



**Bruhat Bengaluru  
Mahanagara Palike**

**BRUHAT BENGALURU MAHANAGARA PALIKE,  
BANGALORE**

**ENGLISH NEWSPAPER CLIPPINGS  
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## THE HINDU



### **BBMP wants to collect land transport cess**

BENGALURU

Shortly after announcing its decision to start collecting a ₹200 service charge for door-to-door collection of garbage from households, the financially beleaguered BBMP hopes to start collecting another cess from tax-paying citizens. BBMP Administrator Gaurav Gupta recently gave his assent to the collection of land transport cess along with property tax. The amount will be 2% of the property tax.

# BBMP wants to collect land transport cess

The amount will be 2% of property tax, and is likely to be implemented in the coming fiscal if ratified by State government

CHITRA V. RAMANI  
BENGALURU

Shortly after announcing its decision to start collecting a ₹200 service charge for door-to-door collection of garbage from households, the financially beleaguered Bruhat Bengaluru Mahanagara Palike (BBMP) hopes to start collecting another cess from tax-paying citizens. BBMP Administrator Gaurav Gupta recently gave his assent to the collection of land transport cess along with property tax. The amount will be 2% of the property tax.

Though approved by the Administrator, it has to be ratified by the State government. If the BBMP get its way, then the property tax paid by citizens will see an increase in the coming fiscal, when it is likely to be implemented, said sources in the civic body's Revenue Department.



Citizens are against the new cess given the abysmal quality of roads. ■ SUDHAKARA JAIN

The BBMP already collects four cesses - Beggary, Library, Health and Solid Waste Management - along with property tax. Sources said that it has been estimated that nearly ₹150 crore can be collected as land transport cess, if the State government gives its approval. Incidentally, this is not the

first time that the cess has been proposed. After audit objections were raised by the Comptroller and Auditor General, the civic body had tabled the proposal several times before the BBMP's elected council. However, the council deferred the decision on the cess each time it was tabled.

Earlier in January this year, the then Mayor M. Goutham Kumar approved the proposal and stated that the money collected would be used for maintenance of roads. However, following objection, he did a U-turn, claiming the decision to levy the cess had been deferred, not approved.

BBMP Special Commissioner (Revenue) Basavaraj S. was not available for comment, despite repeated attempts.

## Citizens up in arms

Citizens have expressed their objection to the new cess given the abysmal quality of roads and the fact that many families are facing financial constraints due to the fallout of the COVID-19 pandemic.

G.S. Renukprasad, president of Shanthinagar Residents' Welfare Association, pointed out that citizens are already paying high road tax. "We are not bothered if the road tax is going to the government or the BBMP. What we want is simple: good roads. However, the roads in the city are riddled with potholes, are dug up and in poor motorable condition. Why should citizens be burdened with this cess?"

Prakash D.R., founder-

president of Osborne Road Residents' Welfare Association, who is also a property tax consultant, said that property owners were not bound to pay for maintenance of roads. The road tax collected should be shared between government and BBMP.

"Citizens are struggling to earn a livelihood, and this is not the time to impose the cess," he said, and added that instead of burdening citizens, the BBMP should collect arrears from various government departments.

Former BBMP Opposition Leader Abdul Wajid reiterated that the elected body had rejected the cess proposal several times. "Power tariff was increased, BBMP is going to start collecting service charge for solid waste management... and now, this additional cess. How much more will citizens be burdened?"

P2

# Oxford vaccine is 70% effective

200 million doses will be ready by year-end, says pharma major

REUTERS  
LONDON

Pharma major AstraZeneca said on Monday its COVID-19 vaccine could be as much as 90% effective, giving the world's fight against the global pandemic a new weapon, cheaper to make, easier to distribute and faster to scale-up than rivals.

The British drugmaker said it will have as many as 200 million doses by the end of 2020, around four times as many as U.S. competitor Pfizer. Seven hundred million doses could be ready globally as early as the end of the first quarter of 2021, it said.

**Status check** | Among the 54 vaccine candidates undergoing clinical trials, 13 are currently in phase 3 while six have been approved for limited use

- Pharmaceutical major AstraZeneca announced on Monday that its vaccine, being developed with University of Oxford, had an **average efficacy of 70%**, according to interim data
- On November 9, New York-based Pfizer and Germany-based BioNTech said their vaccine candidate was over **90% effective**, according to preliminary data
- The U.S.-based company Moderna on November 16 announced that a preliminary

The vaccine on average prevented 70% of COVID-19 cases in late-stage trials in Britain and Brazil; the success rate rose to 90% if the vaccine was administered as

a half dose followed by a full dose. The efficacy was 62% if the full dose was given twice, as it was for most study participants. No serious safety events were confirmed, the

company said.

However, AstraZeneca's shares fell 4%, on track for their worst daily performance in six months, as investors perceived the efficacy data as disappointing compared with rivals. Pfizer and Moderna, which reported that their vaccines prevented around 95% of cases, had set the bar for success sky-high.

The AstraZeneca shot does, however, have some advantages over offerings from U.S. rivals. The drug's cost to governments works out at just a few dollars a shot, a fraction of the price of shots from Pfizer and Moderna, which use a more unconventional technology.

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P1

# Metro project: Details of trees to be axed in public domain

They will make way for Reach 5 of the metro network

SPECIAL CORRESPONDENT  
BENGALURU

The two public notices on Monday - one issued by the Karnataka Forest Department and another by the Bruhat Bengaluru Mahanagara Palike (BBMP) - have set a precedent of sorts.

For the first time, complete details of trees identified for removal on the stretch between BTM Layout and Silk Board Junction to make way for Reach 5 of Namma Metro is now available in the public domain.

This includes their species, condition, girth and location.

Citizens can access the information with ease and submit



The trees will be replaced by stations and a viaduct. \*K. MURALI KUMAR

their objections, if any.

Rain trees, Gulmohars, Silhi Brush and Basri are among the 15 species that will make way for construction of a viaduct and metro stations between R.V. Road and H.S.R. Layout.

The Forest Department has

notified the trees that will be affected by extension of the Purple Line near Benniganahalli lake. Peepal, Akash Mallige, Subabul, Peltophorum, Banyan, Bili Kanagalu are among the species in the 91 trees proposed to be removed from the Benniganahalli lake bund area to make way for

construction of metro rail structures, road diversion and metro viaduct.

Environmentalist D.T. Devare of the Bangalore Environment Trust, who has filed a petition in the Karnataka High Court, said, "Four permissions for tree felling/transplantation for the metro project were uploaded on the BBMP's website in October. As petitioners in the ongoing PIL, we were allowed to submit our objections to these permissions. We found out that the list of trees for which permissions was given included some trees for which no proper public notices were issued in the past."

He added that the court in its recent order on November 18 held that any question of raising objections will arise only when members of the public are made

aware of all the details about the trees proposed to be felled.

Vijay Nishanth, environmentalist, said citizens had to approach various offices earlier to get such details.

BBMP's Deputy Conservator of Forests Ranganatha Swamy said that details had been uploaded as per the directions of the High Court.

"This is a step towards bringing in transparency. We are now hopeful that members of the public will submit their objections, which will be considered seriously by the authorities and the Tree Expert Committee," said Mr. Devare.

For details on the trees identified for felling, visit <https://bbmp.gov.in/departmentsites/Forest%20Department/downloads.html>

P2

# Karnataka's RT-PCR tests per lakh population is highest in country

'This is one of the reasons for better control of COVID-19 in State'

SPECIAL CORRESPONDENT  
BENGALURU

The State has done the highest RT-PCR tests per lakh population in the country at 16,360.

While Ladakh and Puducherry have conducted the second and third highest number of RT-PCR tests (14,769 and 14,488, respectively), Telangana has done the lowest at 221. Tamil Nadu, which claims to be the only State to go entirely by RT-PCR testing, has recorded 13,591 such tests per lakh population, according to information provided by the State's COVID-19 war room data.

Munish Moudgil, who heads the war room, said this is one of the reasons for better COVID-19 control in the State. "One of the ways to avoid a second wave, apart from citizens exercis-



While the State government is doing its part by maximising tests, citizens are requested to adhere to wearing of masks, maintain social distance, and sanitise hands. Prevention is only in the hands of the citizens by their proper conduct.

MUNISH MOUDGIL  
Head of State's COVID-19 war room

ing SMS - Social Distancing, Masking and Sanitisation - is to have high daily testing with RT-PCR," he said.

"While the State government is doing its part by maximising tests, citizens are requested to adhere and obey masking, social distance and sanitisation of hands. Prevention is only in the hands of the citizens by their proper conduct," he added.

## New cases

Meanwhile, the State on Monday reported 1,509 new cases of COVID-19, taking the total number to

8,74,555. With 24 deaths, the toll rose to 11,678. This is apart from 19 deaths of patients due to non-COVID-19 reasons.

A total of 1,645 persons were discharged on Monday, taking the total number of recoveries to 8,38,150.

Of the remaining 24,708 active patients, 438 were being monitored in the ICU. While the positivity rate for the day stood at 1.57%, the Case Fatality Rate (CFR) touched 1.59%.

Bengaluru Urban reported 725 cases, taking its tally to 3,64,390. With 10 deaths coming from Bengaluru, the

## COVID-19 update

Number of positive cases reported in Bengaluru Urban on November 23

725

Total cases 3,64,390

Active cases 18,409

Discharged 3,41,902

Deaths 4,078+1\*

\* One person died of other causes

Source: Department of Health and Family Welfare

toll in this district rose to 4,078. The active cases in Bengaluru touched 18,409. As many as 96,095 tests were conducted in the last 24 hours, including 87,413 RT-PCR. With this, the total tests rose to 1,03,29,473.

P3

## Vaccine hope for India by Dec

**AstraZeneca-Oxford trials show 90% efficacy**

**KALYAN RAY**  
NEW DELHI, DHNS



**Adar Poonawalla**

In what may bring cheer, pharmaceutical major AstraZeneca on Monday announced that its Covid-19 vaccine developed in partnership with Oxford University has been proven "highly effective" in protecting people from the novel coronavirus infection.

The company will now seek an emergency use listing from the World Health Organisation and approach regulatory

authorities around the world for a conditional early approval of the two-dose vaccine for frontline workers and vulnerable groups identified by the governments.

Based on the trials carried out on 23,000 individuals in the UK and Brazil, AstraZeneca said the vaccine offers 70%

### SERUM VACCINE PLAN

- Serum Institute CEO Adar Poonawalla aiming for India vaccine approval by year-end
- Limited use of medicine in India by **December end to early January**
- Can supply up to **400 million doses** of vaccine by July 2021
- Vaccine **MRP Rs 1,000** for private market
- Discussions with **govt on purchase agreement**
- Keen to distribute vaccine to India first

efficacy.

Surprisingly, one of the regimens in which only a half-dose is used in the first shot offers 90% protection whereas the second regimen with two full doses generates a 62% efficacy.

The two doses are being given at least one month apart. With its efficacy and its

ability to be transported and handled at normal refrigerated conditions (2-8 degrees Celsius), this could very well be India's first Covid-19 vaccine if the Indian drug regulator is convinced with the trial data.

AstraZeneca's Indian partner, Pune-based Serum Institute, is independently

conducting safety and immunogenicity clinical trials on 1,600 patients across India.

SII chief executive officer Adar Poonawalla on Monday said that the company was aiming for an approval by the year-end and the vaccine might be available in a limited way either by December end or in early January 2021.

By July 2021, up to 400 million doses of the vaccine could be made available.

Poonawalla said the vaccine would have a maximum retail price of Rs 1,000 for the private market but pointed out that his company was negotiating with the Union Health Ministry for a purchase price for the government.

► **Vaccine, Page 3**  
When will Indians get vaccine: **Rahul, Page 8**

P1

## Covid cases drop, hospital staff stare at contrasting fortunes

**Several ancillary medical staffers may lose their jobs**

**AKHIL KADIDAL**  
BENGALURU, DHNS

As the number of Covid cases begin to fall from late October, thousands of health workers across the state are facing potential job loss or increased workload.

Adding to the general sense of uncertainty are rumblings of a potential second wave of Covid-19 infections, which some medicos fear could materialise in a few weeks.

A government official said a growing number of empty beds in several hospitals and colleges has prompted the state to initiate the process to restart non-Covid services on a larger scale from December 1.

"We are only getting about 900 cases per day in Bengaluru Urban, for example. A large number of beds in government centers are empty. Therefore, we are planning to restart non-Covid services across all government hospitals and medical colleges," said Dr P G Girish, Director, Department of Medical Education.

He said that at Victoria Hospital, non-Covid services will resume at C and H Blocks. "There is also a concern about the second wave of infections coming," Dr Girish added.

### Left in the lurch

Meanwhile, medical staff are said to be languishing at private hospitals after a November 18



**Non-Covid services are expected to resume soon.**

circular from the BBMP mandated that Covid-19 patients be admitted only at government health facilities.

Consequently, the future of several medical professionals, including ancillary staffers, has been thrown into doubt, said Dr R Ravindra, President, Private Hospitals and Nursing Homes Association (PHANHA).

### No end in sight for govt staffers

The shunting of new Covid-19 patients into government centres is said to be once again overburdening medical staff at some government hospitals.

At Bangalore Medical College and Research Institute (BMCRI), Dr Smitha Segu, nodal officer for Covid-19, said many of the institute's staffers had been hoping for a breather and a transition to non-Covid services.

"However, we are finding Covid admission numbers increasing once again. Roughly, 40-50 new Covid-19 patients are turn-

ing up at BMCRI every day. Some staff are exhausted. On top of this, if a second wave starts, it will severely strain our manpower," she said.

Contract health workers are also out on a limb.

Vishwaradya H Yamoji, President, Contract Health Workers Association, said hundreds of contract workers across the state have had little or no work in the recent weeks.

"Worse, none of the incentives promised by the government have materialised," he said.

"Only about 30% to 40% of beds in private hospitals are occupied. Many medical staff have no work at all. Private hospitals are trying to keep their staff occupied with fumigation

and other sanitisation work but if non-Covid services don't pick up, we will have to do retraining," Dr Ravindra said. "If that does not help, we will have to resort to retrenchment."

P2

# No more hearings on tree felling, say authorities

Email-based consultation process introduced

BENGALURU, DHNS

**T**he BBMP tree authority has introduced an email-based consultation process in the place of public hearings for infrastructure projects requiring tree felling.

Activists dub this regressive since the change of procedure denies the public the

## Activists are dismayed

“While issuing of a public notice brings a level of transparency, the removal of an avenue to question officials and demand answers is going to be a regressive step. Once we mail our suggestions, there is no telling whether it has ever been genuinely considered. Accountability as such will be lost,” an activist said, pointing out that officials were taking shelter under a law which they failed to

opportunity to demand answers from the authorities.

Officials confirmed the procedural change while speaking about a public notification issued by the Forest Department for axing 106 trees for two metro works — 91 trees at Jyotipuram near KR Puram and 15 on the RV Road-HSR Layout line. Two more notifications have also been issued to fell 150 trees — 116 trees for the approach line to the Anjanapura depot and 34 for the Kothanur depot.

In all, 256 trees will be topped for four different metro works in South and East Bengaluru, but public participation will be limited to just emails as the officials have decided to “follow the rules”.

After an order from the Karnataka High Court, dated August 2014, the BBMP has been conducting public hearings on proposals involving the cutting of more than 50 trees. The hearings witnessed public anger over

follow for years.

1976, called for public hearing. “Both mentioned public notices,” the official noted.

“But BBMP’s deputy conservator of forest read too much into them and began public hearings. These events led to a furore, with activists getting angry over mere proposals to fell trees. We have decided to go by the rules and put an end to public hearing,” he added.

This has made last year’s public hearing on the Gottigere-Nagawara metro line the last of the events, where tree conservationists could hold officials accountable for ripping off trees. People must now write emails to the deputy conservator of forest to raise objections or provide suggestions to save trees.

### **People’s participation**

To a question, BBMP DCF Ranganatha Swamy H S said



“unfettered” cutting of trees.

A senior official claimed that neither the high court order nor the government’s amendment of the Karnataka Preservation of Trees Act,

the public notice will increase people’s participation.

“People have a chance to air their opinion and the whole system is transparent, as per the rules,” Swamy said.



**In all, 256 trees will be toppled for four different metro works in South and East Bengaluru.**

# Vaccine for India by Dec likely

## VACCINE, FROM PAGE 1

“These findings show that we have an effective vaccine that will save many lives. Excitingly, we have found that one of our dosing regimens may be around 90% effective and if this dosing regime is used, more people could be vaccinated with planned vaccine supply,” Andrew Pollard, chief investigator of the Oxford vaccine trial at Oxford University said in a statement.

The regimen with one half and a full dose that generates 90% efficacy was given to 2,741 individuals whereas the second regimen with two full doses was administered to 8,895 people. The combined analysis from both dosing regimens (n=11,636) resulted in an average efficacy of 70%.

An independent data safety monitoring board determined that the analysis met its primary endpoint showing protection from Covid-19 occurring

14 days or more after receiving two doses of the vaccine. No serious safety events related to the vaccine have been confirmed as the vaccine was well tolerated across both dosing regimens.

“A vaccine with 70% efficacy is very good because the idea was that a vaccine even with 50% efficacy is good enough in a pandemic situation. The added advantage of the AstraZeneca vaccine is that it can be transported to every corner of the country as it doesn’t need an ultra low cooling environment for storage,” Chandrakant Lahariya, an independent public policy and health systems expert told *DH*.

Two other Covid-19 vaccines developed by Pfizer-BioNet and Moderna showed an efficacy in excess of 90%. But the first one needs a storage temperature of minus 80 degrees Celsius while the Moderna vaccine is more expensive than the AstraZeneca one.

# Flood risk for B'luru due to cyclone; IMD issues yellow alert

BENGALURU, DHNS

**L**ow-lying areas in Bengaluru could face the risk of inundation on Thursday and Friday due to isolated spells of very heavy rainfall under the influence of a depression over Bay of Bengal, which will intensify into a cyclonic storm on Tuesday.

The India Meteorological Department has issued a yellow alert to South Interior Karnataka districts on November 25 and 26. Though the region will receive light to moderate showers, isolated spells of heavy rainfall of up to 115.5 mm are forecast for Bengaluru Urban, Bengaluru Rural, Kolar, Mysuru, Mandya, Ramanagara, Chamarajanagar and Tumakuru districts.

C S Patil, director, IMD Bengaluru told *DH* flooding in low-lying areas of Bengaluru was likely due to spells of heavy downpour in parts of the city.

Thundershowers are also

likely in a few parts of the region due to the cyclonic storm, which will make landfall on the Tamil Nadu coast on November 25. The region is expected to receive fairly widespread rainfall till Saturday, after which the effect of the cyclonic storm is expected to taper off.

The cyclonic storm is forecast to have little impact on North Interior Karnataka and coastal districts which will remain largely dry during the course of the week.

## Rainfall data

During the course of the month, Karnataka has received below normal rainfall. Karnataka on an average receives 37 mm rainfall till November 23, and has received 17 mm this year. North Karnataka region has received little rainfall after the floods in October and has received an average of 2 mm rainfall till date, as compared to the long term average of 24 mm.

# India's best shot at covid vaccine has 70% efficacy

EEXPRESS NEWS SERVICE @ New Delhi

OF all the big Covid vaccine efficacy reports, the one India was keen to hear about has just arrived. Swedish-British biotech firm Astra-Zeneca on Monday announced that Covishield, its vaccine candidate developed along with the University of Oxford, showed an average efficacy of 70% in two study segments in early phase 3 of testing.

Though the performance percentage is lower than that of its three competitors — US pharma majors Pfizer and Moderna, and Russia's Sputnik V claimed 90+% efficacy — the Oxford vaccine scores over the rest for India as it can be stored at a comfortable 2-8°C; the Pune-based Serum Institute of India (SII) is already manufacturing it; priced around ₹200 per dose to the government, it's cost effective; and it is possibly the first Covid-19 vaccine India can lay its hands on.

Of the 11,636 volunteers in Astra's initial test, 131 developed coronavirus, but did not need hospitalisation.

**CONTINUED ON: P10**

### **Oxford shot rate for govt around ₹200**

While the cost of the Oxford vaccine is expected to be about ₹220 per dose under the government's national immunisation programme, its market price could be higher, Serum Institute of India chief Adar Poonawala has already indicated.



### **Maha firewall for passengers from 4 states**

Mumbai: With a fresh wave of Covid building on the horizon, Maharashtra sought to raise its firewall, mandating travellers from the most-affected states of Delhi, Rajasthan, Gujarat and Goa to show a Covid-19 negative certificate on arrival by rail, road and air from Wednesday. As per a Standard Operating Procedure issued by the state government, all travelers must undergo an RT-PCR test within 72 hours of the scheduled arrival time in Maharashtra. "The passengers not having the negative test report will have to undertake a Covid-19 test at their own cost. The airport authority will arrange the testing centres and charge the passengers directly," stated the notification.

## B'luru air cleaner than other cities after Diwali

Bengaluru: The city had the best air quality after Diwali, in comparison to seven other cities, according to an analysis by an environmental intelligence company Ambee. Bengaluru's Air Quality Index ranged between 50 and 70 . P2

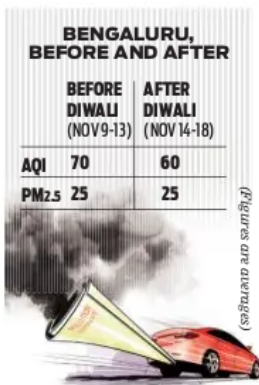
## New Covid therapy to the rescue

Bengaluru: Thymosin Alpha 1, a new therapy, can modulate the immune system of Covid patients and help their recovery. In mild patients, it stops the patient's condition from becoming moderate or severe, and helps severe patients in recovering. P3

P1

# Bengaluru wins cracker war, keeps air clean

Particulate matter dropped by 40% due to rain after Diwali; AQI in Delhi worst, shot up in Mumbai, Kolkata



EXPRESS NEWS SERVICE @Bengaluru

BENGALURU had the best air quality after Diwali compared to seven other cities, according to an analysis by environmental intelligence company Ambee.

For Bengaluru, the Air Quality Index ranged between 50 and 70 and average PM<sub>2.5</sub> (particulate matter) was just above 25 between November 9 and 18.

### Most polluted in B'luru

With an average AQI of around 90, Chandra Layout, Vijayanagar, Hampinagar, Nayandahalli were among the most polluted areas of the city. Areas such as Gavipuram, Vidyaranyapura, Yelahanka, recorded average

PM<sub>2.5</sub> of just above 35.

The least polluted areas include the Bengaluru airport with average AQI of just above 50. Other areas which had low levels of pollution include Madivala, Bellandur, Bommanahalli, and HSR Layout with PM<sub>2.5</sub> of 16. Some residential areas with large apartment complexes had elevated levels of PM<sub>2.5</sub>, which could be due to the bursting of firecrackers. However, particulate matter in the air dropped by 40% due to rains right after Diwali, giving some respite to city residents.

### Other cities

Delhi fared the worst, with its AQI level over 250 for the period

of the analysis. PM<sub>2.5</sub> levels in Delhi was above 200, twice the recommended safe levels. The other cities include Mumbai, Chennai, Hyderabad, Kolkata, Pune and Jaipur.

"Delhi continues to face hazardous levels of pollution with average AQI and PM<sub>2.5</sub> much higher than safe limits. Despite small showers, the ongoing stubble-burning will only worsen the air quality. In addition, dropping temperatures will also induce smog which creates health risks and visibility problems," said Madhusudan Anand, co-founder of Ambee.

Compared to last year, visibility is expected to be poorer

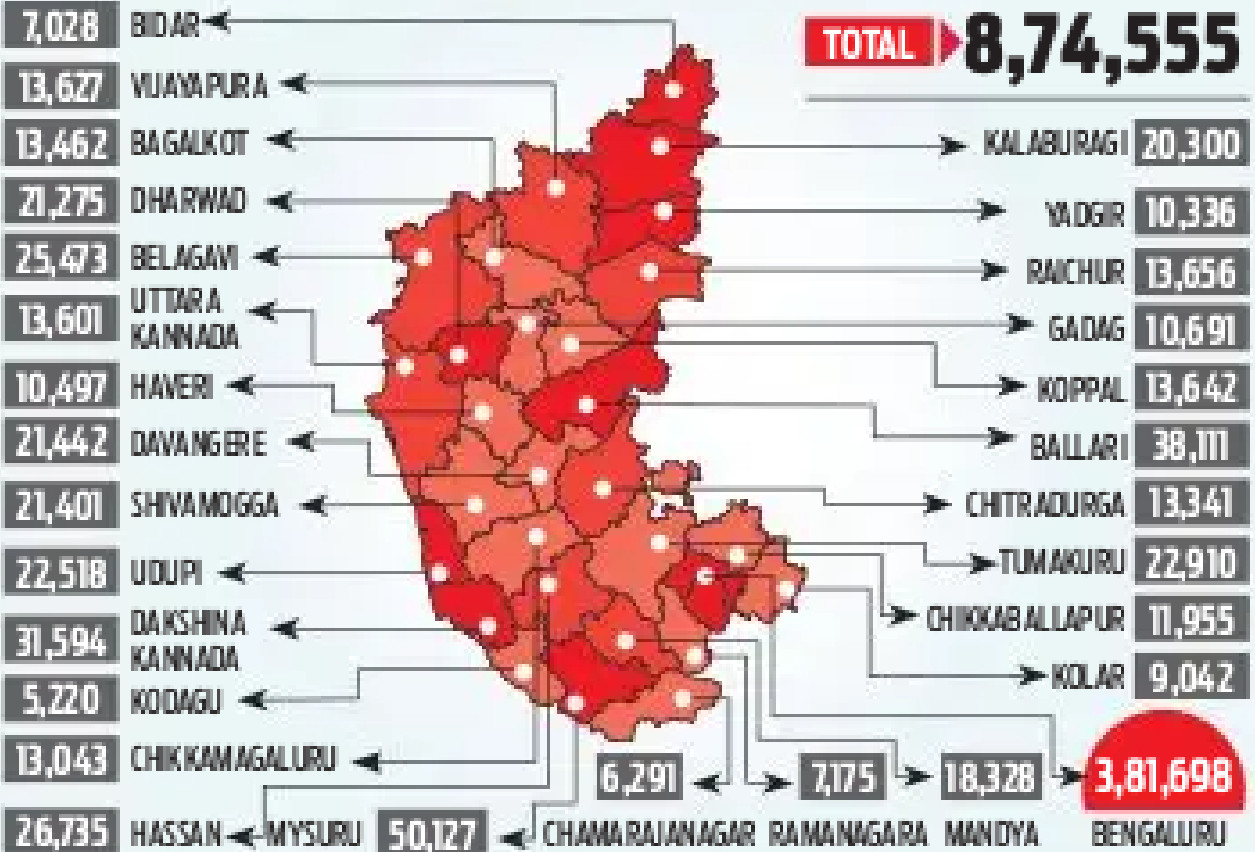
in Jaipur, Delhi, Kanpur, Lucknow, and Patna, he said. Other cities such as Mumbai and Chennai will experience moderate air quality while Kolkata and Hyderabad will continue to have pollution levels higher than safety limits, Anand said.

Mumbai's Air Quality Index level averaged 150 while Kolkata's increased from 120 to 170 after Diwali. Similarly, Pune's AQI rose after Diwali, and averaged 100.

Before the festival, Chennai's AQI average 110, which falls in the moderate category, and surprisingly saw a drop in pollution with the index level dropping to 50 after the festival.

P2

## CONFIRMED CASES



NEW CASES

**1,509**

NEW RECOVERIES

**1,645**

TALLY ON  
**MONDAY**

NEW DEATHS

**24**

TOTAL DEATHS

**11,678**

**96,095**

Samples tested

**24,708**

Total active cases

**8,38,150**

Total recoveries

# Oxford vaccine '70% effective', may get India nod by year-end

To Cost ₹500-600 Per Dose In Pvt Market; ₹220-300 For The Govt

Rupali Mukherjee @timesgroup.com

Mumbai: Armed with interim findings of the AstraZeneca-Oxford Covid-19 vaccine trials — which showed 70% effectiveness in preventing people from getting infected — Pune-based Serum Institute of India (SII) is set to seek emergency regulatory approval and hopes to get a go-ahead by the year-end.

The 'positive' data raises hopes for a faster rollout of the vaccine in India, as the AstraZeneca data exceeds the 50% primary efficacy end-

## REGULAR REFRIGERATION SUFFICIENT

► Serum Institute of Pune hopes to get emergency licence in a month to use AstraZeneca-Oxford Covid-19 vaccine

► Two doses needed. Set to be cheaper than Pfizer (₹1,500) & Moderna (₹2,775) shots

► 10cr doses expected by Jan. "Priority will be India," says CEO Adar Poonawalla

► Efficacy of this vaccine rises to 90% if half dose is followed by a full one, but it's lower than 95% of Pfizer and Moderna

► Oxford shot can be transported & stored at 2-8°C (normal fridge temp), unlike the others, making it easier to distribute across India



point set by the Indian drug regulator DCGI in draft guidelines for Covid-19 vaccines.

"We will be applying for the emergency licensure soon and hope to get it in a month or so. The final approval depends on DCGI's decision," SII CEO Adar Poonawalla told TOI. He added that the company has so far stockpiled

around 4 crore doses, and will have 10 crore doses by January. A majority of these will be marked as priority for India.

Covishield will be available in the market at Rs 500-600 per dose, and at Rs 220-300 for the government, he added. Two doses will be required.

► ₹1.5k for Pfizer shots, P 8

## Mum co offers 'vaccine tourism' at ₹1.8L/US trip

A Mumbai-based travel firm, which claims to be "developing vaccine tourism", is offering to fly "a select few VVIP clients" to the US to get a dose of the Pfizer vaccine, the tentative launch date of which is December 11. The package costs Rs 1.8 lakh a person and includes to-and-fro airfare from Mumbai to New York, stay for three nights and four days and a dose of the vaccine. The firm can't commit to a time frame and won't take advance deposits, but those interested have to register now by providing it a copy of their passport. "It's not patently illegal, but is unfair and deceptive as nothing is certain," Mumbai Grahak Panchayat says. P 11

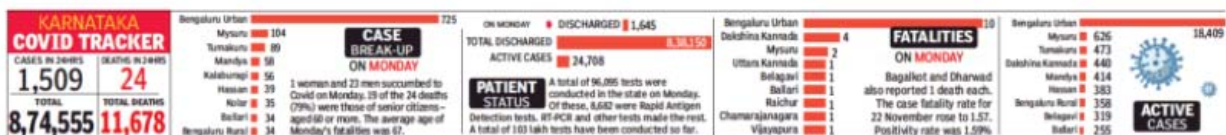
P1

# B' LURU WATCH

## Covid figures as on Nov 23

Cases	Active	Cured	Deaths
3,64,390	18,409	3,41,902	4,079

P1



# Greens elated as BBMP invites public opinion

Mrinalini.Bhat@timesgroup.com

**Bengaluru:** Two BBMP notices on Monday inviting objections to proposals to cut trees for two Namma Metro corridors had environmentalists praising the civic body.

One notice was for cutting 15 of 147 trees along the Metro line from RV Road to Bommasandra and another was for cutting 91 of 119 trees that dot the Byappanahalli-Whitefield line.

Environmentalist Vijay Nishant, who has been fighting for transparency in matters pertaining to the city's green cover, told TOI, "The notice states that anyone who has an objection can write

## **TREE-CUTTING PLAN**

to the DCF in the next 10 days. It's telling citizens their power in these matters."

As per the Karnataka Preservation of Tree Act, 1976, if more than 50 trees are being felled, a public notice has to be issued and objections invited. Environmentalists say the authorities usually claim to have put out a notice whenever trees are cut but they never come to know about it. With the matter going to the high court, directives were issued to follow the rule book. Following this, two public notices issued on November 23 were rich in details. "We have been fighting for this. Now that all de-

tails are uploaded on the BBMP website, citizens can make an informed decision. Environmentalists can visit the place and see if there is scope to save even one of those trees," Nishant said.

Environmentalists believe no good will come from protesting after trees are felled. Considering the government has given 10 days to seek comments from citizens, they believe it's time to act.

Dattatreya T Devare, environmentalist and trustee of Bangalore Environment Trust, said, "Two sets of permissions for tree felling/ transplantation were uploaded on BBMP website on October 17 and October 23 for BMRCCL. We found that the list of trees for which permission was given included some where no proper public notices were issued. We pointed out in the high court that it was necessary under the Tree Act to do so. In response to the high court directions, BBMP and forest department published notices. We hope people will submit comments/objections and they will be considered seriously."

Environmentalists claim there have been instances where public consultations were held just as a formality but no objections were taken into consideration. They now expect the authorities to carefully go through the objections and explain themselves in case they have not been taken into consideration.



# Not paid for 2 yrs: BBMP contractors at protest

TIMES NEWS NETWORK

**Bengaluru:** BBMP contractors on Monday staged a protest in front of the civic body headquarters against what they said was more than a 25-month delay in releasing their payments.

Waving plates and spoons and shouting slogans, the contractors sat outside the BBMP commissioner's office and discontinued the protest only after he agreed to meet them.

"We have not been paid a penny since the beginning of October 2018. Yet we are working relentlessly to ensure that people don't face any inconvenience," said KT Man-



**BILL WOES:** Contractors sit on dharna outside the BBMP chief's office. They have threatened to stop work if payment is not released

junath, president of the contractors' association.

The contractors have warned Palike officials they

will stop work and ensure no other contractor works if their payments are not released. "I have mortgaged both

my properties and sold another one in order to pay labourers and run my family. The officials are playing with our money and don't care about us," said Venkatesh G, another contractor.

More than 200 contractors who carry out various BBMP work pertaining to road maintenance, streetlights, parks and waste management took part in the protest.

"I have been borrowing loans from banks and friends to run my family for two years now. If the civic administration doesn't want to pay us on time, why does it pressure contractors to work continuously?" said Ravi, a contractor from Yelahanka.

BBMP sources said the agency doesn't have the funds to clear contractors' bills. "The contractors were already informed about the situation and the commissioner had clearly told them they would receive payments only after Covid-19 subsides. This protest won't change things," they added.

## Will look into it: Palike chief

The protest began at 11am and continued till 4.45pm when the commissioner met the contractors. "I will look into what can be done. I will call for a meeting and get back to the contractors," commissioner Manjunatha Prasad said.

## Positivity rate in State is one of the lowest

The State's positivity rate is at 1.8 per cent while the national average is at 4.1 per cent



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**O**n the covid front, Karnataka is one of the few states in the country to have a low positivity rate in the country now. As per the positivity rate data of November 8 to November 21, the State's positivity rate has been 1.8 per

### 725 cases in Bengaluru

On Monday, with lower number of tests (only 96,000 tests), lower number of covid cases were recorded. The State added 1,509 new cases and 24 deaths, while Bengaluru accounted for 725 and 10 deaths. The day's positiv-

positivity rate has been 1.8 per cent while the national average has been 4.1 per cent. Himachal Pradesh recorded the highest positivity rate with 15.3 per cent, followed by Delhi with 12.8 per cent and the lowest in Bihar (0.5 per cent).

Due to the low positivity rate, the state has also seen a steady fall in cases. Although the number of covid cases increased by 1.2 per cent in the past week, active cases have reduced by 11 per cent. In fact, 27 out of 30 districts in the State witnessed big reductions in active cases.

Interestingly, 13 out of 30 districts witnessed zero covid deaths during the last week, as the case fatality rate fell to 1.2 per cent in the state. Bengaluru accounted for 45 per cent of the weekly deaths, while six districts witnessed only one death each.

Analysing the weekly data, Mysore Sanjeev, Project Coordinator of Jeevan Raksha, said that Karnataka should now focus on reducing the active

cases. The day's positivity rate was 1.57 per cent, while the day's fatality rate was 1.59 per cent.

cases to below 15,000 from its current level of 24,708. Surprisingly, the active cases in Karnataka were higher than the neighbouring States (except Kerala); Andhra Pradesh-15,249, Tamil Nadu 12,542, Kerala 65,864, Telangana 11,643, and Puducherry 559.

State war room chief Munish Moudgil said that Karnataka had also conducted the highest RT-PCR tests per lakh people in the country and claimed that higher RT-PCR tests was one of the reasons for the control of the covid situation in the State. "One of the ways to avoid a second wave, apart from citizens exercising SMS - Social Distancing, Masking and Sanitization. While the state government is doing its part by maximising tests, the citizens are requested to adhere and obey SMS," he added.

# Ride between Chord Road, ORR will turn signal-free

The 2.9-km project costing around ₹120 crore will have four grade separators

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**A**nother signal-free corridor is being proposed between the Outer Ring Road (ORR) and the West of Chord Road, which falls under Mahalakshmi Layout Assembly Constituency. The 2.9-km project, costing around Rs 120 crore, will comprise four grade separators at different junctions. A part of the plan also includes the construction of a bridge above the Vishabhavathy valley near Pipeline Road for the movement of vehicles.

The road infrastructure division of the Bruhat Bengaluru Mahanagara Palike (BBMP) has been tasked with the responsibility of executing the project. It is currently finalising the detailed project report (DPR). Officials hope to float the tenders in a month's time.

The project, the civic body said, will reduce the travel time of commuters travelling from West of Chord Road towards Mysuru Road and Tumakuru Road. "In the first phase, we will be building an 800-metre bridge across the storm water drain," a senior BBMP official said.

The second phase includes construction of what is called two uni-directional flyovers (one at the old Nandini theatre junction and another near Rajkumar statue) as well as an underpass near Shastri tutorials.



ANANTHA SUBRAMANYAM K

The signal free corridor is being proposed between the ORR and the West of Chord Road

During the ward committee

meeting on Saturday, K Gopalaiah, minister for Food and Civil Supplies and MLA of Mahalakshmi Layout had directed the BBMP officials to expedite the completion of the project. He said none of these projects require land acquisition.

## Deadline extended

About two kilometres from where these grade separators are proposed, the civic body has taken up a separate signal-free corridor project. Work had begun in 2017 but the project has already missed three deadlines since August, 2019. Officials hope to complete the work by mid-2021.



**The project will reduce travel time for commuters from West of Chord Rd towards Mysuru Road and Tumakuru Road. First, we will build a bridge across the SWD**

"We have completed about 70 per cent of the flyover work at Shivanagar junction. The other work at the Basaveshwara Nagar

junction flyover was kept on hold as we wanted to integrate it with the proposed flyover at the 72 cross road in Rajajinagar. This project will be ready by June 2021," an official said.

While these projects will help commuters escape the congested junctions by taking the flyovers or underpasses, the overall travel time, studies say, is unlikely to reduce due to the sheer number of traffic signals the city has. Even one-kilometre stretches of some roads in the City have multiple signals that slow down traffic. As a long-term solution, experts have been batting for rapid public transport system.

# Clear our dues: Contractors corner BBMP

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**T**he Bruhat Bengaluru Mahanagara Palike (BBMP) is tasting some of its own medicine. Just like it used to name and shame property tax defaulters, contractors have decided to call out the Palike for not clearing pending bills since October 2018.

On Monday, hundreds of contractors gathered at the BBMP Head Office premises to stage a protest demanding the civic body clear the bills which come up to around Rs 2,800 crore. Contractors shouted slogans to emphasise on their demands to the tune of drum beats.

Some contractors also got into heated arguments with the police as they were prevented from taking out a procession on the BBMP premises. The agitating contractors told the police that BBMP has not



Contractors gathered outside BBMP head office to protest

bothered to meet them till 4 pm though they have been protesting since 10.30 am. Later, the police allowed them to continue their procession.

"Many of us have borrowed money to take up developmental work. We have to pay a high rate of interest on the loans availed from

the lenders," said KT Manjunath, president, BBMP Contractors' Association.

Venkatesh Naidu, a contractor, said he had borrowed money from private people and has to sell a site and mortgage property to clear the debt.

"I have done developmental

works (road and drain works) in Rajajinagar. I am yet to get Rs 1.50 crore from the BBMP two years after the work was done," said Naidu.

Ravi L, a contractor, said he constructed a primary health centre at Nandini Layout and the PHC was opened to the public two years ago and now it has been converted as a fever clinic but the BBMP has not cleared the dues.

"I have to mortgage and sell property to clear the debt. I am not in a position even to pay the school fee for my children," said Ravi.

The contractors allege that BBMP have cleared huge bills worth hundreds of crores without following the norms. They accused the BBMP of having taken bribes and cleared the pending bills of bigger contractors.

"We want the BBMP to release the pending bills from October 2018 to March 2019. It will be a great help to the contractors," said Manjunath.

# Metro doom over 91 trees

Permission sought to axe 10- to 30-year-old trees in Benniganahalli lake bund area; residents say company is taking easy way out as lake is govt property

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TWEETS @BangaloreMIRROR

**T**he grand infrastructure plan proposed at the busy Tin Factory junction in the City is likely to permanently take away a large part of the area's lung space. The Bangalore Metro Rail Corporation Ltd (BMRCL) has requested the forest department for the removal of 91 trees from the Benniganahalli lake bund area. And, the residents are fuming.

On Monday, the deputy conservator of forests (DCF), Bengaluru Urban division, issued a public notice, inviting suggestions and objections from all citizens under the section 8 (3) of Karnataka Preservation of Tree Act, 1976.

Citizens have 10 days to offer their comments.

The notice says there are a total of 119 trees standing in the project area. The number of trees proposed to be removed is: 91. That's close to 90% of the trees on one side of the lake bund area, most of which are between 10 and 30 years old.

At the time of writing this story, the description of trees, species, location, area map were not uploaded on the website of BBMP, although the notice claims it has already been uploaded.

On the stretch where the trees earmarked for felling are, the BMRCL plans to build a two-lane road. The additional space is also expected to ease up the junction where the BMRCL is constructing a Metro station and two Metro lines (one, connecting Baiyappanahalli and Whitefield, the other to connect the airport from the Outer Ring Road).

Earlier this year, the BMRCL had received permission from the Karnataka Tank Conservation and Development Authority (KTCDA) to take up construction close to the lake area. Besides the trees, the construction will also take away a part of the walking track.

NH Subramanian, secretary of Benniganahalli Kere Trust, is disappointed. "The BMRCL has chosen an easy way to build roads and Metro lines as the lake



BMRCL plans to build a two-lane road on the stretch where the 91 trees stand

## ... And 15 trees near Central Silk Board

On the request of BMRCL, the BBMP's forest cell has also issued a public notice, informing citizens about the need for chopping off 15 trees between 16th Main road in BTM Layout and the Central Silk Board. "A total of 15 trees are essential to be removed for Metro construction activities," the notice states. Some of the trees marked for removal are: Rain tree, Gulmohar, Bottle Brush, Dalichanda and Sisi Hunshe.

property is owned by the government. There were many alternatives including building double-deckers or changing the alignment to the other side of the road. All of this is being ignored as BMRCL feels lake properties and the tree are easy to destroy," he said.

The residents, he said, had staged a protest against BMRCL's plan. "We



**No department reached out to us. We were not consulted during the design stage**

—NH Subramanian,  
Benniganahalli Kere Trust

had also objected in writing. None of the departments have reached out to us. We were not consulted during the design stage. The BMRCL has taken away our only lung space. All that is left for the children in this area is concrete," he fumed.

Recently, petitioners had requested the High Court to direct the BBMP to take all the suggestions and objections given by residents seriously. "It is not enough the public notices are issued. The BBMP has been washing its hands off its responsibility on whether any of the suggestions were positively considered and what action has been taken," a senior environmentalist said.

■ Vaccine up to 90% effective ■ Serum Institute says data from Indian trials in a month  
 ■ Co to apply for emergency use by Dec end ■ 100m doses to be ready by year end

## AstraZeneca Vaccine Results a Shot in the Arm for India

Divya Rajagopal & Teena Thacker

Mumbai | New Delhi: AstraZeneca and Oxford University on Monday said their Covid-19 vaccine was up to 90% effective, brightening prospects of the much-awaited shot being available in India in the next few months.

Serum Institute of India, AstraZeneca's strategic manufacturing partner for the job in India, said efficacy data from the Indian trials will be released in a month and the company will apply for emergency use by December end.

The company said it will have 100 million doses ready by end of next month and these will be made available to the government for an early rollout.

It has the capacity to ramp up production to 400 million doses by April 2021. It had earlier said it would price the vaccine at \$21 a shot.

A government official said Serum Institute will get approval to introduce the vaccine once it submits its data, and market authorisation is granted by the regulatory authority in UK for the AstraZeneca shot.

### Booster Dose

Serum institute has capacity to ramp up production to 400 m doses by April 2021

APPROVAL TO INTRODUCE THE VACCINE ONCE...

SII SUBMITS data

Authorisation granted by UK regulator for AstraZeneca vaccine

Co to also supply vaccine for low- and middle-income countries as part of WHO COVAX facility



### ASTRAZENECA-OKFORD TRIAL RESULTS

Vaccine 90% effective when half a dose was followed by a full dose 30 days later

63% effective when a full dose was followed by another 30 days later

Average efficacy for trials in UK and Brazil: 70%

International regulatory bodies such as USFDA require 50% effectiveness

AstraZeneca shot can be stored in a fridge at 3-8 degrees Celsius

GOOD NEWS FOR INDIA  
 → SEE EDIT

As ET had reported earlier, the AstraZeneca shot is one of India's best hopes for an early vaccine. Unlike Pfizer and Moderna's job that have shown encouraging results, the AstraZeneca shot can be stored in a fridge at 3-8 degrees Celsius and won't require a super cold storage chain. In addition, phase-3 trials of the vaccine have been conducted by Serum Institute

in the country. The AstraZeneca shot was 90% effective when half a dose was administered initially, followed by a full dose 30 days later. The efficacy level fell to 63% when trial participants were given a full dose, followed by another full dose 30 days later. The average efficacy for the trials conducted in UK and Brazil was 70%. International regulatory bodies such as USFDA require 50% effectiveness.

### Pfizer, Moderna, AZ Vaccines Most Potent

Data from phase-3 trials show that the efficacy of the three Covid-19 vaccines – from Pfizer-BioNTech, Moderna and AstraZeneca – is among the highest, specifically in comparison with current flu vaccines, reports Divya Rajagopal. → 4

### India may Not Need Pfizer Shot: Vardhan

India may not need Pfizer-BioNTech's Covid-19 vaccine, health minister Harsh Vardhan has said. "US has not even given licence to Pfizer. So it does not make sense for other countries like India to consider it," he told ET's Nidhi Sharma. → 4

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## India May Not Need Pfizer's Vaccine: Harsh Vardhan

Considering the US has not given licence to Pfizer, it does not make sense for us to consider it: Minister

Nidhi.Sharma@timesgroup.com  
 New Delhi: India may not need Pfizer-BioNTech's Covid-19 vaccine, health minister Dr Harsh Vardhan has said. In an exclusive chat with ET, the health minister said: "United States has not even given licence to Pfizer. So it does not make sense for other countries like India to consider it. We are in touch with everyone but we feel that we may not need Pfizer vaccine." The health minister's statement came

on a day Oxford University and pharmaceutical giant AstraZeneca announced that Covid-19 vaccine being developed jointly by them showed 70% efficiency and the efficacy could be 90% under one-dosing regimen. Dr Harsh Vardhan said that Pfizer does not have linkages in India to manufacture the vaccine. "They do not have enough capacity. They would first need to fulfil the requirement in the US and then supply to other countries. So we may not need them," he said, adding that India has at least three

They do not have enough capacity. They would first need to fulfil the requirement in US and then supply to other countries  
**HARSH VARDHAN**  
 Minister of Health



candidates in advanced stages of human trials and would be able to introduce the vaccine by February or March 2021. To nip vaccine politics in the bud, Dr Harsh Vardhan said, "There will be equitable distribution of vaccine. States are a part of the National Expert Group of Vaccine Administration for Covid-19. An expert group is drawing out priority groups. In consultation with technical experts. Nobody will get the vaccine by pulling a favour. We will first cover healthcare workers and then gradually cover the entire population." Congress MP Rahul Gandhi on Monday sought answers from the govern-

ment on the distribution strategy and whether PMCare funds would be used to ensure free vaccination. The health minister said: "The Covid vaccine programme will have earmarked funds the way all government schemes have in the Budget." The BJP's mantle in Bihar Assembly elections had triggered a political controversy as it promised free Covid-19 vaccine in the poll-bound states. This was promised in Madhya Pradesh and Tamil Nadu. Though the health ministry had sought to put an end to controversy by saying vaccine would be provided free of cost to everyone, the Congress had taken on the government for this electoral promise.

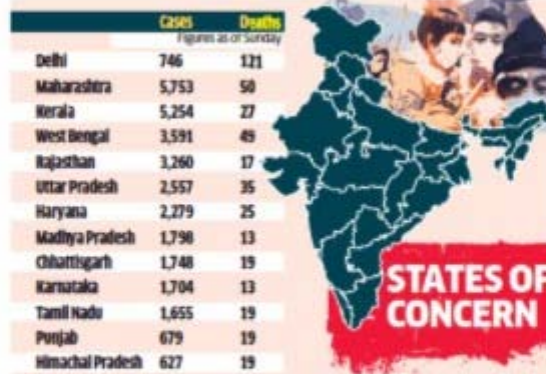
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# Controlling Covid Till Arrival of Vaccine on PM-CM Meet Agenda

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New Delhi: Controlling the second Covid-19 wave this winter till a vaccine comes is top on the agenda of Prime Minister Narendra Modi's virtual meetings with Chief Ministers on Tuesday amidst a rise seen lately in cases and the number of deaths in about ten states led by the national capital, Delhi.

Modi will hold a meeting with the CMs of the high-concern states which are reporting the maximum number of cases and deaths now followed by another meeting with the CM's of other states. Government sources in the know said the PM could stress upon CMs on increasing the proportion of RT-PCR testing in the high-concern states and especially ramp up testing in the super-spreader containment areas, curbing big crowds at markets, enforce wearing of masks by fines and enhanced awareness about social distancing. The CMs are expected to brief the PM on measures re-imposed by some states like night curfew to curb the spread of Covid-19 after the festival season has seen an upsurge in cases. Government sources said that though the rising Covid numbers in



India this month were nowhere near the exponential rise seen in the Covid-19 numbers in Europe and the USA with the onset of the winter, the effort of the government here is towards stopping a big second wave in India.

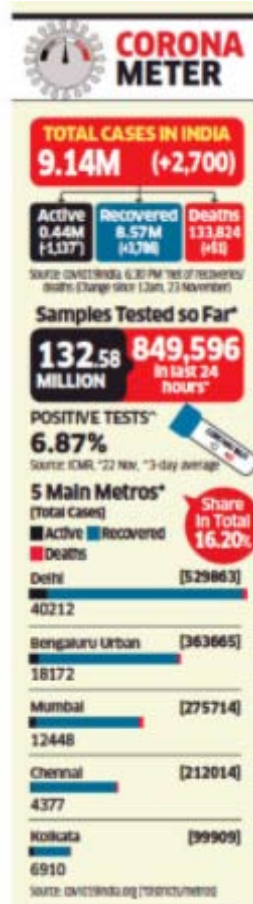
"The PM just before the festive season made a special address advising people to not drop their guard and stressing that the virus was still very much present amidst us. Till a vaccine does not come, it is

not the time to lose the grip over the Covid-19 situation here," a senior government official said. Ten states are reporting about 79% of the new cases and 75% of the fresh deaths in the country. Delhi, Maharashtra and Kerala are reporting the highest number of new cases while Delhi, Maharashtra and West Bengal are reporting the highest number of daily deaths now. The Covid-19 numbers are also concerning from states like Punjab, Haryana, Ut-

tar Pradesh, Rajasthan, Chhattisgarh, Andhra Pradesh, Tamil Nadu, Himachal Pradesh and Karnataka. The Centre has sent teams to UP, Punjab and Himachal Pradesh and earlier to Haryana, Rajasthan, Gujarat and Manipur, and Chhattisgarh. The state of the hospital infrastructure and availability of ICU and Oxygen-supported beds to deal with increase in cases in these states will be reviewed.

The PM could express his satisfaction, however, on the recovery rate in India going above 96% and the country recording less than 50,000 cases daily since November 8. Active cases in India are now below 4.5 lakh, which is only 4.86% of the total positive cases, which is another reassuring figure. In this meeting, the PM is also expected to ask the CMs to review availability of cold storages for the upcoming vaccine and ask them to be prepared for the distribution strategy. In his last meeting with the Chief Ministers in September, the PM had asked the CMs of Maharashtra, Uttar Pradesh, Punjab, Delhi, Andhra Pradesh, Tamil Nadu and Karnataka to make special efforts to control the spread Covid-19 in the 60 worst-affected districts of the country.

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# 'AstraZeneca's Vaccine Could be 90% Effective with No Serious Side Effects'

About 200 million doses to be ready by end of this year, says British drugmaker

Reuters

London: AstraZeneca said on Monday its Covid-19 vaccine could be around 90% effective, giving the world another weapon to fight the global pandemic and potentially cheaper to make, easier to distribute and faster to scale up than rivals.

The British drugmaker said it will have as many as 200 million doses by the end of 2020 — around four times as many as US competitor Pfizer. Seven hundred million doses could be ready globally as soon as the end of the first quarter of 2021. The vaccine was 90% effective in preventing Covid-19 when it was administered as a half dose followed by a full dose at least a month later, according to data

**Taking the shot**

**ADVANTAGES OF ASTRAZENECA VACCINE**

- Costs a few dollars a shot, a fraction of the price of drugs from Pfizer and Moderna
- Can be stored at normal fridge temperatures, unlike Pfizer's which needs to be stored at -70C

**ASTRAZENECA WILL...**

- Immediately prepare regulatory submission of the data to authorities around the world that have a framework in place for early approval
- Seek an emergency use listing from the WHO to speed up availability in low-income countries

from late-stage trials in Britain and Brazil. No serious safety events were confirmed, the company said. "This means we have a vaccine for the world," said Andrew Pollard, director of the Oxford University vaccine group that developed the drug.

The vaccine's cost works out at just a few dollars a shot, a fraction of the price of drugs from Pfizer and Moderna, which use a more unconventional technology.

And it can be transported and stored at normal fridge temperatures, which proponents say would make it easier to distribute, especially in poor countries, than Pfizer's, which needs to be shipped and stored at -70C, the sort of temperature typical of an Antarctic winter.

The effectiveness of AstraZeneca's vaccine depended on the dosing, and fell to just 62% when given as two full doses rather than a half-dose first. But scientists cau-

tioned against seeing this as evidence that it would be less useful than rivals.

Vaccines from Pfizer and Moderna each prevented about 95% of cases according to interim data from their late-stage trials.

"I think it is a real fool's errand to start trying to pick these three (Pfizer/Moderna/Astra) apart on the basis of snippets of phase-3 data from press releases," said Danny Altmann, professor of immunology at Imperial College London. "For the bigger picture, my suspicion is that by the time we are a year down the line, we'll be using all three vaccines with about 90% protection — and we'll be a lot happier." Pascal Soriot, Astra's chief executive, said the data showing that an initial half dose was more effective than two full doses was good news, as more people could be vaccinated faster with a limited supply.

AstraZeneca's preliminary trial comes as a new wave of infections has hurt economies, particularly in Europe and the United States. Nearly 1.4 million people have died in the global Covid-19 pandemic.