



drishti

News Analysis (07 Sep, 2019)

 drishtiias.com/current-affairs-news-analysis-editorials/news-analysis/07-09-2019/print

ISRO Loses Connection with Vikram Lander

India's attempt to create history by becoming the first nation to land close to the south pole of the Moon **might have turned to despair** after **Chandrayaan 2's lander 'Vikram' lost communication**

- The Chandrayaan-2 approached the Moon as normal until an error occurred about **2.1km (1.3 miles) from the surface**, seconds before the ship was expected to land.
- The descent hoped to **reduce its speed from 6048 km per hour to about 7 km per hour** or lower to enable a soft landing.
- India **would have been the fourth nation** to make a soft landing on the Moon if Chandryaaan-2 mission had gone successfully.
- However, according to **Indian Space Research Organisation (ISRO)**, **only 5% of the mission has been lost** (Vikram the lander and Pragyan the rover), **as Chandrayaan 2 orbiter - is orbiting the moon successfully.**
 - The mission life of the **Orbiter is one year.**
 - The Orbiter is meant to **map the lunar terrain**, examine the **intensity of solar radiation** and the **presence of major elements** such as Magnesium, Aluminium, Silicon, Calcium, Titanium, Iron, and Sodium etc.
 - It will also conduct a **quantitative estimation of water-ice** in the polar regions of the Moon.
- **Chandrayaan-2** is an integrated 3-in-1 spacecraft comprising of an **Orbiter of the Moon, Vikram, the lander and Pragyan, the rover**, all equipped with scientific instruments to study the moon.

Source: IE

Indoor Air Pollution

According to the Centre for Science & Environment (CSE), the three-year average levels of **PM 2.5** atmospheric particulate matter (with a diameter less than 2.5 microns) during 2016-18 were **25% lower** than the 2011-14 baseline (three-year average).

Though the number of days with severe PM 2.5 levels have come down since 2015, Delhi still needs to cut pollution levels by 65% to meet global air quality standards.

Indoor Pollution

- The environmental **air pollution** and indoor air pollution are inseparably linked, as people spend around 90% of their time staying indoors.
- According to the **State Of Global Air Report 2019**, an estimated 846 million people in India were exposed to household air pollution in 2017. That forms around **60%** of the country's population.
- Gases and particles in the air can be divided into **two categories: primary and secondary sources**.
 - **Primary gases** and components are **emitted directly from sources** that include the building itself, consumer products (e.g. personal care products, cleaning or cooking products, equipment and office products, off-gassing from items brought into the home), microbial and human metabolic emissions, and also the entry of outdoor air into the house through openings, ventilation systems or leaks.
 - **Secondary gases** are produced through **chemical reactions** in the air. For e.g, cooking releases a large amount of VOCs (Volatile Organic Compounds), CO₂ (Carbon Dioxide), NO_x (Nitrogen Oxide) and other particles. VOCs and NO_x react in the presence of sunlight to form **ozone**.

The ground-level ozone not only has long-term effects on human health but is also a critical pollutant in smog.

Harmful Effects of Indoor Pollution

- Exposure to ground-level ozone increases a person's likelihood of dying from respiratory disease, specifically **cardiovascular diseases**.
- In 2017, exposure to PM 2.5 was the **third leading risk** factor for **type 2 diabetes**-related deaths and disability.
- Nitrogen oxide (NO_x) can cause **inflammation** of the airways. Long-term exposure can diminish lung function and increase susceptibility to allergens.
- Particulate matter from burning cigarettes, mosquito coils in a closed indoor environment can lead to increased cases of cardiovascular and respiratory diseases, following prolonged exposure.

Why indoor air quality matters

A closer look at the main contributors and health impacts of poor indoor air quality.

Outdoor air quality (OAQ)

Outdoor sources

- ▶ Traffic
- ▶ Household combustion
- ▶ Industry
- ▶ Forest fires
- ▶ Road dust
- ▶ Vegetation (pollen)

Ventilation

- ▶ Type
- ▶ Operation
- ▶ Contamination
- ▶ Maintenance

Occupants

- ▶ Number of occupants
- ▶ Age and gender
- ▶ Occupation
- ▶ Socio-economic status
- ▶ Pets

Activities

- ▶ Smoking
- ▶ Cooking
- ▶ Cleaning
- ▶ Opening and closing windows

Indoor air quality (IAQ)

Indoor sources

- ▶ Building materials
- ▶ Heating and combustion appliances
- ▶ Water systems, leaks and condensation
- ▶ Furnishings and decoration
- ▶ Cleaning agents

Indoor environment quality (IEQ)

- ▶ Acoustic conditions
- ▶ Lighting
- ▶ Temperature
- ▶ Humidity
- ▶ Visual comfort

Underlying soil

Radon
(naturally occurring radioactive gas found in igneous rocks and soil)

IMPACT ON HEALTH

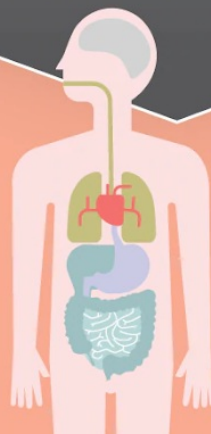
Symptoms

- ▶ Irritation
- ▶ Respiratory symptoms
- ▶ Fatigue and concentration difficulties
- ▶ Headaches

DISEASES

- ▶ Asthma
- ▶ Lung cancer
- ▶ Cardiovascular diseases
- ▶ Chronic obstructive lung disease
- ▶ Respiratory infections
- ▶ Acute toxication

Source: @kati_huttunen/Twitter



Related Findings

- Cooking, cleaning, and other routine household activities generate significant levels of volatile and particulate chemicals
- The purpose of the experiment **HOMEChem (House Observations of Microbial and Environmental Chemistry)** conducted by The University of Texas was to identify the sources of chemical oxidants in the indoor environment, and how they were affected by human activities and changes in light conditions.

There are two main associated issues that were identified are:

- First, the issue of solid fuel use in homes- a problem associated with **rural** households, and
- Second, the issue of exposure related to cooking, smoking, use of incense and/or mosquito coils, consumer products, infiltration of outdoor air, etc. This has more relevance in **urban** households, offices and public spaces.

Way Forward

- Simple measures such as, **cooking with appropriate ventilation** (especially when frying food), **avoiding** the use of incense sticks and candles, room fresheners, etc., (whenever possible), and **restricting** the infiltration of outdoor air, especially on days when pollution levels are high can help to **keep a check** on indoor air pollution in urban households.
- It is important to note that buildings in India often have natural ventilation and tend to be leaky. Special care is needed to **fully seal** the building.
- There is a big gap in the lack of a standard to measure indoor air pollution that needs to be resolved. In India, indoor air is as bad as outdoor air.
- Household air pollution needs to remain a **focus for policy action**, especially in Asia and Africa, where the use of solid fuel for residential cooking and heating is still very high.

Source: Mint

Wetlands Restoration

Recently, the Government has **identified 130 wetlands for priority restoration** in the next five years and asked states to submit their respective integrated management plan.

- Each of these wetlands will be restored under a comprehensive scheme of the **National Plan for Conservation of Aquatic Ecosystems (NPCA)** for conservation and restoration of wetlands and lakes.
- This decision came on the sidelines of the ongoing **UN conference on combating desertification (COP14)** at Greater Noida.

- Apart from this, the government also proposed the concept of '**Wetland Health Card**' to be introduced to monitor the entire ecosystem based on multiple parameters.
- In order to increase community engagement, the government declared to form '**Wetland Mitras**' (the group of self-motivated individuals) for taking care of the identified wetlands across the country.
- **Importance of Wetlands**
 - The wetlands are actually land areas covered by water, either temporarily or permanently. Marsh, fen and peatland come under this category.
 - They play a key **role in the hydrological cycle and flood control**, water supply and providing food, fibre and raw materials.
 - They not only act as a source of water but also as ecosystems that **prevent land degradation and desertification**.
 - Besides, such land areas also **support lakhs of migratory birds** from colder regions of the world in summers.
 - Mangroves protect coastlines and filter pollutants, that's why wetland are referred to as **kidneys of the ecosystem**.
- **Wetlands in India**
 - In 2011, ISRO come out with a national wetlands atlas on the basis of satellite images, mapping over **two lakh wetlands covering around 4.63% of the total geographic area of India**.
 - India's prominent wetlands include Chilika lake areas (Odisha), Wular lake (J&K), Renuka (Himachal Pradesh), Sambhar Lake (Rajasthan), Deepor Beel (Assam) etc.
 - All these falls in the list of 26 wetlands of India under **Ramsar Convention**.
 - Globally, there are 2,220 wetlands in the Ramsar list.

National Plan for Conservation of Aquatic Ecosystems (NPCA)

- NPCA is a single conservation programme for both wetlands and lakes.
- It is a **centrally sponsored schemes** are currently being implemented by the Union Ministry of Environment and Forests (MoEF).
 - It was formulated in 2015 by merging of the National Lake Conservation Plan and the National Wetlands Conservation Programme.
- NPCA seeks to promote better synergy and avoid overlap of administrative functions.

Source: TOI

Avian Influenza

With effect from 3rd September 2019, India has been **declared free from Avian Influenza (H5N1)**, which has also been notified to the **World Organization for Animal Health (OIE)**.

- The declaration is a result of measures taken to control the recent outbreak of the disease at several places in Jharkhand, Bihar and Odisha and hence there is **no presence of the Highly Pathogenic Avian Influenza (HPAI) Virus**.
- The status will last only till another outbreak is reported. India was **last declared free of the disease in 2017**.
- This declaration is important not just from the poultry industry standpoint, but also because humans can contact the disease from animals. Though the pathogen is not capable of sustained human-to-human transmission.

About Avian Influenza

- Avian influenza (AI) is a highly **contagious viral disease** affecting several species of **food-producing birds** (chickens, turkeys, quails, guinea fowl, etc.), as well as pet birds and wild birds.
 - Occasionally mammals, including humans, may contract avian influenza.
- Influenza A viruses are classified into subtypes based on two surface proteins, **Hemagglutinin (HA)** and **Neuraminidase (NA)**. For example, a virus that has an HA 7 protein and NA 9 protein is designated as subtype H7N9.
 - Avian influenza virus subtypes include A(H5N1), A(H7N9), and A(H9N2).
 - HPAI A(H5N1) virus occurs mainly in birds and is highly contagious among them.
 - **HPAI Asian H5N1 is especially deadly for poultry.**
- Avian Influenza outbreaks can lead to devastating consequences for the country, particularly the poultry industry.
 - Farmers might experience a high level of mortality in their flocks, with rates often around 50%.
- **Prevention: Strict biosecurity** measures and good **hygiene** are essential in protecting against disease outbreaks.
- **Eradication:** If the infection is detected in animals, a policy of **culling infected and contact animals** is normally used in an effort to rapidly contain, control and eradicate the disease.

World Organization for Animal Health

- The OIE is an **intergovernmental organisation** responsible for improving animal health worldwide.
- It is recognised as a reference organisation by the World Trade Organization (WTO).
- In 2018, it had a total of 182 Member Countries.
- It is headquartered in **Paris, France**.

Source: IE

The Decline in Cotton Exports

According to the **Cotton Textiles Export Promotion Council** the cotton yarn exports declined by 44% in July 2019, compared with the same month in 2018.

- According to it, Cotton yarn exports are at **a five-year low**.
- Along with this India's share in global textile and clothing exports has also seen a downfall.
- While India was the **second-largest exporter of textile and clothing in 2014-2017, it has come down to the fifth position in 2019**.

Cotton Cultivation

- India is believed to be the original home of the cotton plant. Cotton is one of the main raw materials for the cotton textile industry.
- Cotton grows well in **drier parts of the black cotton soil** of the Deccan plateau.
- It is a **Kharif crop (grown with the onset of monsoon and harvested in September-October)** and requires 6 to 8 months to mature.
- Major cotton-producing states are– **Maharashtra, Gujarat, Madhya Pradesh, Karnataka, Andhra Pradesh, Telangana, Tamil Nadu, Punjab, Haryana and Uttar Pradesh**.
- Conditions required for the cultivation of cotton are:

Temperature

Cotton grows in the **tropical and sub-tropical warm humid climate**. Annual temperature requirement is 20°-28°C. Equitable temperature distribution and bright sunshine is desirable.

Rainfall

- Annual rainfall of 55-100 cm is ideal for cotton Cultivation.
- However, the Rainfall during harvesting is harmful.

Frost-free Days

About 180 frost-free days are the minimum requirement for cotton cultivation. While, 200 frost-free days are desirable for cotton cultivation.

Soil

Fertile, saline soil with high water-retention capacity is ideal for cotton cultivation. Loamy soil with high calcium carbonate is best for cotton cultivation.

Relief

The slight slope of the land drains the soil and is good for cotton cultivation.

Source: TH

Swachhata Awards

The President of India presented the Swachhata Awards on 6th September 2019.

- **Indian Railways** was awarded **the best ministry** for implementation of **Swachhata Action Plan (SAP)** for 2018-19.
- **SAP** was formally launched on 1st April 2017 with the active participation of 72 Ministries and Departments. It is one of the flagship initiatives of the Prime Minister towards making Swachh Bharat everyone's business.
- It aims at **engaging all wings of the Government in the Swachh Bharat Mission programme.**
- **Ministry of Drinking Water and Sanitation, being the nodal agency,** has been engaged with the SAP implementing Ministries and Departments to provide actionable ideas, support implementation as needed and reporting and monitoring through the online portal www.swachhataactionplan.com.
- **Best Swachh iconic Place award was** conferred to the **Chhatrapati Shivaji Maharaj Terminus (CST),** Mumbai under the Swachh Bharat Mission initiative.

Source: PIB
