

## International Energy Efficiency Hub

In a world grappling with the dual challenges of climate change and energy security, the establishment of an International Energy Efficiency Hub represents a pivotal step towards achieving sustainable energy goals. This hub aims to foster collaboration among nations, organizations, and stakeholders to promote energy efficiency and reduce carbon emissions on a global scale.

As the global population continues to grow and economies develop, the demand for energy is projected to rise significantly. Traditional energy sources, primarily fossil fuels, contribute to greenhouse gas emissions, air pollution, and the depletion of natural resources.

To combat these issues, enhancing energy efficiency is essential. Energy efficiency involves using less energy to provide the same service, which can lead to significant reductions in energy consumption and associated environmental impacts.

The International Energy Efficiency Hub is designed with several key objectives. The hub will serve as a platform for sharing knowledge, data, and best practices in energy efficiency across different regions. By compiling successful case studies, technical reports, and research findings, stakeholders can learn from one another and implement effective strategies tailored to their specific contexts.

Training and capacity-building programs will be a cornerstone of the hub's activities. Workshops, webinars, and seminars will be organized to educate policymakers, industry leaders, and practitioners about the latest technologies, policies, and financing mechanisms that promote energy efficiency.

The hub will work with governments to develop and refine policies that incentivize energy efficiency. This includes advocating for regulatory frameworks, standards, and certifications that encourage the adoption of energy-efficient technologies in various sectors, including transportation, buildings, and industrial processes.

By bringing together diverse stakeholders—from government agencies and non-governmental organizations to private companies and academic institutions—the hub will foster collaborative initiatives and partnerships.

These collaborations can lead to innovative projects and investments that drive energy efficiency improvements. To track progress and measure the impact of energy efficiency initiatives, the hub will establish metrics and benchmarks.

Regular assessments will help stakeholders understand the effectiveness of implemented strategies and identify areas for improvement.

The success of the International Energy Efficiency Hub hinges on its ability to forge strong partnerships. Collaborative efforts with international organizations, such as the United Nations, the International Energy Agency (IEA), and the World Bank, will enhance the hub's credibility and expand its reach.

Engaging with the private sector, particularly energy service companies and technology providers, will also be crucial in driving innovation and investment in energy efficiency solutions.

A significant focus of the hub will be on the promotion of innovative technologies that improve energy efficiency. This includes advancements in smart grid technology, energy storage systems, and high-efficiency appliances.

The hub will facilitate technology transfer and support the deployment of cutting-edge solutions in developing countries, where energy efficiency can have the most significant impact.

Securing funding for energy efficiency projects is often a challenge. The hub will work to attract investment by highlighting the economic benefits of energy efficiency, such as cost savings and job creation.

By showcasing successful energy efficiency projects and their returns on investment, the hub can encourage public and private financing.

The International Energy Efficiency Hub represents a crucial initiative in the global effort to combat climate change and promote sustainable energy practices. By fostering collaboration, sharing knowledge, and advocating for effective policies, the hub aims to empower nations to implement energy efficiency measures that contribute to a more sustainable and resilient energy future. As the world continues to confront pressing energy challenges, the hub stands as a beacon of hope and action, guiding the way toward a more energy-efficient and sustainable planet.

## DR. BANARSI LAL

Livestock is a significant sector of the Indian economy. This sector plays a major role in the agricultural sector in the developing nations by contributing 40 per cent in the agricultural GDP. This sector provides livelihood support to the rural population. This sector provides necessary proteins and nutritious diet to the human beings through milk, meat, eggs etc. Livestock also provides raw material such as skins, blood, bone etc. This sector contributes about 12.9 per cent of global calories and 27.9 per cent of proteins and also contributes in the crop production through manure, ploughing and transport.

The livestock sector employs at least 1.3 billion people across the globe and supports the livelihoods of about 600 million small farmers in the developing countries. Climate change impacts livestock directly and indirectly. Climate change has a global occurrence with the negative impacts. The IPCC predicts that by 2100 the increase in global average surface temperature may be between 1.8-4 degree C. It is predicted that with the increase of 1.5 degree C to 2.5 degree C, about 20-30 per cent of plants and animal species are expected to be at risk of extinction. Climate change is caused by the various factors.

Some human activities have also been identified as the significant causes of climate change often referred to as the global warming.

The three major Green House Gases (CGGs) are Carbon Dioxide, Methane and Nitrous Oxide.

Livestock production is associated with the carbon dioxide, methane and nitrous oxide emissions. Climate change impacts livestock production. Climate change can impact the fodder crops and grazing system. Herbage growth is brought about by the changes in the atmospheric CO2 concentrations and temperature.

It has been observed by the research studies that climate change impacts on the yield, biomass and photosynthesis of field crops. Climate change also affects the genetic and cultural diversity in agriculture.

Animal and plant genetic resources are the non-renewable resources, once gone, are gone forever. Pastoralists and smallholders are the guardians of much of the world's livestock genetic resources. According to FAO about 20 per cent of the animal genetic resource breeds are now at risk and almost one breed per month is becoming extinct. The drivers of these changes in developing countries depend on the system.

Climate change is the major threat to the sustainability of livestock systems globally. Climate change strongly affects the production performance of farm animals and this has been observed across the globe.

It has been observed through the research studies that milk yield of crossbred cows in India has been

## Challenges and Opportunities of Artificial Intelligence

### VIVEK KOUL

Even though some people believe that intelligent machine could one day replace humans, having intelligent robots in the workplace would create safer and more effective work environments which compliment humans instead of completely replacing them. Current generation is going through the phase of technology where Artificial Intelligence plays a crucial role.

Artificial Intelligence is basically the study of ideas which enable computers to do the things that make people seem intelligent. The central goal of Artificial Intelligence is to make computers more useful and to understand the principles which make intelligence possible. Artificial intelligence (AI) is slowly but surely creeping into the daily lives of people and will definitely go a long way in shaping the world completely thereby giving new thrust to the modern era of computation.

This is going to bring a new revolution in the field of technology and will make working environment so easy and convenient. Modern machines are programmed to think and act with some level of human intelligence which will drastically transform the shape and structure of the modern technological world. This has already started to affect

our daily life in ways that we could not even have begun to contemplate only a hundred years ago.

Our lives have been changed beyond measure by robotics and Artificial Intelligence (AI) and this technology is used in a wide array of day to day services. In spite of AI being at its infancy even now, we have already benefited immensely. AI can be used to perform the most boring and/or dangerous jobs of daily life. There are already robotic systems that perform services like fire-fighting, thus reducing the danger courted by civilians.

Moreover, there are a lot of devices in the market that can be programmed to the preferred setting and they will perform household chores without much human input. Vacuum cleaners, dish-washers, lawn mowers, etc. are examples of this kind of use of AI. Another very important use of this technology is its use in security, both at the national and at the individual level.

Sophisticated burglary alarm systems make use of such technology while national security agencies use data on AI systems, which provide a highly accurate output of problems the nation might face. It has its uses in crime fighting as well. With the help of available data, criminal profiles can be built and ana-

lyzed in order to help fight crime more effectively.

Artificial intelligence is used in education and learning in various ways. It can be used to provide personalized tutoring and analyses student's study patterns to predict when they will get stuck and provide assistance at the level by alerting the tutor. For students with learning disabilities, this technology can be immensely helpful as well.

Educational software can be adapted to the individual needs of different students, provide feedback, and automate time consuming tasks like grading, leaving the teacher free to pursue actual teaching.

In addition to students, elderly and disabled people can also benefit from this technology. The invention of robots programmed with artificial intelligence can easily assist people in need of help. Yet another use would be in speech therapy with the help of voice recognition systems. AI would also be helpful in research and development in the medical field as well as in the actual care of patients. Medicine is a field in which technology is much needed. The advancement in computer technology has empowered the software developers and domain knowledge experts to build more intelligent tools for assisting medical practi-

tioners in making their decisions.

In medicine, the relationship between disease and symptom is hardly ever one to one. So the differentiation of the diagnosis that shares an overlapping range of symptoms is inherently difficult for a doctor. An intelligent system can resolve real world problems using human knowledge and following human reasoning skills. Artificial intelligence in medicine is a new research area that combines sophisticated representational and computing techniques with the insights of expert physicians to produce tools for improving health care.

The potential of this technology is immense in transport as well. Driver-less trains and metros are already in use. There are also software programmed cars available in the market today. With the help of such vehicles, even the most inexperienced driver would be able to travel much more safely.

In addition, traffic jams and diversions can be avoided by analyzing traffic patterns and predicting jams, which can then be prevented by alternate measures. There is immense scope for artificial intelligence in all spheres of our day to day life and only the time will tell us that how long it would go and how could it take the technological advancements to new frontiers.

## Basohli Ram Leela Mahotsav

committee started staging it in the vast open ground having a capacity to accommodate large gatherings. Instead of one stage, Ramleela was now staged on five different stages, Ayodhya, Lanka, Mareech, Saroopnakh, Sumeru Parbhat for Hanuman and Sugreeb and a vast space for the battles between the kings.

The presentation of the life like scenes during the celebrations glorifies the functions which attract large number of viewers from the adjacent states of Punjab and Himachal Pradesh. The characters performing the role of Ram, Sita, Ravan and others remain on ten days fast. Great emphasis is given on the maintenance of sanctity of the adjoining areas.

Like the sacred festivals of Eid Mubark, Diwali the family members of the town, irrespective of the religion, hold their breath till the celebrations start in the town. Harmony and brotherhood between different communities mark the Ram Leela celebrations.

In order to commemorate and transmit to the next generations, the exemplary life history of Bhagwan Ram as an ideal son, brother, king, disciple and philanthropist is depicted during ten days celebrations. Ram leela is celebrated not only in India but in many other parts of the world every year. Like Sindhu Darshan festival of Leh, week long mega festival of Ladakh, KheerBhawani of Kashmir, Bawa Jito and Ram Navami of Jammu, Basohli Ramleela celebrations are famous and unique in respect of its life like presentation, dialogue delivery, sanctity, religious harmony, and discipline. The countdown for the preparations of the Ramleela celebrations starts from the Raksha Bandan poornima with the hoisting of the traditional Mahavir Pataka in the premises of Ramleela ground.

Every episode of the Ramleela start with the tableau of Ram janam, appearance of Sita from beneath the ground, decoration of Dhanushyagya arena and exchange of dialogues, felling of seven Taar briksh (trees) by Ram with one arrow in order to exhibit his capability of

killing the evil forces, flight of Hanuman with sanjeevani booti, glowing of Lakshmanrekha every time Ravan attempts to cross it and Ram vanvas are worth seeing. The costumes, the crowns and the tiaras worn by the characters add to the beauty of the presentation. Thousands of the spectators from within and outside the state throng Basohli town during the celebrations. Due to the observance of self-discipline by the spectators no case of theft, pick pocketing, quarreling, eve teasing or of any untoward incident is reported during the ten day festival.

The sanctity of the Ramleela mandup is maintained both by the management and the spectators as a result no case of smoking/drinking is reported during the presentation. There is restriction imposed on the entry into the mandup wearing the leather shoes or any leather article. The management and the persons playing the roles of characters observe fast during the celebrations. There is equal participation of Hindus and Muslims in the management and celebration of the Ramleela which is a rare example of religious harmony seen in the present scenario.

Basohli Ram Leela is the first in the state which has been recognized by the state cultural academy No.ADM-70/66-67/3789 dated 10-12-1966. The Ramleela committee has got good assets in the shape of accommodation, costumes, sophisticated electronic gadgets and the hard cash which is donated by the people with smiling face.

Basohli Ramleela has been lucky enough to have its presidents persons of high stature and credibility who have revolutionized and overhauled the whole system by their experience and dedication. Every dedicated presidents of Ram Leela steered the committee in the direction of progress and has added many new dimensions to the existing set up.

Fascinated and influenced by the performance and the heights Ram Leela attained in the field of management, performance and presentation during its long journey since 1920, His Excellency

Hon'ble LG Sh. Manoj Sinha Ji decided to declare Basohli Ram Leela a Mahotsav, a confluence of Ram Leela, culture, heritage, art, craft and tourism with effect from 1923s Ram Leela celebrations with the active cooperation and co ordination of dozens of UT departments. H. Exc. Has been kind enough who joined the natives during the festivities and encouraged the natives, artists and persons involved in different vocations. Like the previous celebrations, this year worthy Principal Sec. Culture has been sparing no efforts making it more successful and tempting. This year the Basohli Mahotsav will be organized from Oct. 10-12. Apart from the Rall Leela presentations Basohli Utsav will feature exhibition of local arts and culture including world famous Basohli miniature paintings, cultural programs heritage exhibition, book fair, and other activities.

The visitors would also get a chance to relish local cuisins and enjoy boating and water sports. With the concerted efforts of the natives and the UT administration the Ram Leela Mahotsav will prove a mile stone in the history of celebrations.

The Utsav has come on the annual agenda of the UT administration and will be celebrated every year with more efforts and enthusiasm than before.

With the completion of Atal Setu bridge over river Ravi, Ramleela committee is experiencing a big boost due to the influx of large number of viewers from the adjoining states. In order to entertain them committee plans some additional programs of culture, folk dances and songs by different organizations every year.

In order to make the celebrations a success the state and the district authorities lend their fullest cooperation in the matters of security, maintenance of law and order during the Navratras. The different TV channels also cover and telecast the Ramleela every day.

It is worth mentioning here that the Basohli Ramleela has been adjudged at number one among the Ramleelas staged in metros of the country.

## Climate Resilient Livestock Production

negatively correlated with temperature humidity index. Glaciers retreat, polar bears, penguins and other livestock species struggle to survive.

Research depicts that productivity of crossbred animals is lower in areas where the annual temperature is higher. It has been reported that over 50 per cent of the bovine population is located in the tropics and it is estimated that heat stress may cause economic losses in about 60 per cent of the dairy farms around the world. Exposure to elevated temperature decreases fertility rate even in poultry, rabbits and horses. High temperature has a greater impact on semen quality. Climate change is providing the atmosphere for infectious diseases allowing disease causing bacteria, viruses and fungi to move in the new areas where they may harm the wild life, domestic species and even to the human beings. Diseases initially found in the tropical and sub-tropical areas are now moving towards temperate areas.

It has been observed that the increasing occurrence of tropical infectious diseases in the mid latitudes is linked to the global warming. Insect-borne diseases are now present in temperate areas where the vector insects were non-existent in the past. The increased respiration rate results in enhanced carbon dioxide being exhaled.

Heat stress may be responsible for the impairment for the protective value of colostrums in animals and

for alteration of the passive transfer of immunoglobulin in neonatal calves.

Ruminants such as buffalo, sheep, goat and cattle produce nitrous oxide, carbon dioxide and methane through belching. According to the Food and Agriculture Organization (FAO) livestock are responsible for about 14.5 per cent of greenhouse gases emissions. This puts the livestock sector on par with the transport.

According to the Intergovernmental Panel on Climate Change transport is responsible for 14 per cent of greenhouse gases emission. Throughout the world the scientists are on the mission to reduce the greenhouse gases emissions from the livestock.

They are working on the technologies to reduce these emissions by breeding the animals that burp less, by altering their diet and by planting trees in the pastures so that green house gases emissions can be reduced.

According to the studies, methane is the main greenhouse gas which is more harmful as it traps 28 times more heat. Scientists have also developed certain probiotic- helpful bacteria or yeasts in the digestive system which reduce 50 per cent of methane emission in cattle.

Some scientists have bred sheep that produce 10 per cent less methane. Reduction of 10 per cent methane in a single sheep may not have significant impact on the environment but when there are millions

of sheep in the world, it will have a huge impact.

The less methane producer sheep breed is lean and produces more wool. In India, National Dairy Development Board (NDDB) has launched a programme to boost the milk production of cows and buffaloes by improving their diet and thus helping to keep a healthy environment.

The NDDB uses software to assess the ideal diet for an animal. Changes are made in the diet of the animals by adjusting the feed quantity and adding locally available mineral supplements. The tailored diet reduces 12-15 per cent of methane production in the animals. In some countries scientists are testing the grasses which can increase the milk, meat or eggs per kg of the livestock and reduce the methane gas production. Cows are kept in the respiration chambers where the scientists measure the methane chambers from different feeds.

Scientists are convincing the farmers to change the diets of their animals to mitigate the problem of global warming.

In some countries, scientists are studying the issue of global warming by strapping plastic tanks to the back of the cows to collect their burps. According to the studies, 30 per cent of methane emission by the livestock can be reduced globally by applying different technologies.

Scientists have developed the web applications by which the effect of

diet on the methane emission by the livestock can be calculated. Scientists are also experimenting with silvopastoralism-planting trees in pastures where they absorb the greenhouse gases and offset emissions.

Livestock production system is sensitive to climate change. There is need to counter the adverse effect of climate change on animals by the new interventions. During the period of heat stress it is essential to maintain a continuous supply of fresh diet for the animals and it should be provided in the coolest part of the feeding area.

There is need to give the high quality forages that contain high concentration of digestible NDF. Fat sources like oilseeds and rumen inert fats may be included. In summers, water can serve as an effective cooling agent for farm animals. Overcrowding of animals should be avoided. Cooling in the farm of fans and sprinklers are usually beneficial for the animals.

There is need to develop the livestock development strategy. The integration of new technologies into the research and technology transfer systems potentially offers many opportunities to develop the climate adaptation strategies.

Epigenetic regulation of gene expression and thermal imprinting of the genome could also be an efficient method to improve thermal tolerance.

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