CSIR IN MEDIA

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NEWS BULLETIN
11 TO 15 JANUARY 2022

Webinar On "Balanced Nutrition Through Microbial Food Additives" Held At CFTRI

CSIR-CFTRI, IHBT

14th January, 2022

Mysore/Mysuru: In its series of activities on Azadi ka Amrit Mahotsav to commemorate 75 years of Independence, CSIR-Central Food Technological Research Institute (CSIR-CFTRI), Mysuru, had organised a webinar on "Balanced nutrition through microbial food additives" on Monday (Jan.10). The core ideology behind this webinar was consumption of safe microbial food, products from microbial fermentation, microbial metabolites as nutrition, fermented foods and their benefits, and mushroom production by zero-waste technology.

The event was inaugurated by Dr. Sridevi Annapurna Singh, Director, CSIR-CFTRI, Mysuru, by lighting the lamp. Speaking on the occasion, the Director said that though we have a high crop production, it is not sufficient to meet the demands of the population. Food-grade Microorganisms are a better alternative as they require less water and land than crops and have lowered ethical issues.

Dr. Prakash Halami, Head of the Microbiology and Fermentation Technology Department, CSIR-CFTRI and other staff members were present. Professional experts working in microbiology from reputed universities and research institutes delivered invited lectures.

While briefing about the program, Dr. Prakash M. Halami, Head, MFT Department, said that theme of the Webinar is apt as it addresses a highly relevant issue of nutritional security. A balanced diet is a key to healthy living. He also discussed that due to urbanisation, the consumption of traditional fermented food had been reduced, leading to several lifestyle

diseases in India. The inclusion of food-grade microorganisms in our diet can enrich the nutritional value of the food and can be a potential solution to many disorders, including malnutrition.

The lecture session started with Dr Gayathri Devraja, Professor, Microbiology Department, Davangere University, Davangere. She emphasised use of Lactic acid bacteria to solve celiac disease because they enhance the epithelial barrier and destroy multiple epitopes on gliadin.

Dr. K. Sumana, Assistant Professor, Department of Microbiology, JSS Academy of Higher education & Research, Mysuru, stressed how microorganisms are a rich source of dietary lipids, amino acids, ethanol, organic acids, hormones, enzymes and antibiotics.

The talk given by Dr. Subrota Hati, Assistant Professor, Dairy Microbiology department, Kamdhenu University, Gujarat, addressed the anti-hypertensive and antioxidative compounds in camel and goat milk fermented with potential lactic cultures.

Dr. Amit Kumar Rai, Scientist C, Institute of Bioresource and Sustainable Development, Imphal, mentioned the bioactive peptides and their importance in fermented foods.

The fifth lecture by Dr. Rakshak K. Acharya, Scientist, CSIR-Institute of Himalayan Bioresource Technology, Palampur, discussed the cost effective production of Shiitake mushroom using the waste generated in the industries. Stimulating panel cum group discussion session was conducted, where all the participants who attended the event online and offline were given the opportunity to question the eminent speakers.

The webinar focused on the ongoing research and technological advancements the world is witnessing concerning malnutrition and food safety. The webinar also provided an opportunity for the young Indian scientists and students working in scientific labs and Institutions to interact with the experts who delivered the lectures during the event.

More than 300 participants throughout the country had registered for the online webinar and will be receiving e-Certificates. The event was conducted on MS Teams and was streamed live on Youtube (CSIR CFTRI).

MFT Department staff Dr. Praveena Bhatt, Dr. Mohan A. Dhale, Dr. M. V. R. K. Sarma, Dr. Swaroopa Rani, Dr. Mahejibin Khan, H.N. Punil Kumar and Dr. C. Roopavathi and others showed their active participation in conducting the webinar sessions.

Published in:
Star Of Mysore

NCL scientists develop novel technique to indigenously produce polymer used in packaging industry

CSIR-NCL 14th January, 2022

A polymer that is widely used in the packaging industry, and is presently imported, will soon be made indigenously using a novel technique developed by scientists of CSIR-National Chemical Laboratory (NCL).

It is for the first time that this polymer has been successfully developed in India. Scientists say that the polymer, as an additive, can better mould, strengthen and allow high-performance plastics to be shaped into desired forms.

The polymer development technique was Thursday licensed out to SKYi Innovations LLP that manufactures Long Fiber Thermoplastics (LFT).

"Two or three specific commercially available raw materials are used to obtain the polymer, which is hyperbranched. The side products, too, after the chemical process, are later used in the making of other chemicals and can be recycled," said Ashootosh Ambade, Principal Scientist at the Polymer Science and Engineering Division. His team has been working on this technique for the past four years.

"This polymer is also commonly used in the automotive industry where high-performance plastics are utilised," added Ambade.

Published in:
Indian Express

No reagent for genome check in 1 of 2 labs in West Bengal, supply next week

CSIR-IICB

14th January, 2022

KOLKATA: One of Bengal's two institutes that can track mutants or variants of the SARS-CoV-2 virus has run out of reagents and is expected to resume its genome sequencing activities next week when supplies resume. Sequencing work has been stalled at the laboratory of the Council of Scientific and Industrial Research-Indian Institute of Chemical Biology (CSIR-IICB) Kolkata for about three weeks now. The last samples it tested was on December 24. The lab at Salt Lake, however, hopes to get its reagent supply by Monday.

"We want to resume our genomic sequencing activities as early as possible. Hopefully, the reagents should reach us in the next few days enabling us to resume our work by early next week. Genome sequencing has become all the more important so that we can keep an eye on emerging variants or mutants of the virus," said CSIR-IICB director Arun Bandyopadhyay.

The IICB, which had been conducting genome sequencing since the beginning of the pandemic for academic purposes, was recently brought under INSACOG (Indian SARS-CoV-2 Genomics consortium) to scale up sequencing for surveillance as the number of samples that needed to be analyzed swelled. Its lab can run 100 smaples in 48 hours.

The National Institute of Biomedical Genomics (NIBGM) at Kalyani, a nodal unit for genome sequencing in eastern India, was part of the consortium right from the beginning. The NIBMG Kalyani came under huge pressure last month when the Bengal government decided to sequence all Covid positive samples that had CT value within 30 to determine if Omicron had spread in the community. The health department then started sending samples to IICB through the School of Tropical Medicine. Currently about 100 of these samples are waiting to be sequenced.

Published in:
Times Of India

Omicron is driving 3rd wave, but don't use other countries' data for Indian trends: CCMB chief

CSIR-CCMB 14th January, 2022

Hyderabad: The Omicron variant has been driving the current third wave of Covid-19 infections, but data should not be extrapolated from other countries to explain trends in India, Centre for Cellular and Molecular Biology (CCMB) director Vinay K. Nandicoori has said.

In an interview to ThePrint, the chief of the Hyderabad-based institute, under the Council of Scientific And Industrial Research (CSIR), said data extrapolation would not be effective as it reacts differently from one population to another. A lot of factors — such as population, infection rate and the number of people vaccinated — are different in every country, Nandicoori said.

He also spoke about the need for 'hybrid immunity' studies to assess the exact level of protection against Covid variants among the population, and stressed that the population must learn to live with the virus, which is likely to stay around, similar to the virus from the Spanish Flu pandemic from 1918-1921.

Surge 'completely because of Omicron'

The Omicron variant was first identified in South Africa. It resulted in a massive surge across several countries, including the United Kingdom, but is said to have been a 'milder' infection resulting in fewer hospitalisations.

India has seen a big jump seen in infections over the last three weeks. On Wednesday, the country reported 2.5 lakh cases in the biggest single-day jump since the pandemic began. Nandicoori highlighted that the Omicron variant is five times more infectious than the Delta variant, adding that it is crucial right now to figure out how new waves are coming. "The Omicron as a variant spreads five-fold faster than Delta. It is not that easy to avoid it. Spread is inevitable anytime a wave comes," he said.

"I think the surge seems to be coming because of Omicron. So, right now, figuring out whether it is Omicron or not is not as important as figuring out how new surges are coming. What kind of additional mutations Omicron may have acquired," he said.

"Genome sequencing efforts should continue to track the variants that may emerge at a later point of time. As far as Omicron sequencing, that may not be very essential because Omicron is almost there in all of India right now. I think the surge is completely because of Omicron," Nandicoori added.

mRNA vaccine

CCMB, in collaboration with CSIR-Indian Institute of Chemical Technology, also in Hyderabad, is working on an mRNA vaccine. Amid talks around these vaccines, the CCMB director said the institute's vaccine will "take time" and won't help immediately. But the learning in the process of making it will help in the future.

"At this point, we know how to produce mRNA, how to package it into lipids. But these are all done at a laboratory level. They are not done at anything bigger than that. First thing is to be successful in injecting this into the mice and getting an immune response. This process of learning of mRNA vaccine with respect to SARS-CoV-2 would help us for the future, not immediately for now," Nandicoori said.

Hybrid immunity

According to Nandicoori, studies on 'hybrid immunity' — protection in people who got infected with the virus and then got vaccinated — is the only way to detect the kind of population getting infected in every wave.

Quite a lot of people in India have hybrid immunity, the CCMB director said. Asked about the pattern of people getting infected in each wave and those who escaped the first two waves but have been infected in the third, Nandicoori said it would only be possible to assess the pattern using the hybrid immunity study.

"Without a proper hybrid immunity study where you actually divide the population into four parts — unvaccinated, vaccinated, infected, infected and vaccinated — it is difficult to pinpoint and say which gives better protection," he added.

"So, an infected and vaccinated person actually has three doses in one sense. Infection, followed by two rounds of vaccination. Hybrid immunity, three rounds of vaccination versus two rounds of vaccination — these studies have to be done and in a systematic way," he said. "For the study, the patient's metadata has to be taken into consideration. Their age, comorbidities etc. Once we get the data, we can look into the antibody response," Nandicoori added.

Omicron and vaccination

Despite lower reported hospitalisations due to the Omicron variant, the CCMB director advised caution, asking people not to take the variant lightly as the infections are high and "people are still dying of Omicron".

Allaying fears of whether vaccination would ensure protection against Omicron or other variants in the future, Nandicoori said the existing vaccination may not be very effective in neutralising Omicron, but it would definitely reduce the severity of the illness. He also stressed that vaccination is extremely important at this stage and booster shots are just another layer of protection.

"Consider the UK's case. When Delta came to India, our vaccination numbers were quite low. But the UK already had higher vaccinated people, so the wave that came last year in the UK, the death rate was lower compared to before. Which was not the case in our country," he said.

Vaccination is very important because even though antibodies in vaccines that are against the spike protein of the virus may not be as effective in neutralising Omicron as in case of other strains, what's important is there is T-cell immunity. So, in future, if your body has seen one form of spike protein, it will eventually be able to lower the severity of illness. So, people should get vaccinated, he said.

Citing research papers from South Africa and other countries, the CCMB director pointed out how the studies show "death rate, oxygen dependency, ventilator requirement" among those hospitalised due to Omicron is lower compared to the Delta variant-infected people.

"At the end of the day, some of our population is elderly, with comorbidities. Given all these things, it will take a toll on the population. Death percentage seems to be lower compared to Delta, but people are still dying of Omicron. Also, the number of infections is higher this time," he said.

On learning to live with the virus

Stressing the idea of "learning to live with the virus", Nandicoori said it would be difficult to predict how many more waves the country could see in the future. Asked if the third wave would be the last such, he ruled out the possibility.

"Flu pandemic was between 1918 and 1920 (1921) and even now we get flu. It is likely that over a period of time, the pandemic will take shape and it will start appearing in different parts of the world at different times. It is ultimately going to get converted into something like a flu but the virus is not going anywhere," he said.

"It is going to be around and it is constantly going to evolve… If we are vaccinated, the virus that gets selected for it is the one that can actually evade the antibody response and immune response," he said. "If we have drugs that are treating the virus, it will try to evolve mutations such that it can overcome the inhibition by the drug. That's the way evolution works."

What the CCMB is doing

Ever since the pandemic broke out in 2020, CCMB has been at the forefront of genome sequencing, drug testing, validating testing methods and diagnostic kits, said the institute director. In an earlier interview to ThePrint in December 2020, its then-director Rakesh Mishra had predicted that India might make its own variant, sooner or later, given the population. This was at a time when the Alpha variant cases were on the rise in the UK, where

it was first found. The Delta variant that emerged later was once known as the 'Indian variant'. About 13 per cent of sequencing in India has been done from CCMB.

The facility, which is one of the national laboratories for genome sequencing, is still trying to culture Omicron. The institute has also developed a "primer" that can specifically recognise Omicron, but it is yet to test it on a lot more samples, according to Nandicoori.

"Omicron actually has quite a lot of mutations in spike protein — around 32 to 36 mutations, which is used by the virus to enter us. Because of these mutations, the existing antibodies don't effectively recognise the virus that is coming in. It is not replicating as efficiently, wildly as the previous Delta strain, but if you have other comorbidities, even this much can cause problems," he said.

CCMB is currently also working on different studies, particularly on viral infections, such as a study on various aspects of SARS-CoV-2 virus, what happens when it infects the cells, etc.

Asked about suggestions to escape the virus, Nandicoori stressed the usual — mask up, avoid gatherings and get vaccinated. "The only way to protect ourselves from viruses is shutting ourselves completely but that is not possible. So, these precautions are the only way out," he said.

Published in:
Theprint

Dr Jitendra Singh asks CSIR-NIScPR to come out with innovative ways of science communication

CSIR-NIScPR

13th January, 2022

Union Minister of State (Independent Charge) Science & Technology; Minister of State (Independent Charge) Earth Sciences; MoS PMO, Personnel, Public Grievances, Pensions, Atomic Energy and Space, Dr Jitendra Singh today said, there is need to create mass awareness about new Start-up avenues of job and vocation outside the government sector. He said Sustainable Start-ups with livelihood linkages have revolutionary potential to change the face of New India.

Addressing the 1st Foundation Day of CSIR-NIScPR (National institute of Science Communication and policy Research), Dr Jitendra Singh quoted Prime Minister Narendra Modi as saying, "India is entering a golden age when it comes to start-ups and innovation".

The Minister said that PM Modi is a great communicator of Science and has great scientific temper in promoting start-up culture in a new transformative India.

The Minister asked CSIR-NIScPR to come out with innovative ways of science communication in a country like India which is characterised by the diversity of language, religion, caste and creed. He said, the main aim of CSIR-NIScPR is to bring policy research and science communication together, which has happened from the merger of two well-recognized institutes, CSIR-NISCAIR and CSIR-NISTADS.

Dr Jitendra Singh said that our policy direction is towards building a knowledge-based economy with development of a robust STI ecosystem that can create a new synergy in the

country. The Minister lauded CSIR for helping and promoting Start-ups particularly rural development oriented ones providing huge income avenues to the youth. He expressed satisfaction that India is now the third country in the world with most unicorn Start-ups after the United States and China and hoped that soon India will be at the top slot, the way the innovation culture has caught the imagination of youth in the country. Any Start-up with a valuation of $1 billion or more is called a unicorn, he added.

Referring to Prime Minister's announcement of Digital Health Mission from the ramparts of Red Fort on 15th August, 2021, Dr Jitendra Singh said, focus is also on making our health ecosystem holistic and enabling it to bring our traditional knowledge as part of the health and wellness. He said, the new institute NIScPR is very important in the time of such a transformative change and the Vision and Mission of the institute will help in bridging the gap between science-technology- innovation, policy research and communication.

Dr Jitendra Singh happily noted that the rich legacy of the two institutes which together account for more than 100 years of existence, the new institute NIScPR stands on solid foundations. This was visible in the successful conduct of the 6th India International Science Festival 2020 covering 41 events online during COVID times. This international festival was inaugurated by the Prime Minister of India and the Valedictory speech was given by the Vice President of India. It created 5 Guinness World Records, among them the largest attendance for a virtual science conference.

Dr Jitendra Singh launched the new website of CSIR-NIScPR, CSIR Compendium of Technologies 2021, Technology Readiness Level 6 Compendium and CSIR Technologies for Rural Livelihood Building Atmanirbharta on the occasion.

Speaking on the occasion, DG, CSIR, Dr Shekhar C Mande commended the stellar role played by NIScPR in dissemination of Science Communication. He said, the new entity is marching ahead pursuing its aims and objectives with devotion.

Professor Ranjana Aggarwal, Director, CSIR-NIScPR gave a brief outline of activities of the Institute in the last one year. She informed that the institute is developing programs through networking with different institutes in the country which are leading to activities such as joint projects, discussion papers etc. Creating Livelihood Opportunities in Rural Areas through CSIR Technologies is a Joint Venture between CSIR, Unnat Bharat Abhiyan (IIT Delhi) and VIBHA. CSIR-NIScPR is working as a Nodal Lab in this initiative.

The Science Reporter, Vigyan Pragati and Science Ki Duniya are 3 popular science magazines of NISCAIR which have helped students, researchers, and general public to understand science in a simple way.

Published in:
Devdiscourse

CSIR-NEERI

13th January, 2022

पहल● भारत का लक्ष्य है वर्ष 2030 तक कार्बन उत्सर्जन में 30% तक कटौती

नीरी लगाएगा ₹95 करोड़ का सीसीसीयूएस प्लांट

स्नेहलता श्रीवास्तव
नागपुर। 12 जनवरी

देश में कार्बन उत्सर्जन में भारी कटौती के केंद्र सरकार के सपने को साकार करने में शहर का नीरी एक बड़ी भूमिका निभाएगा.

सीएसआईआर की फंडिंग से वर्धा रोड स्थित नीरी परिसर में 95 करोड़ रुपए की लागत से 'सेंटर फॉर कार्बन कैप्चर यूटिलाइजेशन एंड सिक्वेस्ट्रेशन' (सीसीसीयूएस) स्थापित होने जा रहा है जिससे सीएसआईआर की 13 लैब जुड़ेंगी.

इस केंद्र की मदद से कार्बन डाईऑक्साइड प्राप्त करके उसका सही जगह उपयोग किया जाएगा. बचे हुए किसी भी अपशिष्ट का निस्तारण समुद्र की गहराई या जमीन तले किया जाएगा. सीएसआईआर की 13 लैब में मौजूद तकनीक को थर्मल पॉवर, स्टील, एल्युमिनियम, पेट्रो-केमिकल्स और अन्य उद्योगों को उपलब्ध कराई जाएगी, ताकि वे कार्बन उत्सर्जन में कमी ला सकें.

क्या कहते हैं वैज्ञानिक

नीरी निदेशक अतुल वैद्य ने लोकमत समाचार से चर्चा के दौरान कहा कि प्रधानमंत्री नरेंद्र मोदी द्वारा ग्लासगो में कार्बन कटौती का प्रण लिया गया था. पर्यावरण संरक्षण की दिशा में यह एक बड़ा कदम होगा. प्रधानमंत्री द्वारा दिए गए 5 सूत्री 'पंचमित्र' सिद्धांत के तहत इस परियोजना पर काम हो रहा है. वरिष्ठ प्रधान वैज्ञानिक और सीसीएमडी प्रमुख राजेश बिनीवाले ने कहा कि यह प्रोजेक्ट हब और स्पोक मॉडल पर आधारित है. नीरी के उद्योग जगत से कनेक्शन को देखते हुए यह प्रोजेक्ट बहुत कारगर साबित होगा.

डॉ. अतुल वैद्य

ये हैं पंचमित्र सूत्र

- वर्ष 2030 तक भारत अपने नॉन-फोसिल ईंधन को 500 गीगावाट तक ले आएगा.
- वर्ष 2030 तक भारत अपनी ऊर्जा आवश्यकताओं को नवीकरणीय स्रोतों से पूरा कर लेगा.
- वर्ष 2030 तक भारत कार्बन उत्सर्जन को कम कर 1 बिलियन टन तक ले आएगा.
- वर्ष 2030 तक भारत अपनी अर्थव्यवस्था की कार्बन इंटेसिटी 45% तक घटा लेगा.
- वर्ष 2070 तक भारत अपना कार्बन उत्सर्जन शून्य कर लेगा.

Published in:
Lokmat Samachar

CSIR-CFTRI, IHBT

13th January, 2022

'Non-consumption of fermented food resulted in lifestyle diseases'

Food-grade microorganisms in diet can address health disorders: CSIR-CFTRI expert

MYSURU, DHNS

Davangere University's professor of Microbiology Gayathri Devraja advised the use of lactic acid bacteria to solve celiac disease as they enhanced the epithelial barrier and destroyed multiple epitopes on gliadin.

She was speaking in a webinar on 'Balanced Nutrition Through Microbial Food Aadditives' as part of Azadi ka Amrit Mahotsav to mark the 75th year of Independence hosted by CSIR-Central Food Technological Research Institute (CSIR-CFTRI) in Mysuru recently.

K Sumana, assistant professor, Microbiology, JSS Academy of Higher Education and Research, Mysuru, explained how microorganisms were a rich source of dietary lipids, amino acids, ethanol, organic acids, hormones, enzymes and antibiotics.

Subrota Hati, assistant professor, Dairy Microbiology, Kamdhenu University, Gujarat, focused on antihypertensive and antioxidative compounds in camel and goat milk fermented with potential lactic cultures.

Amit Kumar Rai, Scientist C, Institute of Bioresource and Sustainable Development, Imphal, explained about the bioactive peptides and their importance in fermented foods.

Cost-effective production

Rakshak K Acharya, Scientist, CSIR-Institute of Himalayan Bioresource Technology, Palampur, focused on the cost-effective production of Shiitake mushroom, using waste generated in industries.

Sridevi Annapurna Singh, Director, CSIR-CFTRI, who inaugurated the event, said, "Though we have a high crop production, it is not sufficient to meet the demands of the population. Food-grade Microorganisms are a better alternative as they require less water and land than crops and have lesser ethical issues."

Prakash Halami, head of Microbiology and Fermentation Technology department, said that the theme of the webinar was apt as it addressed a highly relevant issue of nutritional security.

"A balanced diet is the key to healthy living. Due to urbanisation, the consumption of traditional fermented food had been reduced leading to several lifestyle diseases in India. The inclusion of food-grade microorganisms in our diet can enrich the nutritional value of the food and can be a potential solution to many disorders, including malnutrition," he said.

Praveena Bhatt, Mohan A Dhale, M V R K Sarma, Swaroopa Rani, Mahejibin Khan, H N Punil Kumar, C Roopavathi, M R Krishna Prashanth, Aditi Goel and Amruta Dinesan were present.

Published in:

Deccan Herald, Times Of India

Dr Jitendra launches 'AI' driven Start-Up by IIT alumni

CSIR-NGRI

12th January, 2022

New Delhi, Jan 11: Union Minister of State, Dr Jitendra Singh Tuesday launched "Artificial Intelligence" (AI) driven Start-Up by IIT alumni, which carries out solar water purification through an innovative technology.

The facility aims to provide clean drinking water at a price much lesser than the price of water bottles sold in the market. Speaking on the occasion, the Minister said, innovative Artificial Intelligence (AI) driven Start-Up initiative by IIT alumni should motivate other Start-Ups as well. A MoU was also signed between Technology Development Board (TDB), a statutory body of Department of Science & Technology, Government of India and M/s Swajal Water Private Limited, a tech Start Up company founded by ex-IITians based in Gurugram.

The company is focused on innovative technologies to make reliable clean drinking water accessible to communities at affordable price, for their project on IoT enabled point of use Solar Water Purification Unit for slums, villages and High Utility Areas.

Dr Jitendra Singh welcomed the financial support extended to Swajal by TDB and said that his Ministry is committed to reach out to potential small and viable Start-ups having skill and talent pool, but lacking resources.

The Minister asked the CEO & Co Founder of Swajal, Dr VibhaTripathi to scale up this technology to help achieve India's ambitious target of providing clean drinking water to all by 2024, as envisaged by Prime Minister Narendra Modi.

The Minister said, apart from the Centre's initiatives like National Rural Drinking Water Programme (NRDWP) and Jal Jeevan Mission, Private Sector should come forward in a big

way with state of the art tech solutions to cover nearly 14 Crore households where clean drinking water is yet to reach.

Referring to Prime Minister's 75th Independence Day speech, where he said that in just two years of the Jal Jeevan Mission, more than four and a half crore families have started getting water from taps, Dr Jitendra Singh said that Ministry of Science and Technology is positively contributing to Prime Minister Narendra Modi's Vision and Mission of "Har Ghar Nal Se Jal".

It may be recalled that Dr Jitendra Singh launched state-of-the-art Heli-borne survey technology for groundwater management, developed by CSIR-NGRI Hyderabad with Union Minister for Jal Shakti, Gajendra Singh Shekawat from Jodhpur in October, last year. To start with, the States of Rajasthan, Gujarat, Punjab and Haryana are being taken up for this latest heli-borne survey.

The Gurugram based company's patented system, 'Clairvoyant' uses artificial intelligence to optimise purification systems and predict future breakdowns.

Published in:
Rising Kashmir

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