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16-31 OCTOBER, 2020

DownToEarth

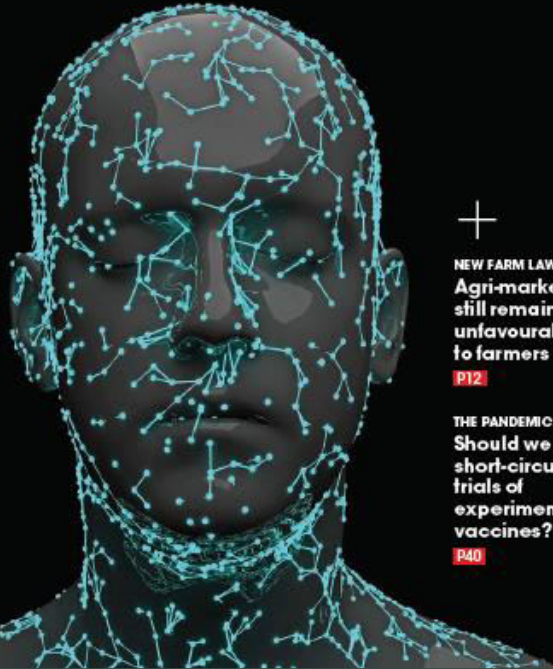
INTERNATIONAL DAY OF CLIMATE ACTION

FORTNIGHTLY ON POLITICS OF DEVELOPMENT, ENVIRONMENT AND HEALTH

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UNCOMFORTABLE CLOSE-UP

Facial recognition technologies have created a data pool that allows unchecked surveillance on an unprecedented scale



+

NEW FARM LAWS
Agri-markets still remain unfavourable to farmers

P12

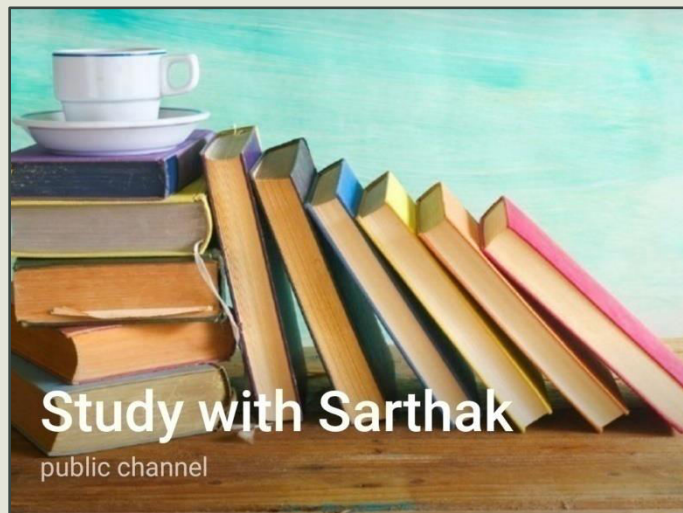
THE PANDEMIC
Should we short-circuit trials of experimental vaccines?

P40

DOWN TO EARTH ANALYSIS

October – Part II





Description

Knowledge is only real when shared.

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2. Face Off
3. India needs the 'Garibi Hatao' slogan back



Last straw to stubble burning

Introduction

Stubble burning is the **intentional burning** or setting on fire of **crop residue** to **remove them from the field**.

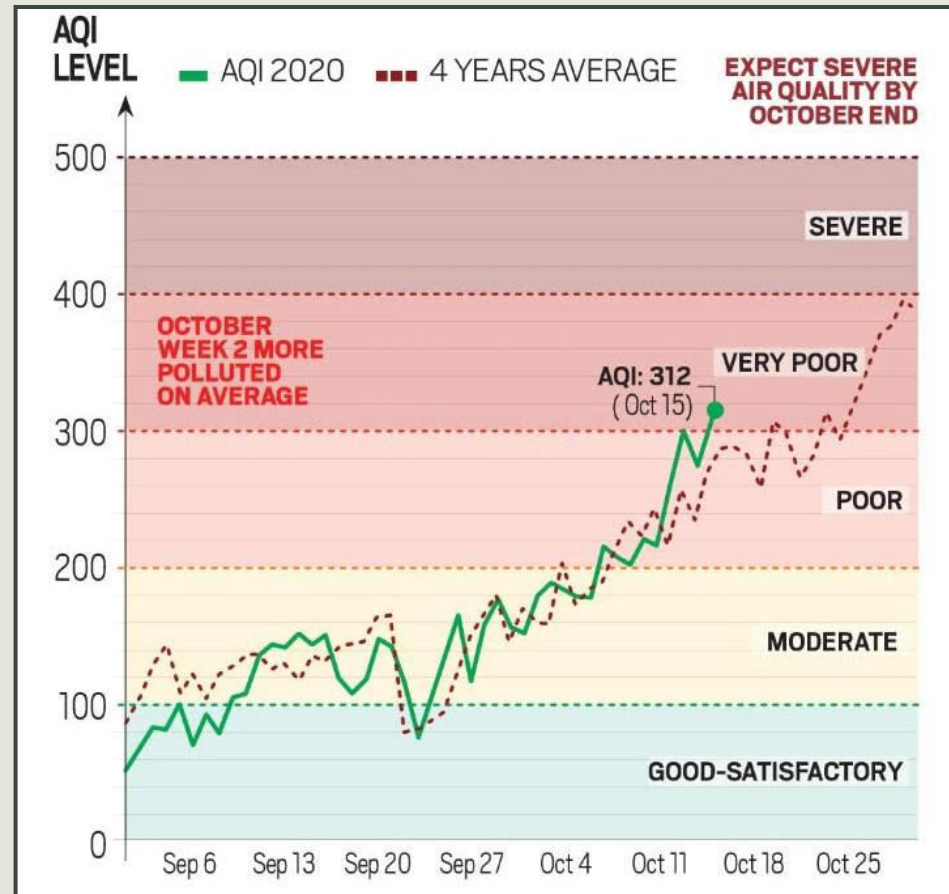
Every year the **northern region** of India faces the **grim problem of rising pollution** mainly due to stubble burning in states like **Haryana, Uttar Pradesh and Punjab**.

When stubble is burnt in fields, winds bring the **pollution to cities like Delhi**—already choking from the **emissions of vehicles** and local sources of pollution.



DELHI'S AIR POLLUTION ALREADY THE WORST IN 4 YEARS

THE CAPITAL'S AIR HAS BREACHED
VERY-POOR MARK ALMOST A WEEK AHEAD
OF ITS TIME SINCE OCTOBER 2016



Why Farmers Burn Stubble?

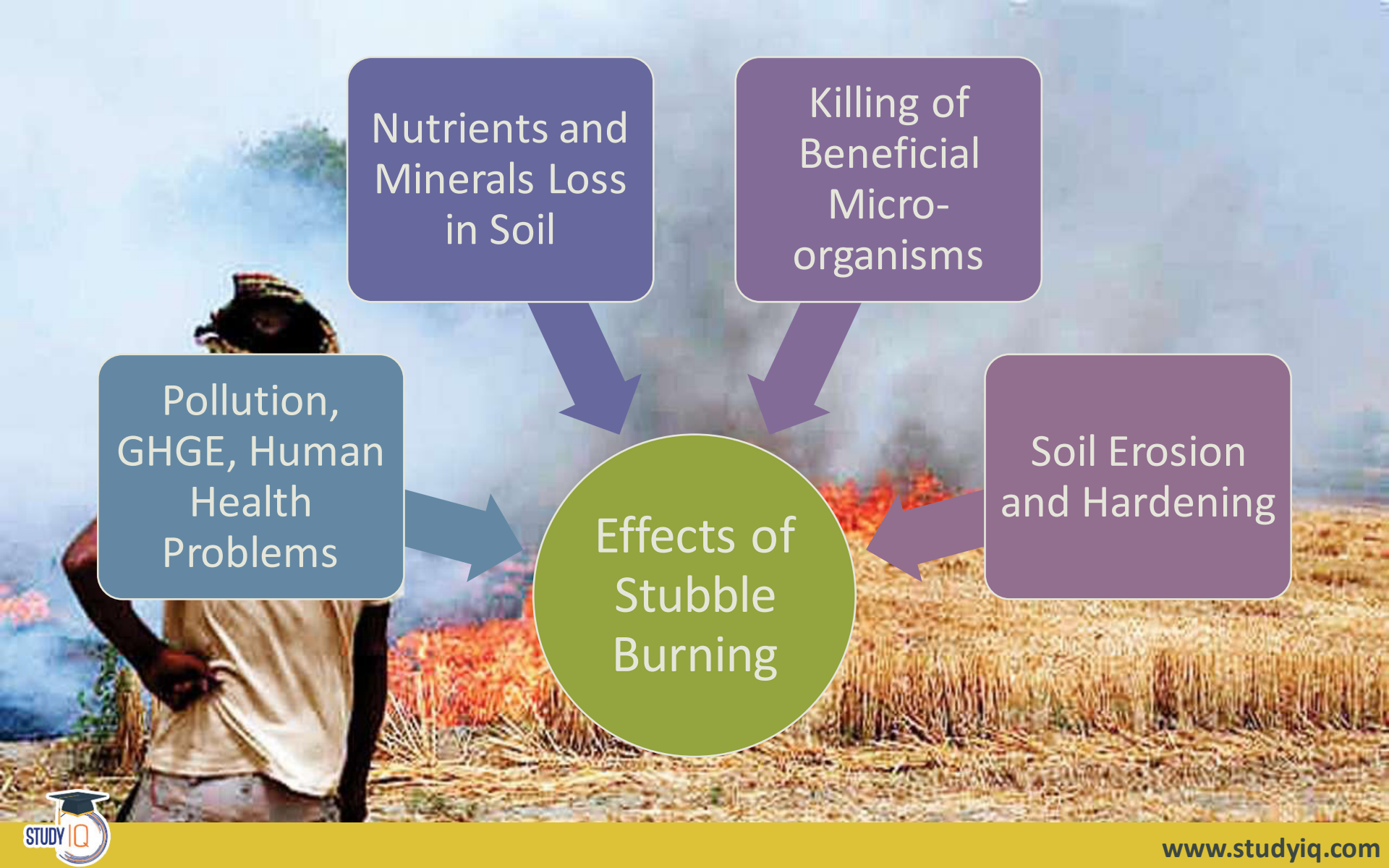
Firstly, the **Punjab Preservation of Subsoil Water Act (2009)** made it mandatory for farmers to **transplant paddy late** during the Kharif season to **prevent loss of water**. This gives the farmers **very little time** between harvesting the rice crop and preparing the field for the **next winter crop** (mostly wheat). Stubble burning is a **quick, cheap and easy way** to clear the field of any rice chaff residue.

Secondly, **mechanised harvesting** extracts the rice grains only **leaving behind huge residue**. Manual harvesting is not an option for farmers because of the **huge labour charges** and the **increased time taken**.

Why Farmers Burn Stubble?

Thirdly, the **utility of stubble has decreased**. Earlier, the stubble was used by farmers as **hay to keep animals or homes warm**, and even for **cooking**. However, these uses of stubble have now become **outdated**. Also, rice straw is **not considered suitable as fodder** for animals because of its **high silica content** (this is true for the non-basmati variety of rice).





Nutrients and
Minerals Loss
in Soil

Killing of
Beneficial
Micro-
organisms

Pollution,
GHGE, Human
Health
Problems

Soil Erosion
and Hardening

Effects of
Stubble
Burning

The three fold Solution

One, use **machines to plough back the straw into the ground**. In the past two years, the Union government has provided funds so that state governments can procure these machines and make them available to farmers at no cost or at minimal cost of operation.

Happy seeders should be encouraged.

The second option is to wean farmers away from growing paddy and to **diversify their cropping options**. This, obviously, is **more challenging** but needs to be done.

The three fold Solution

The third part of the solution is to **provide value to the biomass**—farmers will not burn if they can be **paid for the straw**. There is huge potential here—from **generating power** to using straw to make **compressed biogas** (CBG). RBI has included **CBG in its list of priority sector lending**. Oil companies have agreed on a **buy-back rate of Rs. 46/kg for five years**.



Face Off



Introduction

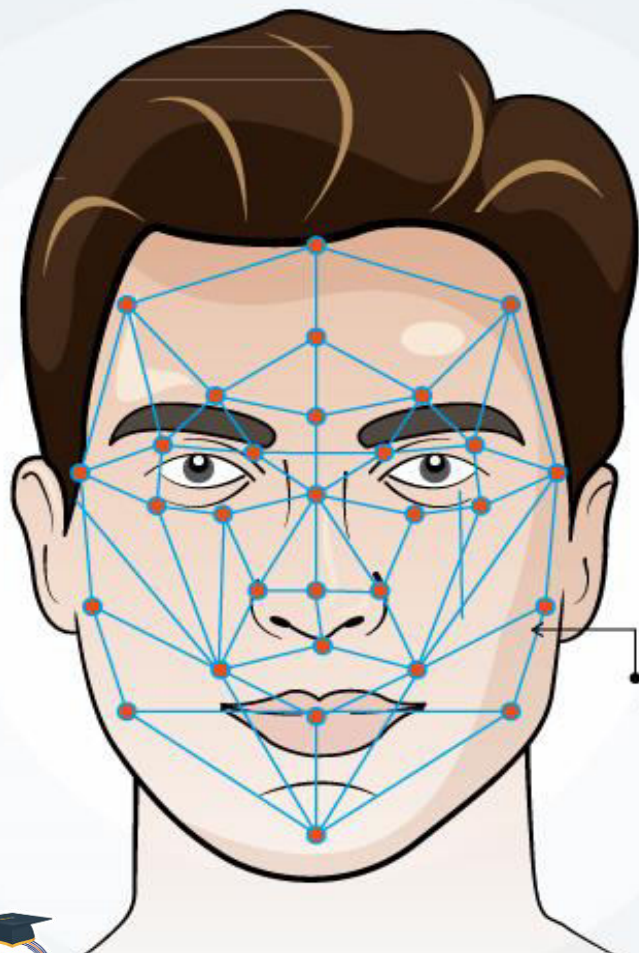
Facial recognition is a biometric technology that uses distinctive features on the face to identify and distinguish an individual.

As per the Allied Market Research group research, the global facial recognition market would grow annually at 22 per cent for the next two years to become a \$9.6 billion trade.

In recent years, 3D facial recognition devices have captured a significant market as retailers deploy them to gauge customers' facial gestures to know their shopping behaviours.

STEP BY STEP

Currently used by governments and private firms across the world, facial recognition is considered the least intrusive of biometric technologies



CAPTURING

The foremost requirement is to capture the image and that can be done by scanning existing images or using cameras



EXTRACTING

Unique facial data is then extracted from the sample.



COMPARING

The data is then compared with the database.



MATCHING

The software then decides whether the sample matches any picture in the database or not.

SOME OF THE PLACES SUCH SYSTEMS ARE EITHER BEING USED OR COULD BE USED



Airports



Railway stations



Banks & financial institutions



Stadiums



Public transport



Government offices



Business establishments

History of Facial Recognition

The idea of facial recognition gained traction in the 1960s when Woody Bledsoe, co-founder of Panoramic Research in California, found a way to manually input a person's facial features into a computer that would then search for matches based on the distances between eyes, mouths, tips of noses and hairlines.

The accuracy improved in the 1970s as researchers drew on more facial markers, such as lip thickness.

But the real progress came in the 1980s and 1990s with new methods to locate a face in an image and extract its features, making fully automated facial recognition possible.



History of Facial Recognition

The most radical advances came from 2010 onwards when deep neural networks helped in the mastery of face recognition.

In 2011, the technology helped confirm the identity of Osama bin Laden when he was killed in a US raid.

Facebook rolled out the technology for photo tagging and in 2014, its DeepFace program became the first to reach near-human performance in face recognition.

As a Surveillance Tool in India

The Delhi Police introduced facial recognition technology in 2017, by setting up a **surveillance unit** with the mandate of **searching missing children and identifying bodies**. This happened on the **orders of Delhi High Court** in the Sadhan Haldar v The State NCT of Delhi case.

A little later, the agency on its own widened the scope and started **screening the people who would visit Red Fort** on Independence Day to listen to the Prime Minister's speech. Now it uses the technology for **all kinds of surveillance**.

The technology was used by Delhi Police to **apprehend 1,900 rioters in the Delhi riots case**.



As a Surveillance Tool

Similar trends can also be seen in **Telangana** where the police recently used its surveillance system to **track people suspected of covid-19.**

Currently, five other police forces are using facial recognition technology in some form or the other – **Punjab, Uttar Pradesh, Uttarakhand, Maharashtra and Tamil Nadu.**

National Automated Facial Recognition System

India is setting up one of the world's **largest facial recognition surveillance system**.

The National Automated Facial Recognition System, being developed by the **National Crime Records Bureau** is claimed to automatically identify and verify **criminals, missing persons and unidentified bodies**.

The National Automated Facial Recognition System will have a **searchable visual database** of “missing persons, unidentified found persons, arrested foreigners, unidentified dead bodies and criminals based around **dynamic police databases**”.



Criticism

Currently, there is **no legal framework** to regulate usage of this technology. In the famous, **Justice K.S. Puttaswamy case**, the Supreme Court explained that states can **interfere with an individual's privacy** only if: it is supported by **law**; pursues a **legitimate state aim**; and is **proportional to the objective**.

Most of the facial recognition technologies being used in the world are **not accurate**. In the **Delhi Riots case**, the technology used by the Delhi Police to apprehend rioters has an **accuracy rate of less than 1 per cent**. It cannot even distinguish between **boys and girls**, claims an affidavit filed by the Union Ministry of Women and Child Development to the Delhi High Court in August 2019.



Criticism

A US research of 2018 found that three of the major commercial facial recognition technologies **misidentified darker-skinned females** with a maximum **error rate of 34.7%** as compared to the maximum **error rate of 0.8%** for lighter skinned males.

It allows the government to **set up surveillance system which is not transparent** in functioning and can be **misused**. For example, China— which currently has the largest facial recognition system in place—used it to **identify and target prodemocracy protestors** and to track the movement of **Uighur Muslims**.

Way Forward

In India, the technology is in its **nascent stage** and thus **research and development** is required in order to make it **accurate and effective**.

Before the launch of National Automated Facial Recognition System, the govt should **enact a law to regulate facial recognition technology** and to clearly define its usage. There is a need to strike a balance between **surveillance and privacy**.

India needs the 'Garibi Hatao' slogan back



Introduction

The **latest data** on poverty in India is from a survey done in **2011-12**, or almost a **decade-old**. This was based on a **household consumption expenditure survey** (68th round) done by the NSO, the nodal agency that conducts these surveys. Compared with **407.2 million poor people in 2004-05**, the number came down to **269.7 million in 2011-12** — a **reduction of 33 per cent**.

India was to release its latest **household consumer expenditure survey** data by the National Statistical Office (NSO, 75th round) for **2017-18** last year. But the Union government **didn't release this data, citing 'quality'**. The unpublished data was, however, released in a few newspapers that indicated a **rise in poverty level**.



Introduction

The World Bank's biennial **Poverty and Shared Prosperity Report: Reversals of Fortune** was released on October 7, 2020. It says that

For the first time in two decades, **global poverty rate would go up** due to the novel coronavirus disease (COVID-19) pandemic.

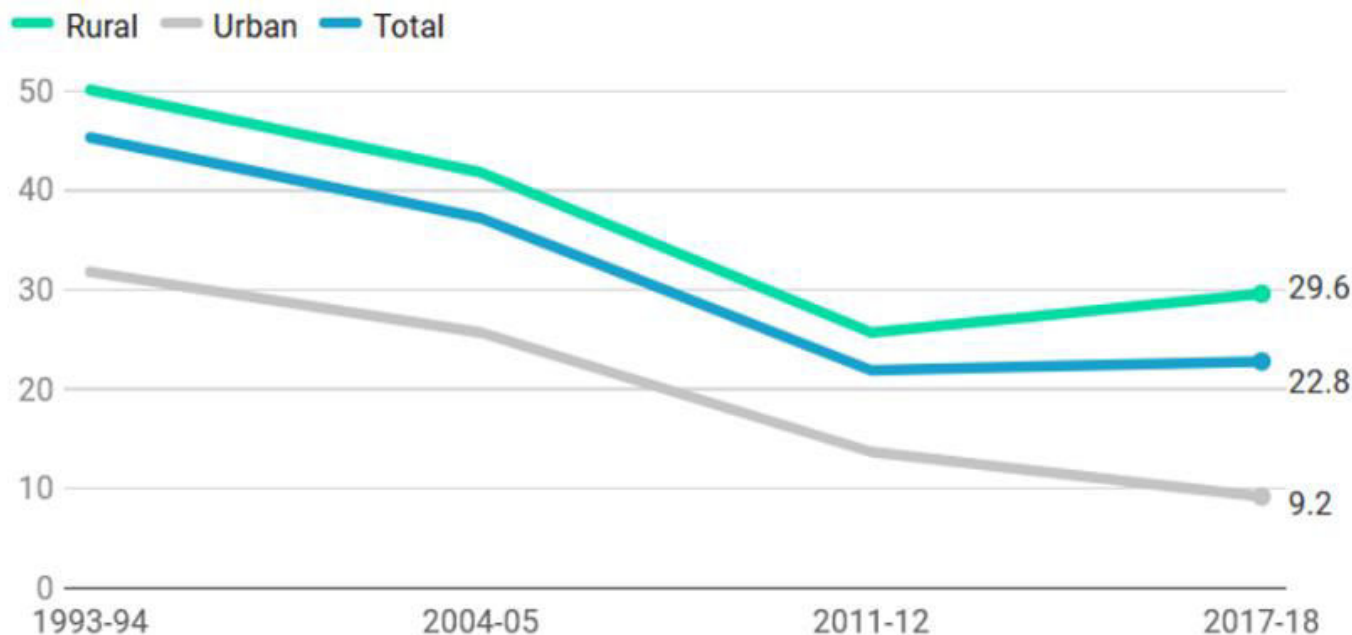
The report explicitly mentions, "The **lack of recent data for India** severely hinders the ability to **monitor global poverty**".

As per the report, India tops the global list in terms of absolute number of poor, and accounted for **139 million of the 689 million people living in poverty in 2017.**



India's poverty rate has risen after many decades

% poor (as per the poverty line set by Planning commission)



Estimates till 2011-12 are as reported by a 2013 Planning Commission note on poverty rates. Estimates for 2017-18 are derived estimates from the buried consumption survey report prepared by the NSO, using the inflation-adjusted state-wise poverty lines drawn by the Planning Commission in 2013 based on the Tendulkar committee methodology of estimating poverty.

Why the cry about poverty?

First

- We have **stopped taking stock of poverty**. This makes it difficult to **assess the impacts of hundreds of development programmes** India implements to eradicate poverty.

Second

- Going by all economic indicators of recent years, it is certain that a **large section of the country remains poor** or is not able to reach a decent level of living.

Third

- Because of the Covid-19 pandemic, the world will have **150 million 'new extreme poor people'** in 2021. India would add on **at least 8-10 million new poor** (estimates).

Why the cry about poverty?

For at least four-five months, the **majority of India's informal workers** — who constitute the majority of India's workforce — **didn't earn at all.**

For a poor person, this is the entry point to that dreaded vicious cycle of **chronic poverty.**

In recent years, the dipping rural income growth rate, **agriculture becoming a loss-making proposition** and the **non-availability of non-farm jobs in rural areas** have fuelled migration to urban areas. It means poverty is **no more a rural-centric situation** but also has **spread to urban centres.**



Way Forward

India needs to recall its 'Garibi Hatao' slogan of the early 1970s.

Simply focusing on an outdated BPL population and directing development doles to them as 'beneficiary' will no longer make poverty eradication possible.

Without India's latest data, there can't be an objective global estimate of poverty. And without this, one can't measure what is the level of poverty to be reduced nationally as well as globally, to achieve SDG 1.

Poverty is a concern for both, rural and urban areas, for BPL and above poverty line people. If it is not addressed now, it would undo whatever we have achieved in the last 70 years.



Thank you 😊

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