1. The Potential of Goat Milk in Gujarat

The Agriculture Minister's Proposal
The Agriculture Minister of Gujarat, Raghavji Patel, has asked for a proposal on the possibility of branding and marketing the milk of goats, which is currently sold only informally.

Goat Milk Production in Gujarat
A survey by the Gujarat animal husbandry directorate estimated the state's goat population at 50.55 lakh in 2021-22, and the goat milk production at 3.39 lakh tonnes (329 lakh litres; 1 litre is equal to 1.03 kg of milk). This was around 2% of the state's total milk production.

How can procurement by Amul help goat and sheep herders?
With no formal mechanism to sell their produce, pastoralists often prepare mava, an ingredient for many sweets, from goat milk, or sell the milk to tea stalls and hotels for around Rs 21 per litre. In some cases, goat milk is mixed with other milk and sold.

Does this mean it is possible to turn the goat into a primarily milch animal?
Given the quantity of milk that a goat produces daily, they may not be viable as milch-only animals. Goats have always been reared for both milk and meat — goat wool is coarse, and has no takers. Separate branding and marketing of goat milk can increase the earnings of pastoralists, but even then some goats will end up in slaughterhouses to keep the herd viable.

What benefits does goat milk have?
Mahatma Gandhi preferred goat milk, and claimed that since goats eat plants, herbs, shrubs, and grass, their milk has health benefits.

The fat content of goat milk is around 3%, which is similar to breast milk, and it has comparatively low solids-not-fat (SNF) content, and is hence easy for humans to digest. Doctors prescribe goat milk for neonates if the mother is not able to breastfeed. This is also the reason that lactose intolerant persons can consume goat milk without much difficulty.

Relevance: GS Prelims & Mains Paper III; Economy
Source: The Indian Express

2. Understanding Common Air Pollutants and Their Health Impact

Rising Pollution Levels in North India

Rising pollution levels in north India have led to focus returning on the Air Quality Index (AQI) score, a measure of air pollution. Delhi, for instance, recorded an AQI score of more than 400 on November 6. This puts the air in the 'severe' category, with anything beyond 100 considered to be a state of at least moderate pollution on the index.

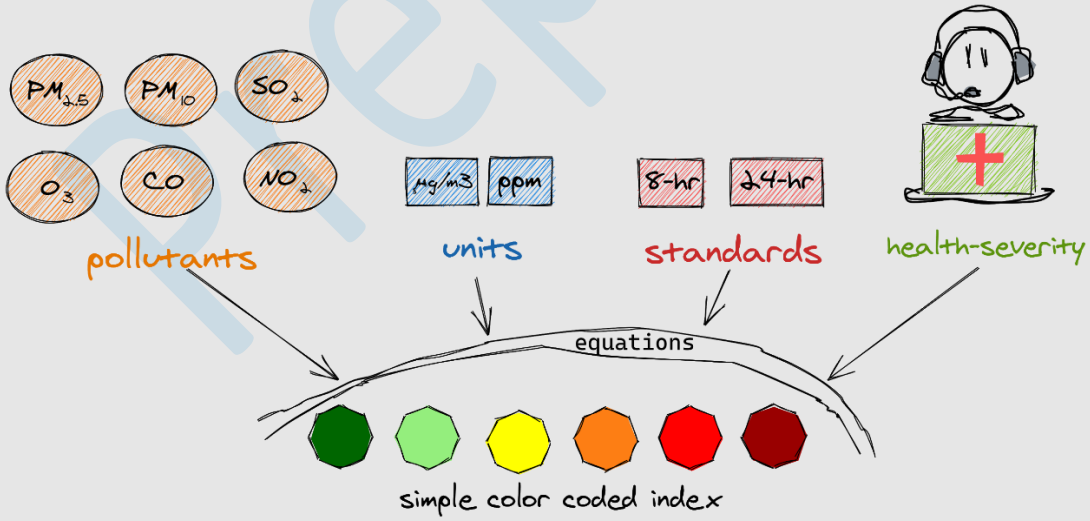
The Role of AQI

The AQI transforms complex air quality data of various pollutants into a single number for ease of understanding. The pollutants include PM 10, PM 2.5, Nitrogen Dioxide, Ozone, Carbon, etc.

What is PM 10 and PM 2.5?

These are extremely fine particulate matter (PM) particles, with the digits accompanying them referring to their diameter. So, PM 10 and PM 2.5 are smaller than 10 and 2.5 microns in their diameter, respectively. One micron is about a thousandth of a millimetre and this tiny size has a role to play in how they impact human health. The finer the particles are, the more difficult it gets to protect oneself from them

Due to their size, the PM 2.5 particles can easily bypass the nose and throat and can enter the circulatory system. The particles can also lead to chronic diseases such as asthma, heart attack, bronchitis, and other respiratory problems. These Particles are released from factories, vehicular pollution, construction activities and road dust. Such particles are not dispersed and stay suspended in the air that we breathe.



Nitrogen Dioxide (NO_2)

Nitrogen dioxide (NO_2) gets in the air from the burning of fuel, with sources including emissions from vehicles and power plants.

The exposure to high levels of NO_2 can aggravate respiratory diseases like asthma, and lead to other problems such as coughing or difficulty in breathing.

Ozone (O_3)
Ozone is a gas that is present in the upper layers of the atmosphere, protecting human health from the impact of the Sun's UV rays. However, surface-level ozone is among the most significant air pollutants. It is formed by the reaction of atmospheric pollutants in the presence of sunlight.

According to a 2017 study, increased surface ozone levels are likely to increase the risk of hospital admissions for Chronic Obstructive Pulmonary Diseases (COPD) and the number of cardiovascular and respiratory deaths.

Sulphur Dioxide (SO_2)
The largest source of SO_2 in the atmosphere is the burning of fossil fuels by power plants and other industrial facilities. Additional sources are industrial processes and natural sources such as volcanoes.

As with other gases, SO_2 exposure is harmful to the cardiovascular system and can lead to the development of respiratory illnesses. SO_2 can also react with other compounds to form particulate matter. At high concentrations, SO_x gaseous can harm trees and plants by damaging foliage and decreasing growth.

Ammonia (NH_3)
Increase in fertilizer use coupled with large contributions from livestock waste have resulted in the world's highest concentrations of atmospheric ammonia.

While gaseous ammonia is a natural part of Earth's nitrogen cycle, excess ammonia is harmful to plants and reduces air and water quality. Ammonia gas reacts with nitric and sulfuric acids to form nitrate-containing particles. Those particles contribute to aerosol pollution that is damaging to human health. Ammonia gas can also fall back to Earth and enter lakes, streams and oceans, where it contributes to harmful algal blooms.

Lead (Pb)
Lead is a naturally occurring toxic metal found in the Earth's crust. But in increased quantities, exposure to it becomes extremely dangerous to health. Important sources of environmental contamination come from mining, smelting, manufacturing and even recycling activities.

Young children are particularly vulnerable to lead poisoning because they absorb four to five times as much ingested lead as adults from a given source. Children who survive severe lead poisoning may be left with permanent intellectual disability and behavioural disorders.

Carbon Monoxide (CO)
A toxic, colorless, and odorless gas, carbon monoxide (CO) is given off when fuel containing carbon, such as wood, coal, and petrol, is burned.

If CO levels are high enough, a person may become unconscious and die. Long-term exposure has been linked with an increased risk of heart disease.

Relevance: GS Prelims & Mains Paper III; Environment
Source: The Indian Express & The Hindu

3. Jharkhand Launches Land Title Drive under FRA

Overview of the Forests Rights Act
The Jharkhand government has initiated a special drive, Abua Bir Dishom Abhiyan, to grant land title certificates to individuals and communities under the Forests Rights Act (FRA). The FRA, enacted in 2006, bestows self-cultivation and habitation rights on Scheduled Tribes and Other Traditional Forest Dwellers through Individual Forest Rights (IFR) and Community Forest Rights (CFR). These rights encompass various aspects, including grazing, fishing, resource access, and customary rights.

Reasons for Initiating the Drive
The recent drive, launched after a nine-year gap, aims to address the shortcomings in the implementation of the FRA. Jharkhand has struggled to process a significant number of pending applications for IFR and CFR rights. The state's performance lags behind Chhattisgarh, which has processed and granted a much higher number of title claims.

Government's Approach
To expedite the process, the Jharkhand government is taking several measures. It is establishing a dedicated website and mobile application for stakeholders to track applications and verify geotagged land parcels. The Department of Scheduled Tribe, Scheduled Caste, Minority, and Backward Class Welfare has instructed Deputy Commissioners to form/reconstitute Forest Rights Committees (FRC) at the village, sub-divisional, and district levels. Additionally, special Gram Sabhas are being organized to facilitate the resolution of pending and rejected claims.

Addressing Challenges
While implementing the FRA, the government faces certain challenges, including changing the mindset of some forest officials who view forest dwellers as encroachers. The hierarchical structure in verifying and granting titles also poses difficulties, as the responsibility lies with district welfare officers, leading to bureaucratic hurdles.

Overall, the government is striving to streamline the FRA claims generation and titles distribution process to fulfill its electoral promises and address long-standing land rights issues.

Relevance: GS Prelims & Mains Paper II; Governance
Source: The Indian Express

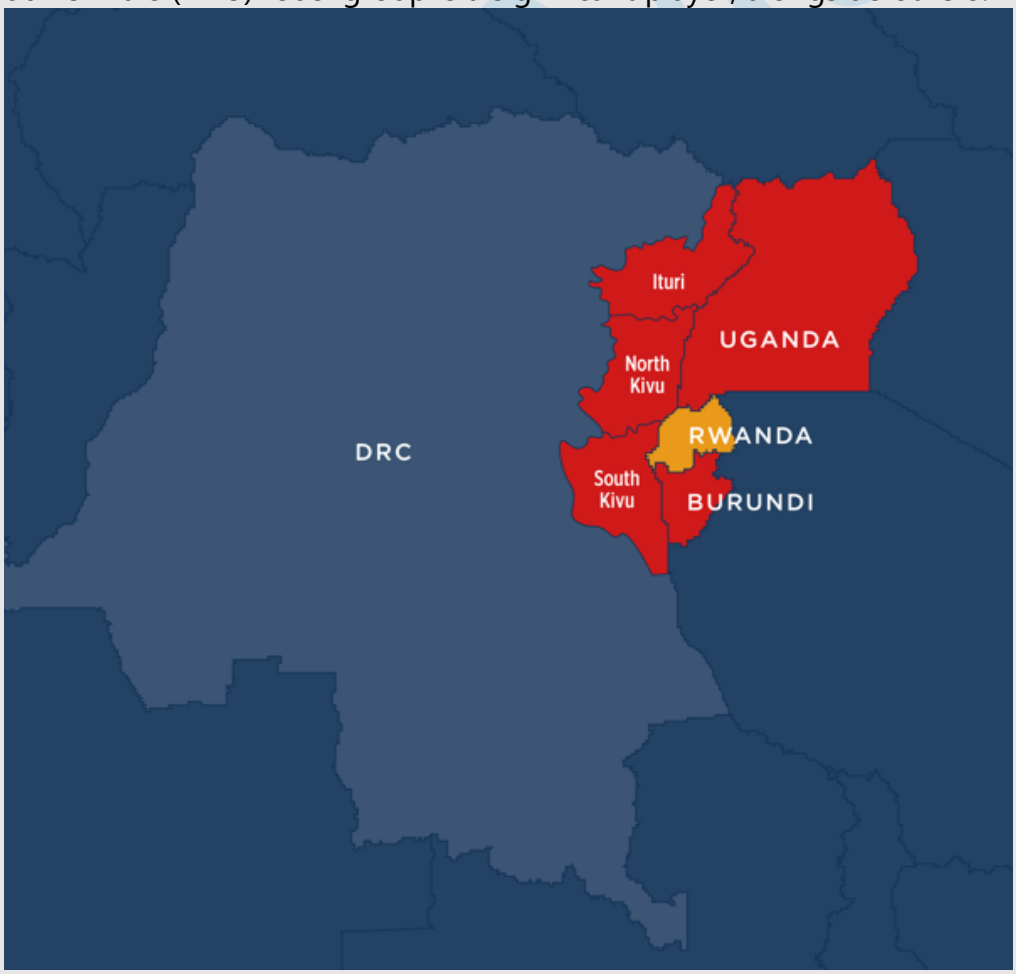
4. The Ongoing Crisis in the Democratic Republic of Congo

Conflict Origin

The conflict in the Democratic Republic of Congo (DRC) traces back to the 1990s, sparked by the aftermath of the Rwandan genocide in 1994. Ethnic tensions and violence have plagued the eastern DRC ever since, leading to numerous rebel groups and instability.

Current Conflict and Major Groups

The DRC faces insurgency by multiple rebel groups, with over 120 such groups operating in the eastern provinces of North Kivu, South Kivu and Ituri. The Mouvement du 23 Mars (M23) rebel group is a significant player, alongside others.



Escalating Tensions with Neighbors

Tensions between the DRC and neighboring Rwanda have been on the rise, with both countries accusing each other of supporting different rebel groups. The resurfacing of M23 in 2021 worsened the security situation in eastern DRC, leading to frequent attacks and territorial control by the rebels.

Causes of Displacement

Displacement in the DRC is primarily driven by ethnic intolerance, insurgency, political uncertainty, and a lack of inclusive governance. The presence of ethnic militias, regional tensions, and a weak international response have further exacerbated the humanitarian crisis in the region.

Relevance: GS Prelims; International Relations
Source: The Hindu