

### Third Launch Pad

A third launch pad refers to an additional facility at a space-port or launch site designed for the launching of rockets and spacecraft. The construction of a third launch pad is typically a strategic move to enhance a space agency's or private company's capabilities, allowing for increased frequency of launches, reduced downtime, and greater flexibility in mission scheduling. As the demand for space exploration and satellite deployment grows, spaceports are expanding their infrastructure to accommodate the increasing number of missions.

One of the most notable examples of this development is the construction of a third launch pad at the Indian Space Research Organisation (ISRO)'s Sriharikota Space Center (ISRO's Satish Dhawan Space Centre). This site, located on the east coast of India, has become a hub for space activities, including satellite launches and interplanetary missions. Until recently, the spaceport only had two primary launch pads. However, with the growing number of scheduled launches and ISRO's expanding mission portfolio, the addition of a third launch pad is seen as a crucial step in meeting future goals.

The primary purpose of constructing a third launch pad is to increase launch capacity. Space agencies and private companies often face tight scheduling conflicts when there is only one or two launch pads at a site. For instance, while one rocket is being prepared on a launch pad, the other may be undergoing post-launch checks or maintenance. This creates a bottleneck, reducing the number of launches that can take place in a given period.

With a third pad in place, missions can be staggered more efficiently, allowing multiple launches to occur in parallel. This is especially crucial for organizations that need to deploy large constellations of satellites, such as for communication, earth observation, or global navigation systems. The ability to launch more frequently also makes it easier to meet the rising demand for space missions.

The third launch pad also plays an important strategic role in enhancing the resilience and reliability of space operations. In the event of an issue with one of the existing pads - be it technical difficulties, maintenance, or environmental conditions - the third pad provides an alternative, ensuring that launches are not delayed or canceled. This flexibility is vital for both governmental space agencies and commercial entities that rely on tight schedules for launching satellites or conducting space research.

For instance, SpaceX, a private aerospace manufacturer and space transport services company, has expanded its launch infrastructure to support the increasing demand for its services. The company's Cape Canaveral Space Force Station in Florida recently constructed its third launch pad, enabling it to support both government and commercial launches, including its Falcon Heavy missions and upcoming Starship launches.

## At Mahakumbh, high-tech solutions for a swachh celebration

■ DR JITENDRA SINGH



As the sun rises over the sprawling expanse of the Maha Kumbh Mela, the sheer magnitude of the event comes into focus. Imagine a sea of humanity, each individual contributing to the vibrant mosaic of faith and devotion. In this awe-inspiring spectacle, the silent heroes are the advanced waste management technologies working tirelessly behind the scenes. Like unsung conductors of a grand symphony, these innovations ensure that every note of cleanliness and hygiene is perfectly in tune.

From high-tech sewage treatment plants to natural purification ponds, each element plays a crucial role in maintaining the sanctity of the environment. This harmonious blend of tradition and technology not only preserves the spiritual essence of the Maha Kumbh but also sets a benchmark for future large-scale gatherings worldwide.

Imagine a bustling city that springs up overnight, teeming with millions converging for a grand spiritual gathering. A 45-day religious event that attracts an estimated 40 crore visitors. The logistical challenge of managing the waste generated each day is staggering. The authorities, however, are not daunted. They have enlisted the help of Indian Space Research Organisation and Bhabha Atomic Research Centre (BARC), two of India's premier scientific institutions, to tackle this Herculean task.

The scale of waste generation at the Maha Kumbh is mind-boggling: nearly 16 million litres of faecal sludge and 240 million litres of greywater every day, and massive solid waste from millions of pilgrims. Managing this requires sophisti-



cated solutions, and that's where advanced technologies come into play

One of these is the Hybrid Granular Sequencing Batch Reactor (hgSBR), developed through an Isro-BARC collaboration. Imagine a high-tech washing machine, but instead of cleaning clothes, it treats sewage. This technology will be used at three prefabricated Faecal Sludge Treatment Plants (FSTPs), efficiently processing human waste and ensuring that the environment remains clean and safe.

Another innovative technique is Geotube Technology. Think of it as a giant tea bag which holds and treats large volumes of liquid waste. This technology helps in the containment and treatment of waste, ensuring that only clean water is released

back in the environment.

Bioremediation is another fascinating approach being used at the Maha Kumbh. Picture a series of large ponds, each teeming with beneficial microorganisms that break down pollutants and cleanse the water. This natural and environment-friendly method will be applied to greywater collected in approximately 75 large ponds, ensuring the water is treated effectively and safely.

The Uttar Pradesh govt has shown significant commitment to waste management, with a total Maha Kumbh budget of Rs 7,000 crore. Rs 1,600 crore is dedicated to waste and water management, and Rs 316 crore is specifically allocated for open defecation free (ODF) infrastructure. This financial and infrastructural

commitment underscores the importance of maintaining hygiene and sanitation during the event.

The technologies being deployed aim to mitigate several critical environmental concerns. They prevent river water contamination, reduce potential health risks from waste and sewage, and minimise the ecological footprint of the massive gathering. The operational strategy for waste management includes reducing manual handling to a minimum, emphasising source-level waste segregation using advanced technological interventions, and implementing strategic disposal mechanisms.

Additional preparatory measures include the installation of 1.45 lakh portable toilets, the deployment of a number of sweepers for continuous cleaning, the establishment of sufficient medical facilities, and a comprehensive waste collection and management infrastructure. These advanced technologies represent a paradigm shift in managing large-scale religious gatherings. They offer environmentally sustainable waste management, reduced health risks, minimal ecological disruption, and efficient resource utilisation. Maha Kumbh 2025 stands as a testament to India's technological prowess in managing complex logistical and environmental challenges associated with massive religious congregations. It stands as a shining example of how technology and tradition can come together to create a cleaner, healthier future for all.

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## PM Narendra Modi's Stellar Start to 2025: Transforming Vision into Reality in Just 15 Days

Prime Minister Narendra Modi has begun 2025 with a flurry of transformative initiatives, demonstrating his vision for a progressive, self-reliant, and united India. From advancing infrastructure and scientific research to empowering youth and celebrating India's cultural diversity, his leadership has set the tone for a remarkable year ahead.

The year began with a strong focus on the welfare of farmers during the first Cabinet meeting of 2025. The government approved the extension of a one-time special package for Di-Ammonium Phosphate (DAP), ensuring affordable fertilizer prices for farmers. This decision highlights the government's commitment to strengthening India's agricultural backbone. On the same day, PM Modi met cultural icons such as singer-actor Diljit Dosanjh and chess grandmaster Koneru Humpy, underscoring his focus on promoting arts, sports, and excellence across fields.

On January 3, PM Modi handed over 1,675 newly constructed flats under the In-Situ Slum Rehabilitation Project in Delhi, ensuring better living conditions for thousands of families. He also laid the foundation stones for three transformative educational projects worth over ₹600 crore, including the Eastern Campus at Surajnali Vihar, Western Campus at Dwarka, and the Veer Savarkar College in Najafgarh. These projects aim to enhance educational infrastructure and inspire future generations.

The government's commitment to rural development took center stage during the Gramen Bharat Mahotsav on January 4, promoting GI-certified village products and boosting rural

economies. This initiative aligns with the goal of empowering rural India and integrating it into the global economy. Meanwhile, PM Modi engaged with global tech leaders, including Microsoft CEO Satya Nadella, who announced a \$3 billion investment in AI infrastructure in India. These discussions focused on fostering indigenous innovation and creating a self-reliant tech ecosystem.

Infrastructure projects gained momentum with the inauguration of the Namo Bharat Train Corridor on January 5, connecting Sahibabad to Ashok Nagar, and multiple rail infrastructure developments in Odisha, Telangana, and Jammu & Kashmir. These projects symbolize India's rapid progress in modernizing transport networks under PM Modi's leadership.

On January 7, PM Modi launched two landmark projects in Andhra Pradesh: the Bulk Drug Park, a ₹1,877 crore initiative to reduce dependency on imported pharmaceutical ingredients, and the Green Hydrogen Hub, aimed at producing 1,500 tonnes of green hydrogen per day. These efforts position India as a leader in renewable energy and pharmaceutical manufacturing.

A significant step forward in science came with the inauguration of the Genome India Project on January 9, which will map the genetic diversity of Indians and advance healthcare solutions for genetic disorders. On the same day, PM Modi addressed the Pravasi Bharatiya Divas Convention in Bhubaneswar, celebrating the achievements of the Indian diaspora and their contributions to the global stage.

On January 12, PM Modi participated in the Viksit Bharat Young Leaders Dialogue, coincid-

ing with National Youth Day and Swami Vivekananda's Jayanti. This initiative united young innovators and achievers to exchange ideas and envision a developed India, reaffirming the government's commitment to empowering youth.

On January 13, PM Modi inaugurated the Sonamarg Tunnel in Jammu & Kashmir, improving connectivity and boosting tourism while enhancing national security. He personally interacted with workers and engineers, expressing gratitude for their efforts. That evening, he celebrated Lohri, Pongal, and Makar Sankranti with diverse communities, emphasizing India's cultural unity and heritage. By January 15, PM Modi reached another milestone with the commissioning of advanced naval combatants, including new ships and submarines, reflecting India's growing maritime capabilities. These additions strengthen India's position as a dominant force in the Indian Ocean and are a testament to the government's commitment to Aatmanirbhar Bharat in defense.

On January 16, PM Modi's vision for India's space program reached another milestone with the successful demonstration of space docking of satellites completed by ISRO. This is a significant stepping stone for India's ambitious space missions in the years to come.

In just 15 days, PM Modi's leadership has delivered a transformative beginning to 2025. From scientific breakthroughs and infrastructure projects to youth empowerment and cultural celebration, his actions reflect a vision of a Viksit Bharat. As PM Modi said, "Together, we are shaping a developed India, where every citizen plays a vital role in building a brighter tomorrow."

## Communication and Agricultural Development

■ DR BANARSI LAL

Agriculture is the main stream of Indian economy. It directly regulates the growth of economy. The main occupation of rural people is agriculture. As the scope for bringing more area under cultivation is limited, the only possible way to increase the yield through the adoption of new and improved agricultural practices and techniques, so as to meet out the long term food grain requirement of the country. The Indian agriculture sector faces numerous challenges, inadequate allocation of resources, weather fluctuations, fragmented land holdings, post-harvest losses etc. Lack of knowledge, skills and education among the farmers is also a gap that needs to be addressed. Arming the farmers with tools that keep them up to dated about market trends and weather predictions, animal health, soil health, irrigation needs etc. can help to alleviate a lot of these issues. The present age has been rightly termed as an 'information age'. Information plays an immense value in our society. Information has become an integral part of our daily life. Now people want adequate and authentic information as early as possible. The mass media namely newspaper, radio, television etc. are catering to this important need of people. For the rapid and overall development of a country it is must that the citizens of that country are well versed with the happenings around them. Development information and technologies generated for the farmers are of no use unless these reach to the ultimate users. It has been estimated that only about 30 per cent of the technologies are being received and used by the farmers. It is further added that the technologies generated today reach to the entire ultimate users in about 20 years.

Communication plays the significant role to make any organisation successful. It is a vehicle on which the basic functions are carried out either national or international. It is the core activity of human association in general and progress as well as development in particular. No human life can exist in isolation. A man can survive only in society and the survival in society is possible with communication. Therefore, communication is identified as the oldest continued activity of human being since birth and goes on and on till death. More precisely, communication is the basic need of human beings and web of society which makes the survival, growth, progress and development of man possible and holds the society intact and progressive. To sum-up, communication is a vital part of personal life in the society. It is equally important in business, education, civilization, administration and other situations where people encounter with each other to satisfy their needs and wishes.

Communication is the vital aspect to change the behaviour of the receiver. As a matter of fact, no executive can be successful without communicating effectively with his superiors or subordinates. Messages could be in the form of words, symbols, signs, letters or actions. The importance of communication has been greatly emphasized by all the management experts. Communication is like a part of an individual's life as well as organizational existence. Its importance is self-explanatory and is having common experience of all as well. Communication maintains and animates the life. It is also a motor and expression of social activity and civilization. It leads people from instinct to inspiration, through process and system of enquiry, command and control. It creates a common pool of ideas, strengthens the feeling of togetherness through the exchange of messages and translates through into action. As the world has advanced, the task of communication has become more complex. However, unless some basic structural changes are introduced, the potential benefits of technological and communication development will hardly be put at disposal of the majority of mankind. The exten-

sion/communication/dissemination system and network is the key input in increasing the performance in agricultural production. Therefore, the communication is the most powerful input which brings substantial development in socioeconomic status of an individual.

Agriculture is an ancient profession. For all round development in agriculture, the communication process also plays significant role. Without proper communication farmers are unable to describe their problems. Present Indian extension system is under numerous pressures where the extension workers, have to cater not only vast population but also to perform administrative, election, input supply and other works. Under these circumstances, it is not practically possible to serve all the farmers, all the time for all the problems when ratio of extension worker and farmer; the sender and receiver is more than 1:1000. Therefore, the potential of mass media can be exploited to serve the rural population in this direction.

Electronisation and mechanization in communication systems have provided opportunity to access the information rapidly, accurately and repeatedly. To reach the unreachable modern electronic gadgets and systems have been introduced to cope-up the requirements. The government of India has realized the need and utility of these electronic equipments for rural population. Therefore, massive programmes of cyber extension, digital interactive distance learning, online networks, computers aided multi media, internet and free online telephones etc. have been launched for the farmers. Some of the major extension technology systems and approaches are being used presently like kisan call centre (1800-180-1551), Cyber Extension, ATIC, computer-internet connectivity etc.

The use of present extension and communication technology system is based on the initiative of the farmers-the receiver itself. This is possible only when the farmer is conversant with the knowledge of handling system, approach etc. about present communication technology system as well as the positive attitude towards the system. In view of the progressive farmers, its use is judicious as they have high level of positive communication behaviour has resulted the desired results in their agricultural profession. As far as the farmers of U.P., Bihar and backward areas are concerned they are traditionalist-hardliners and shy in nature with lack of communication behaviour. They hesitate to ask recent informations. The reason of lack of communication behaviour is not only because of their personal weaknesses but there are number of constraints which come in the way and restrict them to make use of extension personnel and communication channels. Communication in agriculture is not only to inform and create an awareness among the farmers but also to implement new ideas that change the mode of farming. Village extension workers (VEWs) inform the farmers about the new technologies, but they are not keeping pace with the advancement of technical know-how. Secondly, the message has to travel through many stages from its source to the ultimate users. Due to this hierarchical transfer sometimes it loses its meaning and originality. Different groups of villages are likely to respond to the same programme in different ways what is more, even a programme geared to the requirements of a specific group of people may fail to get them involved because of rural realities. To make the farming community enlightened and better skilled in the use of improved management practices, fast communication and efficient devices are required to break through the message effectively so that the farmers can be convinced to adopt the technologies.

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## Indian Cricket at the cross roads

■ MANMOHAN DHAR

Indian cricket is at a very crucial juncture in its rich history. With the ongoing evolution of the sport, rapidly changing global dynamics, and increasing demands of the modern game, Indian cricket finds itself standing at a crossroads. The decisions made today will shape the future of the sport in the country, and their impact could be far-reaching-both domestically and internationally.

Over the past two decades, the landscape of world cricket has undergone a drastic change. The advent of the Indian Premier League (IPL) in 2008 hinted the rise of T20 cricket, which has since dominated the global cricket. The IPL's commercial success revolutionized cricket's business model, attracting sponsorships, media rights, and an international audience like never before. Indian cricketers have enjoyed newfound wealth, fame, and opportunities, but it has also created a divide between formats, with Test cricket-once the pinnacle of the sport-often taking a backseat to the fast-paced excitement of T20 leagues.

The shift in focus toward T20s has had far-reaching consequences. While India's dominance in limited-overs formats continues, their performance in Test cricket has been inconsistent. This shift raises the question: Has the passion for the longest format been replaced by the instant gratification offered by T20s?

Indian cricket is one of the most scrutinized in the world, and with good reason. The nation's cricketing history and the vast commercial ecosystem built around the sport create immense pressure on players and administrators alike.

A successful career in Indian cricket is synonymous with unrelenting expectations. While this fosters a culture of excellence, it can also lead to burnout, inconsistent performances, and poor mental health among players.

The relentless demand for victory, particularly in world events such as the ICC Cricket World Cup, has intensified. The pressure surrounding the national team has led to criticism of captains and players when results do not meet expectations, especially in high-profile tournaments like the ICC T20 World Cup, where India has struggled in recent years.

Leadership in Indian cricket has undergone a transformation in the last decade. While each one of them has brought his own approach to leadership, the debate over the role of the captain and the head coach has become a point of contention.

Furthermore, the rise of foreign coaches and the increasing influence of data analytics have complicated the role of the coach, leading to some questioning whether the traditional methods of Indian cricket administration are keeping pace with modern-day demands.

India's domestic cricket struc-

ture has often been lauded for its depth, with numerous players emerging from various regional competitions like the Ranji Trophy, Syed Mushtaq Ali Trophy, and Vijay Hazare Trophy. However, with the success of T20 leagues like the IPL, there is a growing concern that the traditional domestic cricket is losing its relevance. The influx of foreign players and the overwhelming attention given to IPL franchises often overshadow the importance of domestic cricket, particularly in the longer formats.

The BCCI's challenge lies in striking a balance between nurturing talent through these traditional pathways while embracing the excitement of the IPL. The two-fold problem is clear: on one hand, India's domestic cricket needs to regain its importance to serve as a platform for young talent; on the other hand, the IPL continues to serve as a springboard for talent and offers financial rewards that domestic cricket cannot compete with.

In the modern game, fitness has become one of the most significant aspects of a cricketer's career. With the rise of the fitness-conscious era, there has been an increasing emphasis on players' physical and mental well-being. However, this demand for constant fitness and performance has also led to increasing concerns about player burnout. Injuries are a significant issue, and with the packed cricket calendar that India faces,

players often find themselves fatigued, leading to frequent breaks and rotations.

Mental health, too, has gained attention in recent years. As India's cricketing calendar becomes more hectic, managing the mental and physical health of players will be just as important as their on-field performances.

As Indian cricket stands at the crossroads, the key lies in finding a balance between tradition and modernity. The country's cricketing giants need to embrace the evolving nature of the game, while not losing sight of the rich legacy that has propelled them to the top of world cricket. The challenge for administrators, coaches, and players alike is to navigate this changing landscape while preserving the essence of the sport that has made Indian cricket so special.

At the same time, Indian cricket must look beyond its traditional strongholds of the IPL and one-day cricket and continue to strengthen its Test and international stature. India's future in cricket will depend on nurturing talent across all formats, promoting inclusivity and diversity within the team, and addressing concerns about player welfare. Indian cricket is at a pivotal moment. With the right leadership, foresight, and strategic planning, the sport can continue to thrive, ensuring that future generations inherit a legacy as rich as the one the nation enjoys today.