



## NAST COMMUNICATOR



**S&T  
Activities**

**Important  
Events &  
Meetings**

**Specialized  
Research  
Center**

**Promotional  
Activities**

## SIGNIFICANT EVENTS

### 48<sup>th</sup> Academic Assembly



The 48<sup>th</sup> Academic Assembly was held on 29 October 2024 at Baluwatar, the residence of the Prime Minister. The 48<sup>th</sup> Academic Assembly was chaired by the Rt. Hon'ble Prime Minister and Chancellor of NAST, Khadga Prasad Oli. The program was graced by the Hon'ble Minister of Education, Science and Technology and Pro-chancellor of NAST, Dr. Deepak Kafle, Secretary of Education, MoEST; Vice-chancellor Prof. Dr. Dilip Subba, Secretary Dr. Rabindra Prasad Dhakal, Academic Assembly Members, Faculty and Division Chiefs and program related staffs of NAST. The Academic Assembly endorsed the list of Awardees, recognized through various Prestigious Awards conferred by the Academy. NAST congratulates all the Awardees and extends its gratitude to all for their meaningful contribution and dedication to the S&T sector.

**1. Awardees and Awards, 2024 Conferred by NAST**

SN	Awards	Awardees
1	Nature Conservation Award	Mr. Ramesh Bahadur Basnet Ministry of Forests and Environment, Kathmandu
2	Science Award	Dr. Dev Raj Joshi Central Dept. of Microbiology, Tribhuwan University, Kirtipur
3	Technology Award	Dr. Dipendra Parajuli Research Centre for Applied, Science & Technology, Tribhuwan University, Kirtipur
4.	S&T Youth Award	1.Dr. Sunil Shrestha, Kathmandu Cancer Centre, Bhaktapur 2.Dr. Raj Kumar Thapa Invention & Innovation Centre, Gandaki University, Kaski 3.Dr. Bal Kumari Olia Seed Quality Control Centre, Lalitpur
5.	Women in Science & Technology Award	Dr. Jyoti Giri Trichandra College, Kathmandu
6.	Science & Technology Promotion Academy Award	Dr. Hari Poudel Rector office, Tribhuwan University, Kirtipur
7.	Science and Technology Journalist Award	Mr. Saugat Bolakhe Nepal Forum of Science Journalists, Kathmandu
8	Best Science Teacher Award	1. Mr. Jayadhan Joshi, Galainath SS, Darchula, Far-western Province 2. Mr. Laxmi Prasad Sapkota, Gokundeswor SS, Dhankuta, Koshi Province 3. Dharendra Chaoudhary, Rastriya SS, Dhanusha, Madesh Province 4. Dipak Bahadur Bista, Shiva Namuna SS, Nawalparasi, Gandaki Province 5. Jitendra Raj Oli, Sarada Ma Vi, Surkhet, Karnali Province

**2. Best Student Awardees, 2024**

SN	Name	School	Province	GPA
1	Tejeswi Acharya	Arniko Awashya SS, Biratnagar	Koshi	3.96
2	Rakesh Kumar Shah	Arniko Awashya SS, Biratnagar	"	3.96
3	Sirjan Ghimire	Bal Kalyan Vidhya Mandir SS, Biratnagar	"	3.96
1	Sakshi Jha	National Infotech SS, Birgunj	Madesh	3.76
2	Lakshya Karn	Rajarshri Janak SS, Janakpur	"	3.88

1	Sadikshya Chhetri	Motherland SS, Pokhara	Gandaki	3.96
2	Kushal Tiwari	SOS Hermann Gmeiner SS, Kaski	"	3.96
1	Pallavi Neupane	Everest English Boarding SS, Butwal	Lumbini	3.92
2	Bigyan Raj Aryal	New Horizon English Boarding SS, Butwal	"	3.96
3	Utsav Ghimire	Gorkha International Public SS, Dang	"	3.96
1	Shristi Adhikari	Eager Bridge Boarding SS, Surkhet	Karnali	3.95
2	Kapil Chapai	Usha Balbatika Boarding SS, Surkhet	"	3.83
1	Supriya Joshi	Radiant Montessori SS, Tikapur, Kailali	Sudurpas him	3.71
2	Niranjan Pandeya	Kailali Model SS, Kailali	"	3.92
1	Sarita Shrestha	Moonlight SS, Lalitpur	Bagmati	3.96
2	Krishma Paudel	Trinity International SS, Kathmandu	"	3.96
3	Anshu Shrestha	Global School, Kathmandu	"	3.96
4	Bidhan Chemjong	Prasadi Academy SS, Lalitpur	"	3.96
5	Bishal Bhandari	Prasadi Academy SS, Lalitpur	"	3.96
6	Sunil Kr. Chaudhary	Pinnacle Academy SS	"	3.96
7	Amar Thakur	Omega International SS, Lalitpur	"	3.96
8	Anish Devkota	Omega International SS, Lalitpur	"	3.96
9	Ayush Man Ghimere	Bright Future Secondary School, Lalitpur	"	3.96
10	Diwas Chouhan	Bright Future Secondary School Lalitpur,	"	3.96
11	Ashim Dimdung Tamang	Trinity International SS, Kathmandu	"	3.96
12	Basant Pageni	Trinity International SS, Kathmandu	"	3.96
13	Sushant Dulal	St. Lawrence SS, Kathmandu	"	3.96
14	Nikunj Bhusal	Kathmandu Model SS, Kathmandu	"	3.96
15	Nischal Khatri	Kathmandu Model SS, Kathmandu	"	3.96
16	Nishan Gautam	Kathmandu Model SS, Kathmandu	"	3.96
17	Raja Babu Das	Capital SS, Kathmandu	"	3.96
18	Sabin Katwal	Herald SS, Kathmandu	"	3.96
19	Aryan Shahi	Global School, Kathmandu	"	3.96
20	Ashim Bastola	Global School, Kathmandu	"	3.96

21	Anish Bhatta	Skyrider S. English Boarding School, Chitwan	"	3.96
22	Pujag Dallakoti	Skyrider Secondary English Boarding School, Chitwan	"	3.96
23	Anamol Khadga	Global School, Kathmandu	"	3.96
24	Aman Jaswal	Prasadi Academy SS, Lalitpur	"	3.96

### 3. Awardees and Named Awards, 2024 Conferred through NAST,

SN	Name	Award	Awarded For
1 (i)	Ms Pooja Bhatta	Dayananda Bajracharya Research Award	Best MSc. thesis in biodiversity and biotechnology
(ii)	Mr. Nabin Lamechanne		Best MSc. thesis in botany
2.	Ms. Bhawana Regmi	Phanindra Prasad Neupane Research Award	Best MSc. thesis in plant science
3.	Mr. Pradeep Kumar Bajracharya, Palpa, Lumbini Province	Jit Bahadur Metal Technology Award	Contribution in the promotion and conservation of metal goods and equipment manufacturing indigenous technologies.

### 4. Life Time Achievement Award 2024, Conferred by NAST

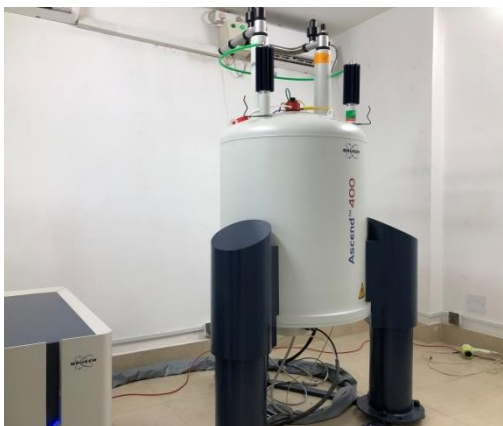
SN	Awardees	Contribution Sector
1.	Engr. Bal Sundar Malla	Electrical Engineering
2	Prof. Dr. Timila Yami Thapa	Information Technology
3	Prof. Dr. Umakant Raya Yadav	Environment Science
4	Prof. Dr. Durgamani Gautam	Agriculture
5	Engr. Kalyan Dev Bhattarai	Geology

### 5. Awardees and Awards Conferred by NAST, 2024

SN	Award	Awardee
1	Nature Conservation Award	Mr. Ramesh Bahadur Basnet Ministry of Forests and Environment, Kathmandu
2	Science Award	Dr. Dev Raj Joshi Central Dept. of Microbiology, Tribhuwan University, Kirtipur
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## FROM LAB. TO LAND

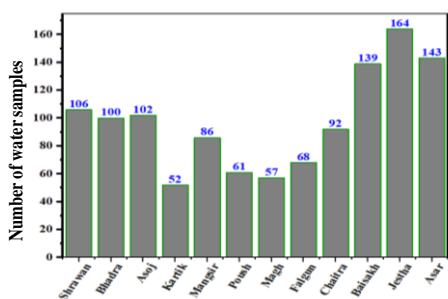
### Spectrophotometer Installed



Nepal Academy of Science and Technology (NAST) has owned an Ascend Neo 400 NMR Spectrophotometer (Bruker) installed in its Analytical Service Centre. The only single instrument in the country is now providing advanced analytical services to the researchers, individuals and institutions for the structural identification of organic compounds and the study of molecular dynamics. A nominal fee is levied for its services. The instrument contains a superconducting magnet which is sustained with cryogenic liquids (liquid helium and liquid nitrogen). The liquid helium is refilled once every 6-8 months, and liquid nitrogen is consistently refilled twice a month. Continuous power supply and availability of

expensive deuterated solvents are additional challenges besides its maintenance. NAST has accepted these challenges and has now successfully running the instrument from the past one year.  $^1\text{H}$ ,  $^{13}\text{C}$ , DEPT, COSY, TOCSY, HMBC, HSQC,  $^{19}\text{F}$ ,  $^{31}\text{P}$ , NOESY, ROESY, etc. experiments can be performed using the NMR spectrophotometer. We particularly encourage young researchers for the optimum utilization of the instrument for the development of science & technology research capacity in Nepal. Nuclear Magnetic Resonance (NMR) spectroscopy is a technique that detects the chemical environment of atomic nuclei leading determination of molecular structure.

### Clean Water to Healthy Life



The Environment Research Laboratory at NAST focused on generating baseline water quality data and providing water testing services to the public since 2002. Since then, the laboratory has been monitoring and testing the quality of different water sources such as surface water, groundwater, stone-spout water, city supply water, wastewater and even processed drinking water. The Lab. is also working on drinking water purification and has organized awareness programs for safety and sanitation. Environmental scientists of NAST conduct research on adsorption technology for removing organic, arsenic, and heavy metals

from water. Likewise, they perform constant monitoring of the Wastewater characteristics, Microplastics, and Antibiotic-Resistant bacteria in the wastewater. .





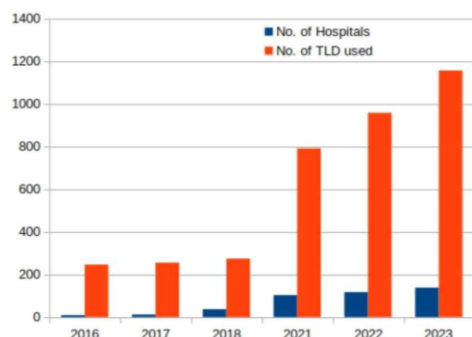
NAST is educating people with simple but effective household techniques for the purification of water. Awareness among people and proper sanitation practices can help to reduce the risk of epidemic outbreaks of water and sanitation-related infections. The scientist closely work with university students and fresh graduates, providing them with internship and research opportunities.

### From Waste to Worth



Tagetes (marigolds, sayapatri), belonging to Asteraceae are widely used during the Tihar festival, and once used, it is discarded as waste. Most people are unaware of the fact that the petals of the Tagetes flowers are a rich source of Lutein. Lutein, a carotenoid primarily derived from Tagetes is widely valued for its health benefits, especially for eyes. If proper meaningful research and utilization of the waste flowers to extract Lutein to optimum quantity and once commercialized, it can contribute to the nation's economy. Viewing this, NAST has done research for the optimization of Lutein ester extraction from Tagetes species through Response Surface Methodology (RSM) by using Supercritical Fluid Extraction (SFE) with Carbon dioxide-based extraction. During research the effect of pressure and temperature, and their interaction with Lutein Ester was investigated. The optimal conditions for pressure and temperature for extraction of Lutein ester were found to be 335 bar and 50°C to give a yield of 2.8 %. Once the Lutein ester is obtained, it can be converted to Lutein, up to 75% of Lutein ester by Saponification.

## An Odyssey of Radiation Dosimetry in Nepal



Through the Technical Cooperation Projects of the International Atomic Energy Agency (IAEA), the Individual Monitoring Service (IMS) was formally launched at the Nepal Academy of Science and Technology (NAST) in December 2015. This state-of-the-art IMS facility is furnished with a TLD Reader System and houses around 1500 TLDs. IMS Nepal bolsters its ability to produce precise and trustworthy dose reports signaling Nepal's self-reliance after previously depending on foreign IMS Laboratories.

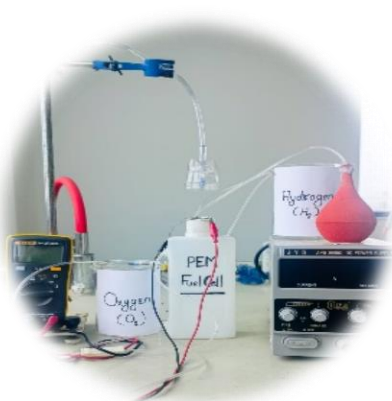


Currently, the NAST Dosimetry Network (NDN) oversees the monitoring of over 1200 radiation workers in a tri-monthly monitoring cycle. NDN provides individuals with dose reports detailing their personal dose equivalent to  $H_p(10)$ , with values around the annual dose limit set at  $H_p(10) = 20 \text{ mSv}$ , and the skin dose limit at  $H_p(0.07) = 500 \text{ mSv}$ . Since its inception in 2016, the dose records of these workers have been meticulously maintained, confirming that all monitored doses remain within safe limits.



## SCIENCE AND TECHNOLOGY RESEARCH AND INNOVATION

### NAST Leads Nepal's First Fuel Cell Research Initiative



The Nepal Academy of Science and Technology (NAST) has embarked on an ambitious initiative to develop Proton Exchange Membrane Fuel Cells (PEMFCs) from scratch using locally sourced scrap materials. This groundbreaking project represents a significant technological advance for Nepal and aligns with global movements toward greener energy solutions. Fuel cells generate electrical energy by converting the chemical energy of hydrogen and oxygen through an electrochemical reaction, producing only water as a by-product. This clean energy technology encompasses various types, including PEMFCs, Solid Oxide Fuel Cells (SOFCs), Molten Carbonate Fuel Cells (MCFCs), Alkaline Fuel Cells (AFCs), and Direct Methanol Fuel Cells (DMFCs). Each type is suited for different applications, ranging from transportation to stationary power generation. The research team of NAST has already made significant progress. The team has constructed a simple yet functional fuel cell setup using platinum wire as the catalyst and hydrogen produced from the electrolysis of water as the fuel. This rudimentary cell, despite its simplicity, is capable of generating a voltage of approximately 170 millivolts (mV). This initial success is more than just a technical achievement. It lays a strong foundation for future advancements in fuel cell technology in Nepal. It depicts the feasibility of developing fuel cells locally, which could lead to more sustainable and cost-effective energy solutions. The research team is working on using the electrical energy generated by the fuel cell to power small devices such as a DC motor and a bulb. Innovations in this area shed the possibility to establish a strong infrastructure that will support the expansion of hydrogen-based energy systems in Nepal.

### Earthquake-related research by NAST



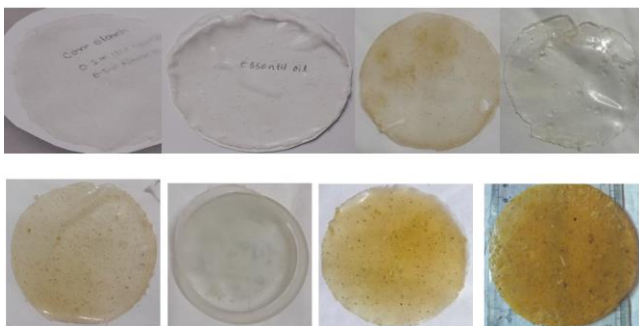
NAST has conducted various research initiatives and activities related to earthquakes during the years 2080 and 2081. The Academy has undertaken rapid aftershock studies for the ML6.3 earthquake in Bajhang and the ML6.4 earthquake in Jajarkot by deploying seismometers in the regions of their epicenters. Dr. Shiba Subedi, a seismologist at NAST participating in the Brain Pooling program, is spearheading these efforts. He has also traveled to the epicenter areas of Bajhang and Jajarkot to assess damage scenarios at multiple sites. Currently, he is analyzing the seismic data collected from these earthquakes for scientific publication. Additionally, he is engaged with the community through various initiatives, including earthquake training sessions for educators and specialized training for the public to improve earthquake awareness and preparedness.

## Product Development at Biological Resources Unit

**Beverages:** In this program juices and fermented juices from the wild edible fruits and flowers have been prepared, blended and enriched. The products were evaluated for their physicochemical, nutritional, antinutritional, antioxidant, and antimicrobial properties. The study revealed the role of fermentation in upgrading the physicochemical, nutritional, and functional properties of juices from various wild edible fruits and flowers. Food packaging materials/edible films have been prepared from locally available bio-resources and characterized by using FTIR, FESEM, and XRD.



**Food packaging materials:** Food packaging materials/edible films have been prepared from locally available bioresources and characterized by using FTIR, FESEM, and XRD.



### Outstanding Research by the NAST Scientist



Dr. Deegendra Khadka, a senior scientist of NAST, was selected for NAM S&T Fellow, 2024. He successfully completed 45-day fellowship tenure at the JSS AHER Medical College, Mysuru, Karnataka, India. During this Fellowship, Dr. Khadka gained extensive knowledge and hands-on expertise in modern techniques related to drug testing on mice models. He conducted groundbreaking research by experimenting with the effect of high-altitude plant extracts streptozotocin (STZ) induced in diabetic mice. The findings depicted remarkable potential in identifying novel antidiabetic agents derived from high-altitude Plants. This pioneering research highlights the significance of traditional medicinal plants and their potential for addressing the global concern on diabetes through innovative scientific approaches.

### Landslide Early Warning System Installed

NAST has initiated a program on **Landslide Risk Reduction** to minimize the damage to life and property by installing a Landslide Early Warning System. Under the Program, a team of NAST visited from 7 to 14 June 2024. During the visit data was collected using Differential Global Positioning System (DGPS) from 15 different sites. After the study of the data obtained and identification of the landslide prone sites “Landslide Early Warning System” was installed in the Chauri Deurali VDC of Kaverepalanchowk district. The study team of NAST comprised of Engr. Kabita Pandey, Assistant Research Fellow, Ramesh Gautam, Dr. Ananta Gajurel, Geologist, TU and Mr Ram Rimal.

## COLLABORATIVE APPROACHES

### Advance Spatial Data and GNSS Research in Nepal



The Space Research Centre of Nepal Academy of Science and Technology (NAST) and the Center for Spatial Information Science (CSIS) at The University of Tokyo have embarked on a collaborative research initiative to explore the potential of spatial data and Global Navigation Satellite System (GNSS) technologies in addressing Nepal's development challenges. The two institutions recently hosted a one-day seminar titled "Urban Spatial Data Analysis and Its Applications" on September 12, 2024, at the NAST Hall in Khumaltar, Lalitpur. The seminar brought together experts from both organizations to discuss the latest advancements and potential applications of these technologies. As part of this collaborative effort, NAST and CSIS are planning to initiate a pilot project to demonstrate the practical applications of spatial data and GNSS in a real-world setting. The project will focus on traffic congestion, urban planning, and disaster management.

### MoU Between NAST and KVDA



The Memorandum of Understanding (MoU) between Nepal Academy of Science & Technology (NAST) and Kathmandu Valley Development Authority (KVDA) was signed by Prof. Dr. Dilip Subba, Vice-chancellor of NAST, and Ms. Januka Dhakal, Development Commissioner of KVDA. The MoU, valid for five years, incorporates collaborative programs on the issues of urban climate change, ecosystem resilience & adaptation programs.

### Tripartite MoU Signed



Memorandum of understanding (MoU) was signed by NAST with Nepal Agriculture Research Centre (NARC) and Gauradaha Municipality, Jhapa of Koshi Province on 16 August 2024. The area of collaboration depicts; increase in agriculture, productions adopting scientific agricultural systems, effective storage, management of agricultural wastes using innovative and scientific methods and technologies. The agreement is valid for 2 years from the date signed and can be renewed.



## **NAST Supports Tea Sector**



An interaction with the tea production stakeholders from Illam district was held on 27 April 2024 in NAST. Illam, Koshi Province is famous for orthodox tea and its green tea gardens, which are attractions for tourists. The interaction between NAST and participating stakeholders discussed tea plantation, tea processing, storing etc. Tea production is a lucrative sector and can generate jobs for many. The interaction also pointed to the fact that there is a paramount need for tea quality testing Labs. and prominent research for upgrading the quality to compete in the global market. The program was chaired by Prof. Dr. Dilip Subba, Vice-Chancellor of NAST and was participated by the Academicians, Secretary and Staff of NAST, Executives from Suryodaya Municipality and Entrepreneurs from Illam. The Vice-chancellor wrapped up the program by assuring the support from NAST in establishing and executing quality testing Labs. along with the promotion of entrepreneurship



## IAC, THE PRIDE OF NAST



Information Access Center (IAC) a collaborative approach, was established at NAST with technical support from the National Information Society Agency (NIA) of Korea, by signing of a MoU on December 11, 2020, with a broader aim to contribute to narrowing down the digital gap in Nepal and supporting the overall development of the Information Technology (IT) sector in Nepal. IAC consists of well-equipped training rooms in the technology of NAST along with the mobile classroom in a bus with all the facilities for ICT training inside. Since then, NAST has been organizing trainings and workshops in the fixed and mobile classes in different provinces.

### South Korean Delegation

A delegation from the Embassy of South Korea in Nepal visited NAST on 30 April 2024. National Information Society Agency (NIA) of South Korea has supported to establish Information Access Centre (IAC) in the Technology Building of NAST and Mobile Information Access Centre, the miniature of IAC equipped and installed in a bus. The team had brief meeting with the Secretary of NAST Dr. Rabindra Prasad Dhakal followed by an interaction. During the visit an interaction between the team from the Technology Faculty of NAST lead by the Faculty Chief, Dr. Iswor Bajracharya and a team headed by the Councilor Mr. Kang Sunga was held in NAST. The purpose of the interaction was to update on the progress of IAC and discuss the future and road maps for the optimal usage of the Centre, to outreach the public.

### Tech-Training to NAST Staffs

Nepal Academy of Science and Technology (NAST) has provided orientation training of 'Cyber Security' to the staff. The training was catered by the Information Access Center (IAC) on 25<sup>th</sup> April 2024. Almost 35 staff of NAST participated in the training program. The trainer of the Cyber Security was Mr. Pradeep Dhodari, System Administrator of the Electronic Database and Information Center (EDIC), NAST.

### Workshop for the Blind and Visually Impaired



On 8 December 2024, for the first time, the Science and Technology Information Systems Center under the Nepal Academy of Science and Technology (NAST) organized a one-day event titled "Innovative and Assistive Workshop for the Blind and Visually Impaired Accessible Technology, Hardware and Apps." The workshop was held at the Information Access Center (IAC), established in the Technology building of NAST. The program focused on providing information and training on over half a dozen

electronic gadgets (hardware and apps) available for the visually impaired, supported by the Korean Government. The workshop had an encouraging participation of 24 visually impaired individuals from various organizations.

### **Orientation on Cyber Security**



NAST conducted a Cyber Security Orientation for all the interested NAST staff members to be aware of the risk in operating computer database without the security system. The Orientation lecture was organized by the IAC under Faculty of Technology on 25 April 2024. The lecture was very informative and was participated by around 35 staffs from the faculties and divisions of NAST. The training was conducted by Pradeep Dhodari, System Administrator, Electronic Database and Information Centre (EDIC) of NAST.

## INCULCATING SCIENCE TEMPERAMENT

### National E-Library Network and “Who is Who”



Interaction program with the participants from the universities, libraries, and colleges was held in Pokhara, Gandaki Province from the 18<sup>th</sup> to 25<sup>th</sup> of 2024 to impart knowledge and information about the initiation taken by NAST in creating e-library network amongst S&T libraries within the Gandaki province, with the Library of NAST. A similar plan will be replicated in all other six provinces to create national networking embracing all S&T libraries throughout the country. The objective of the networking is to extend easy access to the S&T libraries located in the provinces, from one place.

During the interaction, the participants were informed also about the publication of “Who is Who”. This publication is the e-directory of the PhD holders in the S&T sector. The first publication, consisting of around 900 scientists and technologists, has been published. NAST has gone online for this publication and urges all the PhDs to visit the NAST website, fill out the form, and introduce their selves. This publication claims to be valuable documentation of experts in different disciplines and a strong database of S&T human resources. The hard copy in the form of a book will be published after every 5 years. Likewise, NAST has also taken the initiative to create a “Who is Who” Directory of the MSc. degree holders. The team led by Ms. Bhawani Oli, library chief, and team members Mr. Jyoti Phayal, senior promotion officer, Ms. Tara Upadhyaya, and Mr. Agni Dhakal promotion officers, organized similar Interactions in Pokhara University, Gandaki University, Prithvi Narayan Campus, Paschimanchal Engineering Campus and Institute of Forestry.

### Science Fair



NAST organized Science Fair in Mukti Secondary School, Pyuthan District located in Lumbini Province from 5-7 June 2024. The program was organized with the objective of promoting science education and develop scientific temperament in the students. The fair consisted of the following events.

- Competitive science exhibition of the models made by the students from the local materials.
- Poem Contest on the theme “Science for prosperity”.
- Training on water testing and distribution of the kit to each

participating school.

- A practical informative lecture on cyber security and information technology was conducted in the Mobile Information Access Centre bus. It was participated by the students, interested public, teachers, and a group of army officers.

- **Space Technology:** Students were trained to make nano satellite with the objective of disseminating the basic principles of space technology. The models made by the groups were launched in the venue during the valedictory ceremony. NAST provided a model of satellite to each participating school.



- **Teachers' Training** was also conducted with the aim of familiarizing the science teachers with the pedagogical adjustments that they can make to improve engagement and persistence of students toward science education.



The 3-day science fair was participated by 25 schools situated within the periphery of the district comprising 6 students and 1 science teacher, from each school. The science fair organizing team was headed by Ms. Luna Vajra, chief of promotion division and the team members were Ms. Bhawani Oli, Mr. Jyoti phayal, Ms. Goma Upadhyaya, Ms. Roma Lamsal; audio/visual team Ms. Lipika Karmacharya, Ms. Manchita Aryal, Mr. Ohm Baral and Mr. Sanjayashowr Shrestha; Trainers: Engr. Hari Shrestha (Satellite) supported by Mr. Pradeep Dhodari (cyber security) ; Science Faculty

team Mr. Sunil Regmi, Ms. Najma Bajracharya, Benjoy Pandey (water testing).

### Climate Change Awareness



A team led by Dr. Bimala Devkota, Chief of Climate Change Knowledge Management Centre (CCKMC) of NAST organized a climate change awareness program on 2 May, 2024 in Bhojpur district located in Koshi Province. The Program was conducted in coordination with the Education Development and Coordination Unit, Bhojpur district, and Shree Bidhyodaya Secondary School, a Local Management Partner. The awareness program was inaugurated by Mr. Kailash Kumar Ale, Mayor of Bhojpur Municipality, and chaired by Mr. Nagendra Thapa, Chairman of the Management Committee, Shree Bidhyodaya Secondary School. The purpose of the program was to disseminate basic information on climate change and the ways and means of mitigation. Poster presentations, lectures, documentary shows, interaction, and quiz contests related to climate change were organized. 10 Community Schools participated in the quiz and oratory contest on the theme “Climate Change and Mitigation of its Adverse Impacts.”

### Science Writing Training



NAST has been organizing Science Writing Training since 1985, for the aspiring journalists of Nepal. This program is organized every year with the aim to encourage and promote Science Journalism. The training imparted knowledge on the modality of scientific news coverage, being mindful on its authenticity. The training was organized in Baitadi district located in the Far-Western Province, from 1 to 3 January 2024. The 3-day training was inaugurated by Deputy Mayor Kaushala Chand of Dasharath Municipality and was chaired by Dr. Rabindra Prasad Dhakal, Secretary of NAST, Ms. Luna Vajra, Chief of the Promotion Division of NAST, highlighted the program. The inauguration session was addressed by the Special Guests; Mr. Bhim Kanta Sharma, Chief



development officer (CDO); Mr. Liladhar Bhatta, former member of Provincial Assembly, Far-western Province; Mr. Ganesh Thakurathi, coordinator of Civil Society; Mr. Laxmi Datta Pandey, Senior correspondent of Radio Nepal; Mr. Nari Badu, Correspondent of Nepal Television. Likewise, Mr. Gokarna Dayal, Correspondent of Baitadi, Nepal Federation of Journalists, Ms. Ritu Mainali reporter of Radio Melauli and Mr. Lokesh Saud, Correspondent of Naya Patrika shared their experiences.

### **Training in Building Nano Satellite**



The engineers of NAST organized a 4-day training on the Nano satellite-making process in Janakpur, Madhesh Province. The training was held in Shree Yagya Balkiya Sanskrit Secondary School, focusing school school-level students. It was participated by 32 students from 8 government schools. The program was inaugurated by Mr. Manoj Kumar Sah, Mayor of Janakpurdham Sub-municipality, and chaired by Dr. Rabindra Prasad Dhakal, Secretary of NAST. During the training, the students were briefed on the principles and processes of satellite making. It was a great sight to see the keen interest, curiosity, excitement, and active participation of all students. The 4<sup>th</sup> day saw the happy faces of the students holding the model of nano satellites, the product of their hard work. These types of on-the-field practical training are required to promote the passion for science education, which is also one of the objectives of NAST. The program was concluded by Prof. Dr. Ramesh Maskey, Academician of NAST, and the models of Nanosatellite were launched amidst the cheering of all present. Similar training was also conducted as one of the events of the Science Fair conducted in Pyuthan district located in Lumbini Pradesh.

### **Science Diplomacy**

1<sup>st</sup> interaction meeting of the Science Diplomacy and S&T Promotion Sub-committee was held on 24 October, 2024 in NAST. The meeting discussed strengthening the relation with the stakeholders and identifying the areas of cooperation in promoting Science Diplomacy. The meeting was attended by Engr. Ganesh Shah, coordinator of the Sub-committee and the members; Prof. Dr. Anjana Singh, Prof. Dr. Mahesh Kumar Maskey and Mr. Jaya Gurung, Vice-chancellor of NAST Prof. Dr. Dilip Subba, Secretary Dr. Rabindra Prasad Dhakal and the staff-members of NAST attended the program.

### **Landslide Early Warning System Installed**

NAST has initiated a program on Landslide Risk Reduction to minimize the damage of life and property by installing a Landslide Early Warning System. Under the Program, a team of NAST visited Kavre from 7 to 14 June 2024. During the visit, data was collected using Differential Global Positioning System (DGPS) from 15 different sites. After the study of the data obtained and identifying the landslide-prone sites “Landslide Early Warning System” was installed in the Chauri Deurali VDC of Kavrepalanchowk district. The study team of NAST comprised of Engr. Kabita Pandey, Assistant Research Fellow Ramesh Gautam, Dr. Ananta Gajurel, Geologist, TU and Mr. Ram Rimal.

### **Appointments**

Hon’ble Prime Minister and the Chancellor of NAST Puspa Kamal Dahal, the then Prime Minister, appointed 4 Academicians and 4 Associate Academicians of NAST on 26 April 2024.



SN	Name	Discipline	Status
1.	Prof. Dr. Dhana Badur Karki	Food Technology	Academician
2.	Prof. Dr. Subarna Shakya	Information Technology	“
3.	Prof. Dr. Ishori Prasad Dhakal	Agriculture	“
4.	Prof. Dr. Ganesh Dangal	Medical	“
5.	Dr. Tek Bahadur Gurung	Agriculture	Associate Academician
6.	Mr. Subodh Dhakal	Geology	“
7.	Ms. Gunakeshri Pradhan Manandhar	Information Technology	“

## Congratulations !!!



6th General Assembly of Association of Academies and Societies of Sciences in Asia (AASSA) was held in conjunction with the International Symposium on Digital transformation in Healthcare, hosted by the National Academy of Science and Technology, Philippines on 30 October 2024 in Manila. The voting that took place at the General Assembly elected the Executive Board Members for the term 2024-2027. NAST Family would like to congratulate Prof. Dr. Dilip Subba, Vice Chancellor of NAST, for being elected as the Member-at-Large of the AASSA Executive Board.



Dr. Indira Parajuli Associate Academician for receiving the patent entitled “Temperature Neutral Height for Healthy Ventilation for Single Cell House of Himalayan Region” (Nepalese Patent No. 87-80/81) from the Department of Industry, Ministry of Industry, Commerce and Supply, Government of Nepal. Dr. Parajuli is the first woman to receive a patent from Nepal.



Congratulations to Dr. Tista Prasai Joshi, senior scientific officer, NAST for being awarded the 2024 TWAS-Samira Omar Innovation for Sustainability Award, which includes a prize of US\$ 4,000. Dr. Tista was recognized for her pioneering work in improving drinking water quality, particularly in addressing arsenic contamination in groundwater in Nepal.



Congratulations to Dr. Shiba Subedi, Seismologist, NAST for being awarded the John Maddox Judge Commendation. Dr Subedi has received the award for his dedication campaigning in Nepali society for better awareness and preparedness for earthquakes. Dr. Shiba Subedi is a seismologist at NAST, participating in the Brain Pooling program.

## SRC's SPECIAL NEWS BULLETINES

Nepal Academy of Science and Technology (NAST) intensified preparations to bring all Specialized Research Centers (SRCs) established in different provinces of the country, into operation. The offices of the SRCs have been established in 6 Provinces having different areas of research.

SN	Province	Office Established	Area of Research
1.	Koshi SRC in Dharan,	10 May, 2024	Agriculture and Food Technology
2.	Madesh Pradesh SRC in Bardibas	22 September, 2022	Chure Conservation and Development
3.	Bagmati SRC in Rampur, Chitwan	1 August, 2022	Urban Development and Environment
4.	Gandaki SRC in Pokhara	2 December, 2022	Mountain Green Economy
5.	Lumbini SRC in Dang	7 January 2023	Traditional Technology
6.	Karnali SRC in Surkhet	Yet to open the Office	Information and Communication Technology
7.	Far-west SRC in Mahendranagar	13 July, 2017	Herbs Production, Processing and Research


In the case of Karnali SCR, it has been proposed to establish the SRC office in Surkhet and the Academy is paving the way to materialize it.



### SRCs Management Committees at One Place

Academicians and Associate Academician of NAST acting as the coordinators of the 7 Provincial SRCs gathered at NAST on July 12<sup>th</sup>, 2024. The Meet discussed the programs and budget to execute in Provincial SRCs for the forthcoming fiscal year. The program was chaired by the Vice-chancellor of NAST.


SN	Provincial SRC	Coordinator
1	SRC, Bagmati	Prof. Dr. Jib Raj Pokharel
2	SRC, Madesh	Prof. Dr. Paras Nath Yadav
3	SRC, Lumbini	Prof. Dr. Bharat Mani Pokharel
4	SRC, Karnali	Engr. Dr. Niroj Pandey
5	SRC, Gandaki	Dr. Indira Parajuli
6	SRC, Koshi	Prof. Dr. Dilip Subba
7	SRC, Far-west	Prof. Dr. Bijaya Pant

### Activities Performed in Specialized Research Centers (SRC)

SN	SRC, Koshi	Program
1.	Dharan	<p>Interaction program was held on 9 February 2024 to discuss on the initiation and implementation of research programs and the urgency to incorporate the program in the forthcoming Plan and Budget of the Province. The program was attended by Hikmat Karki, Chief Minister of the province; Pach Karna Rai Minister, Provincial Ministry of Education and Social Development, Koshi; Secretaries of Province Government, Prof. Dr. Dilip Subba, Vice Chancellor; Dr Rabindra Prasad Dhakal, Secretary; and staffs of NAST.</p> 

SN	SRC, Madesh	Program
2.	Bardibas	<p>Coordinator of Madesh Provincial Management Committee Prof. Dr. Paras Nath Yadav, expert Mr. Nagdev Yadav and Ms. Sarita visited different Chure range located districts from 17 to 23 April, 2024 to explore the possibilities of conservation and development of Chure. The team is working on the report documenting the findings and plan to publish soon.</p>  


SN	SRC, Bagmati	Program
3	Chitwan	<p>Interaction program on Urbanization and Possibility of Research and implementation, on environment was conducted in Chitwan on 15 March 2024 .</p> 

SN	SRC, Lumbini	Program
4	Dang	<p>Workshop on Indigenous Technology and SRC, Management Committee Meeting was held on 4 April 2024. During the workshop Dr Sarita Shrestha, Dr. Meena Rajbhandari and Dr. Buddhi Prasad Poudel delivered their Presentations. SRC Lumbini Province coordinator and Academician of NAST Dr Bharat Mani Pokharel, Chief Guest Former Chief Minister of the province Mr. Kul Prasad KC attended the programs. The Program was chaired by Dr. Rabindra Prasad Dhakal, Secretary of NAST.</p> 



SN	SRC, Gandaki	Program
1	Pokhara	<p>Interaction program on Green Mountain Economy was organized in December 2023.</p> 

SN	SRC, Karnali	Program
6	Surkhet	<p>Interaction program was conducted in Surkhet on 1 March 2024</p> 

SN	SRC, Far-west	Program
7	<p>Mahendranagar</p> <p>Kanchanpur</p>	<p>1. Workshop on Medicinal and Aromatic Plant Resources for Research and Development. Presentations by Prof. Dr. Bijaya Pant, Academician and coordinator for Far-western Province Committee, Dr. Lok Ranjan Bhatta, chief scientific Officer, NAST; Chief of Plant Research Centre, Dhangadi, Gangadutta Bhatta and herb entrepreneur, Tek Bahadur Chand.</p> <p>2. Interaction program on 10<sup>th</sup> &amp; 11<sup>th</sup>, June 2024 in Bhimdutta Municipality located in Kanchanpur district for the opening of SRC office and construction of a lab.</p> 

SN	SRCs Meetings	Program
1.	Meeting of Provincial SRC committees	Interaction program was held in NAST on 25 <sup>th</sup> August, 2024 to plan and discuss on the program and budget for the provincial SRC's. The meeting also discussed on the TOR and guidelines for the staffs deputed to the provincial offices. The program was participated by all 7 Provincial SRCs' Coordinators and Members of the committees and chaired by the Vice-chancellor of NAST.

### Participation of Executives and Staffs

S N	Name	Program/Date/Venue	Theme	Organizer
1	Prof. Dr. Dilip Subba  Vice- chancellor	30 April, 2024  Baluwatar, Kathmandu	76th Board Meeting of	Sanskrit University,  Nepal
2	Dr. Rabindra Prasad Dhakal  Secretary, NAST	8th China-South Asia  Exposition (CSA Expo) &  28th China Kunming  Import and Export Fair  23-28 July 2024  Yunnan, Kunming City, China	Solidarity and Coordination  for Common Development	Chinese Ministry of  Commerce & People's  Republic of China,
3	Mr. Pradeep Dhodari  System Administrater	Conference  17th May, 2024	Sustainable Telcommuni- - cation Sector in Nepal	Nepal Telecommuni- - cations Authority

	Engr. Manoj Sah, NAST	Kathmandu, Nepal		
4	Engr. Hariram Shrestha  Technology Officer	Training  <i>17-30 June, 2024</i>  Kanpur, India	Spacecraft and Dynamics  Control	tines new  Technology (IIT), India
5	Dr. Tista Prasai Joshi  Senior Scientific Officer	15-19, April, 2024  Trieste, Italy	Speaker of  Orientation Program	UNESCO OWSD  Central European Initiative  UNESCO OWSD
6	Dr. Bimala Devkota  Chief Scientific Officer	20-23rd, 2024	International Expert Dialogue  on Mountains, People  and Climate Change	Central European Initiative
7	Hari Ram Shrestha, Head, Space Research Centre	12–25 September, 2024  Wuhan City, China	International Beidou Satellite & GNSS Seminar	Wuhan Research Institute of Posts and Telecommunications

## MESSAGE FROM THE VICE-CHANCELLOR



*“I take this opportunity to welcome you all to this issue of the COMMUNICATOR, a newsletter of NAST, and to move down the memory lane of the activities performed by the NAST during 2024. This issue highlights most of the research, innovation, and promotional activities from January to December 2024. NAST takes pride in announcing the establishment of its provincial Specified Research Centre (SRC) in six provinces of the country and the seventh establishment of SRC in Surkhet, Karnali is on the verge of materializing. NAST has done a lot but are unseen and yet to outreach society. The communicator tends to bridge that gap between NAST and the Society. NAST has been extending services to the public and contributing to the S&T sector since its establishments and the addition of the NMR equipment has added value to the research.*

*The Academy will continue doing its level best for the advancement of the S&T sector and will keep you informed about it through the coming issues of COMMUNICATOR. Further, we seek extensive collaboration on the meaningful researches that contribute to the economy of the country. Together we can make this dream come true through science for society.”*

*“Wish you all the Happy New Year 2025”*

*- Prof. Dr. Dilip Subba  
Vice Chancellor  
Nepal Academy of Science and Technology (NAST)*

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