

Raman) established his experimental

# **EDITORIAL**

## NEW ERA OF PROGRESS

→ammu and Kashmir (J&K) has witnessed remarkable progress in recent years, with infrastructure, economy, education, healthcare, and employment opportunities expanding at an unprecedented pace. The government's strategic policies and sustained efforts have brought about transformative changes, paving the way for prosperity in the

One of the most visible aspects of J&K's development is the rapid expansion of infrastructure. The government has undertaken massive road, rail, and air connectivity projects, improving accessibility to even the remotest areas. The construction of new highways, tunnels, and bridges has enhanced connectivity between Jammu, Kashmir, and Ladakh, significantly reducing travel time.

The Chenani-Nashri Tunnel, now called the Dr. Syama Prasad Mookerjee Tunnel, has revolutionized connectivity, especially during harsh winters when snowfall previously disrupted travel. Additionally, the Zojila Tunnel is set to provide an all-weather link between Kashmir and Ladakh, boosting trade and tourism. The Udhampur-Srinagar-Baramulla Rail  $\,$ Link (USBRL) project is another game-changer, promising seamless rail connectivity between Jammu and Kashmir

The upgradation of airports in Srinagar, Jammu, and Leh has facilitated better air connectivity, attracting more tourists and investors to the region. These infrastructural advancements are not only improving daily life but also attracting businesses and creating employment opportuni-

The economy of J&K is experiencing a revival, thanks to policy reforms and government incentives. The New Industrial Policy 2021-30, with an investment package of ?28,400 crore, has attracted investors from across the country. Industrial estates in Kathua, Samba, and Pulwama are being developed to provide a boost to manufacturing, agrobased industries, and IT sectors.

Agriculture and horticulture, the backbone of J&K's economy, are receiving government support through subsidies, technology adoption, and better market linkages. The export of Kashmiri apples, saffron, walnuts, and dry fruits has seen a significant rise, benefiting local farmers.

Handicrafts and handloom, which have been a traditional strength of J&K, are now getting global exposure through ecommerce platforms. The famous Pashmina shawls, papiermâché artifacts, and Kashmiri carpets are being promoted under 'Vocal for Local' and 'One District One Product' initiatives, ensuring better incomes for artisans.

## REMEMBERING C. V. RAMAN, SIR

#### DR. PARVEEN KUMAR

n inspiration to develop scientific thinking, innovation and creativity; the National Science Day celebrated every year on Feb. 28 commemorates Raman Effect given by great India Physicist Sir Chandrasekhara Venkata Raman, also remembered as C.V. Raman. He was an Indian physicist who made big contributions to spectroscopy and optics. He won a Nobel Prize in 1930 for the discovery of the Raman Effect.

Science is indispensible for development of all and progress of nations. Infact it is the essence of a progressive society. The science of today is the technology of tomorrow. As an endaveour towards a systematic and logical study of how the universe works, Science is a dynamic subject based on observation. experiment, and measurement, and the formulation of laws to describe these facts in general terms. Science is one of the greatest blessings to the mankind. It has played a major role in improving the quality of living of the man. Science is omnipresent and omnipotent in every walk of our life. In every inch of our body, science is the protagonist. The different type of science includes Physical Sciences like Physics, Chemistry, Astronomy and Earth science. The Life Sciences deals with the living organisims consisting of Botany and Zoology and Social sciences that deals with studying social processes. Life is unimaginable without all this, as it has become a necessity. Science is valued by society because the application of scientific knowledge helps to satisfy many basic human needs improve living standards. Technology uses scientific laws into various devices and Innovations are perceived as practices, ideas or things that

sector have improved the overall quality of life in the country; the innovations in education sector have improved the literacy level in the country and the innovations in agriculture sector in terms of hvbrid and high yielding seeds, farm machinery and other necessary inputs made the country self sufficient in food grains production. Today, the country is a leading producer of many commodities. All these innovations have been a result of the scientific quest in the country. Considering the importance of Science in every aspect of our day to day life, Feb. 28 is celebrated every year as National Science Day.

History of National Science Day (NSD): This National Day is celebrated in India on 28 February each year to mark the discovery of the 'Raman effect' by Indian physicist Sir C. V. Raman on 28 February 1928. For his discovery, Sir Chandrasekhar Venkat Raman also known as C.V. Raman was awarded the Nobel Prize in Physics in 1930. On this day, he discovered a phenomenon of scattering of photons which was later known as 'Raman Effect' after his name. After two years in 1930 he got Nobel Prize for this remarkable discovery and this was the first Nobel Prize for India in the field of. In his discovery, the effect demonstrated that light can be scattered, carrying valuable information about molecular vibrations. Ever since the discovery, this discovery has become an important tool in medicine, chemistry, physics and material composition and properties. In 1986, The National Council for Science Communication Technology (NCSTC) asked the government to designate Feb. 28 as National Science Day. The most eminent and outstanding are perceived as new by members of Indian scientist (famously known as CV

thesis known as 'Raman Effect' which he declared officially on 28th February in 1928. By this discovery Sir Raman became known for his contribution globally. For this all important discovery, Sir Raman was being bestowed with the world-famous 'Nobel Prize' in 1930 in physics. Sir Raman was also later on respectfully awarded with the 1st 'Bharat Ratna' award in 1954 and was also greatly honoured with the greatest award of Russia' Lenin Peace' in the year 1956. The National Council for Science & Technology Communication (NCSTC) made a proposal to our central government to observe National Science Day every year on 28th February to commemorate C. V Raman's great historic discovery Raman Effect. Thereafter our government agreed to their declaration in 1986 and announced to celebrate National Science Day according to NCSTC's proposal date. Then in 1987 on February 28 the first National Science Day was observed countrywide. He happened to be the first Indian scientist to receive a Nobel Prize in Physics and laid the foundation of modern spectroscopy. The Raman Research Institute was founded in 1948 and he also served as the Director of the Indian Institute of Science, Bangalore.

Theme: Every year the day is celebrated with a particular theme. The celebration of this day usually relate to the theme of the day for the year. This year the National Science Day is celebrated with the theme 'Empowering Indian Youth for Global Leadership in Science and Innovation for VIKSIT Bharat.' The theme is the most appropriate for the present times when the country is having the largest no. of youths, condition referred to as 'Demographic Dividend'

The government of the country is also doing a lot for the empowerment of youth population through various skill development programmes especially designed for the youths of the country. Startups are being promoted all across the country. Many youths have come forwarded with their scientific ideas and with financial support and hand holding from government as well as other agencies have successfully established their ventures and providing employment to many others.

Objectives of this day: The objective of this National Science Day is to inspire scientific curiosity, aware people of our country about science, enhance public understanding of scientific progress and showcase breakthroughs across various fields. It is a day to motivate and inspire children or students to choose science as their career. This national science day is also celebrated to commemorate the contribution of science to the development of our country and to honour scientific excellence as well as pay tributes to all scientists who have honoured the name & fame of our country India globally in the field of science. This day is celebrated by organizing lectures, debate competitions and by conducting many science related programmes to attract and inspire the thirsty students. Students and young researchers can be facilitated to develop new innovative models which can be replicated on a larger scale later on. This day also serves to inspire new generations giving the example of eminent personalities like Homi Jehangir Bhabha, M.S. Swaminathan, Hargobind Khorana, C. V Raman and A. P. J Abdul Kalam who worked all throughout their life to ensure how science can be best exploited

(The author writes on agriculture and social issues)

## Exploring National Science Day

#### DR RAKESH VERMA

-ational Science Day, celebrated on February 28th each year in India, marks a significant event in the annals of Indian scientific progress. The day commemorates the remarkable achievement of Sir C.V. Raman, who discovered the Raman Effect in 1928. This discovery, which explains how light interacts with matter, played a pivotal role in the advancement of molecular spectroscopy and has had lasting implications in physics, chemistry, and related fields. The Indian Government officially declared February 28th as National Science Day in 1986. The decision was aimed at inspiring a scientific temper among the populace and fostering awareness about the importance of science in everyday life. This initiative also highlights the role of scientific education and encourages innovation, particularly in developing sectors within India.

Significance of the Day

National Science Day serves multiple pur-

▶ Promoting Scientific Learning: The day acts as a platform to emphasize the importance of scientific education across different

▶ Encouraging Youth Participation: By various programs and exhibitions, it aims to spark interest in scientific careers.

▶ Highlighting Contributions to Science: Celebrating figures like Sir C.V. Raman not only honors individual achievements but also serves as inspiration for future generations.

### Relevance to the Scientific Community

This annual observance is crucial for reinforcing the contributions of science to society, enhancing the public's understanding of scientific endeavors, and facilitating scientific literacy. Events organized on this day include seminars, presentations, and competitions, all designed to cultivate interest and enhance discussions around science-effectively nurturing a culture of inquiry and innovation within communities. By setting aside a day dedicated to science. India acknowledges its scientific heritage while fostering a forwardlooking approach to the myriad challenges presented by the future.

### Milestones Leading to the Establishment of

National Science Day National Science Day's inception can be traced back to significant milestones in Indian science, particularly during the late 19th and early 20th centuries. This period pioneering Indian scientists like Jagadish Chandra Bose and C.V. Raman contributing to foundational theories in various disciplines. The landmark discovery of the Raman Effect not only demonstrated India's scientific capability but also highlighted the importance of native contributions to global science. In 1986, when National Science Day was formalized, it marked a pivotal moment in science communication in India. The aim was clear: to honor C.V. Raman's contributions while simultaneously igniting interest and engagement in science across diverse populations, especially the youth.

### Impact on Society and Education

The observance of National Science Day has profound implications for scientific education and societal advancement. Some key impacts

Promotion of Scientific Literacy: By organizing events such as workshops, seminars, and exhibitions, this day fosters an environment where scientific concepts are demystified for the general public. This emphasis on accessibility encourages wider participation from all age groups.

Encouragement of Innovation: With the focus on current scientific challenges, stu-



dents and researchers are motivated to engage with real-world problems. This has led to an increase in research initiatives aimed at solving pressing issues facing communities, narticularly in regions like Jammu & Kashmir.

Highlighting  $\mathbf{Indian}$ National Science Day helps promote awareness of India's scientific achievements on a global platform. By showcasing domestic inventors and innovators, the country gain recognition that encourages further exploration and investment in scientific research.

Fostering a Culture of Inquiry

In celebrating National Science Day, India cultivates a culture that values inquiry and critical thinking. The day emphasizes that science is not just a discipline confined to laboratories; it is a field that intersects with daily life and societal development. Notably, educational institutions actively participate in this celebration, creating projects that examine local scientific issues-thus promoting an experiential learning approach that resonates strongly with students. Overall, National Science Day has evolved into an essential catalyst for scientific discourse and engagement within India, underlining the critical need for continued investment in science education as a tool for national develop-

### Celebration of National Science Day

National Science Day is marked by a host of events and initiatives across India to engage individuals in the exploration and appreciation of science. Communities, educational institutions, and various organizations come together to celebrate the significance of this day, which aims to stimulate scientific curiosity and foster innovation.

**Events and Programs** School Participation

Schools play a vital role in energizing the

celebration of National Science Day. Activities typically include:

Science Exhibitions: Students present projects that demonstrate scientific principles, often incorporating local issues or interests. These exhibitions encourage collaboration and teamwork among students while providing a public platform for showcasing their

ingenuity. Debates and Quizzes: Engaging students in intellectual challenges enhances their understanding of scientific concepts. Various institutions conduct science-themed debates and quizzes that promote critical thinking and research skills.

Workshops: Schools may organize workshops led by local scientists or teachers, facilitating hands-on experiences in areas like chemistry, physics, or environmental science. This active participation helps students connect theoretical knowledge with practical

University Involvement

Higher education institutions also contribute significantly to the celebration by hosting events such as:

Seminars and Lectures: Universities often invite distinguished speakers in the field of science to share insights and inspire students. Topics can range from advancements in technology to discussions on the ethics of scientific research.

ResearchInnovative Presentations: Students and researchers are encouraged to present their work, fostering an environment of collaboration and peer learning. This interaction provides opportunities for networking among budding scientists and established professionals.

Public Demonstrations: Some universities organize public demonstrations or science fairs that invite the community to experience exciting scientific experiments. This outreach helps bridge the gap between academic research and public understanding.

### Community Engagement

National Science Day transcends educational institutions, extending to local communities through various initiatives:

Awareness Campaigns: Organizations may launch campaigns to raise awareness about scientific issues, encouraging local discussions on topics like climate change, health, and technology.

Science Clubs and Societies: Grassroots organizations often host events that welcome people of all ages, presenting experiments, and interactive Community-based science clubs help sustain interest in science and technology throughout

Competitions: Various levels of competitions, including essay-writing contests or project competitions for students, aim to instill a sense of achievement and recognition in scientific endeavors. They also foster enthusiasm and creativity.

### Focus on Jammu and Kashmir

In regions like Jammu & Kashmir, celebrations take on additional significance due to socio-political challenges. Local initiatives often emphasize:

Scientific Solutions for Regional Issues: Events may focus on scientific approaches to tackle regional challenges, such as water resource management and sustainable agriculture, making science relevant to daily lives.

**Empowerment of Youth:** Special emphasis is placed on youth engagement through workshops and training sessions that empower young people with scientific knowledge and skills, paving the way for future research and innovation. Overall, the celebration of National Science Day serves not just as a day to honor scientific accomplishments but as a catalyst for widespread participation, education, and partnership across diverse sectors in

#### The Role of National Science Day in Social Landscapes

National Science Day plays a crucial role in shaping the social landscapes of India by promoting a scientific temper and driving technology innovation, particularly in regions like Jammu and Kashmir. The observance serves not only to celebrate scientific achievements but also acts as a platform for raising public awareness about contemporary scientific issues that affect everyday life.

### Promoting Scientific Temper

One of the primary objectives of National Science Day is to nurture a scientific mindset among the general populace. This is achieved through various initiatives aimed at disseminating scientific knowledge and fostering critical thinking.

Scientific Literacy: Events organized aroun National Science Day contribute to enhancing scientific literacy. This involves not only imparting knowledge but also encouraging individuals to engage critically with scientific information.

Cultural Shift: The promotion of a scientific temper instigates a cultural shift, making science a part of public discourse. Communities begin to appreciate the relevance of scientific thinking in addressing societal challenges, fostering discussions that go beyond academia.

Technology Innovation and Community Development

National Science Day also emphasizes the importance of technology in community development. The collaborations between academic institutions, local governments, and industries come alive on this day, focusing on innovative solutions to pressing issues. In Jammu and Kashmir, for instance, initiatives often focus

Sustainable Technologies: Discussions and presentations often highlight sustainable practices and technologies that can improve agriculture, water management, and healthcare. This is particularly essential in regions severely affected by geographical and political chal-

Local Innovations: Young inventors and thinkers are encouraged to present their projects, showcasing local innovations tailored to solve community-specific problems. This not only bolsters local initiatives but also instills a sense of pride in collaborative scientific efforts.

### Public Awareness of Scientific Issues

National Science Day also plays a pivotal role in cultivating awareness of ongoing scientific issues among the public. This is achieved

Workshops and Seminars: Educational institutions and community organizations frequently organize workshops and discussions that tackle pressing scientific questions.

Engaging Local Communities: Projects designed around local concerns help raise awareness about topics such as climate change, health, and technology. This localized approach ensures that scientific discussions are relevant to the daily lives of community members.

### Implications for Jammu and Kashmir

In Jammu and Kashmir, where socio-economic challenges are acute, National Science Day has additional implications that help bridge gaps in scientific access and engagement. The focus on this particular region often

**Empowerment of Youth:** Empowering the youth through science and technology education is a focal point. Workshops that target young students yield long-term benefits by equipping them with the skills necessary for future careers in science and technology.

Targeted Solutions: National Science Day initiatives engage communities in finding scientifically backed solutions to region-specific problems, like pollution or water scarcity. The involvement of local scientists in these discussions encourages collaboration between acade-

mia and the community. Civic Engagement: By making scientific knowledge accessible and engaging, National Science Day fosters civic engagement that elevates community involvement in governance and policy-making related to science and edu-

Case Study: Impact on Jammu and Kashmir National Science Day serves as a significant catalyst for scientific engagement in Jammu and Kashmir, a region characterized by unique

socio-economic challenges. The celebration of this day not only commemorates scientific achievements but also addresses local scientific issues and empowers the community partie ularly the youth.

Local Initiatives and Participation Rates In Jammu and Kashmir, National Science Day celebrations involve a variety of local initiatives aimed at bridging the gap between scientific knowledge and community needs. Key activities include:

Workshops and Training Sessions: Educational institutions and NGOs conduct workshops tailored to the region's specific challenges, such as sustainable agriculture, environmental conservation, and water resource management. These sessions engage students and local scientists in hands-on activities, enhancing both understanding and practical application.

Science Fairs and Exhibitions: Local science fairs provide a platform for students and researchers to present projects that address local issues. This boosts participation rates among schools, with many students eager to showcase their innovative solutions and cre-

Public Awareness Campaigns: Organizations often engage in community-based campaigns to raise awareness about scientific issues pertinent to the social landscape of the region, such as climate change and public health challenges. Activities include distributing informational pamphlets and organizing discussions in community centers.

### Unique Challenges and Opportunities

While the celebration of National Science Day brings substantial benefits, it also faces unique challenges in this region:

Access to Resources: Many schools and local organizations struggle with limited resources to conduct large-scale events. However, this has led to creative collaborations between institutions, such as joint workshops benefit-

ing from shared expertise and materials. Cultural Sensitivity: Activities must take into account the region's diverse cultural contexts, which sometimes affects public participation. Addressing community concerns about scientific topics allows for meaningful engagement, fostering a greater appreciation for sci-

Youth Empowerment: National Science Day initiatives particularly focus on empowering local youth by cultivating skills necessary for careers in science and technology. This aim is crucial to the region's future, illustrating how scientific literacy can lead to sustainable community development.