EC stops Telangana farmer aid scheme

Sreeparna Chakrabarty
NEW DELHI

The Election Commission (EC) on Monday withdrew permission for the Rythu Bandhu scheme of the Telangana government citing violation of the model code of conduct. In its order, the poll body withdrew the permission citing violation of the same by State Finance Minister T. Harish Rao.

Mr. Rao had made a statement that money would be disbursed under the Rythu Bandhu scheme on November 28. The Assembly election in Telangana will be held on November 30.

A farmer shows cash received from Telangana's Rythu Bandhu scheme. FILE PHOTO

Under the Rythu Bandhu scheme, financial assistance is directly transferred to each farmer's account per season towards meeting the cost of inputs and other initial needs.

The Congress had filed a complaint with the EC last week seeking an order to stop the ruling Bharat Rashtra Samithi (BRS) from using Rythu Bandhu in their election campaign.

On November 25, the EC allowed disbursement of Rabi season instalment under the scheme on certain conditions – no publicity should be made in this regard, no public function should be organised for disbursement, and no political functionary should be involved in the process of disbursement.

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EC stops Telangana's farmer aid scheme

The commission noted that the Minister had "not only violated the provisions of the model code of conduct but also conditions laid down by publicising the release under the scheme, thereby disturbed the level playing field in the ongoing election process".

Taken aback by the sudden decision of the commission, the ruling BRS requested the poll body to reconsider its decision.

In a three-page letter addressed to the EC and Chief Electoral Officer of the State, BRS secretary-general K. Keshava Rao and its general secretary S. Bharath Kumar stated that the Rythu Bandhu was an ongoing scheme since May 2018. Assistance under the scheme had been disbursed for 11 crop seasons already, they said.

The letter said that the ground that the disbursement was stopped as Mr. Harish Rao violated norms was wrong as the Minister had not made any comment in violation of the EC's orders. He had merely thanked the commission for allowing the disbursement of the scheme amount to farmers in the State. The inadvertent statement was nothing but an expression of gratitude for the EC decision.

Rare sighting of 'melanistic' pelicans reported in Pallikaranai marshland

Geetha Srimathi
CHENNAI

Two pelicans with aberrant plumage were reportedly spotted at Pallikaranai marshland last week.

These pelicans, brownish in colour, were near a flock of spot-billed pelicans but appeared to be isolated from them, said K.V.R.K. Thirunaranan of The Nature Trust, who observed the birds for four hours.

He added that the brownish pelicans were resting separately from the other spot-billed pelicans, which are known to congregate and nest in considerable numbers in Pallikaranai, and from each other.

It should be noted that brown pelican is a different species that lives in the southern coasts of the United States and are not migratory.

Clear contrast: One of the pelicans with aberrant plumage, which was sighted in Pallikaranai marshland, next to a spot-billed pelican. THE NATURE TRUST

According to Mr. Thirunaranan, this is not the first sighting of such differently-coloured pelicans. In 2005, two unusual, brightly-coloured pelicans were sighted at Pulicat lake and Nelapattu bird sanctuary. The sighting has been documented in *Marine Ornithology*, a science journal on conservation.

Dipu Karuthedathu, a birdwatcher with a keen interest in pelagic birds, told *The Hindu* that colour aberrations were normally rare in many species. "In some birds such as feral pigeons, it is in their genes for individuals to be of different colours - black or white. But in pelicans it is rare," he said.

> In some birds such as feral pigeons, it is in their genes for individuals to be of different colours – black or white. But in pelicans it is rare. In this case, it could be melanism, but we will not know until we do a proper study
>
> **DIPU KARUTHEDATHU**
> A birdwatcher

"In this case, it could be melanism - a condition that causes birds to have an excess of dark pigmentation - but we will not know until we do a proper study," he added.

A touchstone of risk

Extra precautions must be in place while carving through mountains

Sunday went by, and while a day of rest for many, it marked two weeks since 41 construction workers, building a tunnel as part of an ambitious road widening project, got trapped inside. There is a massive rescue operation under way. When reports of the mishap first came in, nothing in the preliminary assessment by state authorities suggested that this would be such a drawn-out and challenging exercise. The Silkyara Bend Tunnel is a part of the Char Dham Pariyojana (project) in Uttarakhand that aims to improve connectivity to the religious pilgrimage sites of Gangotri, Yamnotri, Kedarnath, and Badrinath. The trapped workers were extending National Highway 134 to cut travel time by an hour. Now, hundreds of hours have been spent in what so far appears to be a slapdash rescue operation. The entrapped workers and their families are undergoing extreme psychological stress. In hindsight, all this suggests that this was a project that ought not to have commenced in the first place.

Even prior to this mishap, environmentalists, scientists, and local residents had raised concerns about the Char Dham Pariyojana. The project, which involves widening 900 km of roads via tunnels, culverts, by-passes and bridges, has long been criticised because it involves carving through Himalayan mountains in ways that greatly increase the chances of landslides and associated disasters. While the project was finally approved by the Supreme Court, in the interests of "national security", the government adopted the unusual measure of avoiding a comprehensive environment impact assessment (EIA) of the Char Dham Pariyojana by breaking it up into smaller, independent ventures. The peril of doing so is precisely what has unfolded: that the risks involved in engineering projects, in fragile ecosystems, are not properly accounted for. This is certainly not to suggest that engineering projects in the Himalayas are in principle flawed. The smoother roadways and newer economic opportunities that they may bring are worthwhile considerations and it is precisely to weigh the risks against the benefits that the EIA exists. Despite several instances of roads being washed away and dams breached, there is still the lack of an awareness that infrastructure development in fragile terrain requires much greater scrutiny, expertise and project-monitoring skills – and therefore much higher costs – than similar exercises in the plains and cities. The Silkyara tunnel disaster must serve as a touchstone against which future projects will be evaluated.

Not a panacea

Intra-community disparities lie behind Maratha demand for reservations

In a sign of significant socioeconomic churning in various parts of India, there have been demands for reservation by communities that are known to be politically dominant and are not traditionally classified as "backward". The agitation for reservation by members of the Maratha community in Maharashtra is one such. The community has had significant representation in positions of political power – over 35% of MLAs since 1967 and 12 of 18 Chief Ministers in the State. It has also traditionally been economically influential in rural areas due to landowning – over 75% of the cultivable land in the State – besides controlling an overwhelming majority of sugar factories. Data from the India Human Development Survey (IHDS) in 2011-12 in the State have shown that Marathas had a per capita consumption expenditure only lower than that of Brahmins; poverty incidence among Marathas was comparable to that of other forward communities and significantly lower than that of Scheduled Castes and Scheduled Tribes and marginally lower than that of Other Backward Classes. It is evident why the Supreme Court in 2021 struck down the 16% quota provided under the Socially and Economically Backward Classes for Marathas in jobs and education.

And yet the demand is not difficult to fathom. Despite the relative dominance, there are significant intra-community variations in terms of income and educational outcomes. The IHDS survey showed that the highest quintile of the community had an average per capita income of ₹86,750, while the per capita income of the lowest quintile was one-tenth of this. This disparity, besides the predominant rural nature of livelihoods among the poorer Marathas amid the prolonged nature of the recurring agrarian crisis in the State, has given rise to resentment and the demand for reservations. The Eknath Shinde government bowed to the demands of the latest agitation and set up a committee led by Justice Sandeep Shinde to help expedite the issue of Kunbi certificates to all Marathas so that they could benefit from reservations as part of the OBCs. But this has led to tensions with OBC leaders, including from the ruling coalition, demanding that the government scrap the committee. The need for a comprehensive socio-economic survey across States, instead of knee-jerk responses to agitations, is a must to evaluate the implementation of reservation, its outcomes, and to find out which group deserves it based on constitutional provisions. More importantly, with government jobs shrinking to a mere fraction of overall employment, reservations cannot be a panacea for the uplift of the poor among Marathas.

India has charted a space road map for up to 2047, says Chandrayaan-3 project chief

The Hindu Bureau
MADURAI

The Indian Space Research Organisation (ISRO) chose to land Chandrayaan in the south pole of the moon because of the availability of more resources for fuel, Chandrayaan-3 Project Director P. Veeramuthuvel said here on Monday.

He was delivering the sixth Manikam Ramaswami memorial lecture at the Thiagarajar School of Management. During an interaction with students, Mr. Veeramuthuvel said India had a road map for its space programmes till 2047. The ISRO wanted to set up its space station by 2035. Water molecules could be used as a resource for fuel and the organisation could make the best use of the moon's escape velocity of 2.38 km per second to reach other planets, making the moon a gateway.

Stating that all planet explorations aimed at identifying new resources, he said Helium-3, if tapped, could help future generations in producing power. Luna 25, a failed Russian moon mission, was aiming to land close to the point targeted by the ISRO, and all future missions planned to land at the pole, he said.

P. Veeramuthuvel, project chief of Chandrayaan-3, being honoured at an event in Madurai. N. Murali, Director, The Hindu Group, and college correspondent Valli Ramaswami are seen. G. MOORTHY

Mr. Veeramuthuvel said the ISRO had a review process at every single stage, and during the Chandrayaan-3 mission, the team faced a lot of challenges. "Since it was a second attempt, failure was not an option. The only agenda we had was to have a soft landing, so everything was led towards that," he said.

Chandrayaan-3 had shown that one should not view failure as a setback, but as a lesson from which one could learn and come back stronger, he added.

Earlier, The Hindu Group of Publications Director N. Murali, also a member of the TSM Board of Governors, recalled the contributions of Manikam Ramaswami.

As deaths due to work-related factors go up, ILO report urges countries to strengthen safety net

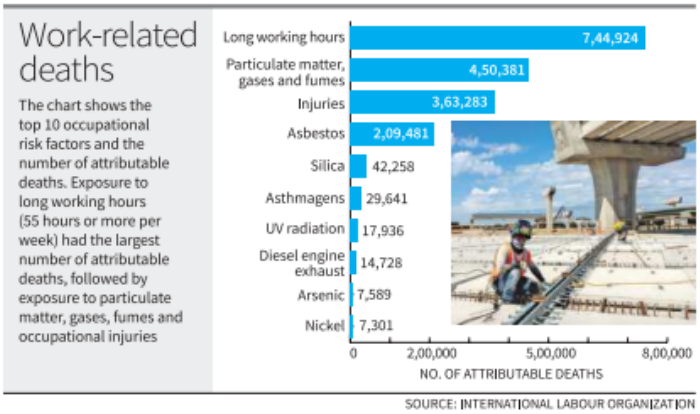
A.M. Jigeesh
NEW DELHI

Nearly 30 lakh workers die every year globally owing to work-related accidents and diseases, says a new report prepared by the International Labour Organization (ILO). More than 63% of these deaths are reported from the Asia-Pacific region.

Exposure to long working hours (55 hours or more per week) was the biggest "killer", with almost 7.45 lakh people dying of it in 2016, followed by exposure to occupational particulate matter, gases, and fumes (4.5 lakh deaths) and occupational injuries (3.63 lakh deaths).

The report, "A Call for safer and healthier working environments", will be discussed at the 23rd World Congress on Safety and Health at Work, one of the largest international conferences on this subject, which began in Sydney on Monday. The report said mining and quarrying, construction, and utilities sectors were the three most hazardous sectors globally.

The Director-General of the Employees' State Insurance Corporation, Rajendra Kumar, is representing India at the conference.



SOURCE: INTERNATIONAL LABOUR ORGANIZATION

ILO conventions

The report said that so far 79 out of the 187 member countries have ratified the ILO Occupational Safety and Health Convention (No. 155), while 62 countries have ratified the Promotional Framework for Occupational Safety and Health Convention, 2006 (No. 187). India has not ratified both the conventions.

In the wake of the Uttarkashi tunnel collapse in which 41 workers have been trapped, the Central trade unions had urged the Union government to ratify the conventions.

"In line with the core principles of the two fundamental Conventions, a sound and resilient national occupational safety and health framework, built on social dialogue and participation, is essential for the realisation of the fundamental right to a safe and healthy working environment," the report noted.

It added that a majority of these work-related deaths, 26 lakh, was attributed to work-related diseases, while work accidents resulted in 3.3 lakh deaths. "The diseases that caused most work-related deaths were circulatory diseases, malignant neoplasms and respiratory diseases," it added.

The report said that the rate of trachea, bronchus, and lung cancers attributable to occupational exposure to chromium doubled between 2000 and 2016. Mesothelioma, attributable to asbestos exposure, has risen by 40%. The rate of non-melanoma skin cancer increased by over 37% between 2000 and 2020.

"On the other hand, deaths due to exposure to asthmagens and particulate matter, gases, and fumes decreased by over 20%," it added.

The report also recommended five categories of "Fundamental Principles and Rights at Work" for ensuring safety and health at work. These are freedom of association and the effective recognition of the right to collective bargaining, elimination of all forms of forced or compulsory labour, abolition of child labour, elimination of discrimination in respect of employment and occupation, and a safe and healthy working environment.

Paul Lynch wins 2023 Booker Prize for *Prophet Song*

Agence France-Presse
LONDON

Irish author Paul Lynch won the 2023 Booker Prize for fiction on Sunday for his novel *Prophet Song*, a dystopian work about an Ireland that descends into tyranny.

The 46-year-old pipped five other shortlisted novelists to the prestigious award at a ceremony in London

He becomes the fifth Irish writer to win the high-profile literary prize, which has propelled to fame countless household names, including past winners Salman Rushdie, Margaret Atwood and Hilary Mantel.

"This was not an easy book to write," Lynch said after collecting his award, which comes with £50,000 (around $63,000) and a huge boost to his profile.


Paul Lynch book, set in dystopian future, follows a mother of four as she tries to save her family from totalitarianism. AP

"The rational part of me believed I was dooming my career by writing this novel. Though I had to write the book anyway. We do not have a choice in such matters," he added.

Lynch's book is set in Dublin in a near future version of Ireland. It follows the struggles of a mother of four as she tries to save her family from totalitarianism.

There are no paragraph breaks in the novel, which is Lynch's fifth.

Canadian novelist Esi Edugyan, who chaired the five-person judging panel, called the story "a triumph of emotional storytelling, bracing and brave".

Contemporary work

"With great vividness, *Prophet Song* captures the social and political anxieties of our current moment," she said.

"Readers will find it soul-shattering and true, and will not soon forget its warnings."

The Booker is open to works of fiction by writers of any nationality, written in English and published in the U.K. or Ireland between October 1, 2022, and September 30, 2023.

None of this year's six finalists – which included two Americans, a Canadian, a Kenyan and another Irish author – had been shortlisted before and only one had previously been longlisted.

The shortlisted novels, announced in September, were chosen from a 13-strong longlist that had been whittled down from an initial 158 works.

Among them was Irish author Paul Murray's *The Bee Sting*, a tragicomic saga which looks at the role of fate in the travails of one family. Murray was previously longlisted in 2010.

Kenyan connect

Kenyan writer Chetna Maroo's moving debut novel *Western Lane* about grief and sisterhood follows the story of a teenage girl for whom squash is life.

The judges also selected *If I Survive You* by U.S. writer Jonathan Escoffery, which follows a Jamaican family and their chaotic new life in Miami.

He was joined by fellow American author, Paul Harding, whose *This Other Eden* – inspired by historical events – tells the story of Apple Island, an enclave off the U.S. coast where society's misfits flock and build a new home.

Canada was represented on the shortlist in the shape of *Study for Obedience* by Sarah Bernstein. The unsettling novel explores the themes of prejudice and guilt through a suspicious narrator.

The Booker was first awarded in 1969. Last year's winner was Sri Lankan writer Shehan Karunatilaka for *The Seven Moons of Maali Almeida*.

The previous Irish winners are Iris Murdoch, John Banville, Roddy Doyle and Anne Enright.

Fibre optic cables: its origins, working and different functions

Along with quantum optics, fibre optic communication stands on the cusp of a new era. Ultra-thin fibres can carry information, such as text, images, videos, telephone calls, and anything that can be encoded as digital information, across large distances almost at the speed of light

Gayathry R.
Sebabrata Mukherjee

During the unprecedented COVID-19 pandemic, the one thing that connected us virtually was the internet. Because of high-speed internet connections, we can now video chat with a friend, pay online, and attend classes or meetings from home. Have you wondered how these connections work?

What is an optical fibre?

Optical fibres are made of thin cylindrical strands of glass. The diameter of a typical fibre is close to the diameter of a human hair. These fibres can carry information, such as text, images, videos, telephone calls, and anything that can be encoded as digital information, across large distances almost at the speed of light.

Ultra-thin fibres seem very fragile. But when manufactured correctly as a long thread surrounded by protectives, they serve the purpose in a durable way. They are strong, light, and flexible, and ideal to be buried underground, drawn underwater, or bent around a spool. Almost 60 years ago, physicist Charles Kao suggested that glass fibres could be a superior medium for telecommunication, replacing the copper wires of the time. While many people didn't believe him at first, his prediction is a reality today. For his ground-breaking achievements concerning fibre optic communication, Dr. Kao received a part of the 2009 Nobel Prize in physics.

How do optical fibres work?

Light is an electromagnetic wave with a spectrum of frequencies. Visible light, X-rays, radio waves, and thermal radiation (heat) all lie on this spectrum. Humans see the world around us via sunlight, but it took us a long time to control and guide light through fibre optic cables – or "light pipes" – to send coded signals.

When a beam of light falls on a glass surface, it passes through partially while the rest is reflected away. When it passes through, its path bends because the refractive index of glass is different from that of air. The refractive index is the property of a medium that determines how fast light can travel in it. When a beam travels in the reverse direction, that is from glass to air, it's possible that it won't enter the air. Instead, it will be completely reflected back within the glass. This phenomenon, known as total internal reflection, is the basis of guiding light across long distances without a significant loss of optical power. With proper adjustments, the light can be kept bouncing within the glass with very little escaping outside. This is how signals encoded as electromagnetic waves can be fed into one end of an optical fibre, and they will reflect and bounce many times between the glass walls as they traverse several kilometres bearing the information in the signals.

A fibre optic communication system consists of three parts – a transmitter which encodes information into optical signals (in the form of rapidly blinking light pulses of zeros and ones); an optical fibre that carries the signal to its destination; and a receiver which reproduces the information from the encoded signal. Optical waves allow a high data-transmission rate, up to several terabits per second in a single fibre. Unlike radio or copper-cable-based communication, fibre cables are also insensitive to external perturbations such as lightning and bad weather.

How were fibre optic cables developed?

While we have known about the intriguing effects of light in transparent media like water or glass, the systematic development of light-guiding can be traced only to the early 19th century. In 1840, Jean-Daniel Colladon at the University of Geneva first demonstrated that light's propagation can be restricted to a narrow stream of a water jet.

Jacques Babinet observed a similar effect in France and extended the idea to bent glass rods.

You may have seen such effects in water fountains lit by colourful beams of light. John Tyndall is known for popularising the idea of Colladon's light fountains. Following a suggestion by Michael Faraday, he demonstrated the effect in a water jet at the Royal Society in London in 1854. The effect is also visible in plastic-fibre Christmas trees.

We can guide light using total internal reflection with materials that have a higher refractive index than air. As Babinet found, a better choice than water is thin glass rods thanks to their availability, durability, and convenience. Such glass objects found early application in medicine and defence. In the 1920s, for example, Clarence Hansell and John Logie Baird showed a way to transmit images through glass fibres. Around the 1930s, doctors started using a bundle of thin fibres to inspect patients' internal organs and to illuminate teeth during surgical procedures. Early optical fibres were prone to damage, and weren't suitable for long-distance transmission of light.

In 1954, fibre development made a significant leap forward. Harold Hopkins and Narinder Singh Kapany at Imperial College London transmitted images using a 75-cm-long bundle of more than 10,000 optical fibres. Kapany was an Indian American physicist and a pioneer in the field. Two years later, Lawrence E. Curtiss at the University of Michigan developed the first glass-clad fibres. His idea to coat the bare glass fibres with a cladding material with a low refractive index paved the way for long-distance data transmission. In the same year, Kapany coined the term 'fibre optics'.

In 1960, Theodore Maiman built the first laser – an excellent optical source – which further boosted research in optical communication. The development of lasers working at room temperature made it possible to code any information digitally into optical signals. However, sending such light signals across long distances was still a big challenge. Even the best optical fibres available at the time lost 99% of their power after a few metres. In 1966, Kao and his colleagues found that the signals were attenuated due to impurities in the glass rather than the light being scattered. He suggested melting high-purity fused silica at high temperatures and producing thin fibre threads from that. This way, the decay of light signals inside glass fibres could be reduced below 20 decibels per kilometre (dB/km) – meaning 1% of the signal could still be detected after a kilometre. In 1971, the American glass-making company Corning Glass Works achieved this value in a finished cable.

Nowadays, glass fibres are manufactured using the fibre-drawing technique. First, a thick glass rod, called preform, of high purity and an engineered refractive index profile is prepared using chemical vapour decomposition. The preform is heated to about 1,600 degrees Celsius until it melts and is then drawn into a thin, long fibre. The drawing process reduces the fibre's diameter while maintaining its length. The drawn fibre is coated with a protective layer to enhance strength and durability.

In India, the Fibre Optics Laboratory at the Central Glass and Ceramic Research Institute, Kolkata, has a facility to manufacture high-quality silica-based optical fibres. Today's optical fibres have a typical loss of less than 0.2 dB/km.

What is the future of fibre cables?

Fibre optics technology has since been used in telecommunication, medical science, laser technology, and sensing.

With a goal to securing communication and promoting quantum science, the Government of India announced a national mission in the Union Budget of 2020. The proposed budget for this 'National Mission on Quantum Technologies and Applications' is ₹8,000 crore over a period of five years. The possibilities of fibre optic networks are growing at an accelerated rate, reaching all the way into our homes. Along with quantum optics, fibre optic communication stands on the cusp of a new era.

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