cluster Development Programme (MSE-CDP):** It aims to enhance the productivity and competitiveness as well as capacity building of MSEs.
- **CHAMPIONS portal:** It aims to assist Indian MSMEs march into the big league as National and Global CHAMPIONS by solving their grievances and encouraging, supporting, helping and hand holding them.
- **MSME Samadhan:** It enables them to directly register their cases about delayed payments by Central Ministries/Departments/CPSEs/State Governments.
- **Udyam Registrations Portal:** This new portal assists the government in aggregating the data on the number of MSMEs in the country.
- **MSME SAMBANDH:** It is a Public Procurement Portal. It was launched to monitor the implementation of the Public Procurement from MSEs by Central Public Sector Enterprises.

ENVIRONMENT

Nuclear Waste Facility at the Kudankulam

Recently, the Kudankulam Village Panchayat has passed a resolution against the construction of the 'Away From Reactor (AFR) facility at the Kudankulam Nuclear Power Project (KKNPP) site for storing nuclear waste.

- Earlier, the state government (Tamil Nadu) had also opposed such construction.
- The village panchayat is of the view that the AFR site would lead to radioactive pollution (spread of radioactivity) and spoil the groundwater, which is used for drinking water and irrigation.

What is an AFR site?

- **The scheme for the storage of spent fuel in a nuclear power plant is two-fold:**
  1. One facility is located within the reactor building/service building, generally known as the spent fuel storage pool/bay.
  2. Another is located away from the reactor, called the Away From Reactor (AFR) Spent Fuel Storage Facility, but within the plant's premises.
- The spent fuel storage pool inside the reactor building has a limited capacity and is used for immediate storage of the spent fuel removed from the reactor during refueling.
- The fuel remains in the pool initially for a few years for it to be cooled sufficiently before it is shifted to the facility.
- The AFR Spent Fuel Storage Facility is functionally similar to the 'Spent Fuel Pool' inside the reactor building, except in terms of capacity.

What are the Arguments of the Union Government?

- The proposed AFR facility at KKNPP reactors 1 and 2 is for storage of spent fuel only and not for storage of nuclear waste, as perceived by a few.
- The design ensures that there would not be any adverse impact of the facility on the personnel, the public and the environment.
- The radiation dose on account of AFR to the public would be negligible, even [when] compared to the exposure from natural radiation background sources like soil, sun etc.

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- This has been established at the Tarapur and Rawatbhata sites, where AFRs have been in operation for many years.

What is Radioactivity?

- Radioactivity is the phenomenon of spontaneous emission of particles or waves from the unstable nuclei of some elements.
- There are three types of radioactive emissions: Alpha, Beta and Gamma.Alpha particles are positively charged He (Helium) atoms, beta particles are negatively charged electrons and gamma rays are neutral electromagnetic radiations.
- Radioactive elements are naturally found in the earth's crust.Uranium, thorium and actinium are three NORM (Naturally Occurring Radioactive Materials) series that contaminate water resources.
- A small amount of radiation is found in nature but the extended amount of radiation is harmful to human health.
- Radioactivity is measured in Becquerel (SI unit) or in Curie.
- The unit Sievert measures the quantity of radiation absorbed by human tissues.

What are Sources of Radioactivity?

Natural:

- **Radiotoxic Elements in Aquatic System**: Radium, a descendant of the NORM series, is one of the radiotoxic elements found in aquatic systems and can be penetrated into groundwater via:
  1. aquifer rock dissolution
  2. decaying of 238U and 232Th,
  3. desorption processes.
  4. Radium is a radionuclide formed by the decay of uranium (U) and thorium (Th) in the environment.
- **Magma:** Sometimes, magma also releases radioactive gases into the environment.
- **Soil Sediments:** Percolation of NORM from the soil sediments to the aquifer causes groundwater contamination.
- **Atmospheric Deposition of Cosmogenic Radionuclides:**
  1. Atmospheric deposition (both dry and wet) of cosmogenic radionuclides add radioactive nuclei in the surface water.
  2. Cosmogenic radionuclides are radioactive isotopes which are produced by natural processes and distributed within the Earth system.

Anthropogenic:

- **Nuclear Reactors and Warheads:**
  1. Nuclear reactors and nuclear warhead experiments are the key sources of human-induced radionuclides discharge.
  2. Nuclear reactors produce radioisotopes (Cobalt-60, Iridium-192, etc) that hand out as sources of gamma radiation in radiotherapy and numerous industrial appliances.
  3. Nuclear power plants placed at the coastal regions add to the radiological contaminants in the marine water by releasing atomic wastes.Water is also used as coolants in these powerhouses, which also get contaminated.
- **Dumping of Radioactive Waste:**The application of radioactive elements in nuclear weapons, X-rays, MRI and other medical equipment causes their exposure to human beings. Dumping of these radioactive wastes in surface water bodies causes water pollution.
- **Mining:**Mining activities of radioactive elements like uranium and thorium also pollute surface and groundwater.
- **Nuclear Accidents:**Radioactive pollution due to nuclear submarine accidents and sinking have been reported.The Rocky Flats plant in Colorado, Fukushima and the Chernobyl nuclear disaster are some examples of such nuclear accidents.

What are the effects of radioactive pollution on Health?

- **Radiation Syndrome:**Human tissues absorb radiation through polluted water and foodstuff, which can cause serious health risks.High doses of radiation can cause acute radiation syndrome or dermal radiation injury.
- **Disorders in Human Physiology:**Exposure to radiation causes various disorders in human physiology, including cancer, leukemia, genetic mutations, cataracts, etc.
- **Mutation and Structural Alteration:**Genetic effects ionizing radiation induces mutations in germ cells (male sperm cells and female egg cells), resulting in structural alteration in germ cell DNA that is passed onto offspring.Hereditary disorders can lead to premature death and severe mental illness.

PRELIMS FACT

Kanya Shiksha Pravesh Utsav

Recently, the government launched a nation-wide campaign called Kanya Shiksha Pravesh Utsav on the eve of the International Women's Day (8th March).The aim of the campaign is to bring back four lakh out-of-school adolescent girls in the 11-14 years age group into the education system.

What are the Key Points of the Campaign?

- **Aim:** The project aims to work on a complete system for out-of-school girls by building on existing schemes and programmes such as Schemes for Adolescent Girls (SAG), BetiBachaoBetiPadhao (BBBP), and National Education Policy (NEP).
- **Implementing Agency**: The campaign is being steered by the Ministry of Women And Child Development in partnership with the Ministry of Education.
- **Implementation:** The campaign focuses on convergence and coordination between ministries, departments and states.
    1. The campaign will be implemented as part of the BBBP project, with the primary beneficiaries being over 4,00,000 out-of-school adolescent girls.
    2. Over 400 districts across all states will be funded under the Beti Bachao Beti Padhao Scheme for grassroots level outreach and awareness generation to sensitise communities and families to enrol adolescent girls in schools.
    3. Further, funding from Samagra Shiksha Abhiyan, and Anganwadi workers (AWWs) will be further incentivised for counseling and referring out of school adolescent girls.
- **Data to be Collected**: It strives to collect data on out-of-school girls, based on their visits to anganwadi centres for nutrition, nutrition education and skilling.
- **Significance**: Bringing out-of-school girls back to the education system has been the target since the Right to Education Act was enacted (2009).
- **Need:** The need has arisen because the Scheme For Adolescent Girls (SAG), which initially took care of out-of-school girls, was getting less traction.

DAILY ANSWER WRITING PRACTICE

Qns. What do you understand by 'Hybrid warfare'? Elaborate on the measures that are needed to be put in place to tackle this form of warfare by adversarial nations. (150Words)

Introduction

Hybrid warfare or the 5th generation warfare refers to the use of unconventional methods as part of a multi-domain warfighting approach. In Hybrid warfare, apart from conventional military tactics, non-military tools are used to achieve dominance or damage, subvert or influence. It is conducted primarily through non-kinetic military action, such as social engineering, misinformation, cyber-attacks, along with emerging technologies such as artificial intelligence and fully autonomous systems. Fifth generation warfare has been described by Daniel Abbot as a war of "information and perception".

- Several Ukrainian computers and websites faced cyberattacks by a destructive data-wiper malware hours before Russia began its military assault in the country

Body

Characteristics of hybrid warfare

- Hybrid or Fifth-generation warfare is typified by its "omnipresent battlefield", and the fact that people engaged in it do not necessarily use military force, instead employing a mixture of kinetic and non-kinetic force.
- Unlike the earlier generations of warfare, which relied on the might of military, speed, stealth and surprise, in the latest, the fifth generation, the lines between war and politics, military and civilian are blurred.
- The lives of common citizens might be more directly and intricately linked compared to even the forces at ground zero.
- In the fifth generation wars, patience and time emerge as powerful weapons.

Measures to tackle hybrid warfare

- Governments must institute a process to develop a national methodology of self-assessment and threat analysis.
- Institutionalizing a process concerning threat and vulnerability information will enhance hybrid warfare early warning efforts, assist resiliency efforts, and may even have a deterrent effect.
- Hybrid warfare is an international issue, so should be the retort.
- National governments must coordinate a rational approach amongst themselves to understand, identify and react to hybrid warfare to their collective interests.
- Multinational structuresshould be established to enable cooperation and collaboration across borders.
- Modern hybrid war which simultaneously combine conventional, irregular, and terrorist components is a multifaceted challenge that requires a compliant and versatile military to overcome.

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- Conducting self-assessments of critical functions and vulnerabilities across all sectors and ensuring regular maintenance. For example, regularly upgrading critical Fintech systems in the country.
- Armed forces needs to upgrade itself by training in special battle techniques, as well as conditioning to overcome urban combat stress.
- Training armed forces in use of technological tools such as smart robots, Unmanned Aerial Vehicles (UAVs)
- Deploying Intelligence tools like Real Time Situational Awareness (RTSA) for precise operations.
- The perception of hybrid war is not new, but its means are increasingly sophisticated and deadly, and require a response in similar fashion.
- Investing in journalism will indirectly help citizens in understanding the hybrid threats in a better way.

Conclusion

The proliferation of different tools of warfare and resultant expansion of the battle-field means that no particular service can guarantee victory. The modern battlefield needs not just military but political, psychological, electronic, technological warriors too. To win today's 'wars', one needs a whole-of-government (WOG) approach with elements of Comprehensive National Power as part of the action/response system.

- The Armed Forces should be prepared to take threats in all domains, as also take offensive actions in those domains. A synergistic, multi-domain, WOG approach may prove to be the decisive factor in battle-field dominance.

DAILY QUIZ

Q1. To meet its rapidly growing energy demand, some opine that India should pursue research and development on thorium as the future fuel of nuclear energy. In this on text, what advantage, does thorium hold over uranium?

1. Thorium is far more abundant in nature than uranium.
2. On the basis of per unit mass of mined mineral, thorium can generate more energy compared to natural uranium.
3. Thorium produces less harmful waste compared to uranium.

Which of the statements given above is/are correct?

a. 1 only
b. 2 and 3 only
c. 1 and 3 only
d. 1, 2 and 3

Q2. With reference to 'Organization for the Prohibition of Chemical Weapons (OPCW)', consider the following statements:

1. It is an organization of the European Union in working relation with NATO and WHO.
2. It monitors the chemical industry to prevent new weapons from emerging.

It provides assistance and protection to States (Parties) against chemical weapons threats. Which of the statements given above is/are correct?

a. 1 only
b. 2 and 3 only
c. 1 and 3 only
d. 1, 2 and 3

Q3. Consider the following statements about Kanya Shiksha Pravesh Utsav:

1. Nation-wide campaign called Kanya Shiksha Pravesh Utsav on the eve of the National Women's Day.
2. The aim of the campaign is to bring back four lakh out-of-school adolescent girls in the 11-14 years age group

Which of the statements given above is/are correct?

a. 1 only
b. 2 only
c. Both 1 and 2
d. Neither 1 nor 2

Q4. What is the rank of India in Intellectual Property Rights index?

a. First
b. Second
c. Third
d. Fourth

Q5. Kudankulam Nuclear Power Project (KKNPP) site is situated in which state?

a. Odisha
b. Karnataka
c. Kerala
d. Tmail Nadu

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