

CURRENT AFFAIRS WEEKLY

WEEK - 2
NOVEMBER, 2019

MAINS

RCEP: India refused to bite the bullet

INTERNATIONAL RELATIONS

Cramped Jails in India: Need for Reforms

GOVERNANCE

Commercialisation of NavIC

SCIENCE & TECHNOLOGY

How big a challenge is sustaining India's open-defecation free status

With training and incentive, ASHAs can help address lifestyle diseases

SOCIAL ISSUES

Enhancing Insurance Coverage for Bank Deposits

Moody's cut India's rating from stable to negative

Steel Scrap Recycling Policy

ECONOMY

Deforestation, agriculture triggered soil erosion 4,000 years ago

Wastelands Atlas - 2019

What the toxic air did to Delhites

ENVIRONMENT

Danakil Depression

GEOGRAPHY

ICEDASH & ATITHI

India International Science Festival (IISF) 2019: Experts advise sustainable, climate-smart, diverse farming

National Health Stack and National Digital Health Blueprint

GOVERNANCE

National Health Profile

HEALTH

16th ASEAN-India Summit

India, Uzbekistan sign three defence MoUs

INTERNATIONAL RELATIONS

Quantum computing

Why more measles patients die of other infections

SCIENCE & TECHNOLOGY

PRELIMS

GS SCORE

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— Disclaimer —

The current affairs articles are segregated from prelims and mains perspective, such separation is maintained in terms of structure of articles. Mains articles have more focus on analysis and prelims articles have more focus on facts.

However, this doesn't mean that Mains articles don't cover facts and PT articles can't have analysis. You are suggested to read all of them for all stages of examination.

CURRENT AFFAIRS ANALYST

WEEK-2 (NOVEMBER, 2019)

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SECTION: A
(MAINS)

CURRENT AFFAIRS

RCEP: INDIA REFUSED TO BITE THE BULLET

CONTEXT

- Recently, India refused to join RCEP in ASEAN summit in Bangkok.

◎ BACKGROUND

- The Regional Comprehensive Economic Partnership (RCEP) is a proposed free trade agreement (FTA) between the ten member states of ASEAN (Brunei, Cambodia, Indonesia, Laos, Malaysia, Myanmar, the Philippines, Singapore, Thailand, Vietnam) and its five (formerly six) FTA partners (China, Japan, South Korea, Australia and New Zealand).
- In November 2019, India, the sixth FTA partner, decided to opt out of the pact. In light of India's departure, China announced that India is welcome to join the RCEP whenever it's ready.
- RCEP negotiations were formally launched in November 2012 at the ASEAN Summit in Cambodia. In 2017, the 16 prospective signatories accounted for a population of 3.4 billion people with a total Gross Domestic Product (GDP, PPP) of \$49.5 trillion, approximately 39 percent of the world's GDP.

- India's trade deficit with these countries has almost doubled in the last five-six years - from \$54 billion in 2013-14 to \$105 billion in 2018-19. Given the export-import equation with the bloc, a free trade agreement with the grouping would have increased it further.
- At present, India ships 20 per cent of all its exports to the RCEP countries and receives 35 per cent of all imports from them. China is the ringmaster of this export-import circuit. It is the largest exporter to almost all countries of the group, including India. Of India's \$105 billion trade deficit with RCEP countries, China accounts for \$53 billion.
- The widening trade deficit would empty foreign exchange reserve of India at a faster rate. And, a depleting foreign reserve is never good for any economy and is least desirable for one trying to recover from an already disrupted situation.

◎ ANALYSIS

Why did India opt out of RCEP?

India chose to opt out of RCEP because of following reasons:

◎ Economic Slowdown

- The Indian economy is passing through a rough patch as the rate of GDP growth has been slowing down for five consecutive quarters, that is, since January-March 2018.
- Combined with the aftereffects of the demonetization move in November 2016, the GST rollout proved to be a double-disrupter of the economy, which is yet to fully come to terms with these two key decisions.
- As the industry is reeling under pressure and the government is grappling to deal with the domestic economic situation, a massive free trade pact like RCEP would have exposed the Indian businesses and agriculture to unequal competition from countries which are lurking like giant sharks in the export arena.

◎ Trade Deficit

- India, as a whole, is a 'bad' business entity. It has massive trade deficits with almost all economic powerhouses of the world. Of the 15 RCEP countries, India has serious trade deficits with at least 11.

◎ Industries and Farmers

- RCEP was one of those pacts that was opposed by both the industry and farmers alike. Manufacturing sector in India is in crisis. The sector has seen contraction in recent months. Manufacturing output grew at its slowest pace since last two years.
- Services sector is also not doing well, of late. China and ASEAN countries have robust service sector, and a free entry to these players may damage the lone saviour of Indian economy in these times of crisis.
- In agriculture, domestic players dealing in dairy products, spices -- chiefly pepper and cardamom, rubber, and coconut would face dumping from the South Asian spice majors. Sri Lanka is already giving a tough time to Indian spice growers.
- Vietnam and Indonesia have very cheap rubber to export. Australia and New Zealand are waiting for a free access to India for their dairy products. Indian businesses would be hit hard as RCEP does not offer enough protection to them.

◎ FTAs have not benefitted India

- The NITI Aayog, in 2017, in its report pointed out that free trade agreements have not worked well for India. It analysed multiple free trade agreements that India signed in the past

decade. Among those were FTA with Sri Lanka, Malaysia, Singapore, and South Korea.

- ▶ The NITI Aayog analysis showed that import from FTA countries increased while export to these destinations did not match up. Even India's export to FTA countries did not outperform its overall export growth. The NITI Aayog found that FTA utilisation by India has been abysmally low between 5 and 25 per cent.

● **China's Gameplan**

- ▶ Finally, RCEP has come up as a Chinese gameplan to save its manufacturing industries from crumbling under their own weight and the ongoing trade war with USA. Several industrial players in India red-flagged the Chinese agenda of flooding the Indian market using the RCEP countries as a connecting network.

Not Joining RCEP will also hurt Indian Economy

- While the fears of cheap import surges hurting our dairy and agriculture sectors have been abated for the time being, the decision does nothing to enhance the competitiveness of our domestic industries or to make them ready for global competition.
- The decision to not join RCEP also does nothing to bolster our 'Act East' and 'Act Far East' policies. Instead, our status quoist approach has provided a fillip to a growing rhetoric of protectionism.

- ▶ China has already covered most markets united under RCEP umbrella. The above mentioned NITI Aayog report pointed out that China has changed the trade equation with the ASEAN countries after inking ACFTA - standing for ASEAN-China free trade agreement - in 2010.
- ▶ ASEAN-6 (Indonesia, Malaysia, Philippines, Singapore, Thailand and Vietnam) had a trade surplus of \$53 billion in 2010 which turned into a trade deficit of \$54 billion in 2016.
- ▶ India, with its 1.3 billion population, offers the biggest free access market to the Chinese companies that are feeling the pinch of US-China trade war with Donald Trump administration taking on the manufacturing giant in the past one-and-a-half years.
- ▶ China needs greater access to Indian market to sustain its manufacturing industries. A failure

to find a market will have cascading effect on Chinese economy and President Xi Jinping's global ambitions. In Bangkok, PM Modi just refused to be a willing dumping ground of China's trade imperialism.

- ▶ India wanted a key clause to be included in the RCEP pact for auto-trigger mechanism as a shield against sudden and significant import surge from countries (read China). The RCEP covers trade in goods and services, and also investments, economic-technical cooperation, competition and intellectual property rights.

Benefits for India of Joining RCEP

- It can boost India's inward and outward foreign direct investment, particularly export-oriented FDI.
- It would also facilitate India's MSMEs to effectively integrate into the regional value and supply chains.
- It presents a decisive platform for India which could enhance strategic and economic status in the Asia-Pacific region and can complement its Act East Policy.
- It can augment India's existing free trade agreements with the Association of South-East Asian Nations (ASEAN).
 - ▶ It can address challenges emanating from implementation concerns vis-à-vis overlapping agreements of ASEAN.
- The RCEP would help India streamline the rules and regulations of doing trade, which will reduce trade costs.
- India enjoys a comparative advantage in the services sector such as information and communication technology, healthcare, and education services etc. Thus, RCEP will create opportunities for Indian companies to access new markets.

◎ **WAY FORWARD**

- An opportunity to negotiate a better deal still exists, as India has a year to negotiate and be part of RCEP.
- The assumption that the world will bend to our demands given the size of our market doesn't hold good any more. We need to put our house in order to take on global competition and benefit

GS SCORE

Learning Aid

The widening trade deficit would empty foreign exchange reserve of India at a faster rate

Given the export-import equation with the bloc, a free trade agreement with the grouping would have increased it further

Of the 15 RCEP countries, India has serious trade deficits with at least 11



Under such circumstances, a massive free trade pact like RCEP would have exposed the Indian businesses and agriculture to unequal competition from countries which are lurking like giant sharks in the export arena

The slowdown in GDP growth and after effects of demonetisation and GST rollout has made economic situation in India fragile

The main reasons

Trade Deficit

Economic Slowdown

Industries and farmers

Manufacturing sector in India is in crisis. The sector has seen contraction in recent months. Manufacturing output grew at its slowest pace since last two years.

Services sector is also not doing well, of late. China and ASEAN countries have robust service sector, and a free entry to these players may damage the lone saviour of Indian economy in these times of crisis

In agriculture, domestic players dealing in dairy products, spices -- chiefly pepper and cardamom, rubber, and coconut would face dumping from the South Asian spice majors

Indian businesses would be hit hard as RCEP does not offer enough protection to them. Accordingly, it was opposed by both the industry and farmers alike

The Chinese Factor

China is facing a slowdown and a trade war with USA

It would flood the huge Indian mkt with its goods in such a scenario

Accordingly, India wanted a key clause to be included in the RCEP pact for auto-trigger mechanism as a shield against sudden and significant import surge from countries (read China)

It could have augmented India's existing free trade agreements with the Association of South-East Asian Nations (ASEAN)

The decision to not join RCEP also does nothing to bolster our 'Act East' and 'Act Far East' policies

It presented a decisive platform for India which could enhance strategic and economic status in the Asia-Pacific region and can complement its Act East Policy

Benefits forgone by India by not joining RCEP

It could have boosted India's inward and outward foreign direct investment, particularly export-oriented FDI

India enjoys a comparative advantage in the **services sector** and RCEP could have created opportunities for Indian companies to access new markets

It would also have facilitated **India's MSMEs** to effectively integrate into the regional value and supply chains

Way Ahead

The assumption that the world will bend to our demands given the size of our market doesn't hold good any more

We need to put our house in order to take on global competition and benefit from export opportunities that external markets offer, and such multilateral agreements create

An opportunity to negotiate a better deal still exists, as India has a year to negotiate and be part of RCEP

CRAMPED JAILS IN INDIA: NEED FOR REFORMS

CONTEXT

- Recently, National Crime Records Bureau (NCRB) has released the “Prison Statistics India – 2017”.

◎ BACKGROUND

- Indian jails continue to remain congested and overcrowded with an average occupancy rate of 115% of their capacity.
- In 16 of the 28 states covered in the report, occupancy rate was higher than 100%. Uttar Pradesh (165%), Chhattisgarh (157.2%), Delhi (151.2%) and Sikkim (140.7%) fared the worst.
- More than 68% of those imprisoned are under-trials, indicating that a majority were poor and were unable to execute bail bonds or provide sureties.
- Out of the total number of prisoners, the number of convicts, under-trial inmates and detainees account for 30.9%, 68.5% and 0.5% respectively. Other prisoners account for 0.2% of total prisoners.
- A total of 378 prisoners escaped from lawful custody during 2017.
- The number of deaths in prisons has increased marginally by 5.49% in 2017 when compared to 2015.
- Gujarat has the highest number of under-trial prisoners who are Pakistani nationals. The state has 59 Pakistani under-trial prisoners out of the total 101 overseas prisoners in the state. Jammu and Kashmir has the second-highest Pakistani national under-trials at 35.

◎ ANALYSIS

Major Challenge for Prisons across the country

Despite the Supreme Court and other institutions regularly raising the issue of prison reforms and decongestion in jails, it is evident that the measures taken have been piecemeal in most States. The major challenges for prison system in India are:

- Overcrowding of Civil Jails** : While overall occupancy rates in jails have come down from 140% in 2007 to 115% in 2017, only a few States have, in this period, gone about building more jails or increasing capacity in prisons in line with the changes in inmate population.
- Lack of Personnel**: The vacant posts in the jail administration constitute another major challenge for prisons across the country.
- Healthcare for Prisoners**: People believe that prisoners are sent to prison as punishment, and

not for punishment. This implies that the loss of an individual's right to liberty is enforced by containment in a closed environment. Thus keeping the individual in the custody of the state, should not, however, have a deleterious effect on him.

- Role of Judiciary in Protecting the Rights of Prisoners**: Judiciary in every country has an obligation and a Constitutional role to protect Human Rights of citizens. As per the mandate of the Constitution of India, this function is assigned to the superior judiciary namely the Supreme Court of India and High courts.
- The Problems of Under-trials**: Criminal Law of India is a replica of colonial times. It is hostile to the poor and the weaker sections of society.
- Taking Prisoners' Rights Seriously**: In the case of Hussainara Khatoon v. State of Bihar, a shocking state of affairs in regard to the administration of justice came forward. An alarmingly large number of men and women, including children are behind prison bars for years awaiting trial in the court of law.

Prison Reforms

The focus on improving prison oversight and reducing prolonged, illegal or unnecessary detention we must push for reforms in prison system along these lines:

- prioritize the proper functioning of prison oversight mechanisms
- advocate for early access to counsel and improve legal aid practices
- partner with law schools to develop legal aid clinics that provide free legal support to prisoners
- assess the pre-trial practices of court
- work with governments for early repatriation of foreign national prisoners
- ensure timely release and rehabilitation of vulnerable groups in prison
- build capacity of criminal justice functionaries related to prisons
- litigate in public interest and on behalf of individuals
- undertake research on various aspects of criminal justice system particularly using right to information
- develop resources and training material on wide range of issues

Case Study

- Some States such as Tamil Nadu have reduced their prison occupancy rate (to 61.3%) by increasing the number of jails and their capacity.
- Besides increasing the jails and their capacity, steps have been taken for reducing arrests for actions unless there is a cognisable offence made out.

WAY FORWARD:

- In its report in May 2017, the Law Commission highlighted the inconsistencies in the bail system as one of the key reasons for overcrowding in prisons. Expediting the trial process for such prisoners is the most important endeavor. There are ways to decongest prisons by granting relief to under trials.
- The Commission recommended that those detained for offences that come with a punishment

of up to seven years of imprisonment should be released on completing one-third of that period and for those charged with offences that attract a longer jail term, after they complete half of that period.

- For those who have spent the whole period as undertrials, the period undergone should be considered for remission.
- It also recommended that the police should avoid needless arrests, while magistrates should refrain from mechanical remand orders.
- It is imperative that these recommendations are incorporated into law soonest.
- Prison statistics provide information on the kind of facilities available for reformation and rehabilitation of prisoners, robust policies must be formulated, which would ensure successful reintegration of prisoners and provide those serving life-term imprisonments an opportunity to reform.

COMMERCIALISATION OF NAVIC

CONTEXT

- The Indian Space Research Organisation and its older commercial arm Antrix Corporation Ltd. are poised to commercialise India's regional navigation satellite system, NavIC, with Antrix recently floating two separate tenders to identify industries that can develop dedicated NavIC-based hardware and systems.

◎ BACKGROUND

- ISRO and Antrix are set to **commercialise India's regional navigation satellite system, NavIC**.
- NavIC which essentially means '**Navigation in Indian Constellation**' is the Indian system of eight satellites that is aimed at telling business and individual users where they are, or how their products and services are moving.
- It is an **indigenous positioning or location based service (LBS)** and works just like the Global Positioning System (GPS), but **within a 1,500-km radius over the Indian sub-continent**.
- NavIC can work with global navigation satellite systems of Europe (Galileo), Russia (GLONASS), China (Beidou) and GPS (US).
- All other global systems like **Glonass, GALILEO and Beidou operate on L1 and L2 frequencies**. L2 is solely meant for US Defence use.
- **For civilian usage**, the new GPS satellites use **L5 and L2C band**.
- **Navic operates on L5 and S bands**.
- NavIC has been **certified by the 3GPP** (The 3rd Generation Partnership Project), a global body for coordinating mobile telephony standards.
- **Transporters of resources such as mined ore, coal and sand** in various states currently use GPS-based systems to check pilferage and fudging. NavIC can be used in these sectors as a **vehicle tracking application** that is tied to revenue sharing systems of the government.
- Recently the government mandated that **all national-permit vehicles must have tracking devices**. As a pilot, many fishing boats were fitted with these devices that have a unique texting facility. NavIC will be used in extending this facility.
- Lately NavIC was used to **assess safety of unmanned level crossing**.
- NavIC support would be **available for Original Equipment Manufacturers (OEMs)**. This will enhance the use of NavIC on **mobile, automotive and Internet of Things (IoT) devices**.
- Since now Indian companies and start-ups can do the designing part, the **potential market for NavIC-based products and integrated circuits** can be very large.
- Isro wants **chipmakers to integrate NavIC in all upcoming handsets** that would be sold in India. Now, **Qualcomm Technologies, Inc.** (a leading producer of semiconductor chips) is set to add NavIC-chipsets across its user base.

◎ ANALYSIS

Potential for NavIC use in civilian arena?

- Some potential applications of the regional navigation system include:
 - Terrestrial, aerial and marine navigation;
 - Disaster management;
 - Vehicle tracking and fleet management;
 - Integration with mobile phones;
 - Precise timing (as for ATMs and power grids);
 - Mapping and geodetic data capture;
 - Terrestrial navigation aid for hikers and travellers;
 - Visual and voice navigation for drivers.
 - Precision surveys

Original Equipment Manufacturer (OEM) is a company that manufactures or develops something that is sold by another company under their own name and branding. In the computer world, it can refer to both hardware and software.

Example: Apple does not make all the components in an iMac. While Apple designs the computer, it incorporates components from other manufactures. An iMac might contain an Intel processor and Micron RAM. In this case, Intel and Micron are processor and micron OEMs, respectively.

L band refers to the operating frequency range of 1–2 GHz in the radio spectrum. The wavelength range of L band is 30–15 cm. The L band is one of the chief operating ranges used by various applications such as radars, global positioning systems (GPS), radio and telecommunications, and aircraft surveillance. The L band has a low bandwidth due to its low frequency, and is the easiest to implement for many applications due to this low frequency. The equipment needed is less sophisticated less expensive.

Will commercialisation of NavIC be a success?

- **No advantage economies of scale:** The success of **GPS**, which Navic seeks to replace, is due to the **enormous volumes of devices** that use the service. Commercially the biggest users of GPS are the positioning, navigation and location industries. Today every smartphone has a GPS chip inbuilt that provides location and navigation services **free of cost via Google Maps**. Augmented Reality apps using GPS make for a very powerful and useful handheld device. NavIC does not have this **advantage of volume**
- **NavIC was a late-comer:** Navic, being a late-comer, **could not get allocations in the L1 and L2 bands** but was allocated L5 and S bands. The problem is that **S band cannot be used globally**. This is because International Telecommunications Union (ITU) cleared S band only for Region 3 (Asia and Oceania). It is for secondary use in region1 (Europe and Africa). Hence most modern civilian receivers (that use L1, L2C and L5) can only receive Navic L5 signals, but not the S band signal.
- **S band Antenna issue:** The **S band receiver and antenna is quite different** from the L band receiver and antenna. While ISRO has overcome this issue

by developing a suitable receiver and antenna combination, it is **doubtful if the smartphone industry will pick this up**. Hence, Indian users may have to use a separate global smartphone when they go abroad. But if ITU opens up S band, this issue can be resolved.

- **NavIC- a defence workhorse:** The evolution of NavIC centres on the need for precision data during the Kargil war. This was then an exclusivity only of the US Defence forces, and was denied by the US. The sovereign **need for precision data in modern warfare** including missile control led to the evolution of NavIC. Hence commercialisation of Navic is only an value addition, because mainly Navic will become the workhorse for the Defence forces.

◎ CONCLUSION

- Given the prevalence of so many location-oriented apps, ISRO believes that it is a business opportunity to make the most of by commercialising the indigenous NavIC system. While, in future NavIC will mostly be a defence workhorse, its application in civilian arena can be accelerated efficiently, for Navic to pay for itself.

Commercialisation of NavIC

GS SCORE

Learning Aid

Development of NavIC would **reduce India's dependence** on other countries for navigation purposes

(Currently we use GPS system of USA for navigation)

Since it is an indigenously developed system which would be used by military purposes, it would make the data transmission more **secure and confidential**

It will help in **mitigating the impact of disasters** by providing information of disaster timing

Context
The ISRO and its older commercial arm Antrix Corporation Ltd. are poised to commercialise India's regional navigation satellite system, **NavIC** ('Navigation in Indian Constellation'), with Antrix recently floating two separate tenders to identify industries that can develop dedicated NavIC-based hardware and systems

Indian Regional Navigation Satellite System

IRNSS (NavIC) is designed to provide accurate real-time positioning and timing services to users in India as well as region extending up to 1,500 km from its boundary

NAVIGATION CONSTELLATION CONSISTS OF SEVEN SATELLITES

3 in geostationary earth orbit (GEO) and **4** in geosynchronous orbit (GSO) inclined at 29 degrees to equator

Each sat has three rubidium atomic clocks, which provide accurate locational data

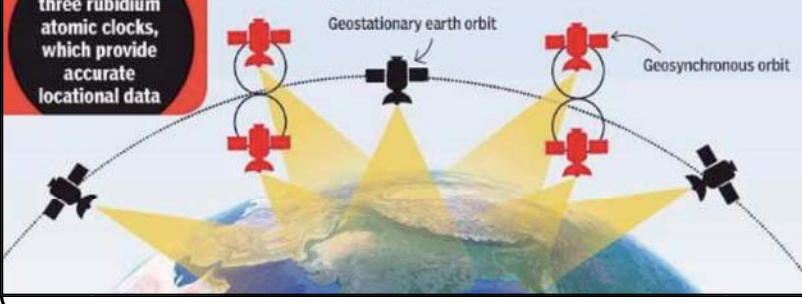
IT WILL PROVIDE TWO TYPES OF SERVICES

1 Standard positioning service | Meant for all users

2 Restricted service | Encrypted service provided only to authorised users (military and security agencies)

Applications of IRNSS are: Terrestrial, aerial and marine navigation; disaster management; vehicle tracking and fleet management; precise timing mapping and geodetic data capture; terrestrial navigation aid for hikers and travellers; visual and voice navigation for drivers

While American GPS has **24 satellites** in orbit, the number of sats visible to ground receiver is limited. In IRNSS, **four satellites** are always in geosynchronous orbits, hence always visible to a receiver in a region **1,500 km** around India.



NAVIC covers the entire SAARC region and extends up to 1500 km outside India

India can leverage it to reach out to its neighbours and demonstrate its global leadership aspirations through sharing of NAVIC services

Hence, It would bolster the ability of India to serve as a net security provider in the Indian Sub-continent

It will help the mariners for far navigation and fisherman for get information about the valuable fisheries location

Issues in commercialisation of NavIC

S band issue

The **S band receiver and antenna** is quite different from the L band receiver and antenna

While ISRO has overcome this issue by developing a suitable receiver and antenna combination, it is **doubtful if the smartphone industry will pick this up**

Economies of scale

Navic, being a late-comer, **could not get allocations in the L1 and L2 bands** but was allocated L5 and S bands

The problem is that **S band cannot be used globally.**

Hence most modern civilian receivers (that use L1, L2C and L5) can only receive Navic L5 signals, but not the S band signal

The success of **GPS** which Navic seeks to replace, is due to the **enormous volumes of devices** that use the service

NavIC does not have this advantage of volume

This is because International Telecommunications Union (ITU) cleared S band only for Region 3 (Asia and Oceania). It is for secondary use in region1 (Europe and Africa)

Given the prevalence of so many location-oriented apps, ISRO believes that it is a business opportunity to make the most of by commercialising the indigenous NavIC system

While, in future NavIC will mostly be a defence workhorse, its application in civilian arena can be accelerated efficiently, for NavIC to pay for itself

HOW BIG A CHALLENGE IS SUSTAINING INDIA'S OPEN-DEFECATION FREE STATUS

CONTEXT

- The country did successfully build 100 million toilets, but this success must be made sustainable

◎ BACKGROUND

- In the past four years, India has built 100 million toilets in about 0.6 million villages and another 6.3 million in cities.
- The country has been declared open defecation free (ODF) — a seemingly impossible task just some years ago.
- According to government estimates, by February 2019, over 93 per cent of the country's rural households had access to toilets; over 96 per cent of them also used the toilets, suggesting an important change in behaviour.
- 99 per cent of the toilets were found to be well maintained, hygienic and in 100 per cent of these toilets, excreta was "safely" disposed — there was no pollution and, in fact, in 95 per cent of the villages, there was no stagnant water, no wastewater and only minimal litter.

◎ ANALYSIS

Current scenario

- Let's be clear that slippages happen in all programmes. So, even if toilets are built and people have started using these, the trend can reverse in no time.
- In many districts of Uttar Pradesh an earlier laggard state there were people, particularly women, who were using toilets and wanted more.
- But in Haryana, declared ODF, people were slipping back to the old habit of open defecation; this is when it had invested in changing the behaviour of people.
- There is the issue of excreta disposal. NARSS 2018-19 uses an inadequate and erroneous definition of "safe" it defines safe disposal if the toilet is connected to a septic tank with a soak pit, single or double leach pit, or to a drain.
- There is the issue of credibility of assessments crucial to know that we are on track. At present, all the studies are commissioned by the project funders or the proponent ministries.

Swachh Bharat Mission: An outstanding achievement, but challenges remain

- Including people who still lack toilets, overcoming partial toilet use and retrofitting sustainably unsafe toilets are some of the massive tasks ahead
- The Swachh Bharat Mission-Gramin (SBM-G) was a remarkable programme. Nowhere, has there been a rural sanitation programme that has combined political priority with resources on such a big scale.
- The Mission faced the pressure of reporting both toilet coverage and behavioural change.
- The massive task is to include people who still lack toilets, overcome partial toilet use, and retrofit toilets which are not yet sustainably safe.
- There is a time bomb of rural and small town faecal sludge management as tanks and single pits fill up and are difficult to empty. But solid and liquid waste management is now receiving the much deserved attention. Children's faeces and hand washing are in the frontier.
- Methodologies evolved like the national Swachhathon to crowd source innovations; Rapid Action Learning Workshops for lateral sharing of experiences, immersive research for ground truthing; and now CLNOB (Community Leave No One Behind) to facilitate communities to reach and support those behind people with disabilities, the old and infirm, the very poor and weak, migrants, marginalised, and others.

Haryana still defiant

- Class division seems to be derailing Swachh Bharat Mission's (SBM) efforts in Haryana, which was declared open-defecation free (ODF) way back in 2017 and has seen a massive campaign to sensitise people.
- Problem of land to build a toilet and so the panchayat asked to use the community toilet at the village chaupal. But people from higher castes do not like people from lower castes using it.
- These community toilets are usually located about a kilometre from the houses and who would go so far every day is the question.

- Then there are those who have been left out of this toilet construction exercise and have no option but to defecate in the open.

Nilgiris sets example of community effort

- Toilets, whether mobile or in households, were a rarity till the launch of Swachh Bharat Mission (SBM), in Tamil Nadu's mountainous Nilgiris district, tucked away in the Western Ghats.
- About 72 per cent of the households in this Tamil Nadu district lacked access to toilets due to lack of knowledge, adaptation and cultural constraints
- Under previous sanitation programmes, community toilets were set up, but failed due to lack of maintenance. Most villages are scattered across the hills and are surrounded by tea and coffee plantations.
- Chances of getting attacked by a wild boar or an elephant while defecating in the open are high in such regions. So, communities came forward for individual toilets when the government offered an incentive of Rs 12,000 per household under SBM.
- Over 100,000 tribals, dalits and women formed self-help groups and raised a loan of Rs 20 crore to build toilets.
- The struggle has now instilled in the communities a new sense of judicious use of water.

Watershortage drives people in Marathwada to open fields

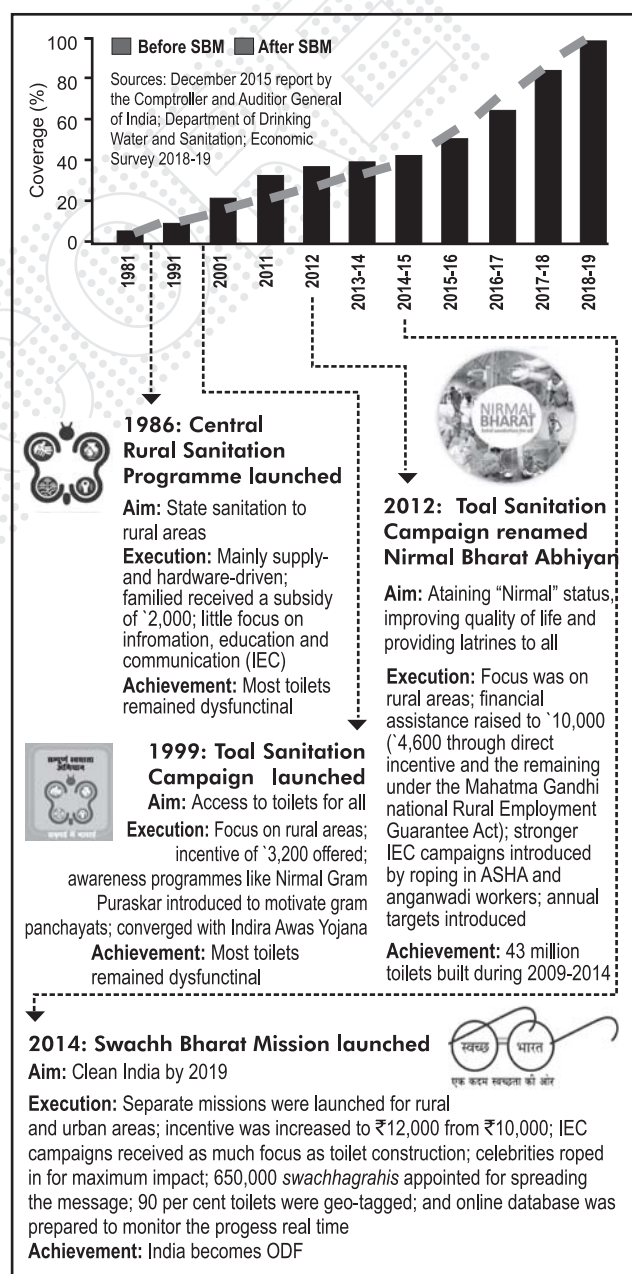
- Maharashtra's rain-shadow region has had so little rain in the last four years that residents don't have enough water to flush into toilets.
- In one of the region's worst-hit districts, Beed, the dam that supplies water to people has nearly dried up due to lack of rain, leaving civic officials in a fix.
- It is lower class people who still do not have toilets and defecate in the open.
- But water scarcity has in a way reduced the prevalence of open defecation. Almost 70 per cent of the population now migrates to distant places like those in western Maharashtra and Karnataka in search of work.

The last push

- Call it the result of a strong political will or a multipronged assault on a nagging problem, what India is witnessing now is no less than a civilizational leap forward.
- Till five years ago, open defecation was a way of life for most in the country.

- The government was over and again pulled up at international platforms for hosting 60 per cent of the global population that defecates in the open.
- When the United Nations prepared the list of 17 sustainable development goals (SDGs) to be achieved by 2030, one of its foremost agendas required countries to "achieve access to adequate and equitable sanitation and hygiene for all and end open defecation".
- Meeting SDG 6.2 then seemed a humongous task for India that topped the list of laggard countries and is often described as an Asian enigma by researchers.

Thirty-year journey to ODF



The fight for open defecation-free status is far from over

- Rural India is so densely settled that open defecation spreads diseases, killing and harming children.
- Open defecation still exists, especially in the multiply disadvantaged, densely populated villages of rural north India. Such was the pace that India was on in the 2015-16 Demographic and Health Survey.
- Open defecation is an important challenge in these four states: Bihar, Madhya Pradesh, Rajasthan and Uttar Pradesh.
- However, the decline in open defecation from 2014 to 2018 in these states was, according to statistical accounting, entirely due to increasing latrine ownership not to behavioural change. The fraction of latrine owners who defecate in the open did not change over these four years.

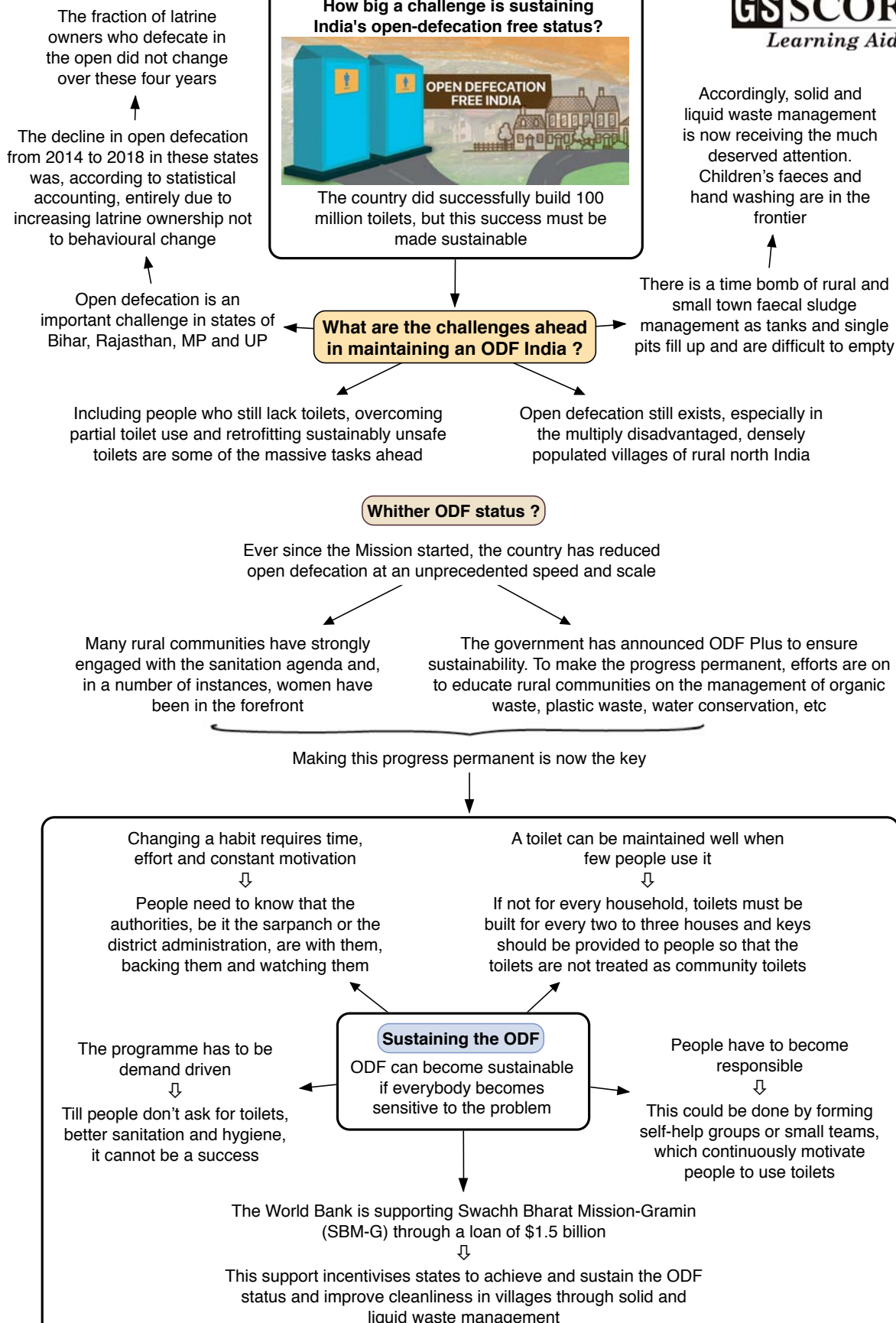
Sustaining ODF a multi-faceted process

- Bangladesh took 15 years to become ODF, while Thailand took 40.
- India has much to celebrate. Ever since the Mission started, the country has reduced open defecation at an unprecedented speed and scale.
- Many rural communities have strongly engaged with the sanitation agenda and, in a number of instances, women have been in the forefront.
- Making this progress permanent is now the key.
- The government has announced ODF Plus to ensure sustainability. To make the progress permanent and to achieve a more holistic impact on sanitation, efforts are on to educate rural communities on the management of organic waste, plastic waste, water conservation, etc.

- The World Bank is supporting Swachh Bharat Mission-Gramin (SBM-G) through a loan of \$1.5 billion.
- This support incentivises states to achieve and sustain the ODF status and improve cleanliness in villages through solid and liquid waste management.
- Efforts focus on behavioural change on the ground, ensuring environmentally sustainable outcomes and building capacity of institutions for effective implementation.

Sustenance is the mantra

- Changing a habit requires time, effort and constant motivation. People need to know that the authorities, be it the sarpanch or the district administration, are with them, backing them and watching them.
- The programme has to be demand driven. Till people don't ask for toilets, better sanitation and hygiene, it cannot be a success.
- People have to become responsible by forming self-help groups or small teams, which continuously motivate people to use toilets. This is the only way to sustain our ODF status.
- Rural areas are performing well in this, but there are problems in urban areas.
- A toilet can be maintained well when few people use it. If not for every household, toilets must be built for every two to three houses. Keys should be provided to people so that the toilets are not treated as community toilets.
- ODF can become sustainable if everybody becomes sensitive to the problem.
- The fight is much bigger than ODF. We have moved to ODF Plus. Our task is cut out. The fight is long. To sustain the achievement, we need constant effort, not interference.



WITH TRAINING AND INCENTIVE, ASHAS CAN HELP ADDRESS LIFESTYLE DISEASES

CONTEXT

- A new study has highlighted that Accredited Social Health Activists (ASHAs), the grassroots level health workers, can deliver care for non-communicable diseases also if they were provided with appropriate training and were paid adequately.

◎ BACKGROUND

- At present, though ASHAs are identified as part of the National Program for Cardiovascular Diseases, Diabetes, Cancer and Stroke at the policy level, they are not recognised as part of its formal service delivery team on the ground.
- The study found that ASHAs feel overburdened, as they are work as part-time volunteers in the health system and deliver several activities under the programme on top of their routine primary care workload, without receiving remuneration for the non-communicable disease related activities.
- Study has also highlighted the importance of monitoring and support, with evaluation and career development options for ASHAs.
- As the range of services provided by ASHAs expands, there will be a debate on whether to increase their numbers or to create a separate cadre specific to non-communicable diseases.

Both financial and non-financial factors matter for ASHAs

- A major challenge faced by the Indian health system is to keep its Accredited Social Health Activists (ASHAs) motivated and retain them in service. A new study has found that ASHA workers get motivated most by prospects of promotions than other factors.
- Results indicated that prospects of promotion were the main motivator for 85 per cent of the health workers.
- This was because promotion meant higher salary, more authority and recognition.
- The other factors that led to job satisfaction included a fixed salary as well as non-financial factors like free family health-checks and lesser workload.
- Priorities of ASHAs were linked to their socio-economic conditions.
- There is a need to understand the preferences of health workers and certain aspects of career development valued by ASHAs. Non-financial and financial incentives should be combined to improve health workers satisfaction and their performance, which ultimately leads to better health outcomes.

Training health workers can help manage hypertension in villages

- Early detection and management of hypertension is necessary to prevent complications, but shortfall of trained health workforce, particularly in rural areas, is a challenge.
- Hypertension has emerged as a major health problem in India with one in four Indians suffering from it. Early detection and management of hypertension is necessary to prevent complications such as cardiovascular disease.
- The training module helps health workers identify and control hypertension in the community. The study measured effectiveness of the tool in terms of knowledge, skills and perception of health workers.
- Training materials incorporated details on managing hypertension, goal setting, facilitating group meetings, and measuring blood pressure and body weight.
- Health workers can also be taught to deliver community group-based education, and provide support for individuals with hypertension.

Diseases of a lifestyle: the transition to avoid

- Medical journal Lancet published a review of the prevalence of diabetes in 15 states of India. It finds that while some 7 per cent people in India had diabetes, the prevalence of pre-diabetes was a staggering 10-15 per cent, depending on the criterion used. This is no small health burden on a poor country.
- Their conclusion is we are undergoing an epidemiological transition.
- States with higher GDP-Gujarat, Maharashtra, Tamil Nadu and Chandigarh have higher prevalence of this disease as compared to Bihar or Jharkhand. Delhi and Goa, with high income levels, are still awaiting sampling.
- Rural areas have lower diabetes rates than urban ones.
- The study finds that the poor in urban well-off states have higher incidence of diabetes than the

rich in the same cities. In other words, the rich in rich cities have started to learn good food habits.

- We are going from lack of food or malnutrition to over-nutrition because of bad food.
- India has what can only be described as a double burden of diseases. We have the diseases of the poor everything from malnutrition to cholera. But we also have the diseases of the rich cancer and diabetes.
- We know that these diseases—called non-communicable by the health community—are connected to our lifestyles. What we eat? What air we breathe? And what environment we live in? These are part of the package of “toxic” development.
- Today, it is polluted water, which is visible in the deliberate murder of our rivers that is also one of the largest-killers of babies in the country.

- Today it is the lack of clean energy in homes that makes women cooking on biomass fuel suffer from killer respiratory disorders.

◎ CONCLUSION

- It is for this reason that the United Nations’ sustainable development goals (SDGs) 13 global goals that the world needs to achieve by 2030 must put children at the very centre.
- Every goal has a link to the child and every goal has a link to the health of the child and so the health of the Planet.
- This is the human face of the SDGs that would define our progress, or not.
- It is the health of our children that must be put at the centre of the health of our planet. One can’t survive without the other.

ASHAs can help address lifestyle diseases**Context**

A new study has highlighted that Accredited Social Health Activists (ASHAs), the grassroots level health workers, can deliver care for non-communicable diseases also if they were provided with appropriate training and were paid adequately

GSSCORE
Learning Aid
Highlights of the study

ASHAs feel overburdened

on top of their
routine primary
care workload

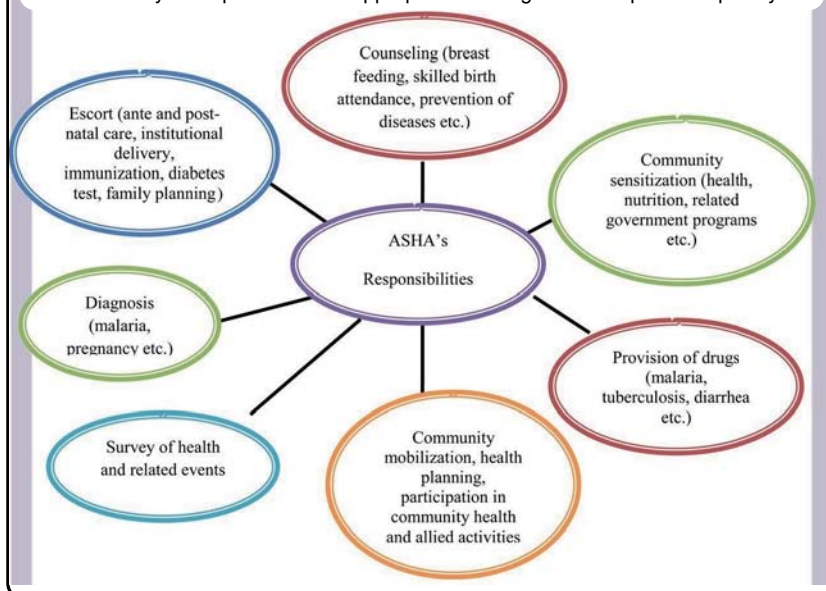
they work as part-
time volunteers in
the health system
and deliver several
activities under the
programme

without receiving remuneration
for the non-communicable
disease related activities

Study has also highlighted

the
importance of
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A major challenge faced by the Indian health system is to keep
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To address this, there is a need to understand the preferences of health workers
and certain aspects of career development valued by ASHAs

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and their performance, which ultimately leads to better health outcomes

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SECTION: B
(PRELIMS)

CURRENT AFFAIRS

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ENHANCING INSURANCE COVERAGE FOR BANK DEPOSITS

◎ CONTEXT

- Reserve Bank of India (RBI)'s capping of withdrawals from the Punjab and Maharashtra Cooperative (PMC) Bank at Rs. 1,000 has led to hardships for people who want to withdraw their deposited money from the bank. It also brought into focus, once again, the deposit insurance cover provided by the Deposit Insurance and Credit Guarantee Corporation (DICGC).

◎ ABOUT

- According to RBI, deposit insurance in India covers 92% of the total number of accounts but only 28% of the total banking deposits.
- The Deposit Insurance and Credit Guarantee Corporation (DICGC) provide insurance cover to deposits in all commercial banks.
- Deposit Insurance and Credit Guarantee Corporation (DICGC), a wholly owned subsidiary of Reserve Bank of India was in operation since 1962 for this purpose.
- The Corporation insures all bank deposits, such as savings, fixed, current, and recurring.
- There are some exceptions like deposits of foreign governments, deposits of Central/ State Governments, deposits of State Land Development Banks with State co-operative banks, and inter-bank deposits.
- The Financial Resolution and Deposit Insurance (FRDI) Bill, which was junked by the government last year, had argued a higher share of deposit insurance for depositors. It had also said that financial firms are different and hence an orderly winding-up process of a financial institution be put in place.

How to prevent Bank Run and protect depositor's interests?

- The insurance limit of ₹1 lakh, set in 1993, needs to be raised to a higher amount, with some suggestions being made to raise it to ₹15 lakh, which will cover 90% of the accounts completely.
- The lack of DICGC coverage for deposits at NBFCs (many of whom the RBI regulates) and primary cooperative societies. These entities often serve vulnerable sections and their depositors must not be left in the lurch in case of a crisis.
- The customers who want more coverage than the statutory cover on their deposits should be able to purchase this by paying additional premium. This option should be extended directly to banks that wish to increase the coverage of deposits to above the statutory requirements.
- The current DICGC cover is that the ₹1 lakh insurance amount only needs to be released if a bank goes belly up. Without liquidation of the bank, no liability accrues on the insurance company to pay such a claim. The flaw in this scheme is obvious today — the 'freezes' in withdrawal directed by the RBI essentially cut the depositor's access to his money. Hence, during such periods, at least the statutory amount should be released. This will go a long way in preventing bank runs, which could be triggered when customers get alarmed about the ability of banks to repay their deposits.
- Currently the DICGC charges a flat 0.1% insurance premium on the deposits of banks. However, as suggested by an RBI panel in 2015, premium should be based on differential risk based on the lending practices of the bank, among other things. An SBI report states that 93% of the premium collected by the DICGC in 2018-19 came from commercial banks (public sector: 75%, private sector: 18%), but over 94% of the claims settled (ever since the inception of the DICGC) have been those of cooperative banks. Clearly, poor governance in cooperative banks has been cross-subsidised by the better-performing commercial banks.
- Bringing private sector insurers and re-insurers into the deposit insurance segment could drive down premium prices.

MOODY'S CUT INDIA'S RATING FROM STABLE TO NEGATIVE

◎ CONTEXT

- Ratings agency Moody's has reacted predictably to the turbulence in the economy by revising the outlook on its sovereign rating for India from stable to negative.

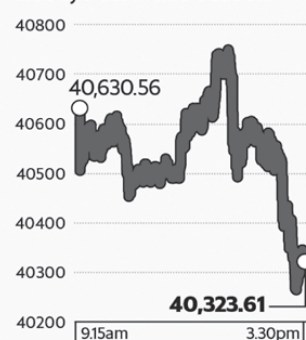
◎ ABOUT

- Moody's Investor Service changed its outlook for India's sovereign rating (Baa2) from stable to negative, saying that the domestic economic downturn could be structural.
- The agency's action does not amount to a rating downgrade, but comes as a caution against policy inaction. Moody's credit rating of Baa2, the second-lowest investment grade score, is better than those of other agencies, such as S&P and Fitch, who have assigned the lowest investment grade to India with a stable outlook.
- However, the Union finance ministry said that India's potential growth rate remains unchanged, as evident from the assessment by the International Monetary Fund (IMF) and other multilateral organizations that continue to hold a positive outlook on India.
- The government has undertaken a series of financial sector and other reforms to strengthen the economy as a whole. Government of India has also proactively taken policy decisions in response to the global slowdown. These measures would lead to a positive outlook on India and would attract capital flows and stimulate investments
- India has often criticized the methodology followed by rating agencies.
- India's ratings were upgraded to Baa2 from Baa3 in 2017 citing progress on 'economic and institutional reforms' by the Narendra Modi Government.
- Moody's said India's potential gross domestic product (GDP) growth and job creation will remain constrained unless reforms are advanced to directly reduce restrictions on the productivity of labour and land, stimulate private sector investment, and sustainably strengthen the financial sector.

FEELING THE SQUEEZE

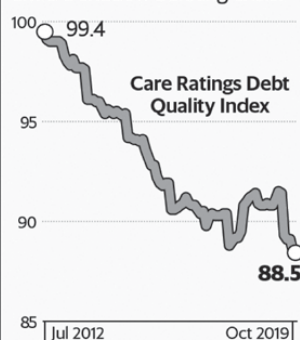
Fear factor for markets

Sensex fell 330 points after Moody's cut India's outlook.



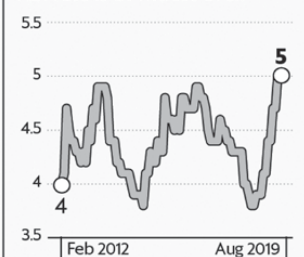
The debt wish

Credit quality is at a record low amid a shadow banking crisis.



Costly loans, low demand

Spread between bank rates and RBI rate is at widest ever.



Refers to spread between the weighted average lending rate on outstanding loans (10.45%) and RBI's repo rate (5.4%) as of August 2019

Source: Bloomberg, Care Ratings, RBI

A look at the Indian Economy and Issues

- None of the issues that Moody's has highlighted are unknown. The growth slowdown and its effects on the fiscal deficit and borrowings are the main worries.
- The tax revenue growth is nowhere near budgeted levels and with prolonged slowdown it is clear that tax revenues will undershoot by a wide margin.
- The government has been forced to spend more to stimulate the economy. To push expenditure on capital projects, the government gave away corporate tax concessions amounting to a whopping ₹1.45 lakh crore.

- Even with the boost from the ₹1.76 lakh crore dividend payout from the Reserve Bank of India, the budget arithmetic is optimistic and it now appears certain that the government will miss the fiscal deficit target of 3.3% of GDP. Moody's has projected that the deficit will slip to 3.7% of GDP this fiscal.
- Ratings agencies are ultra-sensitive to fiscal deficit overruns but the positive factor here is that India's borrowings are almost wholly domestic. External debt to GDP is just 20% but the ratings do have an impact on investor sentiment.

Way Out

- The increase in bank credit off-take reported by the RBI for the second successive fortnight is a positive sign.
- The government needs to press the pedal harder on reforms and in debugging GST.
- The government may also have little option than to go big on disinvestment in the remaining four months of this fiscal. The target of ₹1.05 lakh crore that it set for itself in the budget has to be bested by a wide margin if the fiscal deficit slippage is to be contained.

STEEL SCRAP RECYCLING POLICY

◎ CONTEXT

- The government released Steel Scrap Recycling Policy that aims to reduce imports, conserve resources and save energy.

◎ ABOUT

- The Steel Scrap Policy will ensure processing and recycling of products in an organized, safe and environment friendly manner.
- It will evolve a responsive ecosystem to produce high quality ferrous scrap for quality steel production minimizing the dependency on imports.
- It envisages a framework to facilitate and promote establishment of metal scrapping centers in India that will boost steel production.
- It also aims to decongest the Indian cities from reuse of ferrous scrap, besides creating a mechanism for treating waste streams and residues produced from dismantling and shredding facilities.
- The country's steel scrap imports were valued at Rs 24,500 crore in 2017-18, while the deficit was to the tune of 7 MT.
- The policy is based on "6Rs principles of Reduce, Reuse, Recycle, Recover, Redesign and Remanufacture" through scientific handling, processing and disposal of all types of recyclable scraps including non-ferrous scraps, through authorized centers / facility".
- The gap between demand and supply of scrap can be reduced in the future and the country may be self-sufficient by 2030.
- National Steel Policy 2017 aims to develop a globally competitive steel industry by creating 300 MT per annum steel production capacity by 2030 with a contribution of 35-40 per cent from EAF/IF (Electric Arc Furnace/Induction Furnace) route.

Significance

- The scrapping policy ensures that quality scrap is made available for the steel industry. Scrap is an important input for the electric furnaces. If quality scrap is provided as the charge to the electric furnaces, then the furnaces can produce high grade steel. High grade steel scrap shall not have the impurities if processing is done with the scrap processing centers and by shredders etc.
- It will minimize the cost of production and will lead to costlier steel.
- Conservation of environment, energy and Natural resources: There is a worldwide trend to increase steel production using scrap as the main raw material as recycling of scrap helps in conservation of vital natural resources besides other numerous benefits. The use of every tonne of scrap shall save 1.1 tonne of iron ore, 630 kg of coking coal and 55 kg of limestone. There shall be considerable saving in specific energy consumption also.

- The availability of scrap is a major issue in India and in 2017 the deficit was to the tune of 7 MT which gives us an opportunity to exploit it. This was imported at the cost of more than Rs 24,500 crore in 2017-18.
- The current supply of scrap is 25 MT from the domestic unorganized scrap industry and 7 MT from import of scrap. There is potential to harness this huge quantity scrap for steel production.
- It is in tune with the National Steel Policy that aims to develop a globally competitive steel industry by **creating 300 MT per annum steel production capacity by 2030** with a contribution of 35-40 per cent from EAF/IF (Electric Arc Furnace/Induction Furnace) route.
- It will reduce India's dependence on steel imports.

DEFORESTATION, AGRICULTURE TRIGGERED SOIL EROSION 4,000 YEARS AGO

◎ CONTEXT

- **Increased sediment deposits and changes in land use showed the degradation of soil during the last four millennia. Human activities such as agriculture and deforestation intensified global soil erosion 4,000 years ago, according to a study.**

◎ ABOUT

- While weathering of soil and erosion has, known to be controlled by changing climatic patterns and tectonic impacts of the planet, the new study suggests a role of human practices and land use-change.
- Soil erosion has direct impacts on climate and society, as it decreases the productivity of ecosystems and changes nutrient cycles.
- **Max Planck Institute, a Germany-based non-profit**, used radiocarbon dating techniques recorded temporal changes of soil erosion by analysing sediment deposits in more than 600 lakes worldwide. To understand the cause they analysed pollen fossil records and observed a decline in the tree cover.
- Changes in land cover were identified as the main driver of soil erosion in 70 per cent of all studied watersheds. This suggests that human practices intensified soil erosion much before the advent of industrialisation.
- Socio-economic developments during human settlements also correlated with sediment accumulation in lakes, a proxy for soil erosion.

Wetlands in Kashmir shrinking due to urbanisation

- An analysis of land cover data shows that the catchment of **Narkara wetland** in near Srinagar is now predominantly an urban setting.
- Wetlands are an integral part of the fragile ecosystem in north-western Himalaya. Jammu and Kashmir has several wetlands but those located close to urban areas are showing signs of deterioration due to land use change.
- This reduction is attributed to barren lands and agriculture being taken over by built-up area.
- The reckless urbanisation both within Narkara and its catchment not only affects the hydrology and ecology of this important semi-urban wetland but also increases vulnerability of people to flooding in this part of Himalaya because wetlands act as natural sponges and flood protection system.
- The gradual squeezing of wetlands is affecting their buffering capacity to withhold flood waters and storm water runoff.
- The catchment of Narkara is predominantly a semi-urban setting with settlements, agricultural fields and table lands locally called **karewas**, which are barren denuded landscapes. The wetland is a breeding ground for water fowl species that migrate from Russia and Central Asia during winters.

WASTELANDS ATLAS - 2019

◎ CONTEXT

- The Union Minister for Rural Development, Agriculture and Farmers Welfare & Panchayati Raj has recently released the Wastelands Atlas – 2019.

◎ ABOUT

Wasteland Atlas:

- The wasteland mapping exercise is carried out by National Remote Sensing Centre (NRSC), Department of Space using the Indian Remote Sensing Satellite (IRSS) data.
- The atlas is then jointly published by The Department of Land Resources (Ministry of Rural Development) and National Remote Sensing Centre.
- The Wastelands Atlas – 2019 is the fifth edition of all atlases. The previous editions released were in 2000, 2005, 2010 and 2011.

Need of Wasteland atlas:

- India with 2.4% of total land area of the World is supporting 18% of the World's population. The per capita availability of agriculture land in India is 0.12 ha whereas World per capita agriculture land is 0.29 ha.
- Unprecedented pressure on the land beyond its carrying capacity is resulting into degradation of lands in the Country.
- Therefore, robust geospatial information on wastelands assumes significance and effectively helpful in rolling back the wastelands for productive use through various land development programmes.

Findings of Wastelands Atlas - 2019:

- The changes in wastelands between 2008-09 and 2015-16 have been presented in this Atlas. The effort has resulted in estimating the spatial extent of wastelands for entire country to the tune of 55.76 Mha (16.96 % of geographical area of the Country) for the year 2015-16 as compared to 56.60 Mha (17.21%) in the year 2008-09.
- During this period 1.45 Mha of wastelands are converted into non wastelands categories. There is a net conversion of 0.84 Mha (0.26%) of different wasteland categories in the country during 2008-09 to 2015-16.
- A reduction in wasteland area was observed in the categories of land with dense scrub, waterlogged and marshy land, sandy areas, degraded pastures (grazing land) and gullied and ravinous land.
- It provides district and state wise distribution of different categories of wastelands area including mapping of about 12.08 Mha hitherto unmapped area of Jammu & Kashmir.
- The wastelands have undergone positive change in the states of Rajasthan (0.48 Mha), Bihar (0.11 Mha), Uttar Pradesh (0.10 Mha), Andhra Pradesh (0.08 Mha), Mizoram (0.057 Mha), Madhya Pradesh (0.039 Mha), Jammu & Kashmir (0.038 Mha) and West Bengal (0.032 Mha).
- Majority of wastelands have been changed into categories of 'croplands' (0.64 Mha), 'forest-dense / open' (0.28 Mha), 'forest plantation' (0.029 Mha), 'plantation' (0.057 Mha) and 'industrial area' (0.035 Mha).

WHAT THE TOXIC AIR DID TO DELHITES?

◎ CONTEXT

- It has been more than a week of breathing heavily polluted air for Delhiites. It is safe to say that for more than 150 hours they breathed a toxic cocktail, with the air quality 'severe' or 'severe +' since October 30.

© ABOUT

- Particulate matters (PM) 2.5 and 10 remained at least five times more their safe standards.
- These ultrafine particles can enter the respiratory system and reach the bloodstream.
- On an average, a person breathes 25,000 times a day. For those living in Delhi and the National Capital Territory (NCT) regions, this means breathing toxic air 25,000 times a day. Toxins once deposited in lungs cannot be cleansed.
- Such continued inhalation of toxic gases affects all organs and not just lungs. It even has the potential to cause hormonal imbalances.
- Being in such an environment full of pollutants constantly also affects the central nervous system of the brain.
- Impairment in concentration abilities has also been seen.
- People living in polluted environments are prone to mood swings and insomnia as so many pollutants reaches the bloodstream. They can change the biochemical profile of the substances which make us sleep
- Besides causing lung cancer, chronic exposure to high levels of pollution increases the risk of heart diseases, chest pains, and chronic bronchitis, among other health consequences.
- Chronic exposure also impairs the respiratory tract's defense mechanism, opening it up for bacteria and viruses.
- After PM 2.5 and 10, now even PM 0.1 was being absorbed in the bloodstream.

Major reasons for extremely poor Delhi air in winters

- **Burning of Crop Stubble** – Burning of crop residue by farmers in Northern states of Punjab, Haryana and Uttar Pradesh is considered as the prime reason for a spike in air pollution during the winter months in Delhi and NCR. This is a traditional practice followed by farmers in these states to prepare their fields for sowing crops after harvesting their fields.
- **Winter season** - As the winter season sets in, dust particles and pollutants in the air become unable to move. Due to stagnant winds, these pollutants get locked in the air and affect weather conditions, resulting in smog.
- **Burning crackers** - Despite the ban on cracker sales, firecrackers are usually a common sight every Diwali. It may not be the top reason for this smog, but it contributes to its build up.

Government initiatives taken to control Delhi Pollution

- There are mobile enforcement teams deployed at various locations for monitoring polluting vehicles and vehicles not having PUC certificates.
- A Mass Rapid Transport System (MRTS) is being constructed with the aim of providing a non-polluting, useful and affordable rail-based mass rapid transit system for Delhi, integrated with other modes of transport.
- With a view to reducing vehicular pollution, there has been a ban imposed on the plying of more than 15 years old commercial/transport vehicles, taxis and autos that run on conventional fuels, including diesel driven city buses.
- There has also been tightening of mass emission standards for new vehicles.
- The quality of the fuel being supplied in Delhi has been significantly improved over the years by the ban of selling leaded petrol, introduction of low sulphur diesel, reduction of sulphur and benzene content in petrol.
- There has been regular placement of dustbins, purchase of additional front-end loaders, mechanical sweepers, dumper placers, tipper trucks, to collect and dispose of garbage.
- The biggest positive step taken by the Delhi government was to permanently shut down the old, polluting Badarpur coal-fired power plant in the southeastern outskirts of Delhi. The plant, a major cause of the Capital Region's air pollution, had been shut down every winter for the past three years to scale back pollution.

- The Centre constituted the Supreme Court-empowered Environment Pollution (Prevention and Control) Authority or the EPCA, which is tasked with taking various measures to tackle air pollution in the National Capital Region.
- Delhi government regularly comes up with emergency measures like Odd-Even formula for vehicles to control rising pollution.

DANAKIL DEPRESSION

◎ CONTEXT

- Nature Ecology & Evolution recently published a new study. It says that active and naturally occurring life cannot be sustained at Danakil Depression, a place having water.

◎ ABOUT

Danakil Depression:

- The Danakil Depression is located in Ethiopia. It is the northern part of Afar Triangle there.
- It is a geological depression that has resulted from the divergence of three tectonic plates in the Horn of Africa.
- It is one of the **lowest place** in the surface of earth measuring 125m below sea level.
- It is the **hottest place** on Earth in terms of year-round average temperatures. It remains without rain for most of the year.
- At the northern end of Danakil Depression which is separated by live volcanoes from the Red Sea, this depression was formed by the evaporation of an inland water body. All the water entering Danakil evaporates, and no streams flow out from its extreme environment. It is covered with more than 10 lakh tonnes of salt.

Findings of the report:

- There are extremophile microbes that can adapt to environmental conditions that are too extreme for any living organism. This new research has pointed out that in Danakil Depression, a place having bubbling pools of water and mounds of salt covering its landscape, even these microorganisms cannot live.
- It identifies two barriers for this: magnesium-dominated brines that cause cells to break down; and an environment having simultaneously very low pH and high salt (toxic hyperacid-hypersaline water), a combination that makes adaptation highly difficult.
- The scientists have the opinion that the fact that this research has not revealed life form does not mean that organisms more complex than microfossils are not present there.
- They say that until more intricate studies are done, this Danakil Depression for now is the most inhospitable area not fit for living.

ICEDASH AND ATITHI

◎ CONTEXT

- Recently Ministry of Finance launched two new IT initiatives ICEDASH and ATITHI for improved monitoring and pace of Customs clearance of imported goods and facilitating arriving international passengers by electronic filing of Customs baggage and currency declarations.

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ICEDASH: Indian Customs Ease of Doing Business Dashboard

- ICEDASH is an Ease of Doing Business (EoDB) monitoring dashboard of the Indian Customs helping public see the daily Customs clearance times of import cargo at various ports and airports.
- With ICEDASH, Indian Customs has taken a lead globally to provide an effective tool that helps the businesses compare clearance times across ports and plan their logistics accordingly.
- This dashboard has been developed by Central Board of Indirect Taxes and Customs in collaboration with National Informatics Centre (NIC) and can be accessed through the CBIC website.

ATITHI: Custom Department App.

- The Central Board of Indirect Taxes and Customs (CBIC) has launched a new mobile app named "ATITHI" for improved customs clearance.
- It will also facilitate arriving international passengers with e-filing of baggage and currency declarations.
- It is expected to increase the transparency of customs functioning and reduce interface

Some of the key features of ATITHI Mobile App include:

- ATITHI app is effortless to use mobile application for international travellers to file Customs declaration in advance.
- With this application, CBIC has introduced an easy to use mobile app for the passengers can use this app to file a notice of dutiable items as well as currency with the Indian Customs before boarding the flight to India.
- The application will create a tech-savvy image of India Customs and that would encourage the business travel as well as tourism to India.
- The app. ensures access from any time at anywhere and also makes it easier for the passengers to access the custom duty information.
- In addition to that, it also supports the faster customs processes and provides multiple application support that fits the requirements of the users.
- ATITHI app can be used by all the travellers including Indian residents as well as foreign nationals those who are arriving in India by air across the globe.

Central Board of Indirect Taxes and Customs

- Central Board of Indirect Taxes and Customs (erstwhile Central Board of Excise & Customs) is a part of the Department of Revenue under the Ministry of Finance, Government of India.
- It deals with the tasks of formulation of policy concerning levy and collection of Customs, Central Excise duties, Central Goods & Services Tax and IGST, prevention of smuggling and administration of matters relating to Customs, Central Excise, Central Goods & Services Tax, IGST and Narcotics to the extent under CBIC's purview.
- The Board is the administrative authority for its subordinate organizations, including Custom Houses, Central Excise and Central GST Commissionerates and the Central Revenues Control Laboratory.

National Informatics Centre

- National Informatics Centre (NIC) was established in 1976, and has since emerged as a "prime builder" of e-Government / e-Governance applications up to the grassroots level as well as a promoter of digital opportunities for sustainable development.
- NIC, through its ICT Network, "NICNET", has institutional linkages with all the Ministries /Departments of the Central Government, 36 State Governments/ Union Territories, and about 708 District Administrations of India.

Ease of Doing Business

- Ease of doing business is an index published by the World Bank. It is an aggregate figure that includes different parameters which define the ease of doing business in a country.
- It is computed by aggregating the distance to frontier scores of different economies.
- The distance to frontier score uses the 'regulatory best practices' for doing business as the parameter and benchmark economies according to that parameter.
- For each of the indicators that form a part of the statistic 'Ease of doing business,' a distance to frontier score is computed and all the scores are aggregated.
- The aggregated score becomes the Ease of doing business index.
- Indicators for which distance to frontier is computed include construction permits, registration, getting credit, tax payment mechanism etc. Countries are ranked as per the index.

INDIA INTERNATIONAL SCIENCE FESTIVAL (IISF) 2019: EXPERTS ADVISE SUSTAINABLE, CLIMATE- SMART, DIVERSE FARMING

◎ CONTEXT

- Agricultural experts advised Indian farmers to switch to sustainable, self-sufficient, climate-smart and diverse agriculture to enhance their incomes at the ongoing India International Science Festival (IISF) in Kolkata on November 6, 2019.

◎ ABOUT

- Need of the hour is to increase income per acre of land with innovative community driven practices.
- One acre can actually generate a lakh rupees for the farmer through cultivation of diversified crops, vegetables and fruits integrated with the region specific livestock and cattle.
- Growing cost of inputs, through purchase of seeds, chemical fertilisers and pesticides was leading to increasing cost of cultivation, pushing small farmers to acute poverty. However, getting soil health cards can help farmers to learn about scientific the status of their soil and go for the right kind of fertilisers, necessary for their fields.

Addressing the problem

- Concepts of roof top farming, window farming, processes such as straw mulching of mushrooms and vegetables can overcome the problem of reducing availability of land.
- Add jaggery to organic pesticides would attract honeybees to the developing flowers of the fruit trees, resulting in more pollination.
- Continuous use of organic fertilisers can also make the soil fertile, reverting it back to its natural bio-diverse health, and getting back insects, birds and earth worms.
- Including cows in the process of organic farming is a sustainable solution to the problem and could effectively reduce cost of cultivation manifolds.
- Use of cow urine and dung can increase soil fertility and growing native crops and vegetables instead of the more expensive genetically modified seeds, can fetch attractive remunerations for farmers.
- Migration of farmers especially from rural, rain-fed in search of daily wages was another area of concern for the participants. For this, farming has to be made a lucrative career option.

- Raising fish in paddy wetlands or making ducks float in paddy water fields are also good ways to improve earnings while enriching the biodiversity in the fields.
- Another major challenge to Indian agriculture continued to be the unpredictable impacts of climate change. The distribution of rains is erratic. The quantum of rains in total may be good, but their intensity and time occurrence are scattered.
- Vegetables and fruits can be grown commercially with green house technology in poly houses during off season by controlling the micro-climatic conditions.

NATIONAL HEALTH STACK AND NATIONAL DIGITAL HEALTH BLUEPRINT

◎ CONTEXT

- A committee under the chairmanship of I-T secretary J Satyanarayana recently submitted its final report on National Health Stack and National Digital Health Blueprint to Ministry of Health and Family Welfare.

◎ ABOUT

What is the National Health Stack (NHS)?

- AN initiative of NITI Aayog, NHS is digital infrastructure built with the aim of making the health insurance system more transparent and robust, while factoring in the uniqueness of India's health sector, and the political realities of federalism.

It includes following components

- An electronic national health registry that would serve as a single source of health data for the nation.
- A coverage and claims platform that would serve as the building blocks for large health protection schemes.
- A federated personal health records (PHR) framework that would serve the twin purposes of access to their own health data by patients, and the availability of health data for medical research.
- A national health analytics platform that would provide a holistic view combining information on multiple health initiatives.
- Other horizontal components including a unique digital health ID, health data dictionaries and supply chain management for drugs, payment gateways, etc., shared across all health programmes.

What is the National Digital Health Blueprint (NDHB)?

- The NDHB is the architectural document for the implementation of the NHS. Its vision is to create a national digital health ecosystem that supports universal health coverage in an efficient, accessible, inclusive, affordable, timely and safe manner
- It aims to create the digital health infrastructure through provision of a wide range of data, information, and infrastructure services, duly leveraging open, interoperable, standards-based digital systems, and ensuring the security, confidentiality and privacy of health-related personal information.
- The key features of the blueprint
 - Federated architecture
 - A set of architectural principles
 - A five-layered system of architectural building blocks
 - A unique health ID (UHID)
 - Privacy and consent management, national portability, electronic health records, applicable standards and regulations, health analytics

- Multiple access channels like call centres, Digital Health India portal, and the MyHealth app. A total of 23 such building blocks have been identified in the blueprint for the NHS to become a viable reality.
- Establishment of National Digital Health Mission (NDHM) that can drive the implementation of the blueprint, and promote and facilitate the evolution of a national digital health ecosystem.

Significance

- The proposed NHS is an approach to address the challenge and seeks to employ latest technology including Big Data Analytics and Machine Learning Artificial Intelligence, a state of the art Policy Mark-up Language and create a unified health identity of citizens - as they navigate across services across levels of care, i.e. Primary, Secondary and Tertiary and also across Public and Private.
- With the launch last year of Ayushman Bharat and the slow but certain progress towards Universal Health Coverage (UHC), the challenge of making quality and affordable healthcare accessible to every one of India's 135 crore citizens has acquired an altogether new dimension.
- Effective use of technology is critical to this project — this is where the National Health Stack and its rulebook of sorts, the National Digital Health Blueprint, drawn under the guidance of NITI Aayog has gained prominence.

NATIONAL HEALTH PROFILE

◎ CONTEXT

- India's life expectancy rises to 68.7 years according to National Health Profile 2019 recently released by Central Bureau of Health Intelligence.

◎ ABOUT

More on news

- Life Expectancy:** According to the Survey life expectancy in India has increased from 49.7 years in 1970-75 to 68.7 years in 2012-16.
- For the same period, the life expectancy for females is 70.2 years and 67.4 years for males.
- Population Density:** According to the survey, the highest population density of 11,320 people per square kilometre was reported by the NCT of Delhi whereas Arunachal Pradesh has reported the lowest population density of 17.
- Non Communicable Diseases:** On the non-communicable diseases, the survey notes that out of 6.51 crore patients who attended NCD clinics, 4.75 per cent people are diagnosed with diabetes and 6.19 per cent are diagnosed with hypertension.
- Demographics:** On demographics, the survey found the high incidence of the young and economically active population.
- The survey notes that 27 per cent of the total estimated population of 2016 were below the age of 14 years and majority (64.7 per cent) of the population were in the age group of 15-59 years.
- Birth Rate and Death Rate:** There has been consistent decrease in the birth rate, death rate and natural growth rate in India since 1991 to 2017.
- As on 2017, India has registered birth rate of 20.2 per 1,000 population and death rate of 6.3 per 1,000 population while the natural growth rate was 13.9 per 1,000 population in India.
- The birth rate in rural areas was higher than in the urban. Similarly, the death rate and natural growth rate were also higher in rural areas as compared to the urban.
- The population continues to grow, as the decline in the birth rate is not as rapid as the decline in the death rate

- **Infant Mortality:** The infant mortality rate has declined considerably (33 per 1,000 live births in 2016), however differentials of rural (37) & urban (23) are still high.
- **Total Fertility Rate:** The Total Fertility Rate (TFR) for the country was 2.3 whereas in rural areas it has been 2.5 and it has been 1.8 in urban areas during 2016 as per the latest available information.
- **Health Status:** On the health status indicators, the survey finds that on communicable diseases, in 2018, maximum number of cases and deaths due to malaria have been reported in Chhattisgarh (77,140 cases and 26 deaths).
- The overall prevalence of the disease has diminished in 2012 and 2013 but there was a slight increase in 2014 and 2015 before it again started decreasing from 2016.
- Dengue and Chikungunya, transmitted by Aedes mosquitoes, are a cause of great concern to public health in India.
- Dengue outbreaks have continued since the 1950s but severity of disease has increased in the last two decades.
- The reported cases of Chikungunya in the country has shown a slight decrease from 67,769 to 57,813 in 2018 as compared to 2017.
- There has been considerable decrease in the number of swine flu cases/deaths in the year 2014 as compared with 2012 and 2013.
- During the year 2015, 4.13 lakh people lost their life due to accidental injuries and 1.33 lakh people died because of suicide.
- Suicide rates are increasing significantly among young adults and the maximum number of suicide cases (44,593) is reported between the age group 30-45 years.

National Health Profile

- **The Central Bureau of Health Intelligence (CBHI)** has been releasing its annual publication "National Health Profile (NHP)" on a regular basis since 2005.
- It involves prolonged, systematic and genuine efforts to collect an enormous amount of national data from the Directorates of Health & Family Welfare of all the 36 States/UTs, Central Government Organizations, National Health Programmes and various other concerned national and international agencies in India.
- This publication of vital national significance brings out very substantial Health Information under six major indicators viz. Demographic, Socio-Economic, Health Status, Health Finance, Health Infrastructure and Human Resources for the specified calendar year and much more relevant information required for an efficient public health system in our country.

The Central Bureau of Health Intelligence

- Central Bureau of Health Intelligence (CBHI) is the National Nodal agency for Health Intelligence in the Directorate General of Health Services (Dte.GHS), Ministry of Health & Family Welfare, and Government of India.
- It also functions as Collaborating Centre for World Health Organization, Family of International Classification (WHO FIC) in India & South East Asia Region (SEAR) countries.
- It is committed to build an integrated health informatics platform which can provide reliable, accurate, and relevant national health information and enable evidence based policy formulation and decision making.

16th ASEAN-INDIA SUMMIT

◎ CONTEXT

- Recently, 16th ASEAN-India Summit during the 35th ASEAN Summit was held in Thailand.

- **The Prime Minister of Thailand General Prayut Chan-o-Cha chaired this 16th ASEAN-India Summit and Prime Minister of our country Narendra Modi co-chaired it.**

◎ ABOUT

ASEAN-India relations:

- In the early 1990s the significant changes in the world's political and economic scenario made India march towards economic liberalisation. So, India being a South Asian country started focussing on a strengthened and multi-faceted relationship with ASEAN, an association of South East Asian countries.
- This search of India for economic space resulted in the 'Look East Policy'. Later, this Look East Policy in 2014 after 12 ASEAN-India summits matured into a dynamic and action oriented 'Act East Policy'.
- The up-gradation of the relationship into a Strategic Partnership in 2012 was a natural progression to the ground covered since India became a Sectoral Partner of the ASEAN in 1992, Dialogue Partner in 1996 and Summit Level Partner in 2002. There are, in total, 30 Dialogue Mechanisms between India and ASEAN, cutting across various sectors.
- To strengthen engagement with ASEAN, India has set up a separate Mission to ASEAN in Jakarta, Indonesia with a dedicated Ambassador.

Outcomes of this relation:

- **Strengthening Security:** Due to its strategic location, ASEAN is at the centre of Indo-Pacific region with the greatest potential for security and growth for all in the region. India and ASEAN can provide each other with coordination, cooperation and sharing of experiences at multiple levels in response to today's rising export of terror, growing radicalization through ideology of hatred and spread of extreme violence.
- **Booming Economy:** ASEAN-India relation has led to benefitting both by steadily growing trade and investment, with ASEAN becoming India's fourth largest trading partner. With the implementation of ASEAN-India Agreements on Trade in Service and Investments, there has been increase in FDI inflows to each other. There has been enhancement in private sector engagement after setting up of ASEAN India-Business Council (AIBC).
- **Growing Socio-Cultural Ties:** There has been a boost in People-to-People Interaction due to organisation of a large number of programmes such as invitation of ASEAN students to India each year for the Students Exchange Programme, Special Training Course for ASEAN diplomats, Exchange of Parliamentarians, Participation of ASEAN students in the National Children's Science Congress, ASEAN-India Network of Think Tanks and ASEAN-India Eminent Persons Lecture Series.
- **Increasing connectivity:** There is increase in support to promote projects that provide physical and digital connectivity between India and ASEAN. Separate Project Development Funds are released for it. There has been considerable progress in implementing the India-Myanmar-Thailand Trilateral Highway and a possible extension of it to Cambodia, Lao PDR and Viet Nam is under consideration.

INDIA, UZBEKISTAN SIGN THREE DEFENCE MOUS

◎ CONTEXT

- **India and Uzbekistan signed three memorandums of understanding (MoU) to enhance cooperation in military medicine and military education.**

◎ ABOUT

- India and Uzbekistan signed three memorandums of understanding (MoU) to enhance cooperation in military medicine and military education during the visit of Defence Minister Rajnath Singh.
- Singh and his Uzbekistan counterpart jointly presided over the curtain raiser of the first India-Uzbekistan Joint Exercise, "Dustlik 2019".

- The bilateral exercise will be conducted from November 4 to 13 at Chirchiq Training Area near Tashkent and will be focused on counter-terrorism, in which "the two countries share a common concern".
- India has offered a concessional line of credit of \$40 million for procurement of goods and services by Uzbekistan from India.
- The MoUs were signed on direct exchanges related to training, capacity building and education between the armed forces of both sides. The direct exchanges related to training, capacity building and education between the armed forces on both sides has also witnessed a significant upswing.

Significance

- Delhi looks to fully realise its strategic partnerships in the region where China has made inroads taking advantage of its geographical contiguity. In this context the strategic relations is going to be favorable for both the countries.
- Delhi and Tashkent also agreed to promote peaceful use of nuclear energy and outer space as India eyes uranium supply from Uzbekistan. The two sides with high stakes in Uzbekistan also agreed to have regular dialogue in stabilising the landlocked country.
- For a safe and secure regional environment for development and prosperity, Delhi and Tashkent agreed to cooperate in addressing threats and challenges to national as well as regional security.
- The two sides agreed to strengthen cooperation between the law enforcement agencies and special services of the two countries, including under the framework of the Uzbekistan-India Joint Working Group on Counter-Terrorism.
- India and Uzbekistan set an annual bilateral trade target of \$1 billion to be achieved within two years and such MoUs will help in increased cooperation towards that goal.

QUANTUM COMPUTING

◎ CONTEXT

◎ ABOUT

- **Google claims a Quantum breakthrough that could change computing.**
- Google claims to have achieved a long-sought breakthrough called "**quantum supremacy**", which could allow new kinds of computers to do calculations at speeds that are inconceivable with today's technology.
- A quantum machine is based on a branch of physics called **quantum mechanics**, the science that governs **how matter behaves on the atomic scale**.
- Google's quantum computer took under 3 minutes for a calculation that would take a supercomputer 10,000 years.
- Google's quantum computer, named **Sycamore**, used a **53-qubit processor** to generate a sequence of millions of numbers.

Quantum computers vs. traditional computers

- A quantum machine operates in a completely different manner from regular computers.
- **Traditional computers follow the principles of a Turing machine** and perform calculations by processing "**bits**" of information, with each bit holding **either a 1 or a 0**.
- **Quantum computing** relies on the way some objects act at the **subatomic level or when exposed to extreme cold**, like the metal chilled to nearly 460 degrees below zero.
- By harnessing this odd behavior, scientists can build a quantum bit, or "qubit". A **qubit is not always 0 or 1, but can be both** at the same time (a state called **quantum superposition**). Only at the end of the computation would you know which, but during the computation process, its exact state is **indeterminate**.

- Two qubits can hold four values at once. And as the number of qubits grows, a quantum computer becomes exponentially more powerful.
- Quantum machines look nothing like a regular computer. They are **large cylinders of metal and twisted wires that are dropped into stainless steel refrigerators**. Information is sent to the machine, as is to a traditional computer chip, and calculations are received in return.

Future of quantum computing

- **Huge investment:** Many tech companies including Microsoft, Intel and IBM as well as Google, are competing amongst each other for a position in quantum computing. Venture capitalists have invested millions into start-ups exploring this technology.
- **Big data and Analytics:** We produce 3 exabits of data every day. With classical computers reaching their limits of processing power, quantum computers can be used to spot unseen patterns in large data sets, integrate data from different data sets, and tackle the whole problem at once.
- **Artificial Intelligence:** Quantum machines can offer a significant leap in artificial intelligence (AI), offering quick feedbacks and making AI more intuitive.
- **National Security:** Governments of the US and China consider quantum computing a national security priority because it can provide encryptions that protect computers vital to national security.
- **Commercial solutions:** Quantum machines have potential to solve significant commercially relevant problems.
- **Improved encryption:** They are capable of working out the prime numbers that, multiplied together, make up an exceedingly large number – this forms basis of cryptographic protocols.
- **Unhackable communication links:** Quantum computers can help improve cryptography with methods like 'quantum key distribution', where even if the message gets intercepted, no one can read it.
- **Medicine:** They can aid in creation of new medicines by reviewing multiple molecules simultaneously, quickly sequencing individual DNAs for personalized drugs.
- **New materials:** With quantum computing new materials can be developed.
- **Accurate weather forecasting:** They can aid in weather forecasting and, more importantly, climate-change predictions.

Critique

- **Costly:** Right now, a single quantum machine costs millions of dollars to build.
- **Fragile:** Quantum computers are highly sensitive to environmental noise — including everyday phenomena such as temperature changes and electromagnetic fields.
- **Not fully ready yet:** A lot of work needs to be done before quantum computers can migrate out of the research lab.
- **Supremacy overrated:** Some companies have disputed the absolute dominance of quantum computers over classical computers. According to them, Google's calculations can be performed by a traditional computer in less than 2.5 days — not 10,000 years.
- **Threat to online banking:** The use of quantum computing has the ability to break encryption codes and can impact online banking. But if such technological breakthroughs were to pose a real threat, it is likely that banks will themselves harness quantum computers for better protection.
- **Public blockchains under threat:** It was no coincidence that Bitcoin's price slumped the day Google announced its breakthrough. The security of every 'public blockchain' can be under threat from quantum hacks.

Quantum-computing in India

- There are **no quantum computers** in India yet.

- In 2018, the Department of Science & Technology unveiled a programme called **Quantum-Enabled Science & Technology (QuEST)** and committed to investing ₹80 crore over the next three years to accelerate research.

WHY MORE MEASLES PATIENTS DIE OF OTHER INFECTIONS?

◎ CONTEXT

- The world is witnessing a revival of measles. Since 2018, there has been a 300 per cent increase in measles cases globally. Currently, it infects some seven million people while over 100,000 die.

◎ ABOUT

- What worries the medical fraternity is the fact that a significant number of such deaths are due to secondary infection.
- Many of the deaths attributable to the measles virus are caused by secondary infections because the virus infects and functionally impairs immune cells.
- Findings on the measles virus's impact on immunity of body are an urgent call for attention.
- A **blood test called VirScan** on the antibody level of children before and after natural measles infection is been conducted and also conducted the same test in children vaccinated against measles.
- Recovery of antibodies was detected after natural re-exposure to pathogens. Notably, these immune system effects were not observed in infants vaccinated against MMR (measles, mumps, and rubella), but were confirmed in measles-infected macaques
- Whenever a pathogen attacks our body, the natural reaction is to create immunity to it. This remains inside us as a "memory". Next time if that pathogen again attacks the body, this comes to the rescue.
- The new study says that the measles virus is attacking this part of the human body's immunity.
- The virus, as the experiment found, is impairing the cells that store this memory or immunity information. This means in future we will not be able to fight many other infections / virus attacks.
- This explains also the large number of deaths not just due to measles but also concurrent infections when measles virus attacks a child.
- The WBCs had the capacity to fight measles but lost already available antibody generated from other infections. This made them susceptible to attacks from other infections, without the power to fight them.

Low vaccine coverage could be behind measles outbreaks: WHO

- The World Health Organization (WHO) has blamed the measles outbreaks in countries around the world on declining vaccinations. According to its latest measles surveillance data, cases have risen by 300 per cent.
- When the disease is almost entirely preventable through two doses of a safe and effective vaccine, the surveillance data shows that second dose coverage, while increasing, stands at 67 per cent.
- The global coverage for the first dose of the vaccine has stalled at 85 per cent, which is still short of the 95 per cent needed to prevent outbreaks.
- The UN health agency listed Democratic Republic of the Congo, Ethiopia, Georgia, Kazakhstan, Kyrgyzstan, Madagascar, Myanmar, Philippines, Sudan, Thailand and Ukraine are currently facing outbreaks causing deaths, mostly among children.
- The WHO called measles one of the world's most contagious diseases.

Road to measles elimination is predictable, but can be rocky

- The United States has seen more measles cases so far in 2019 than in any year since elimination was declared in 2000 meaning the disease is no longer endemic in the country, spreading constantly throughout the year.
- Measles symptoms include high fever and a full-body rash, and the infection can be fatal or limit the body's ability to fight off other infections.
- Each of these outbreaks is individually difficult to predict.
- In high-income countries it may trigger unpopular policies, such as mandatory vaccination and school closures, and significant health-system costs, as has been seen in the US.

