

GOVERNANCE

MONITORABLE ACTION PLANS TO TACKLE AIR POLLUTION

The State Governments of Punjab, National Capital Region (NCR) States and Government of National Capital Territory of Delhi (GNCTD) have developed detailed monitorable action plans based on the framework by the Commission for Air Quality Management (CAQM) to tackle the problem of air pollution. The World Health Organisation (WHO) has released new Global Air Quality Guidelines (AQGs). The newly constituted commission (CAQM) has sweeping powers in controlling air pollution in Delhi-NCR.

Key Points

Framework of the Commission: The CAQM has directed for implementation of the action, based on following components of the framework:

- In-situ Crop Residue Management- Supported by the CRM (Crop Residue Management) Scheme of the Ministry of Agriculture.
- Ex-situ Crop Residue Management.
- Prohibition of Stubble/Crop Residue Burning.
- Effective monitoring/enforcement.
- Plans/Schemes to reduce the generation of paddy straw.
- Information, Education and Communication (IEC) activities for the Plan of Action.

Action Plans:

- **Recording Fire Counts:** Adopting a Standard protocol developed by ISRO for recording and monitoring the fire counts owing to Stubble burning.
- **In- situ Crop Residue Management :** The PUSA Bio-Decomposer technology application is planned in NCR States.
- **Ex-situ Crop Residue Management:** Promoting utilization of Paddy Straw Pellets/Briquettes for Co-firing in Thermal Power Plants.
- **Abatement of Dust:** Establishing a “Dust Control and Management Cell”. Monitoring construction and demolition through a dedicated Web-portal and Video fencing of projects.
- **Industrial Pollution:** Shifting of Industries to Piped Natural Gas (PNG)/Cleaner Fuels should be a priority.
- **Vehicular Pollution:** The Commission has issued an advisory for “Mandating procurement of zero emission and e-vehicles” to give a further push to clean technologies in the transport sector and a gradual shift towards zero emission vehicles/e-mobility and progress reviewed.
 - All the identified 124 border entry points of Delhi have now been provided with RFID system to facilitate cashless toll/ cess collection thus avoiding huge traffic congestions and resultant heavy air pollution at the border points.

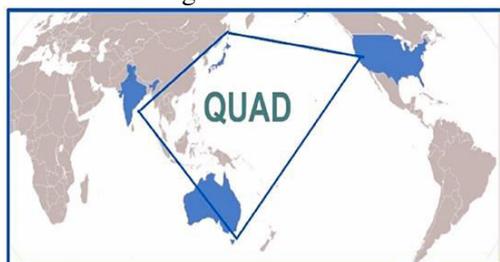
Monitoring:

- A dedicated taskforce envisaged in each NCR state to continuously monitor and take steps regularly to ensure smooth traffic management, including developing an “Intelligent Traffic Management System” (ITMS).
- Petrol/Diesel vehicles more than 15/10 years old are not permitted to ply in NCR and progress is reviewed periodically.
- State- wise action plans have also been prepared for control of Biomass/Municipal Solid Waste Burning and fires in Landfill Sites.
- A Decision Support System (DSS) for Air Quality Emergency response.

INTERNATIONAL RELATION

QUAD COUNTRIES MEETING: CHALLENGES IN THE INDO-PACIFIC

Recently, the first in-person meeting of Quad leaders was hosted by the US. Issues like climate change, Covid-19 pandemic and challenges in the Indo Pacific, amidst China's growing military presence in the strategic region, were discussed in the meeting.



Key Points

- In November 2017, India, Japan, the US and Australia gave shape to the long-pending proposal of setting up the Quad to develop a new strategy to keep the critical sea routes in the Indo-Pacific free of any influence. China claims nearly all of the disputed South China Sea, though Taiwan, the Philippines, Brunei, Malaysia and Vietnam all claim parts of it.
- In 2020, the trilateral India-US-Japan Malabar naval exercises expanded to include Australia, marking the first official grouping of the Quad since its resurgence in 2017. Further, it is the first joint military exercises among the four countries in over a decade.
- In March 2021, the Quad leaders met virtually and later released a joint statement titled 'The Spirit of the Quad,' which outlined the group's approach and objectives. Further, just before this meeting, the US has announced a new trilateral security partnership for the Indo-Pacific, between Australia, the UK and the US (AUKUS).

Major Highlights of the Quad Summit:

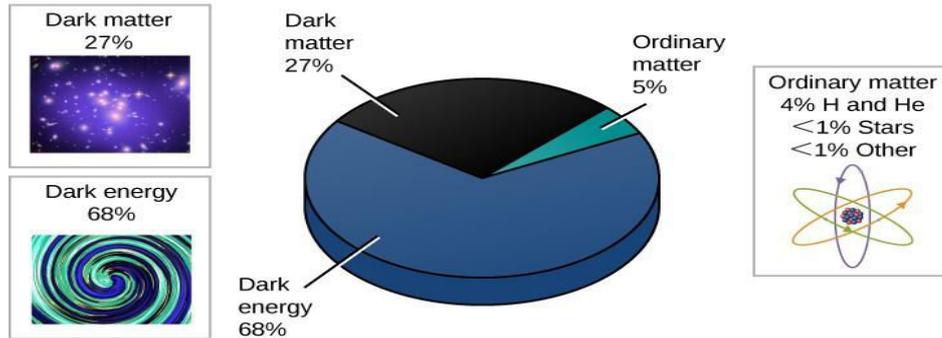
- Discussed Afghanistan and agreed to deepen their cooperation in South Asia.
- **Quad Vaccine Initiative:** Under this, the Quad countries have pledged to donate more than 1.2 billion Covid-19 vaccine doses globally, in addition to the doses financed through Covax.
- **Building Back Better Health Security:** Supported the call for a "global pandemic radar" to improve viral genomic surveillance and expand the WHO Global Influenza Surveillance and Response System (GISRS).
- **Quad Infrastructure Coordination Group:** The G7 grouping has recently announced the Build Back Better World (B3W) initiative. Based on similar lines, the Quad will establish high-quality infrastructure and will share expertise, capacity, and influence in the region and identify new opportunities to meet the needs there.
 - **Tackling Climate Change:** In this context, Quad countries has envisaged to establish: Green-Shipping Network for deployment of green-port infrastructure.
 - **Clean-Hydrogen Partnership** to strengthen and reduce costs across all elements of the clean-hydrogen technology, leveraging existing bilateral and multilateral hydrogen initiatives in other fora.
 - **Climate Adaptation, Resilience, and Preparedness** for increasing the Indo-Pacific region's resilience to climate change by improving critical climate information-sharing and disaster-resilient infrastructure.
 - **Apart from this, Quad countries** intend to update or communicate ambitious NDCs (Nationally Determined Contributions) by COP26.
 - **The Quad Fellowship:** The Fellowship will sponsor 100 students per year - 25 from each Quad country - to pursue masters and doctoral degrees at leading STEM (Science, Technology Engineering, and Mathematics (STEM) programmes) graduate universities in the United States.
 - **Semiconductor Supply Chain Initiative:** It will be a joint initiative to map capacity, identify vulnerabilities, and bolster supply-chain security for semiconductors and their vital components.
 - **Critical and Emerging Technologies:** The announcement of launch of a 5G deployment and calls for monitoring trends in advanced biotechnologies, including synthetic biology, genome sequencing, and biomanufacturing.
 - **Quad Senior Cyber Group:** This group will make shared cyber standards; development of secure software; building workforce and talent; and promoting the scalability and cybersecurity of secure and trustworthy digital infrastructure.
 - **Satellite Data Sharing:** The Quad will begin space cooperation for the first time with a new working group. In pursuance of this, Quad countries will start discussions to exchange Earth observation satellite data and analysis on climate-change risks and the sustainable use of oceans and marine resources.

SCIENCE AND TECHNOLOGY

Detection of Dark Energy

Recently, an international team of researchers made the first direct detection of dark energy. The experiment named XENON1T, is the world's most sensitive dark matter experiment and was operated deep underground at the INFN Laboratori Nazionali del Gran Sasso in Italy. Dark energy is the mysterious form of energy that makes up about 68% of the universe, and has intrigued physicists and astronomers for decades.

Composition of the Universe



Key Points

About the Experiment:

- The XENON1T is a dark matter research project, operated at the Italian Gran Sasso National Laboratory.
- It is a deep underground research facility featuring increasingly ambitious experiments aiming to detect dark matter particles.
- The experiments aim to detect particles in the form of Weakly Interacting Massive Particles (WIMPs) by looking for rare interactions via nuclear recoils in a liquid xenon target chamber.

Other Dark Matter and Energy Experiments:

- LUX-Zeplin – a next generation dark matter experiment located at the Sanford Underground Research Facility, US. PandaX-xT – project at China Jinping Underground Laboratory.

Dark Matter And Dark Energy:

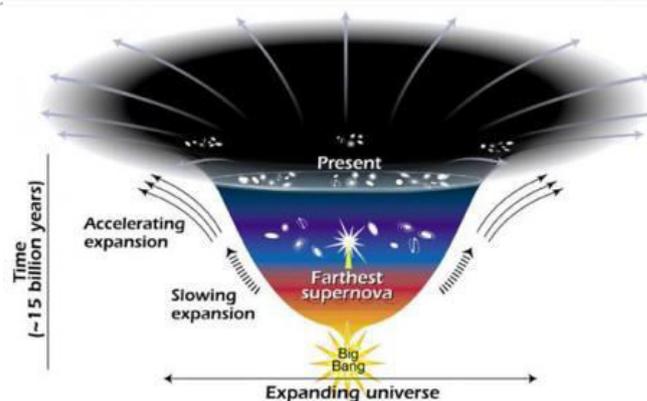
- While dark matter attracts and holds galaxies together, dark energy repels and causes the expansion of our universe. Despite both components being invisible, a lot more is known about dark matter, since its existence was suggested as early as the 1920s, while dark energy wasn't discovered until 1998.

About Dark Energy:

- The Big Bang occurred nearly 15 billion years ago and expanded. Earlier, astronomers believed that eventually the expansion of the Universe will slow down because of gravity and it will recollapse.
- However, data from the Hubble Telescope suggested that the Universe's expansion is accelerating.
- The astronomers theorize that the faster expansion rate is due to a mysterious, dark force or energy that is pulling galaxies apart.

The term 'dark' is used to denote the unknown.

The following diagram reveals changes in the rate of expansion since the universe's birth 15 billion years ago.



Possible Explanations of Dark Energy:

Property of Space: Albert Einstein was the first person to realize that empty space is not nothing.

- One version of Einstein's gravity theory, the version that contains a cosmological constant, implies that "empty space" can possess its own energy.
- Because this energy is a property of space itself, it would not be diluted as space expands. As more space comes into existence, more of this energy-of-space would appear. As a result, this form of energy would cause the universe to expand faster and faster.

Quantum Theory of Matter: Another explanation for how space acquires energy comes from the quantum theory of matter.

- In this theory, "empty space" is actually full of temporary ("virtual") particles that continually form and then disappear.

Fifth Fundamental Force: There are four fundamental forces in the universe, and speculative theories have proposed a fifth force – something that can't be explained by the four forces.

- To hide or screen this fifth force, many models for dark energy use special mechanisms.
- Some theorists have named this "quintessence," after the fifth element of the Greek philosophers.

However, none of the theories have been proved. Due to this, Dark energy has been noted as "the most profound mystery in all of science". Died in 1982, Wardha, Maharashtra.

IMPORTANT FACTS FOR PRELIM

RAJAJI TIGER RESERVE:UTTARAKHAND

Recently, a Supreme Court-appointed committee has questioned relaxations given for the upgrade of a 4.7-km road (Laldhang-Chillarkhal road) in the buffer zone of Rajaji Tiger Reserve and sought replies from the Centre and Uttarakhand government. The relaxation for measurement of roads was approved by the National Board for Wildlife (NBWL). NBWL is the apex agency to clear projects in and around protected areas.

Key Points

Core and Buffer Area of a Tiger Reserve:

- According to the Wild Life (Protection) Amendment Act of 2006, a tiger reserve must have a core or critical habitat and a buffer zone peripheral to it.
- While the critical habitat is supposed to be kept inviolate for conservation, a buffer zone is needed to ensure the integrity of the habitat with adequate space for dispersal of tigers. It is aimed at promoting co-existence between wildlife and human activity.

About Rajaji Tiger Reserve:

- Location: Haridwar (Uttarakhand), along the foothills of the Shivalik range. It is part of Rajaji National Park.
- Background: Rajaji National Park was established in the year 1983 after amalgamating three sanctuaries in the Uttarakhand i.e. Rajaji, Motichur and Chila. It was named after the famous freedom fighter C. Rajgopalachari; popularly known as "Rajaji". It was declared a Tiger Reserve in 2015 as the 48th tiger reserve of the country.

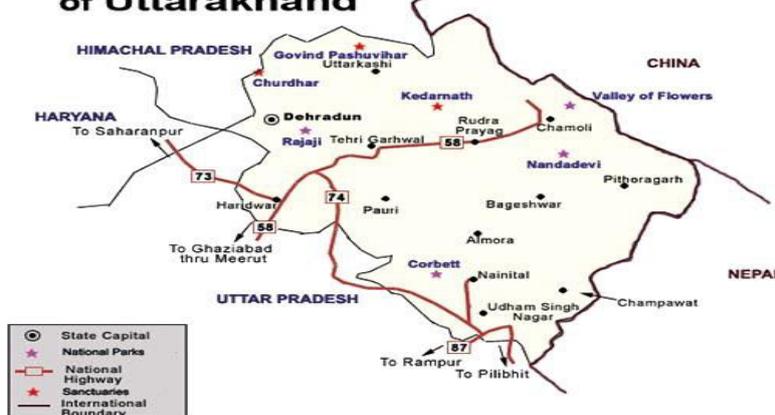
Salient Features:

- **Flora:** Broadleaved deciduous forests, riverine vegetation, scrubland, grasslands and pine forests form the range of flora in this park. Sal (*Shorea robusta*) is the characteristic dominant tree species.
- **Fauna:** The reserve is home to more than 50 species of mammals including tiger, elephant, leopard, Himalayan black bear, sloth bear, jackal, hyena, spotted deer, sambhar, barking deer, nilgai, monkeys and over 300 species of birds.
- **Rivers:** The Ganga and Song rivers flow through this.

Other Protected Areas in Uttarakhand:

- Jim Corbett National Park (first National Park of India).
- Valley of Flowers National Park and Nanda Devi National Park which together are a UNESCO World Heritage Site.
- Govind Pashu Vihar National Park and Sanctuary.
- Gangotri National Park.
- Nandhaur Wildlife Sanctuary.

National Parks & Sanctuaries of Uttarakhand



SAUBHAGYA SCHEME

Recently, the Pradhan Mantri Sahaj Bijli Har Ghar Yojana (SAUBHAGYA Scheme) has successfully completed four years of its implementation. 2.82 crore households have been electrified since its launch till 31st March, 2021.

Key Points

It was launched in 2017 to ensure electrification of all households in the country in rural as well as urban areas.

Objectives:

- Achieving Universal Household Electrification in the country, through last mile connectivity.
- Providing access to electricity to all un-electrified households in rural areas and poor households in urban areas.

Beneficiaries:

- They are identified using Socio Economic and Caste Census (SECC) 2011 data.
- However, un-electrified households not covered under the SECC data would also be provided electricity connections under the scheme by paying Rs 500.

Expected Outcomes:

- Environmental upgradation by substitution of Kerosene for lighting purposes.
- Improvement in education services.
- Better health services.
- Enhanced connectivity through radio, television, mobiles, etc.
- Increased economic activities and jobs.
- Improved quality of life especially for women.

Related Initiatives:

- Deendayal Upadhyaya Gram Jyoti Yojana (DDUGJY).
- PM-KUSUM.
- Integrated Power Development Scheme (IPDS).
- Ujwal Discom Assurance Yojana (UDAY).
- GARV (Grameen Vidyutikaran) App.

DAILY ANSWER WRITING PRACTICE

Qns. The Afghan crisis can be a fatal blow to an already moribund SAARC. Do you think India should consider an alternative approach to augment south Asian cooperation sans Pakistan and Afghanistan? Comment. (250 words)

Introduction

Afghanistan was inducted into SAARC in 2007, a decision that recognised its struggle to emerge from years of war and isolation, and its historical, political, religious, economic and cultural links to the rest of the region. The takeover of Afghanistan by the Taliban is a massive setback to South Asia. Recently there was cancellation of the SAARC foreign ministers meeting on the sidelines of the UN General Assembly in New York, in the backdrop of Taliban takeover. Rightly, India does not want to recognise to legitimise Taliban.

Body**SAARC and the Afghan crisis**

- Pakistan wanted the Taliban to represent Afghanistan during the SAARC meet. Several members, including India, objected to Pakistan's proposal, and the meeting was cancelled due to 'lack of consensus'.
- After the deadly terror attack on the Indian security forces at Uri in 2016, India refused to engage with the SAARC.
- Since then, the SAARC has become almost marginal to the regions' collective consciousness and other organisations such as the Bay of Bengal Initiative for Multi-Sectoral Technical and Economic Cooperation (BIMSTEC) came into the forefront.
- It has been years since there was a summit, principally because it is Pakistan's turn to host it, and Delhi has refused to participate due to the tensions between the two countries over terrorist incidents and other issues.

Alternative to SAARC sans Pakistan

- There is no mistaking the fact that Pakistan had joined the SAARC in 1985 with a clear view to utilise the organisation as an anti-India platform by mobilising the smaller nations of the region.

- The future success of the SAARC lies in making Pakistan irrelevant.
- India should create alternate group conversations such as BBIN (Bangladesh-Bhutan-India-Nepal), and lead more such conversations and consortiums and make such alternate gatherings aspirational for others to sign up.
- In other words, the only way ahead is to promote sub-regionalism within the SAARC to carry out the developmental projects and other integrating ideas.
- India and Sri Lanka on the one hand, and Bangladesh, Bhutan, India and Nepal on the other could join hands to work together.
- As it is, there is already the Bay of Bengal Initiative for Multi-Sectoral Technical and Economic Cooperation (BIMSTEC) that connects South Asian countries (except Pakistan and Afghanistan, which are not members) with Myanmar and Thailand.

Conclusion

It is being increasingly realised that since Pakistan is not interested in implementing the existing SAARC decisions on regional connectivity, trade and terrorism, and it continues to interfere in the internal matters of other member countries in sharp violation of the SAARC Charter, it will be better to proceed with a “small SAARC” option.

DAILY QUIZ

Q1. Consider the following statements regarding R-value which is related to Covid-19.

- 1.The reproduction number or R refers to how many persons an infected person infects on an average.
- 2.It reflects how rapidly the COVID-19 pandemic is spreading.
- 3.In India, the overall R value has been below 1 since the start of the Covid-19 pandemic.

Which of the above statements is/are correct?

- a) 1 only b) **1, 2** c) 1, 3 d) 1, 2, 3

Q2. The prevalence of vitamin D deficiency can be due to

- 1.Sun-fleeing behaviour of individuals.
- 2.Atmospheric pollution

Select the correct answer code:

- a) 1 only b) 2 only c) **Both 1 and 2** d) Neither 1 nor 2

Q3. The Climate Finance Leadership Initiative (CFLI), was recently launched by

- a) India and USA
- b) India and EU
- c) USA and EU
- d) **India and UK**

Q4. Which of the following rivers originate from Himalayan mountains?

- 1.Indus
- 2.Ganges
- 3.Yangtze
- 4.Mekong

Select the correct answer code:

- a) **1, 2** b) 1, 2, 3 c) 1, 2, 4 d) 1, 2, 3, 4

Q5. Consider the following statements.

- 1.Thermal power companies produce three-fourths of India’s electricity.
- 2.Majority of Indian thermal power plants have installed Flue Gas Desulphurization (FGD) units.
- 3.SNOX Flue gas desulfurization removes sulfur dioxide, nitrogen oxides and particulates from flue gases.

Which of the above statements is/are correct?

- a) 1 only b) 1, 2 c) **1, 3** d) 1, 2, 3