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Japan's Sakurajima Volcano



- Recently, the Sakurajima volcano in Japan's main western island of Kyushu saw an eruption.
- In the year 2021, the Fukutoku-Okanoba Submarine Volcano erupted in the Pacific Ocean off Japan.

Sakurajima Volcano

- Sakurajima is one of Japan's most active volcanoes and has had various levels of eruptions on a regular basis.
- This is an active Strato Volcano.
- Historically the largest eruptions at Sakurajima occurred during the years 1471–76 and in 1914.
- Eruptions in it have been recorded from the 8th century.
- Due to its continuous accumulation of ash on Kagoshima and its explosive potential, it is considered one of the most dangerous volcanoes.

Volcano:

- A volcano is an opening or rupture in the Earth's surface that ejects hot liquid and semi-liquid rocks, volcanic ash and gases in the form of magma.

- The remaining material causes a volcanic eruption. This can lead to a rapid explosion, which leads to the release of a large amount of material.
- Exploded material on Earth can be liquids (“lava” when it’s on the surface, “magma” when it’s underground), ash and/or gas.

Reason for rise in magma:

- Ejection of magma occurs when Earth’s tectonic plates undergo convergent motion. Magma rises to fill the void. When this happens, the process of volcanic formation can also take place under water.
- When these tectonic plates move towards each other, magma also rises and parts of the plate go deep into its interior, due to high temperature and pressure, the crust melts and rises up as magma.
- Magma finally rises above the hot-spot. Hot-spots are hot regions inside the Earth. These regions heat the magma. When this magma is less dense it rises up. Although the causes of magma uplift vary, they may each have the potential to form a volcano.

Type:

Shield Volcano:

- This volcano produces low viscosity, flowing lava that extends far from the source and forms a volcano with a mild slope.
- Most shield volcanoes are formed from fluid, basaltic lava flows.
- Mauna Kea and Mauna Loa are shield volcanoes. They are the largest active volcanoes in the world around the Hawaiian Islands.

Strato Volcano:

- Strato volcanoes have relatively steep slopes and are more cone-shaped than shield volcanoes.
- They are formed from viscous, viscous lava that does not flow easily.

Lava dome:

- Soufriere mountain volcano on the Caribbean island of Montserrat, known for its lava dome complex at the summit of the volcano, has gone through phases of growth and collapse. Since viscous lava is not very liquid, it cannot easily move far beyond the exhaust hole when it is expelled. Instead it accumulates in the form of a pile at the top of the vent which forms a dome shaped structure.

Caldera:

- Magma is deposited in the magma chamber under the volcano. When a volcanic eruption occurs, magma is expelled out of the chamber, causing the magma to form a depression or bowl-like structure with vertical walls on the roof surface of the chamber.
- These are calderas and can be tens of miles apart.

Volcanoes in India:

- Barren Island, Andaman Islands (India’s only active volcano)
- Narcondam, Andaman Islands

- Baratang, Andaman Islands
- Deccan Traps, Maharashtra
- Dhinodhar Hills, Gujarat
- Dhosi Hills, Haryana.

Swadeep Kumar

Street vendors



- Recently, the Minister of Housing and Urban Affairs addressed the 6th meeting of the National Association of Street Vendors of India (NASVI) on the topic “From Encroachers to Self-Employed”.

Street Vendors:

- Street vendors are individuals who offer to sell goods to the public on a large scale without a permanent built structure to sell the goods.
- Street vendors permanently occupy pavements or other public/private places to sell goods or temporarily move their goods from one place to another carrying their goods in push carts or head baskets.

Population

- The number of street vendors has increased significantly in major cities around the world, especially in developing countries in Asia, Latin America and Africa.
- Around 49.48 lakh street vendors have been identified in India.
- Uttar Pradesh has the highest number of 8.49 lakhs, followed by Madhya Pradesh with 7.04 lakhs street vendors.
- There are only 72,457 street vendors in Delhi.
- No street vendor has been identified in Sikkim.

Constitutional Provisions:

Right to do business:

- Article 19(1) (g) gives fundamental right to Indian citizens to practice any profession or to carry on business, trade or commerce.

Equality before the law:

- According to Article 14 of the Constitution, the State shall not deny to any person equality before the law or equal protection of the laws within the territory of India.

Social justice:

- The Preamble of the Indian Constitution states that India is a sovereign, socialist, secular democratic republic and shall ensure social, economic and political justice, equality of status and opportunity for all its citizens.

Directive Principles:

- **Under Article 38(1)**, the state has to direct the promotion of the welfare of the people by ensuring a social order, in which social, economic and political justice will be ensured in the national institutions.
- **Article 38(2)** directs 'to reduce inequalities in income status, facilities and opportunities'.
- **Article 39 (A)** directs the state to formulate policy to ensure that citizens, men and women alike, have the right to access to adequate means of livelihood.
- **Article 41** specifically provides for the 'right to work' within the limits of the economic capacity of the state.

Reasons for increasing the number of street vendors:

- First, poverty in rural areas as well as lack of gainful employment have forced people to move out of their villages in search of a better life in the cities.
- These migrants lack the skills or education to get better wages, secure employment in the organized sector, so they have to settle for work in the unorganized sector.
- Second, there is another section of the population in the country who is forced to go to the unorganized sector for employment.
- These are the workers who were once employed in the organized sector.
- They lost their jobs due to closure, shrinkage or merger of industries and they or their family members had to look for low wages work in the unorganized sector to make a living.

Challenges before Street Vendors:

Space constraints:

- The master plans prepared for our cities do not allocate space to vendors/hawkers, as the planners imitate the western concept of marketing ignoring Indian traditions.

Troubleshooting multiple authorizations:

- Vendors have to deal with many authorities- Municipal Corporation, Police (Station as well as Traffic), Regional Development Authority, District Administration, Local Panchayat etc.

Exploitation and Extortion:

- In many cases the positive steps taken by one authority get nullified because of the actions of others.

- Instead of regulating vendors, municipal corporations regard them as an encroacher and a nuisance, their policies and actions aimed more at removing and harassing them rather than regulating them.

Frequent evictions:

- Regular evictions are carried out by the district or municipal administration.
- They fear the action of the eviction team known locally by different names.

Extortion racket:

- Cases of 'extortion tax' and 'haft collection' are common.
- In many cities sellers have to pay enough money to run their business.

Government Initiatives for Street Vendors:

Svanidhi Scheme:

- SVANidhi scheme was launched to benefit more than 50 lakh street vendors of urban areas, including people from adjoining urban/rural areas.
- It aims to promote digital transactions through cash-back incentives up to an amount of Rs 1,200 per annum.

National Association of Street Vendors of India:

- NASVI is an organization working to protect the livelihood rights of thousands of street vendors across the country.
- The main objective of setting up NASVI was to bring together street vendor organizations in India so that collective efforts can be made for changes at a large scale.

The Street Vendors (Protection of Livelihoods and Regulation of Street Vending) Act, 2014:

- This act was enacted to regulate and protect the rights of street vendors in public areas.
- The Act defines a street vendor as a person who sells goods or services of everyday use to the general public, in any public place or private area, by means of a temporary structure or by moving from place to place.

Swadeep Kumar

AI Ethics

Artificial intelligence (AI) is more present in our lives than ever but it cannot be said to always be beneficial.

What is Artificial Intelligence (AI)?

- **AI**– AI refers to the simulation of human intelligence in machines that are programmed to think like humans and mimic their actions.

- The goals of artificial intelligence include learning, reasoning, and perception.
- **Machine learning**– Machine learning refers to the concept that computer programs can automatically learn from and adapt to new data without being assisted by humans.
- **Deep learning**– Deep learning techniques enable this automatic learning through the absorption of huge amounts of unstructured data such as text, images, or video.

What about the application of AI?

- India is one of the world's largest markets for AI-related technologies valued at over 7.8 billion dollar in 2021.
- **Applications of AI**
 - **Healthcare**– AI is utilised for dosing drugs and different treatment in patients, and for surgical procedures.
 - **Gaming**- Artificial intelligence includes computers that play chess.
 - **Automobiles**– Self-driving cars utilize AI technology.
 - **Finance**- AI is used to detect and flag activities such as unusual debit card usage and large account deposits.
 - **Agriculture**– AIs are utilised for real-time insights from their fields, intelligent spraying, disease diagnosis, etc.
 - **Assistance**– Personal assistants such as Amazon's Alexa and Apple's Siri are included in the weak AI systems (designed to carry out one particular job).

The National Strategy on Artificial Intelligence released by NITI Aayog in 2018 highlights the massive potential of AI across areas such as agriculture, health, and education.

What are the issues in AI?

- **Biased outcomes**– The data used to feed into AI often aren't representative of the diversity of our societies, producing biased or discriminatory outcomes.
 - For instance, while India and China together constitute around a third of the world's population, they form just 3% of images used in ImageNet.
- **Issue with facial recognition tech**– The scope for racial discrimination is increasing with increased usage of facial recognition technology.

- For three programs released by major tech companies, the error rate was 1% for light-skinned men, but 19% for dark-skinned men, and up to 35% for dark-skinned women.
- Biases in facial recognition technologies have led to wrongful arrests.

What is the global standard for AI ethics?

- In 2021, the Recommendation on the Ethics of Artificial Intelligence was adopted by UNESCO's General Conference at its 41st session.
- It aims to fundamentally shift the balance of power between people, and the businesses and governments developing AI.
- UNESCO members have agreed to use affirmative action to make sure that women and minority groups are fairly represented on AI design teams.
- The recommendation also underscores the importance of the proper management of data, privacy and access to information.
- It calls on member states to ensure that appropriate safeguards are devised for the processing of sensitive data and effective accountability and redress mechanisms are provided.
- The Recommendation takes a strong stance that
 - AI systems should not be used for social scoring or mass surveillance purposes
 - Attention must be paid to the psychological and cognitive impact that these systems can have on children
 - Member states should invest and promote not only digital, media and information literacy skills, but also socio-emotional and AI ethics skills.
- UNESCO is also in the process of developing tools to help assess the readiness in the implementation of the recommendations.

Finland's 2017 AI Strategy demonstrated how governments can effectively promote ethical AI use without compromising the desire to be on the cutting edge of new technologies.

How to ensure the full potential of these technologies?

- The right incentives for ethical AI governance need to be established in national and sub-national policy.
- The recommendations must be put to use to guide governments and companies to develop and deploy AI technologies that conform to the commonly agreed principles.