

Key issues in the challenge to Waqf Act

The petitioners flagged a number of issues with the 2025 law, including the omission of ‘Waqf by use’, and the inclusion of non-Muslims in Waqf boards

APURVA VISHWANATH
NEW DELHI, APRIL 17

THE SUPREME COURT on Thursday deferred its interim decision on the pleas challenging the Waqf Act, 2025 to May 5. This came after the Centre sought time to file an affidavit defending the law, but assured the court it will not, till the next hearing, appoint non-Muslims to Waqf boards or change the character or status of any Waqf.

The challenge

One April 16, a three-judge Bench led by Chief Justice of India Sanjiv Khanna, and comprising Justices PV Sanjay Kumar and K V Viswanathan, gave an early hearing to a batch of nearly 65 petitions challenging the validity of the contentious new law.

The petitioners include All India Majlis-e-Ittehadul Muslimeen MP Asaduddin Owaisi, TMC MP Mahua Moitra, RJD MP Manoj Kumar Jha, Samajwadi Party MP Zia

Ur Rehman, Congress MPs Imran Masood and Mohammad Jawed, former MP Udit Raj, principal of Darul Uloom Deoband Maulana Mahmood Asad Madani, the YSR Congress Party, and the Communist Party of India.

In the hearing that lasted for two hours, the Bench questioned the Centre, while also telling the petitioners that “there are some good aspects to the law”.

Senior Advocate Kapil Sibal, who led the arguments for the petitioners, essentially framed the law as violative of Article 26 of the Constitution, with the Parliament having interfered on “the essential and integral parts of the faith.” Article 26, a fundamental right under Part 3 of the Constitution, guarantees the freedom to manage the religious affairs of the citizens, and is subject to only three restrictions — public order, morality, and health.

Some key issues

The petitioners flagged a number of issues with the 2025 law. These include the following.

Doing away with concept of “Waqf

by use”: “Waqf by use” simply means that land used for Muslim religious or charitable purposes for a long time can be deemed to be a Waqf even if it is not registered as such.

The 2025 law does away with the concept of Waqf by use (which it refers to as “Waqf-by-user”) for future dedications, and restricts it only to properties that are already registered as Waqf. It further states that where there is a dispute, or if a property is allegedly government-owned, that land in question will not be treated as Waqf-by-use.

The government’s argument is that land is often encroached upon in the name of Waqf, making it necessary to do away with the legal mechanism for this to happen. However, the move raises questions over the status of several Waqf-by-use properties, which have long contained mosques or graveyards but not been registered as Waqfs.

The petitioners argued that by its nature, Waqf-by-use lands are difficult to register. CJI Khanna seemed to echo this sentiment, ask-

ing the Centre how can someone register a land that has been used as Waqf for, say, 300 years.

“As far as Waqf-by-user is concerned, it will be very difficult to register. So, there is ambiguity there. You may have a point that [it’s] being misused... but at the same time, there is genuine Waqf-by-user also,” CJI Khanna said.

The petitioners also stated that Waqf by use as a concept has long been recognised by courts, something that was acknowledged in the apex court’s landmark 2019 Ayodhya judgement.

Powers of district collector: The SC also mentioned it is considering staying another provision involving powers of the district collector, which could have a bearing on Waqf-by-use lands.

Under the 2025 law, if the district collector identifies land, currently in use as a Waqf, as government land, then it ceases to be Waqf land till a court decides the dispute. This power, which flows from a crucial proviso to Section 3(c) of the Act, could alter the status of Waqf

land even before a court has decided its status.

Although this provision has not been stayed yet, Thursday’s order notes the Centre’s statement that “the character or status” of any Waqf will not be changed.

Inclusion of non-Muslims in Waqf boards: The petitioners argued that the 2025 law, which allows non-Muslims to be part of Waqf boards and the Waqf council, is violative of Articles 26(b), 26(c), and 26(d) of the Constitution which guarantee a community’s right to “manage its own affairs in matters of religion”, “own and acquire movable and immovable property”, and “administer such property in accordance with law”, respectively.

While the Centre argued that allowing non-Muslims will not affect the veto rights of the community when it comes to dealing with Waqfs, the petitioners said that “even one [non-Muslim] is too many.”

The Bench questioned the Centre on the issue, asking Solicitor General Tushar Mehta to name one instance in which Parliament allowed members of another faith into boards

managing the religious affairs of a community. “Are you saying that from now on you will allow Muslims to be part of the Hindu endowment boards? Say it openly,” the CJI asked.

This is one of the provisions that the SC said it was likely to stay. Thursday’s order recorded a statement by Mehta that if the “Government of any State or the National Capital Territory of Delhi makes any such appointment(s), the same may be declared void.”

Applicability of Limitations Act: Sibal also challenged a provision in the 2025 law that allows the applicability of the Limitation Act with respect to Waqf properties. The Limitation Act essentially bars parties from making a legal claim, say, against encroachment, after a specific period of time has lapsed.

The 1995 Waqf Act had specifically excluded the application of the Limitation Act which allowed Waqfs to act against encroachments on its properties without a specific time frame. The 2025 law removed that exception. To this, CJI Khanna said that the “Limitation Act has both its advantages and disadvantages”.

**EXPLAINED
LAW**

Finding life beyond Earth: the evidence so far, and a statistical argument

AMITABH SINHA

NEW DELHI, APRIL 17

THE DISCOVERY of signals indicating the presence of sulphur-containing gases in a far-away planet has sparked fresh excitement over the possibility of extraterrestrial life, although scientists involved in the discovery say it is too early to make definitive claims.

"This is one of the most profound moments...because for the first time...we may actually be seeing signs of life elsewhere," Nikku Madhusudhan, an astronomer at the University of Cambridge and one of the researchers involved in the study, said in a video released by the university.

But he clarified that the results did not amount to discovering extraterrestrial life. "It is in no one's interest to claim prematurely that we have detected life," he said.

An interesting planet

A team of researchers from the University of Cambridge that has been studying data from the planet K2-18b, some 120 light years away from Earth, has reported strong signals of dimethyl sulphide (DMS) and dimethyl disulphide (DMDS), the first time these gases have been detected outside the solar system.

On Earth, these are a products of metabolic processes and the decay of small plant-like organisms in the oceans. This has led to scientists hypothesising on the possibility of a warm ocean on K2-18b, an environment similar to the one that gave rise to life on Earth about 3.5 to 4 billion years ago.

Since its discovery in 2015, K2-18b has generated a lot of interest among those searching for extraterrestrial life. It is about nine times as heavy as Earth, and moves around a star that is smaller and cooler than the Sun. Notably, K2-18b lies in the so-called

"habitable zone": the region around a star where water can remain in liquid form.

In 2019, data from the Hubble Telescope had detected signals of the presence of water vapour in K2-18b's atmosphere. Two years ago, the same team that reported the latest findings based on data collected by the James Webb Space Telescope, presented evidence for the presence of methane and carbon dioxide, also signs of possible life on the planet.

They had even detected hints of DMS at the time, although the latest evidence is much stronger.

Only indications, no evidence

The mere presence of certain gases on other planets, even though linked to life processes on Earth, do not necessarily provide definitive evidence of life. They simply make the celestial body an interesting sub-

EXPLAINED
SCIENCE

ject of scientific research.

Madhusudhan did not rule out the possibility that the DMS found in the atmosphere of K2-18b could be the product of processes that humans are unaware of. "While DMS is known to be a robust biomarker, there is always a possibility that we may not have accounted for some physics or chemical process that we do not know of," he said.

The presence of water, considered essential for life as we know it, on any celestial body also generates similar excitement. It has been found, in different states, in several places within and beyond the solar system. But none of them, as far as we know, support life.

In fact, Mars, Venus and some other planets outside the solar system have at different times offered signals indicating the presence of certain gases, which keeps the scientific community excited about the pos-

sibility that they support life.

A statistical argument

But the lack of evidence does not rule out the possibility of extraterrestrial life either. Our active search for life beyond Earth is only decades old. Today, there is a new field of study, called astrobiology, dedicated to looking for signals of life in extraterrestrial spaces.

In the absence of any evidence, however, the strongest argument for the presence of life beyond Earth comes from statistics. Even if the origin of life on Earth was a one-in-a-billion event, there are just so many planets in the universe — trillions, according to our current understanding — that similar life-generating accidents must happen, statistically speaking, at thousands or even millions of other places. And at least some of these might happen near enough to Earth to be detected by humans.

This line of argument has even given rise

to the Drake equation, named after astronomer Frank Drake, that seeks to estimate the number of potential extraterrestrial civilisations within our own galaxy, with whom humans are within a communicable distance.

The calculation is dependent on information such as the average rate of star formation in our galaxy, the fraction of the stars that have planets, average number of habitable planets around every star, the fraction of such planets where life actually originates, and the fraction of life that becomes intelligent enough to communicate.

Considering the large uncertainties in most of these factors, the equation can spit out a result that can range from less than one, meaning Earth is the only place with life, to millions. And with new data, the Drake equation continues to evolve.

It is thus not a scientific fact, but simply a tool used to assess the statistical probability of finding intelligent life beyond Earth.

CHIPS ARE TAKING STOCK MARKET HIT, A TRUMP-POWELL CONFLICT BREWING

UDIT MISRA

NEW DELHI, APRIL 17



TRUMP TARIFFS DAILY DECODE

www.indianexpress.com/explained

MAJOR INDICES in the US closed sharply lower on Wednesday, and were mixed in early trading on Thursday. Leading the negative news on Wednesday was **Nvidia**, which manufactures cutting edge semi-conductors that are used in Artificial Intelligence (AI) and high-end computing.

Chipmakers' pain

Nvidia fell 7% after the company said it would suffer losses following the restriction placed on the export of its **H20 chip** to China. On Thursday, the stock had fallen 3.74% in the first hour of trading.

Nvidia has to now seek a licence from the US government if it wants to sell to China — which it presumably does not expect to get. This is especially ironic because the H20 was developed as an under-powered chip to comply with restrictions imposed by the Joe Biden administration.

Nvidia is part of the so-called Magnificent 7 tech companies in the US. It was the world's most valuable company in 2024, and its market cap was around \$3 trillion at the start of 2025 — far more than the total market cap of the **DAX 40 Index of Germany's 40 largest publicly traded companies**. The Nvidia stock has fallen by more than 27% this year so far.

ASML, a Dutch company listed in the US, which supplies to semiconductor manufacturing firms such as Intel and TSMC, said that its revenues in the first quarter of 2025 undershot expectations by around a billion euros, thanks to President Donald Trump's tariffs and the continuing uncertainty around his intentions. ASML shares fell 7% on Wednesday.

The Fed vs Trump

The slide in the stock markets on Wednesday was not helped by the comments of US Federal Reserve Chairman Jerome Powell. Asked by former RBI Governor Raghuram Rajan at the

Economic Club of Chicago whether the Fed would intervene if the stock market plummeted, Powell replied: "I'm gonna say no but with an explanation." But he was clear what the impact of the tariffs would be:

"Let's look back at 2024. The economy grew by 2.4%, unemployment was in low fours (just above 4%), which is considered to be full employment, and inflation came down steadily to 2.5% (pretty close to the Fed's target of 2%)... Where we are now: The [Trump] Administration is implementing significant policy changes, especially trade is now in focus... The effects... are likely to move us away from our goals. So unemployment is likely to go up as the economy slows in all likelihood, and inflation is likely to go up as tariffs go up and some part of those tariffs are paid by the (US) public."

On Thursday, Trump reacted with a threat: "Powell's termination cannot come fast enough!"

China vs the US, contd.

Both the US and China are continuing to seek support among other trading nations. Japan seems to be at the forefront of trade negotiations with the US — Trump has said he would be sitting in from the beginning.

China is also shoring up alliances; Xi Jinping was in Malaysia shoring up support. On the US, Beijing has been resolute and defiant. Trump desires a call from President Xi Jinping; China says it demands "respect" first.

Is the once-extinct dire wolf back?

How did Colossal Biosciences use the genome of gray wolves to 'de-extinct' dire wolves? Why is the practice of de-extinction considered controversial and impractical? How will it affect environmental landscapes? Can ancient species thrive in today's world?

EXPLAINER

Arun Panchapakesan

The story so far:

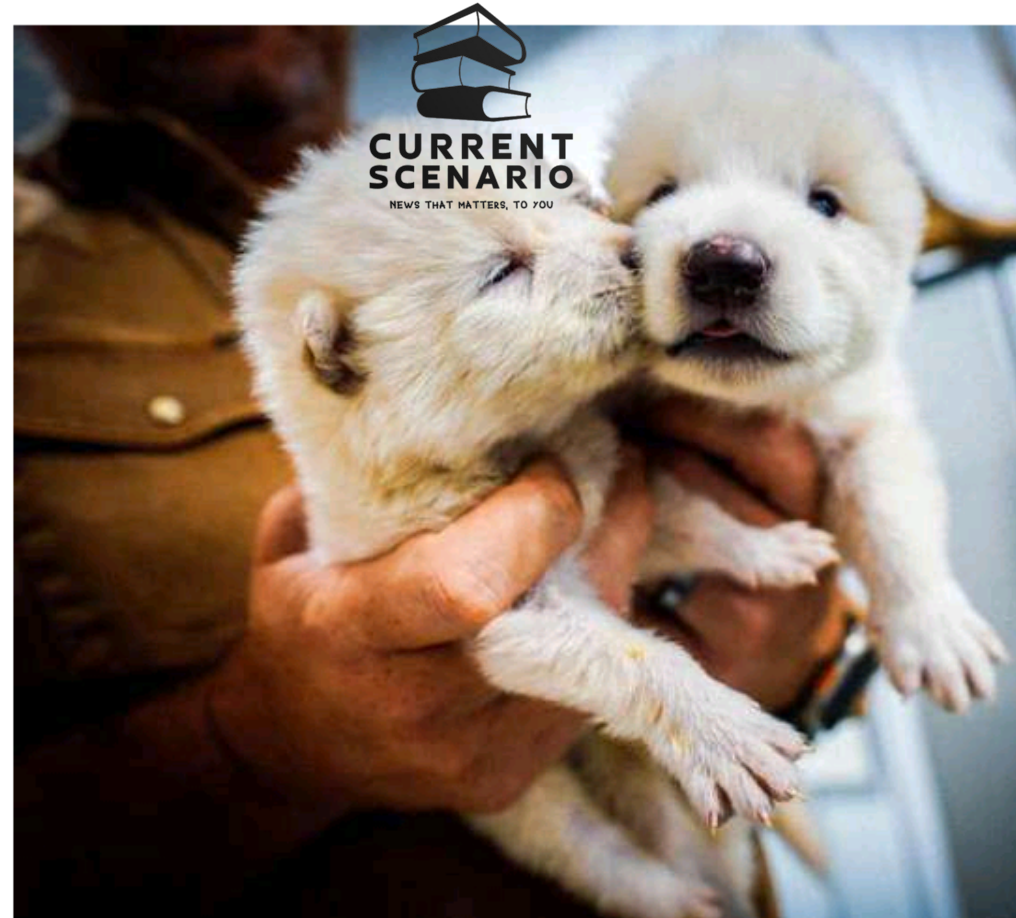
On April 7, a biotechnology company in Texas, U.S., named Colossal Biosciences announced that it had “resurrected” a dire wolf, a large predator that went extinct more than 12,000 years ago. The company’s claim that it had facilitated the birth of three dire wolf pups was met with a mix of wonder and delight. Videos of the baby wolves howling went viral, with the company calling their howls the first to be heard on earth in 10 millennia.

Have dire wolves been de-extincted?

The total DNA content of an organism, called its genome, is important to understand its identity. The genome of a gray wolf consists of 2.447 billion base pairs. This means there are 2.447 billion positions in the DNA filled by one of the four nucleotides: adenine, thymine, cytosine, and guanine. The order in which these four nucleotides appear determines the genetic identity of an organism. In a preprint paper uploaded on April 11, Colossal Biosciences claimed that the genomes of the gray wolf (*Canis lupus*) and the dire wolf (*Aenocyon dirus*) are 99.94% identical, meaning 2.445 billion of the 2.447 billion base pairs were in the same places in the two genomes.

This small difference is enormous in genetic terms. Humans and chimpanzees share about 98.77% of their DNA, yet no one would mistake one for the other. In the case of wolves, the 0.06% difference still corresponded to 1.47 million base pairs differing between the two species.

These differences are what make the two animals distinct. To create these ‘dire wolf’ pups, Colossal scientists edited the genome of a gray wolf and implanted embryos with the modified genome into surrogate dog mothers. While Colossal hasn’t revealed the exact nature of the



From the past: Colossal’s ‘dire wolf’ pups Romulus and Remus at 15 days old. AFP

changes its scientists made, it says on its website that it made “precise genetic edits at 20 loci across 14 genes” on the genome of a gray wolf to “recreate” the dire wolf. In other words, even if there were a few hundred individual edits across those 20 loci (or positions on the genome), the new animals probably contain 0.02% of the changes that would make them a true dire wolf. And this is an optimistic estimate. Put another way, the new wolf pups are far from being dire wolves.

What changes did scientists make?

The 20 locations where Colossal scientists edited the gray wolf genome all appear to be places that would result in cosmetic changes. For example, one of these regions is on a gene called LCORL, which is responsible for the dire wolves’ larger size. Other edits include genes involved in

fur colour and density. Thus, Colossal Biosciences can be said to have made gray wolves that look like dire wolves.

While the nature and magnitude of the genetic differences already undermine Colossal’s claims, a 2021 study published in *Nature* raised a more fundamental issue. The study suggested that despite genetic similarities, dire wolves may not be true wolves at all, but rather a distinct canid lineage that diverged long before modern wolves evolved. This study prompted scientists to reclassify dire wolves, and their species name changed from *Canis dirus* to *Aenocyon dirus*. This means dire wolves’ behaviour, social structure, and ecological roles are likely different from that of modern wolves.

Why is de-extinction controversial?

Colossal has said on its website that its

mission is to “secure the health and biodiversity of our planet’s future.” To achieve this, the company aims to revive several extinct species – including the woolly mammoth, the thylacine, and the dodo – and reintroduce them in the wild. Bringing back animals that lived thousands of years ago, like the dire wolf or woolly mammoth, carries significant ecological risks. The environmental conditions, plant communities, prey species, and climate that once supported these animals no longer exist. Modern landscapes are fragmented, and heavily altered by human influence.

Reintroducing extinct species to such drastically changed habitats could do more harm than good, potentially disrupting current ecosystems rather than restoring ancient ones.

How is conservation changing?

Misguided claims like these can often have a detrimental effect on lawmakers’ priorities. For instance, *The Washington Post* reported Colossal’s dire wolf announcement buttressed the Trump administration’s plan to weaken federal protections for endangered species.

It quoted Interior Secretary Doug Burgum as saying innovation rather than government regulations will protect species.

Scientists have estimated that 99.9% of all species that ever lived on the earth are now extinct. Dire wolves themselves most likely died out at the end of the last ice age when the numbers of large herbivores, their main prey, started dwindling. The idea of reviving extinct animals is certainly captivating but it seems more prudent to apply this technology to protect and strengthen existing ecosystems rather than reviving extinct ones.

The birth of the genetically modified gray wolf pups may mark the beginning of a new era in conservation, but doubt lingers on what kind of an era it will be.

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How can V2G technology help India's power sector?



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What are Vehicle-to-Grid technologies? What is the status of this technology in India?

Chandana Sasidharan
Deepak Sriram Krishnan

The story so far:

The Kerala State Electricity Board (KSEB) and the Indian Institute of Technology Bombay (IIT Bombay) have initiated a pilot project to explore the implementation of Vehicle-to-Grid (V2G) technology across the State. This collaboration aims to assess the feasibility of integrating Electric Vehicles (EVs) into the State's power grid.

What is V2G?

V2G refers to technologies that enable EV batteries to send power back to the grid. When an EV is not in use, it can act as a decentralised battery energy storage device. An idle EV, when connected to a bi-directional charger, can provide support to the distribution grid. By incorporating V2G technologies, EVs offer

an opportunity to facilitate the integration of Renewable Energy (RE) and support a demand response market. Technologies for integrating an EV to the grid will need to consider both the charging and discharging of EV batteries. In the first case, there is a transfer of power from the grid to the vehicle (G2V) to charge the vehicle. And in the second case, an EV functions as a distributed energy source where it can provide power based on the requirement of the grid. Overall, the ability of EV batteries to transfer power encompasses many possibilities such as V2G, Vehicle to Home (V2H), Vehicle to Vehicle (V2V) etc. Among these, V2G is the most popular use case.

Is V2G being applied globally?

V2G technologies have gained significant traction in mature EV markets such as Europe and the U.S. EVs have emerged as a cost-effective form of distributed energy storage, with owners incentivised to

supply power back to the grid. In the U.K. and The Netherlands, EV owners are compensated for supplying excess energy back to the grid during peak hours. In places like California, EV users are actively encouraged to participate in the ancillary services segment of the electricity market, helping improve grid stability and reliability. Under this market mechanism, the compensation is high enough to encourage EV users to offer services during periods of variation in RE generation. EVs are also an important decentralised storage resource, serving as an emergency power resource. With increasing climate-linked disasters, V2G must be encouraged.

What's the situation in India?

In India, V2G integration is currently in a nascent stage. The response to growing EV sales largely focuses on planning of the distribution grid with integration of EV charging infrastructure. A few

DISCOMs have planned pilot projects for smart charging and V2G integration. The Central Electricity Authority (CEA) has set up a committee to frame guidelines for reverse charging, that is, from batteries to the grid. This committee highlighted smart charging as a key enabler to ensure EV growth with minimal impact on the grid. However, the electricity market structure in India is not the same as in the U.S. or Europe, and the current structure is not suited for decentralised solutions like EVs to send power back to grid. This is due to challenges that arise from the variable nature of RE and mismatches between electricity supply and demand. To mainstream V2G, supportive regulatory changes are needed.

What is KSEB-IIT Bombay project?

Kerala is currently experiencing a rapid adoption of EVs, and KSEB has taken several steps to support EV charging. The increased electricity demand for charging has resulted in concerns about evening peak demand. There has also been an exponential growth in rooftop solar adoption. The project plans to assess an EV's ability to support the grid during peak demand when solar energy is not available.

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Scientists using James Webb telescope find 'strongest sign of life' on alien planet

Reuters

WASHINGTON



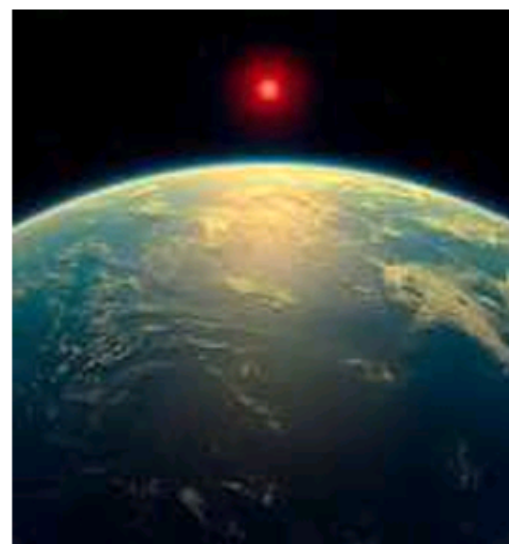
In a potential landmark discovery, scientists using the James Webb Space Telescope have obtained what they call the strongest signs yet of possible life beyond our solar system, detecting in an alien planet's atmosphere the chemical fingerprints of gases that on Earth are produced only by biological processes.

The two gases – dimethyl sulfide, or DMS, and dimethyl disulfide, or DMDS – involved in Webb's ob-

servations of the planet named K2-18 b are generated on Earth by living organisms, primarily microbial life such as marine phytoplankton – algae.

This suggests the planet may be teeming with microbial life, the researchers said. They stressed, however, that they are not announcing the discovery of actual living organisms but rather a possible biosignature – an indicator of a biological process – and the findings should be viewed cautiously, with more observations needed.

Nonetheless, they



K2-18 b is 8.6 times as massive as Earth a. REUTERS

voiced excitement. These are the first hints of an alien world that is possibly inhabited, said astrophysicist Nikku Madhusudhan of the University of Cam-

bridge's Institute of Astronomy, lead author of the study published in the *Astrophysical Journal Letters*.

"This is a transformational moment in the search for life beyond the solar system, where we have demonstrated that it is possible to detect biosignatures in potentially habitable planets with current facilities. We have entered the era of observational astrobiology," Mr. Madhusudhan said.

K2-18 b is 8.6 times as massive as Earth and has a diameter about 2.6 times as large as our planet.

IMF calls on countries to find a settlement on trade

Sriram Lakshman

LONDON



Kristalina Georgieva

On the eve of its Spring Meetings, the International Monetary Fund (IMF) called on countries to find a settlement on trade issues, which it said was the top priority for a multipolar world. The IMF's new growth projections, which will be released on Tuesday, would forecast "notable markdowns" in growth and inflation mark-ups for some countries, but they would not forecast a recession, IMF Managing Director Kristalina Georgieva said on Thursday, days ahead of the World Bank and IMF's first gathering since President Donald Trump returned to the White House and announced global tariffs on goods entering the U.S.

"In trade policy, the goal must be to secure a settlement among the largest players that preserves openness and delivers a more level playing field," Ms. Georgieva said at a curtain-raiser event, where she called for restarting a global trend of lower tariff rates while reducing non-tariff barriers to trade.

During a question answer session following her remarks, Ms. Georgieva praised parts of Mr Trump's agenda and outlined silver linings to the gathering clouds of trade disruptions.

The IMF chief said Mr. Trump's plan for deregulation would be "valuable" for the U.S. and create a "fertile environment" for businesses to succeed.

Bilateral trade negotiations that could follow the current uncertainty might result in countries that did not normally trade with

each other to engage in trade, Ms. Georgieva said.

In some instances, tariff barriers could actually go down, she said, citing India as a potential example.

Mr. Trump has taken on those who have criticised him personally or have attacked his policies and he has withdrawn the U.S. from a number of multilateral bodies and agreements that he believes treat America unfairly. In her remarks, Ms. Georgieva appeared to be making a case for why the IMF was helpful to the U.S.

"We don't ask taxpayers for money," she said, adding, "We operate like a savings account."

"The United States in the last two years got \$3.1 billion in interest payments for the money we lend," she said.

Growth path

Discussing where growth was expected in the context of a global slowdown, Ms. Georgieva identified Argentina, which has come out of a recession, India and Ukraine.

"India ... very interesting in the context of the discussion we have around trade, a country that for quite some time was uneasy with reducing tariff and non-tariff barriers. India is now doing it," she said, adding that this, along with

increasing digitization was creating the conditions for private sector investment and removing "self-inflicted injuries to growth".

During her remarks, Ms. Georgieva said financial market volatility had increased and trade policy uncertainty was "literally off the charts", as she pointed to a graph on a screen behind her.

"Uncertainty is costly," she said, adding, that rising trade barriers would hit economic growth, with protectionism eroding productivity over the long term, especially for smaller countries.

Countries must work extra hard to "put their own houses in order", which for most countries would mean taking fiscal action to rebuild policy space, according to Ms. Georgieva.

In her remarks, the IMF chief encouraged emerging market economies to preserve exchange rate flexibility as a shock absorber. A depreciated dollar and rising U.S. Treasury yields should be seen as a warning, she said.

Without referring to any country by name, Ms. Georgieva said many blame the international economic system "for the perceived unfairness in their lives" and that tariff and non-tariff barriers had fed negative perceptions of the multilateral system.

She warned that although imports were a small proportion of GDP for the world's three largest economies, the U.S., China and the E.U., these were the world's largest importers and their actions mattered, leaving smaller economies caught in the crosscurrents.