

23 Mar 2020: UPSC Exam Comprehensive News Analysis

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B. GS 2 Related

Category: HEALTH

1. 80 districts in lockdown to contain virus spread

Context:

- Sharp increase in the number of confirmed [COVID-19](#) cases in India and the measures taken by the government.

Details:

- **New stringent measures** have been introduced in the backdrop of the **sharp increase in the number of confirmed COVID-19 cases in the country** after curbs on international travel, contact tracing and efforts at social distancing.
 - As the death toll in India from COVID-19 rose to seven and the number of confirmed cases rose to 396, **all train, metro and inter-state transport services across the country have been suspended** till March 31, 2020.
 - The Railways has announced suspension of all passenger services until March 31, including suburban services. Only goods trains will run during the period.
 - **Stringent restrictions have been imposed in 80 districts** across 17 States and five Union Territories affected by the pandemic.
 - Given the **criticality of social distancing** to avoid the transmission of the virus, there is the urgent need to focus on **closure of all activities except essential services** such as hospitals, telecom, medicine shops and provision stores. In this direction, **State governments will issue orders allowing only essential services to operate in districts with confirmed COVID-19 cases**. The list of essential services allowed would be decided by the individual States.
 - States would **earmark hospitals to exclusively treat coronavirus patients**.
 - The States need to **build on the momentum of the 14-hour lockdown** during the 'Janata Curfew'.

Conclusion:

- The new measures in place would be temporary in nature but are **vital to break the chain of transmission of the pandemic**.

2. Lessons from Italy for the COVID-19-wracked world

Context:

- The impact of **COVID-19 pandemic in Italy**.

Background:

- Italy has recorded more than 53,000 confirmed infections and more than 4,800 deaths due to COVID-19.
- The rate of increase is growing, with more than half the cases and fatalities coming in the last one week. **Italy has now reported more deaths than mainland China and third-placed Iran combined**, and it has a **death rate of 8.6% among confirmed COVID-19 infections**.

Details:

Complacency in Italy:

- In the critical early days of the outbreak, top officials sought to **downplay the threat, creating confusion and a false sense of security** that allowed the virus to spread.

Late and insufficient response by Italy:

- Despite currently having some of the toughest measures in the world, Italian authorities made some **mistakes during the early stages of the epidemic**, when it mattered the most.

- In its efforts to **preserve basic civil liberties as well as the economy, Italy resorted to piecemeal attempts to impose social distancing.** It went in for a **gradual lockdown** by isolating towns first, then regions, then shutting down the country.
- This gradual lockdown provided sufficient time for the epidemic to reach its **third stage of community transmission.**
- Despite the lockdown in place, the Italian **government failed to communicate the threat powerfully enough to persuade Italians to abide by the lockdown rules,** which itself had many loopholes.

Way forward:

- The tragedy unfolding in Italy should stand as a warning to the other nations which are facing the threat of a large outbreak.
- Italy's experience shows that **measures to isolate affected areas and limit the movement of the broader population need to be taken early, put in place with absolute clarity and strictly enforced.**

3. Can China's model work for the West?

Context:

- China's efforts to contain the COVID-19 outbreak.

Details:

China's progress in the fight against COVID-19:

- **China has reported only one new local infection over the past four days** which marks a remarkable success in the country's effort to contain the initial outbreak in the city of Wuhan.
- World Health Organization chief has stated that **China's success in the battle with COVID-19 provides hope for the rest of the world.**

China's efforts:

Isolation efforts:

- In January 2020, China shut down Wuhan and placed its 11 million residents in effective quarantine and similar moves were replicated in the rest of Hubei province, putting **50 million people in mass isolation.**
- Two weeks after the closure of Wuhan, which is exactly the incubation period, **the number of infections started to drop.**

Strict social distancing regulations:

- Hundreds of millions of Chinese live in closed residential complexes where **neighbourhood committees policed people's movement, ensuring strict compliance of social distancing regulations.** Isolation compliance could be **closely monitored** in such cases.
- In cities, it quickly became necessary to wear a mask as apartment blocks, businesses and even parks barred entry without one.
- The social distancing regulations, seems to have contributed to the decreasing number of new cases in China.

Use of technology:

- Many localities in China require citizens to show a **QR code on their phone** that rates them as “green”, “yellow” or “red”, based on **tracking of whether they visited a high-risk zone**.
- This helped in **effective tracking of the movement of people** and identifying at risk individuals and populations.

Public health over civil liberties:

- Given the nature of Chinese state, the state authorities were able to **enforce stricter regulations without concerns over infringement of civil or privacy rights**.

Mobilization of state resources:

- During the crisis, according to official news agencies, China produced up to 1.6 million N95 respirator masks per day, given **its manufacturing prowess**.
- The installation of **temperature checkpoints** at public buildings, shops and other public places helped boost detection rates.
- China was able to **set up new hospitals in very short periods of time**.

Challenges:

- China, being a **centrally-controlled, top-down, one-party authoritarian state** that allows no dissent and can **mobilise vast resources** on a single issue, is different from the other countries of the world.
- Given the particular features of Chinese state there are doubts whether China’s strategy can be followed successfully by other countries, particularly Western liberal democracies in the fight against the COVID-19 pandemic.

C. GS 3 Related

Category: ENVIRONMENT AND ECOLOGY

1. Air quality is picking up in quarantined countries

Context:

- **Air quality improvement** in countries under COVID-19 quarantines.

Details:

Reduction in NO₂ emissions:

- **Striking reduction in concentration of NO₂** has been reported from **China, Italy and Spain**.
- Images by the U.S. space agency NASA note that the concentration of nitrogen dioxide (NO₂) fell dramatically in Wuhan, China, the epicentre of the COVID-19 pandemic, during the lockdown period.
- Similar reductions have been observed in northern Italy and in Barcelona and Madrid, which have been locked down to fight the spread of the novel coronavirus. **In northern Italy, the average NO₂ concentration levels have almost decreased by half.**

NO₂:

- NO₂ is mainly produced by **vehicles, industrial sites and thermal power stations**. NO₂ forms when fossil fuels such as coal, oil, gas or diesel are burned **at high temperatures**.
- NO₂ and other nitrogen oxides in the outdoor air contribute to particle pollution and to the chemical reactions that make ozone.
- The pollutant can provoke serious **inflammation of the respiratory system**.
- The current **National Ambient Air Quality Standards notified by the [Central Pollution Control Board](#) consider NO₂** as one of the pollutants in the list of its monitored emissions.
- The dramatic drop off in NO₂ levels can be attributed to the fact that NO₂ is **a short-lived pollutant**, with a lifetime of about one day in the atmosphere.

Significance:

- The current observations point to the fact that the confinement measures currently in place will not only help reduce the risk of COVID-19 infection but also ease pollution from road traffic.

Conclusion:

- As China has moved past the peak of its crisis, recent images by the European Space Agency (ESA) show **an increase in NO₂ emissions**. This indicates the fact that the observed trend was of a short term.
- Despite the dramatic fall in NO₂ levels, it is very hard to know how much benefit the world's population will actually experience because, it is the **long-term exposure that will have an impact on human health**.

Additional Information:

- **Copernicus is the European Union's Earth observation programme** coordinated and managed by the European Commission in partnership with the European Space Agency (ESA), the EU Member States and EU Agencies.
 - Copernicus is the **new name for the Global Monitoring for Environment and Security programme**, previously known as GMES.
- Copernicus programme aims at achieving a **global, continuous, autonomous, high quality, wide range Earth observation capacity**. It will help provide accurate, timely and easily accessible information which will help improve the management of the environment, **understand and mitigate the effects of climate change**.
- ESA is developing a **new family of satellites, called Sentinels**, specifically for the operational needs of the Copernicus programme.

Category: INTERNAL SECURITY

1. Seizure of Afghan meth on high seas triggers concern

Context:

- Seizure of **crystal methamphetamine** drug by the Sri Lankan Navy in international waters of the Indian Ocean.

Details:

Drug trade route in the Indian Ocean region:

- The Sri Lankan Navy operation has resulted in the country's biggest drug haul at sea, with the seizure of 400 kg of heroin and 100 kg of crystal methamphetamine. Initial investigations suggested that the boats came from the Makran coast in Pakistan, with the drugs presumed to have **originated in Afghanistan**.
- Several seizures of Afghan-origin heroin in the high seas of the region have been made in the recent past. Heroin seizures are common in the region given that **Afghanistan has traditionally been the hub of opium production, which is used in the manufacture of heroin**.
 - The **Golden Crescent region of South Asia**—comprising Afghanistan, Iran and Pakistan—is a principal global site for opium production and distribution.

Methamphetamine drug:

- Methamphetamine, also known as meth, crystal, glass, ice, speed and shards, is a **potent central nervous system (CNS) stimulant that is mainly used as a recreational drug**. In contrast, heroin is a depressant.
- Methamphetamine is much **cheaper and highly addictive** compared with other drugs like cocaine.
- Crystal meth has become a relatively common drug of abuse due to its **ease of manufacturing**. It is often made in home laboratories that **use easily obtainable substances** to produce it.

Concern:

Development of meth market:

- About a decade ago, there were barely any indicators of meth being in widespread use in Afghanistan, with minuscule amounts being reportedly seized. However, the recent seizure indicates the **increasing production, use and outbound trade in meth in Afghanistan**.
- The 2018 drought in Afghanistan, in which large tracts of opium crops were destroyed, triggered the **move to chemical raw material based meth**.
- The United Nations Office on Drugs and Crime (UNODC) believes that many countries had reacted too late to the development of meth markets that allowed the market to establish itself.

Meth trade through well established routes:

- The seizure of 100 kg of methamphetamine has alarmed the drug enforcement agencies in India and other countries as it seems to indicate an **emerging trend** of meth being produced in Afghanistan **smuggled out through an already well-established route for heroin trafficking** to different parts of the world.

More complex challenges:

- It was observed in the Golden Triangle (the opium-producing area where the borders of Myanmar, Thailand and Laos meet) region that meth production rapidly **transformed a plant-based narcotics challenge into a challenge of tracking large synthetic laboratories**.
- This poses a **more complex** challenge given the fact that the detection of synthetic laboratories is more difficult for the security agencies.

Bulk production of meth:

- A worrying trend has been the increasing evidence of meth from Afghanistan, being **produced in bulk using ephedrine extracted from a shrub** locally known as Oman (Ephedra) growing in the wild in the Afghan mountains.

- This makes **ineffective the regulations in place to control the trade in chemicals used as raw materials in the production of meth**. The availability of the alternative raw material will only further **stimulate production, trade and use of meth** not only in the region but the world over.

D. GS 4 Related

Nothing here for today!!!

E. Editorials

Category: SCIENCE AND TECHNOLOGY

1. Picking up the quantum technology baton

Context

- The government, in its [Budget 2020](#), had announced a National Mission on Quantum Technologies & Applications (NM-QTA) with a total budget outlay of Rs 8000 Crore for a period of five years to be implemented by the Department of Science & Technology (DST).

National Mission on Quantum Technologies and Applications (NM-QTA)

- The Mission will be able to address the ever increasing technological requirements of the society, and take into account the international technology trends and road maps of leading countries for the development of next generation technologies.
- The areas of focus for the NM-QTA Mission will be in fundamental science, translation, technology development and towards addressing issues concerning national priorities.
- The mission can help prepare next generation skilled manpower, boost translational research and also encourage entrepreneurship and start-up ecosystem development.

Quantum mechanics

Quantum mechanics was developed in the early 20th century.

- It is a branch of science that deals with atomic and molecular properties and behaviour on a microscopic scale.
 - It determines the properties of physical systems such as atoms, molecules, condensed phase materials, light, etc.
- For over a century, it has provided the foundations of our understanding of the physical world, including the interaction of light and matter, and led to ubiquitous inventions such as lasers and semiconductor transistors.

What is Quantum Technology?

- It is based on the principles of quantum theory, which explains the nature of energy and matter on the atomic and subatomic level.
- It concerns the control and manipulation of quantum systems, with the goal of achieving information processing beyond the limits of the classical world.

- Quantum technology exploits some of the properties of quantum mechanics – such as quantum entanglement, superposition and tunnelling – in developing practical applications like computing and cryptography.
 - Quantum principles will be used for engineering solutions to extremely complex problems in computing, communications, sensing, chemistry, cryptography, imaging and mechanics.

Applications

- Their applications include those in aero-space engineering, numerical weather prediction, simulations, securing the communications & financial transactions, cyber security, advanced manufacturing, health, agriculture, education and other important sectors with focus on creation of high skilled jobs, human resources development, start-ups & entrepreneurship leading to technology lead economic growth.
- The range of quantum technologies is expected to be one of the major technology disruptions that will **change the entire paradigm of computation, communication and encryption.**

Example:

- China recently demonstrated secure quantum communication links between terrestrial stations and satellites.
- Computer Scientists are working towards deploying schemes for post-quantum cryptography — clever schemes by which existing computers can keep communication secure even against quantum computers of the future.

Significance

- With a solid research base and workforce founded on significant and reliable government support, it can lead to the **creation of innovative applications by industries**, thereby stimulating **economic growth and job creation**, which will feed back into a growing quantum-based economy.
- The government's financial and organisational support will also ensure that **both public and private sectors will benefit.**
- It will **establish standards to be applied to all research** and help stimulate a pipeline to support research and applications well into the future.

Challenges

- **On the experimental front**, the challenge lies in harnessing the weird and wonderful properties of quantum superposition and entanglement in a highly controlled manner by building a system composed of carefully designed building blocks called quantum bits or qubits.
 - These qubits tend to be **very fragile and lose their “quantumness” if not controlled properly**, and a careful choice of materials, design and engineering is required to get them to work.
- **On the theoretical front** lies the challenge of creating the algorithms and applications for quantum computers.
 - These projects will also place new demands on classical control hardware as well as software platforms.
- Globally, research in this area is about two decades old, but in India, serious experimental work has been under way for only about five years, and in a handful of locations. What are the constraints on Indian progress in this field?
 - So far, we have been plagued by a **lack of sufficient resources, high quality manpower, timeliness and flexibility.**

Way forward

- In a fast-moving field like this, timeliness is everything — delayed funding by even one year is an enormous hit.
 - For example, unrestricted funds that can be used to attract and retain high quality manpower and to build international networks — all at short notice — can and will make an enormous difference to the success of this enterprise.
- Further, **connections with Indian industry** from the start would also help quantum technologies become commercialised successfully, allowing Indian industry to benefit from the quantum revolution.
- We must **encourage industrial houses and strategic philanthropists** to take an interest and reach out to Indian institutions with an existing presence in this emerging field.

Category: HEALTH

1. The perils of an all-out lockdown

Introduction

- A virus is a microorganism which is different from bacteria, in that they need a living host in order to reproduce.
- Viruses can survive outside their hosts, on surfaces such as bench tops, door knobs and bathroom taps, for hours or sometimes days (depending on the type of virus, and the type of surface). But they can't reproduce outside the host.

What sort of virus is SARS-CoV-2?

- The virus is surrounded by a capsule that is covered in spikes, which bind to receptors.
- The capsule is made up of proteins and lipids, which is why frequently washing your hands with soap and water is so important as the soap can break the capsule and kill the virus.

As the novel coronavirus spreads, a double crisis looms over India: a health crisis and an economic crisis. The health crisis is class-neutral impacting both the rich and the poor, but the economic crisis hurts poor people the most. The economic crisis is throwing millions out of work by the day.

This economic crisis calls for urgent, massive relief measures

- Initial measures could include advance payment of pensions, enhanced PDS rations, immediate payment of **MGNREGA** wage arrears, and expanded distribution of take-home rations at schools and anganwadis.
- Public transport, administrative offices, court hearings, MGNREGA projects and even immunisation drives have already been suspended to varying degrees in many States. This may **aggravate people's hardships**.
 - If a service creates a major health hazard, public purpose may certainly call for it to be **discontinued** (this is the reason for closing schools and colleges).
 - On the other hand, **services that help poor people in their hour of need** without creating a major health hazard should continue to function as far as possible.
 - That would apply not only to health services or the Public Distribution System, but also to many other public services including administrative offices at the district and local levels.
 - Poor people depend on these services in multiple ways, closing them across the board at this time would worsen the economic crisis without doing much to stem the health crisis.

Coordination the key

- Given India's high population density and already stressed and under-resourced public health infrastructure, much more synchronisation will be required between healthcare institutions, research bodies and government agencies to prevent community transmission of the infection.
- This requires public health bodies and research outfits to be attentive to all signs on the ground, frame their responses accordingly and communicate the challenges posed by the virus to the people in a language they understand.

Conclusion

- Therefore, in the coming days and weeks, the Centre and state governments will have to find ways to mitigate people's economic hardship while addressing public health imperatives.

Also read:

[CNA Dated 21 March 2020](#)

Additional Information:



2. Stage by stage in a pandemic

1. **In the first stage of a disease epidemic** that eventually takes the form of a pandemic sweeping the globe, cases are **imported into a country in which the infection did not originate**.
 - An infection whose spread is contained within the boundaries of one or a few countries is obviously not a pandemic. The first case of COVID-19 outside China was reported in Thailand.
2. **The second stage is when the virus starts being transmitted locally**.
 - Local transmission means that the source of the infection is from within a particular area and the trajectory the virus has taken from one person to the next is clearly established.
3. **The third stage is that of community transmission**. According to the World Health Organisation (WHO), community transmission “is evidenced by the inability to relate confirmed cases through chains of transmission for a large number of cases, or by increasing positive tests through sentinel samples (routine systematic testing of respiratory samples from established laboratories)”.
 - In layman terms, it means that the virus is now circulating in the community, and can infect people with no history either of travel to affected areas or of contact with an infected person.
 - If and when community transmission happens, there might arise the need for a full lockdown because in that situation it is theoretically possible for every person, regardless of where they are from and who they have been in contact with, to spread the disease.
 - Among the countries where community transmission seems to be operating are China, Italy, Iran, South Korea and Japan.

How does categorizing an outbreak in this manner help?

- The stages of a pandemic are uniform the world over. This is so because in today’s interconnected world, it is important to have a standardised phraseology that conveys the same thing to every person around the world, and helps countries prepare better.
- The categorisation helps countries take specific actions that are necessary to target just that particular scenario.

Stage 3 will require citizens to exercise a greater degree of responsibility

- **Social distancing** will have to be accompanied by social solidarity and care for the more vulnerable sections.
- **Employers** will need to be even more sensitive towards their staff.
- **Patients** will need empathy, not stigmatisation.
- And the **government**, even as it is held accountable, will need support, as it introduces more measures to both battle the virus and introduce measures to minimise the distress.

Way forward

Three critical things need to be done.

- **First, aggressive testing:** This is to quickly detect and isolate sick patients and trace their contacts before they have a chance to spread the virus further.
 - The Indian Council of Medical Research is slowly changing protocols and bringing in the private sector to expand testing. This needs to be done urgently.
- **Second, service readiness.** India can prioritise hospital readiness by upgrading facilities — add beds and procure equipment. This will require the administration to reduce red tape and speed up expenditure.
- **Third, human resource management.** India doesn’t have enough doctors, but, in many parts of India, government MBBS doctors are under-utilised. These doctors can easily be redeployed to service clusters where outbreaks take place.

- At the same time, community health workers (the one resource India has invested in over the last decade) can be trained with clear protocols and guidance to raise awareness, help patients navigate the health system, and seek appropriate care.
- In the event of an outbreak, we need to ensure that only critical patients reach hospitals.

F. Prelims Facts

1. Fish fossil show how fins evolved into human hands

- **Elpistostege is an extinct genus of tetrapod-like vertebrate** that lived in the **Late Devonian period**. Fossils of its skull and a part of its backbone have been found in rocks of the Escuminac Formation in Quebec, Canada.
- The **fish specimen of Elpistostege watsoni** has yielded the missing **evolutionary link in the transition from fish to four legged animals**, one of the most significant events in the history of life. Researchers have revealed new insights into how the **human hand evolved from fish fins** based on their analysis of this ancient fossil.

G. Tidbits

1. Sunderbans' honey hunters find a sweet way to fend off tiger attacks

- Traditionally, people from the villages of Sunderbans have been venturing into the dense **mangrove forest inhabited by the royal Bengal tiger** to collect forest honey.
- **Maulis (honey collectors)**, as they are called in Bengali, often risk their lives to collect honey. Going by the official estimates, at least five to six of these honey hunters are killed by tigers every year.
 - **Human tiger conflict is a major issue in the Sunderbans** according to the Report on the Biodiversity of Sunderbans, released by WWF India in 2017.
- To overcome this **challenge to safety and livelihood**, Directorate of Forest 24 Parganas (South), along with WWF India, has come up with a **novel mechanism of community apiculture for collecting the forest produce of honey**.
 - The villagers of the fringe areas of Sunderbans have set up three cooperatives societies, the members of which have been provided with training and equipment, such as honey collection boxes.
 - These boxes are placed inside forest camps and adjoining nylon-netted areas of the Sunderbans.
- The initiative is not only aimed at protecting the lives of honey collectors but **also aimed at ensuring the ecological balance of the Sunderbans**.
- The Forest Department has created a **separate brand named Bonphool Wild Honey**, to sell the honey harvested by traditional honey collectors from mangrove forest of Sunderbans.

2. Wild berry gets a new cousin in Assam, but the 'Great Hedge of India' faces threat

- A new study has revealed that the multi-utility wild berry (*Carissa carandas*) has a related wild species in Assam (***Carissa kopilii***).
 - **The *Carissa kopilii* is named after the river Kopili in central Assam.**
- The *Carissa carandas* was also among several **thorny plants the British had grown 140 years ago for a 1,100-mile barrier** apparently to enforce taxes and stop the smuggling of salt.

H. UPSC Prelims Practice Questions

Q1. Which of the following statement/s is/are correct?

1. NO₂ has a long life in the atmosphere, ranging between 14-16 years.
2. NO₂ is a potent greenhouse gas.

Options:

- a. 1 only
- b. 2 only
- c. Both 1 and 2
- d. Neither 1 nor 2

Answer:

Option d

Explanation:

- Unlike Nitrous oxide (N₂O), which has a relatively higher atmospheric lifetime of about 110 years, Nitrogen dioxide (NO₂) is a short-lived pollutant, with a lifetime of about one day in the atmosphere.
- Nitrous oxide (N₂O) is a potent greenhouse gas. Nitrous oxide (N₂O) gas should not be confused with nitric oxide (NO) or nitrogen dioxide (NO₂). Neither nitric oxide nor nitrogen dioxide are greenhouse gases, although they are important in the process of creation of tropospheric ozone which is a greenhouse gas.

Q2. The term Copernicus is associated with which of the following?

- a. European Union's Earth observation programme
- b. NASA's outer space exploration programme
- c. European Space Agency's mission to comet Ryugu
- d. NASA's telescope for astronomical observations

Answer:

Option a

Explanation:

- **Copernicus is the European Union's Earth observation programme** coordinated and managed by the European Commission in partnership with the European Space Agency (ESA), the EU Member States and EU Agencies.
- Copernicus is the **new name for the Global Monitoring for Environment and Security programme**, previously known as GMES.

Q3. Which of the following statements is/are correct?

1. The Golden Crescent region of South Asia comprises the countries of Afghanistan, Iran, and Pakistan.
2. The Golden Triangle region of south east Asia comprises the areas of Myanmar, Thailand and Cambodia.

Options:

- a. 1 only
- b. 2 only
- c. Both 1 and 2
- d. Neither 1 nor 2

Answer:

Option a

Explanation:

- The Golden Triangle region comprises the opium-producing area where the borders of Myanmar, Thailand and Laos meet.
- The Golden Crescent region of South Asia comprising the areas of Pakistan, Iran and Afghanistan is an Opium producing area, which is used as a raw material in the production of Heroin.

Q4. Which of the following statements is/are correct?

1. Methamphetamine is a potent central nervous system (CNS) stimulant that is mainly used as a recreational drug.
2. Methamphetamine is primarily a plant based drug.

Options:

- a. 1 only
- b. 2 only
- c. Both 1 and 2
- d. Neither 1 nor 2

Answer:

Option a

Explanation:

- Methamphetamine, also known as meth, crystal, glass, ice, speed and shards, is a potent central nervous system (CNS) stimulant that is mainly used as a recreational drug. It is also sometimes used for medical purposes.
- Crystal meth has become a relatively common drug of abuse due to its ease of manufacturing. It is often made in home laboratories that use easily obtainable substances to produce it. The predominant mode of production is from synthetic chemicals, however there have been reports of it being produced in bulk using ephedrine extracted from a shrub locally known as Oman (Ephedra) growing in the wild in the Afghan mountains.

I. UPSC Mains Practice Questions

1. The National Mission on Quantum Technologies & Applications (NM-QTA) initiated by the Government is a step in the right direction promoting advanced research in quantum science. Discuss.

-
2. In the event of community transmission, explain how the health system will have to be ramped up to meet additional challenges.

