Report on

ISME Sponsored

Second South Asian Symposium on Microbial Ecology

(SASME 2023)

01 – 03 November, 2023

Himalya Drishya Resort, Dhulikhel, Nepal

Report Prepared and Submitted by:

Dr. Dev Raj Joshi,

Chair SASME 2023 and ISME ambassador to Nepal

&

Dr Reshma Tuladhar, ISME ambassador to Nepal

Report Contents

1. Background

As a unique hotspot of microbial biodiversity with multiple zones of biotic patterns due to complex biogeography, south Asia is considered as the most densely populated zone inhabited by 1.7 billion people living in this territory which spans 5.1 million square kilometers with the countries of Afghanistan, Bangladesh, Bhutan, India, Nepal, Pakistan and Sri Lanka.

South Asia is the most vulnerable region due to impacts of climate change, thus the microbial ecosystems are under the threat in this region. A high rate of deforestation, increased population, discharge of untreated solid and liquid waste in the natural bodies, air pollution, etc. have created negative impact on microbiome community of the environment. The magnitude and the dynamics of the threat on the diversity of the microbes in this region is still elusive. Therefore, research in the area of microbial ecology to a greater extent is indispensable and has potential to contribute for human welfare. Thus, a sustainable network to foster a collaborative research among the researchers within and beyond this region is indispensable. A strong community of microbial ecology is necessitated for quality research with impactful outcome. Such network and collaborative efforts provide a platform for early career researchers and students empowering them to pave their future path of research.

The International Society for Microbial Ecology (ISME) is pioneer to promote Microbial Ecology network globally. South Asian Regional symposia was initiated as the first ISME sponsored South Asian symposium on Microbial Ecology - the SARSME 2020 in Pokhara, Nepal. With a great success of SARSME 2020, Microbial Ecology Network Nepal (MENN) in association with Tribhuvan University organized second "South Asian Symposium on Microbial Ecology" (SASME 2023) to bring together south Asian Microbial Ecologists, students and early career researchers to share advanced knowledge and build a sustainable network to foster collaborative research in this region. Under the theme "***Microbial Ecology for Sustainability*"** SASME 2023 covered the wide range of biological sciences with interdisciplinary perspectives.

2. Regional Meet of ISME Ambassador for South Asian countries

On the first day (01 Nov 2023), an interactive meeting of ISME ambassador representing South Asian countries with ISME International board members was held on the first day of SASME 2023 (November 01, 2023). Prof Thulani P Makhalanyane, the director of ISME international ambassador program chaired the meeting. The meeting reviewed current situations, challenges and opportunities to promote Microbial Ecology in south Asia. Director Thulani and past president Prof Colin Murrell shared ISME objective and policies of ambassador program and the use of ISME ambassador fund in meaningful way. Director Thulani also shared that ISME is considering to deduce the society membership fee for students and professional of low income countries.

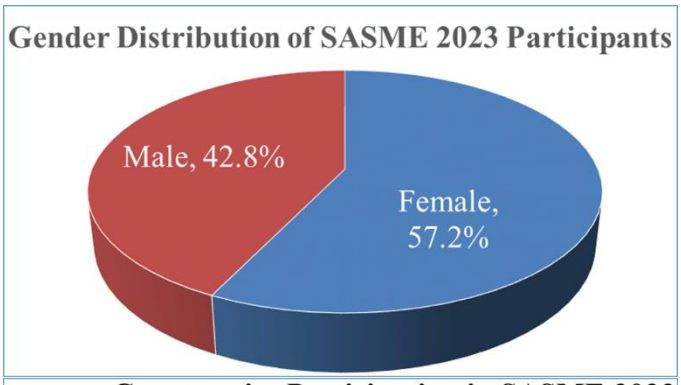
ISME international board members Prof Feng-Ping Wang and Prof Jillian Peterson were also present in the meeting.

ISME ambassadors Dr Dev Raj Joshi (Nepal), Prof Rup Lal (India), Prof Shahida Hasnain (Pakistan), Prof Punyasloke Bhadury (India), Dr Reshma Tuladhar (Nepal) and Dr Namgay Om (Bhutan) participated the meeting. The regional meet of ISME Ambassador for South Asian countries expressed their commitment to expand ISME activities in the region.

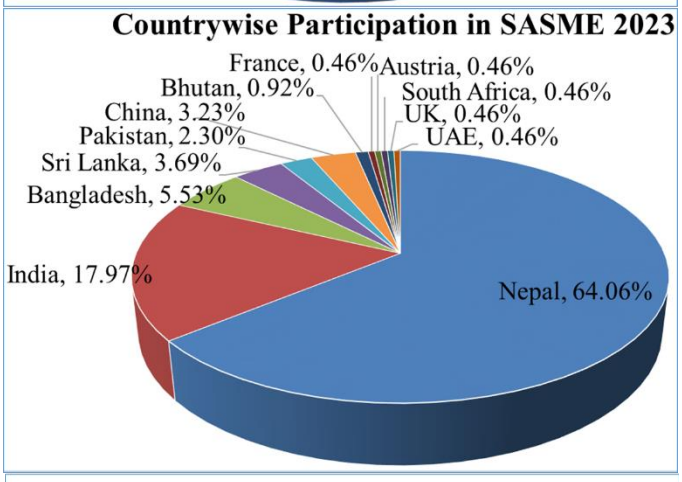
ISME ambassadors meet also emphasized on local research collaborations.

3. SASME 2023 Participants

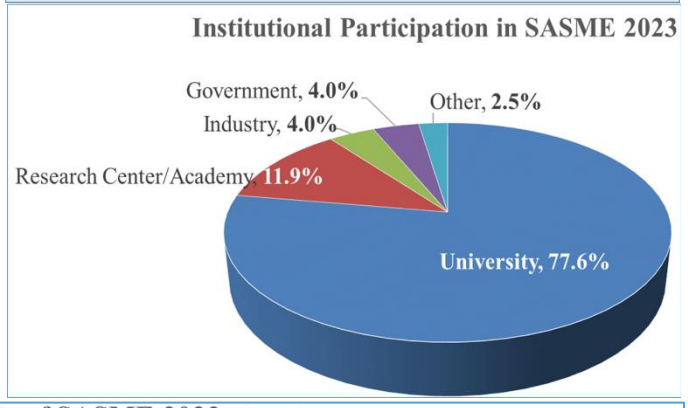
- A total of 203 scientists, professors, biotechnologists, microbiologists, students and industry entrepreneurs participated the symposium. Women participants were higher in number (57.2%).



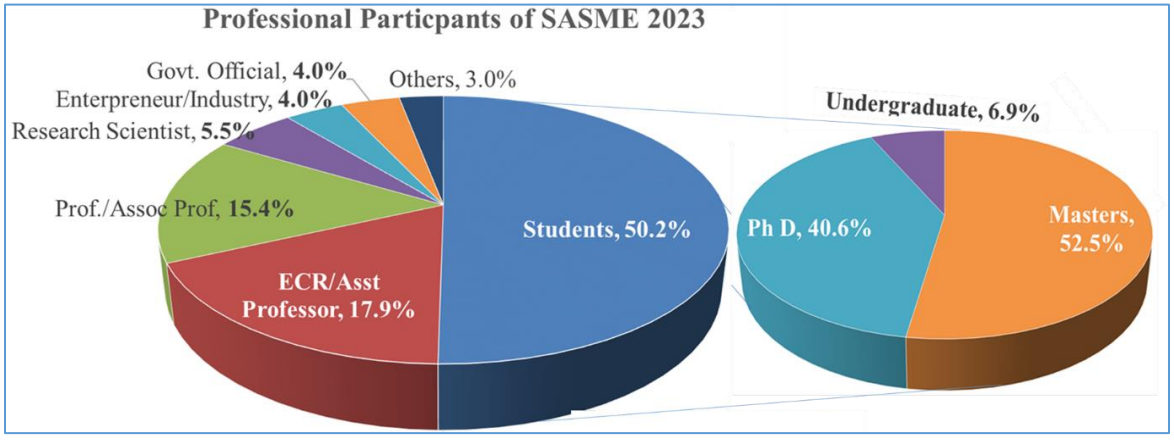
- A total of 12 countries represented in the SASME 2023, mainly from south Asia (191/203). Scientists and students from China (7), UK, Austria, South Africa and France, UAE also participated.



- Majority of SASME 2023 participants were affiliated to universities, however, nearly 12% were from research centers or academies. Government and industry affiliated participants were 4% each.



- Among total participants, half were either Masters or Ph D students and nearly 18% were early career researchers (ECR) or university lecturers. University professors accounted for over 15% of participants.



- Over 48 institutions from different countries were represented in SASME 2023.

Photograph 1. Participants of SASME 2023 with Guests and Chief Guest

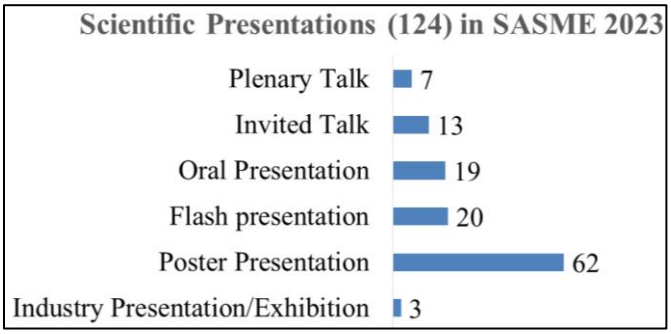
Photograph 2. Inauguration of SASME 2023 by Hon. Minister for Education, Science and Technology Mr. Ashok Kumar Rai (Nepal)

Photograph 3. Organizing team with ISME Board and Hon. Minister for Education, Science and Technology Mr. Ashok Kumar Rai (Nepal)

4. Second SASME 2023 Programmes

4.1 Scientific Symposium (01 – 03 November 2023)

A total of 124 scientific papers on Microbial Ecology research, industrial innovation, technology application etc were presented in the symposium. The presentation topics included terrestrial, aquatic and marine microbial ecology to human microbiome, human and animal pathogens, antimicrobial resistance, plant-microbe interactions, science for society and many more areas.



Seven ***plenary talks*** were delivered on diverse research area.

SN	Speaker	Plenary Talk
1	*Prof. Rup Lal*, Indian National Science Academy, India	Microbial literacy for better human health, environmental protection and global peace: Our mission and initiative
2	*Prof. Colin Murrell*, University of East Anglia, Norwich, UK	Focused and functional metagenomics: A case study of trace gas metabolism
3	*Prof. Feng-Ping Wang*, Shanghai JiaoTong University, China	Microbially driven elemental cycling in the ocean and climate change
4	*Prof. Shahida Hasnain*, The University of Punjab, Pakistan	Microbial diversity, microbiomes, and microbiota: Unveiling nature's hidden players and their future prospects
5	*Prof. Thulani P Makhalanyane*, University of Pretoria, South Africa	Microbial contributions to ecosystem functioning in the Southern Ocean
6	*Prof. Yu Zhang*, University of Chinese Academy of Sciences, China	Development of control technologies for eliminating antibiotics and blocking antibiotic resistance dissemination in environment
7	*Prof. Jillian Peterson*, University of Vienna, Austria	400 million years of symbiosis: Ecology and evolution of host-microbe interactions in marine lucinid clams

Photograph 4. Plenary Talk by Prof Colin Murrell (UK) in SASME 2023

Photograph 5. Invited talks in SASME 2023

Invited talks (13) were in presented by professors and experts from different institutions.

SN	Invited Speaker	Invited Talk
1	*Prof. Krishna Das Manandhar*, Tribhuvan University, Nepal	Circulating dengue virus and neutralizing antibodies in Nepalese population
2	*Prof. Md Tanvir Rahman*, Bangladesh Agricultural University, Bangladesh	Antimicrobial resistance: The current situation and way forward!
3	*Dr. Rachel Bras-Gonçalves*, Research Institute for Sustainable Development, France	Leishmaniasis - Challenges and progress in vaccine discovery
4	*Prof. AA Mohamed Hatha*, Cochin University of Science and Technology, India	Changes in the microbial diversity in the Arctic as a function of climate change
5	*Dr. Punyasloke Bhadury*, Indian Institutes of Science Education and Research Kolkata, India	Biological tracking of nitrogen pollution in mangroves-biomonitoring using high-throughput sequencing approach
6	*Prof. Dhruva P Gauchan*, Kathmandu University, Nepal	Unlocking nature's pharmacy: Bioactive secondary metabolites of endophytic fungi isolatedfrom Himalayan Yew and the quest for anticancer marvel, taxol
7	*Prof. Anwar Hussain*, Abdul Wali Khan University, Mardan, Pakistan	Chromate stress management in sunflower through root interacting microbes
8	*Dr. Om Namgay*, Ministry of Agriculture and Livestock, Bhutan	Preliminary evaluation of native isolates of *Trichoderma* spp. against *Phytophthora capsici*
9	*Dr. Bhushan Shrestha*, Madan Bhandari University of Science and Technology, Nepal	Scientific study of Yarsagumba (*Ophiocordyceps sinensis*) in Nepal
10	*Dr. Mansi Verma*, University of Delhi, India	Exploring genomics, proteomics and cheminformatics of dengue virus using *in silico* studies
11	*Dr. Reshma Tuladhar*, Tribhuvan University, Nepal	Environment Surveillance of SARS-CoV-2 genomic variants in wastewater of Kathmandu, Nepal
12	*Dr. Zhe Tian*, Research Center for Eco-Environmental Sciences, China	Plasmids as the main carrier for the proliferation of antibiotic resistance genes in aerobic biofilm microbiota under increasing antibiotic pressures
13	*Dr. Helianthous Verma*, University of Delhi, India	Insights into molecular drug target genes in *Mycobacterium tuberculosis* using comparative genomics

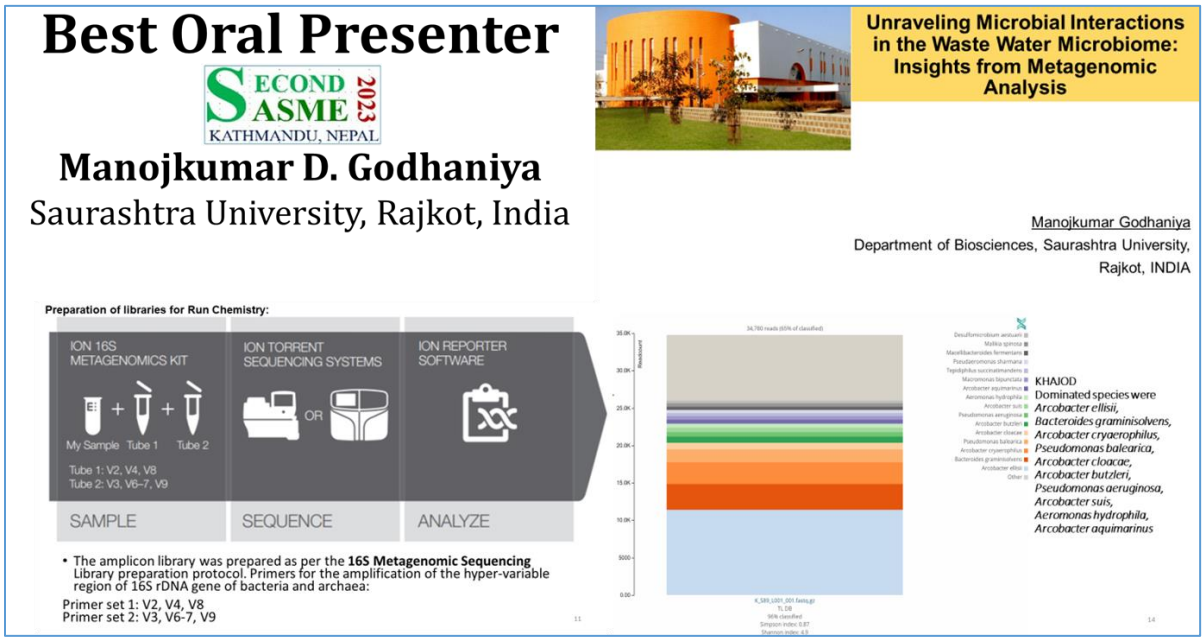
Industrial talks (2) were delivered by young entrepreneurs as follows:-

SN	Presenter	Industrial talk
1	*Mr. Lei Xu*, Tailin Biotech in Hangzhou, China Co., China	*Intelligent microbial detection in water using Enzyme Substrate Method*
2	*Dr. Pooja Manandhar*, Nepal Bioscience Research Laboratory, Nepal	*Biofertilizer development using indigenous microorganisms based technology with the management and recycling of agricultural waste*

Photograph 6. Exhibition Stalls in SASME 2023

Oral presentations (19) were delivered by early career researchers and some mid-career researchers from different institutions of south Asia.

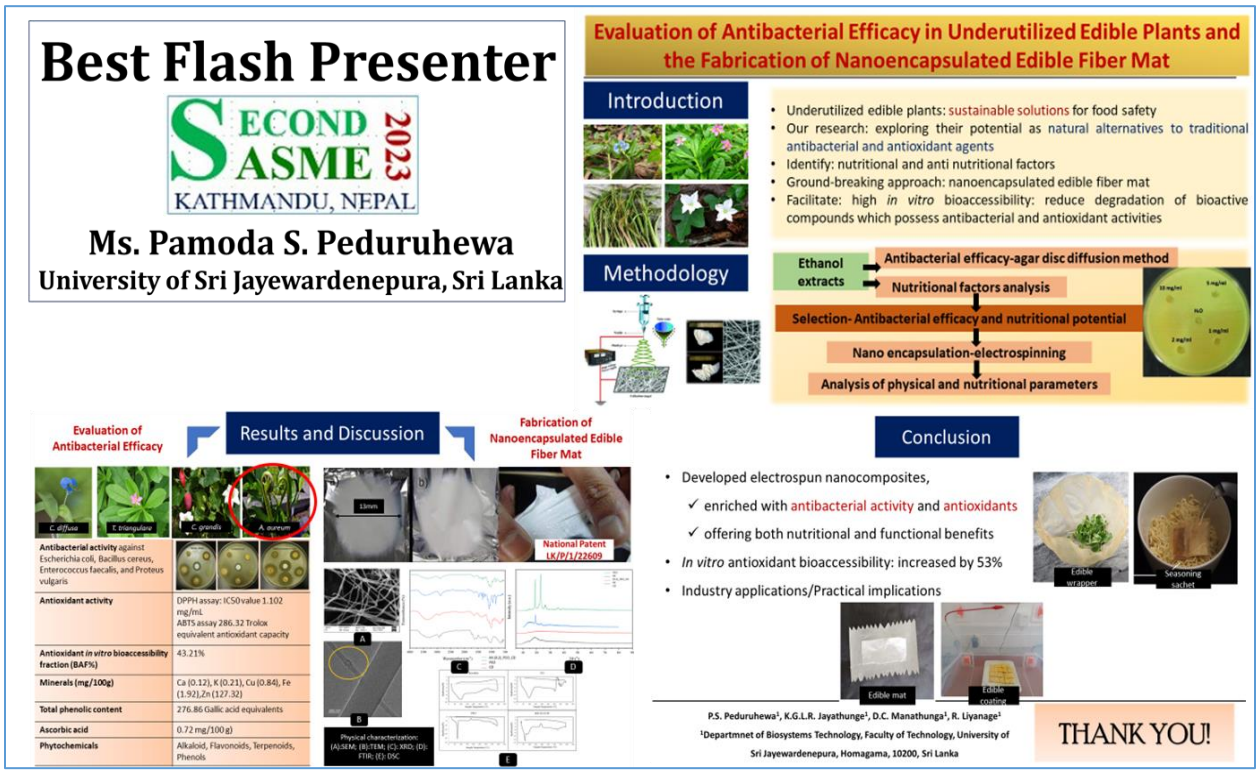
Photograph 7. Oral Presentations in SASME 2023



Photograph 8. Best Oral presenter Award in SASME 2023

Flash Presentations (20) were mostly given by Ph D students and some Master students from different institutions of south Asia. The students shared their research with great enthusiasm and senior professors commented with useful suggestions.

Photograph 9. Flash Presentations by students in SASME 2023

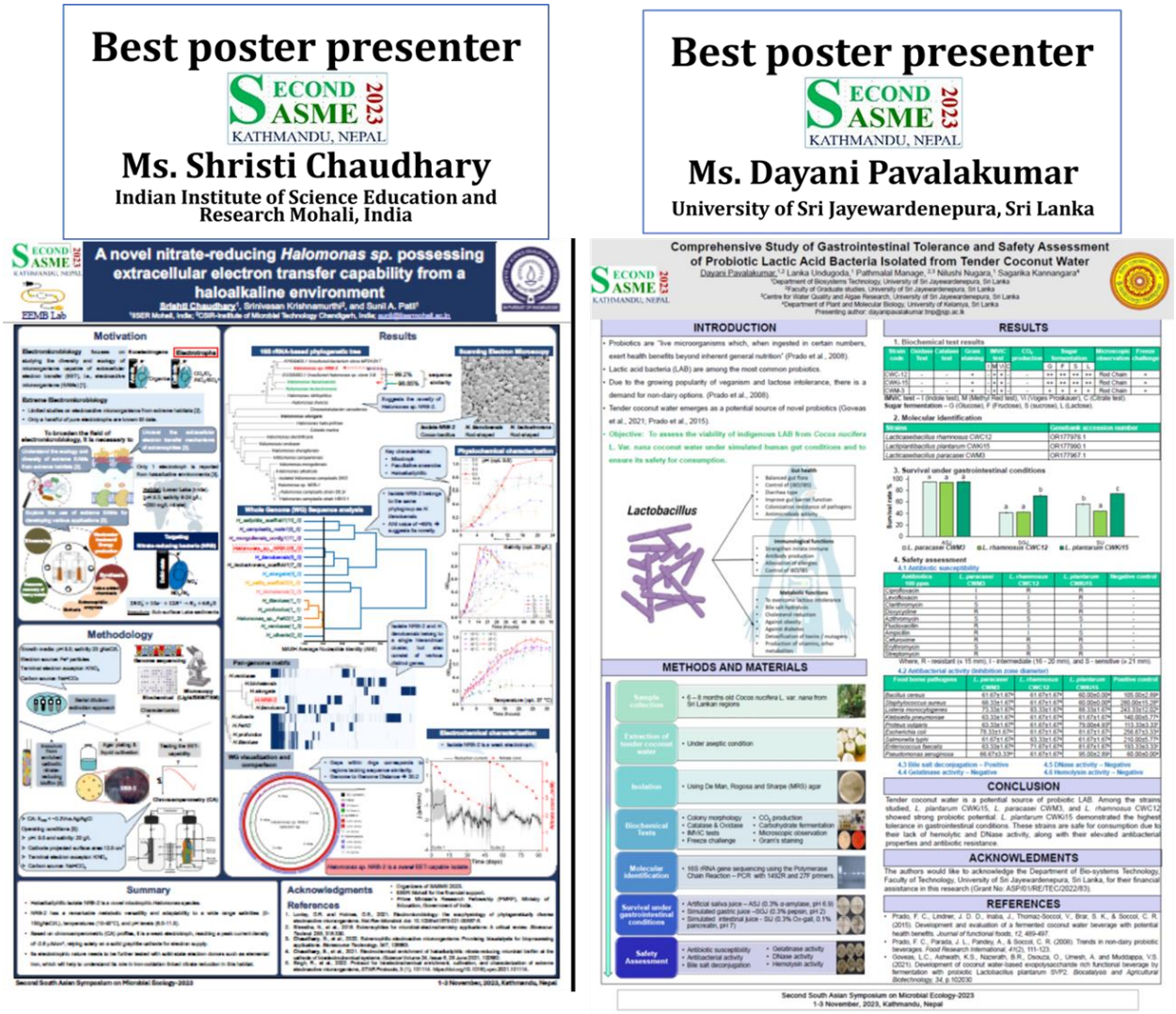


Photograph 10. Best Flash Presenter Award by students in SASME 2023

Poster Presentations (62) in SASME 2023 (01 to 03 November 2023)

A large number of students and researchers presented their research in SASME 2023 in the mode of poster presentation (62) (Fig 7) representing different institutions from different countries of south Asia. The poster were evaluated by expert panel.

Photograph 11. Poster Presentations in SASME 2023



Photograph 11. Best Poster Presenter Award in SASME 2023

4.2 Capacity Building Workshops for ECR and students (Day-1: 1st Nov 2023)

Two pre-symposium workshops were conducted on day 1 (01 November 2023) at symposium venue. A hands-on training cum workshop on "*Advanced methods on Microbial Ecology*" was focused on sequencing methods and bioinformatics techniques for early career researchers and Ph.D., Master, and undergraduate students.

Resource persons for the workshop on "*Advanced methods on Microbial Ecology*" Prof Punyasloke Bhadury and Dr Anwesha Ghosh were from IISER Kolkata, India.

The workshop included lectures by resource person and demonstration of Oxford Nano pore sequencing platform.

The participants also engaged on hands practice of SeqCode.

Photograph 12. Pre-symposium Workshop on Advanced methods in Microbial Ecology by Prof Punyasloke Bhadury (IISER, Kolkata, India). The training modules included Concepts of eDNA and gDNA/Nanopore MinION system, gDNA sequence data processing and Introduction to SeqCode

Second pre-symposium workshop was focused to Scientific Writing and Publication in high impact journals. Prof Jillian Peterson, Chief Editor of ISME Journal was key resource person for this session. Prof Peterson also highlighted the criteria and requirements for publishing in ISME Journal.

Photograph 13. Pre-symposium Workshop on Scientific Writing by Prof Jillian Peterson (Chief Editor, ISME Journal) and other panelists

Both the pre-symposium workshops were very much interactive. Altogether four students, two from each were awarded as best interjector.

Photograph 14. Best Interjector Award winners

Workshop: Career Round Table Panel Discussion **(Day-2: 2nd Nov 2023)**

In general, young graduate students have great confusion about their career in south Asia. A career round table discussion held in SASME 2023 presented career path in research, further studies and entrepreneurships and jobs for students. Prof Colin Murrell, Prof Thulani, Prof Tanvir and Prof Punyasloke discussed about career path and guided to students.

Photograph 15. Career Round Table panel discussion. Prof Colin Murrell, Prof Thulani, Prof Tanvir and Prof Punyasloke discussed about career path and guided to students.

4.3 Workshop on Women in Microbial Ecology (Day-2: 2nd Nov 2023)

Women scientist including microbial ecologists from south Asia region have made remarkable achievements in science. However, their representation in research and academic institutions is still low compared to their male counterparts. A workshop on ***Women in Microbial Ecology*** in SASME 2023 advocated for gender equity in science to inspire young women researchers in this region. The workshop was chaired by *Prof Dr Anjana Singh* (Tribhuvan University, Nepal) and co-chaired by *Dr. Rachel Bras-Gonçalves* (France). The workshop was moderated by *Dr. Tista Prasai Joshi* (Nepal Academy of Science and Technology) and rapporteur by *Ms. Pramila Parajuli* (St. Xavier's College, Nepal).

The panelist for "Women in Microbial Ecology" workshop

SN	Country	Panelist	Affiliations
South Asian Countries			
1	Bangladesh	*Dr Afrina Mustari*	Bangladesh Agriculture University
2	Bhutan	*Dr Namgay Om*	Royal Government of Bhutan
3	India	*Prof Rekha Kumari*	Miranda House, University of Delhi
4	India	*Dr Mansi Verma*	Ramjas College, University of Delhi
5	Nepal	*Dr Reshma Tuladhar*	Tribhuvan University
6	Pakistan	*Ms. Aneesa Nayab*	Abdul wali Khan University
7.	Pakistan	*Prof Shahida Hasnain*	The University of Punjab
Other than South Asian Countries			
8	China	*Prof Fengping Wang*	Shanghai Jiao Tong University
9	China	*Prof Yu Zhang*	University of Chinese Academy of Sciences
10	Austria	*Prof Jillian Peterson*	University of Vienna

Photograph 16. Workshop on Women in Microbial Ecology. All panelists explained their achievements in Science and described situation of women participation in Science more particularly in Microbial Ecology, key challenges for women in science and most effective way to enhance women participation in science in their community or country.

4.4 Workshop on Industry to Academy Communications (Day-3: 3rd Nov 2023)

The panel discussion on ***Industry to Academy Communications*** was chaired by Former Minister for Environment, Science and Technology (Government of Nepal) *Er Ganesh Shah*, co-chaired by Secretary of Ministry of Social Development, Bagmati Province Government *Dr Bhishma Kumar Bhusal* and moderated by Associate Professor *Dr Pramod Paudel*, Tribhuvan University. The panelist included *Prof Dr Krishna Das Manandhar* (Tribhuvan University), *Prof Dr Dhruva Prasad Gauchan* (Kathmandu University), *Dr. Pravin Dudhagara* (Veer Narmad South Gujarat University, Surat, India), *Dr Sujan Sigdel* (Nivix Pharmaceutical), *Mr. Ken Zhang* (Tailin Biotech in Hangzhou, China Co., China) and *Dr Pooja Manandhar* (NBRL, Nepal).

4.5 Valedictory and Closing of SASME 2023 (Day-3: 3rd Nov. 2023)

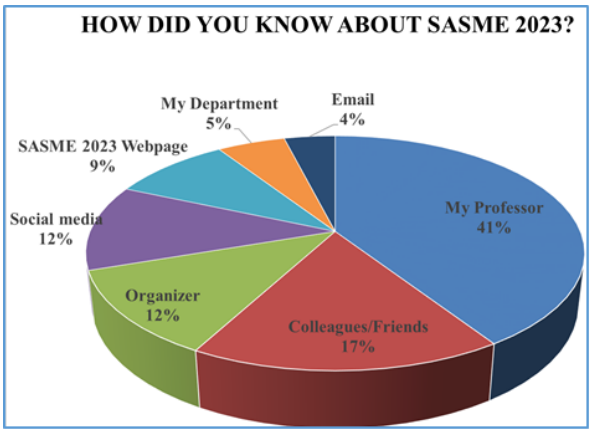
Photograph 17. Prize distribution and Token of Love. Chief guest Mayor Mr Byanju of Dhulikhel municipality

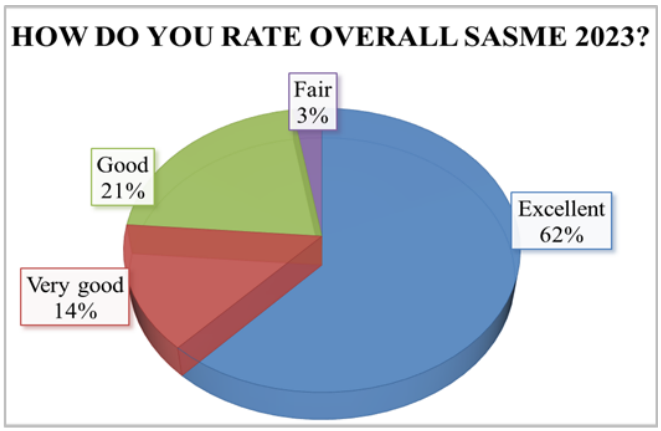
Photograph 18. Closing Ceremony.

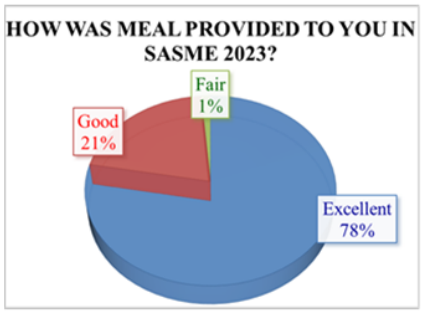
5. Feedback from SASME 2023 participants

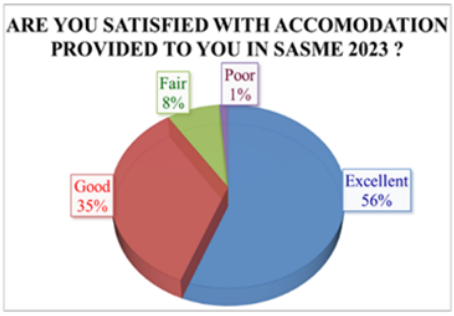
A total of 77 participants mostly the students responded to the feedback questionnaire.

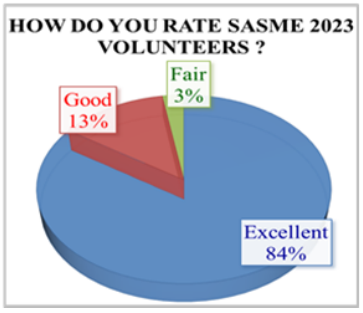
SASME 2023 Management



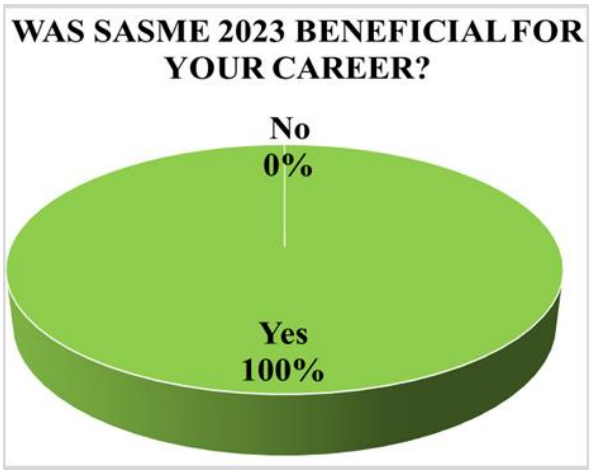


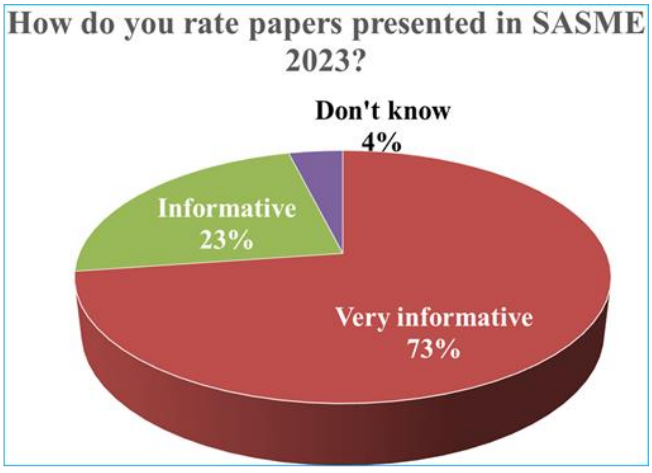




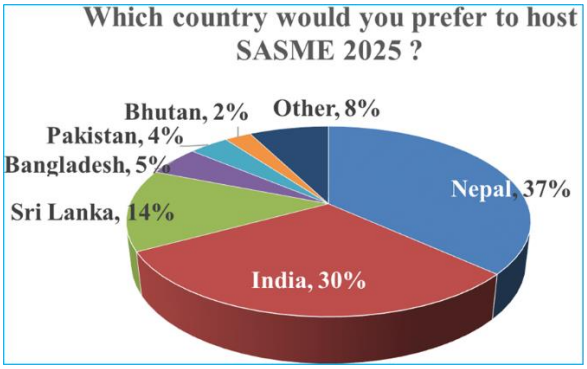


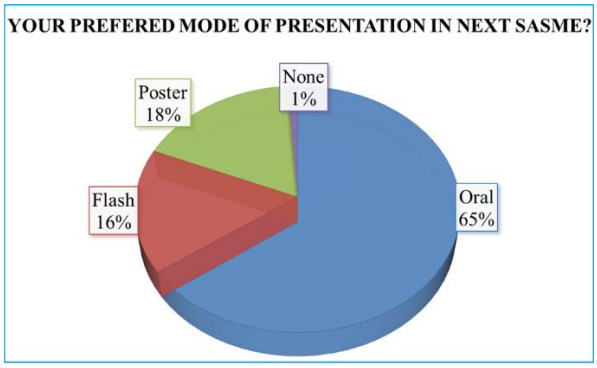
Impact of SASME 2023





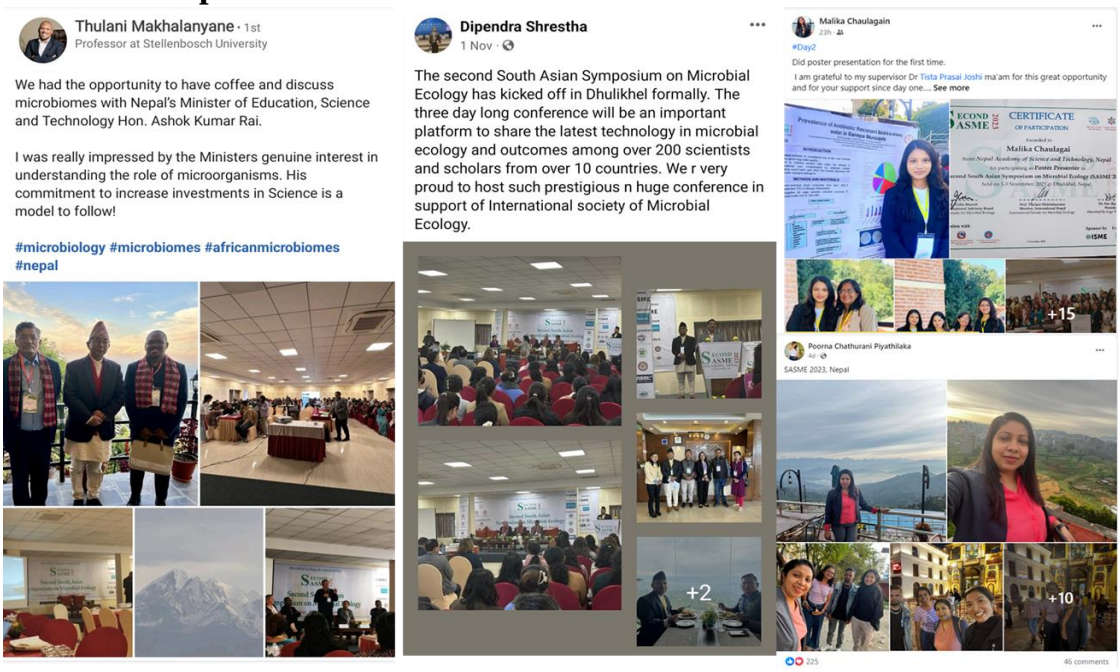
About SASME 2025





Photograph 19. Nepali culture dance in SASME 2023 (Day 1: 1st Nov. 2023)

6. Social media posts



7. Online /Print Media coverage for SASME 2023

THE KATHMANDU POST

Without Fear or Favour

Sunday, November 5, 2023

WHAT'S NEWS : Aftermath of Jajarkot earthquake | Earthquake survivors | Search and rescue efforts | Foreign help for quake relief | Nepal's climate crisis

MONEY

Second South Asian Symposium on Microbial Ecology held

Scientists and students from eleven countries participated in the international symposium.

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Post Report

Published at : November 5, 2023 | Updated at : November 5, 2023 11:58

The Second South Asian Symposium on Microbial Ecology brought together nearly 200 senior, mid and early-career microbial ecologists from different countries of South Asia and beyond.

Scientists and students representing eleven countries participated in the international symposium and 130 scientific research papers including seven plenary and 13 invited talks were presented, organisers said.

During the symposium, three capacity-building workshops, women scientists' session and industry–academy panel discussion workshops were also organised.

The key objective of the symposium included the promotion of early career researchers and young students building their research capacity and celebrating the achievements of under-represented researchers, including women scientists in the field, according to organisers.

The three-day event organised by Microbial Ecology Network – Nepal and Tribhuvan University was inaugurated by Minister for Education, Science and Technology Ashok Kumar Rai at Himalaya Drishya Hotel on November 1.

MORE | Tuesday, 07 November 2023

The Himalayan

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Kathmandu

Microbial Ecology Network–Nepal, TU conclude Second South Asian Symposium on Microbial Ecology, 2023

By THT Online

Published: 10:47 am Nov 06, 2023

KATHMANDU, NOVEMBER 6

Microbial Ecology Network-Nepal and Tribhuvan University organized the Second South Asian Symposium on Microbial Ecology, 2023 (SASME 2023), in Dhulikhel, on November 1-3.

This three day symposium was inaugurated by Minister for Education, Science and Technology Ashok Kumar Rai at Himalaya Drishya Hotel on 1st November, 2023. This symposium brought together nearly 200 senior, mid-, and early career Microbial ecologists from different countries of South Asia and beyond. Scientists and students representing eleven countries participated in the international symposium.

A total of 130 scientific research papers including seven plenary and 13 invited talks were presented in the symposium. During the symposium three capacity building workshops, women scientists' session and industry–academy panel discussion workshops were also organized. The key objective of the symposium included the promotion of early career researchers and young students building their research capacity and celebrate the achievements of under-represented researchers, including women scientists in the field.

https://thehimalayantimes.com/kathmandu/microbial-ecology-networknepal-tu-conclude-second-south-asian-symposium-on-microbial-ecology-2023

SASME 2023, Dhulikhel Declaration

As of November 4, 2023

We, scientists and researchers of microbiology and biotechnology of South Asian countries and beyond, participating in-depth discussion in Second South Asian Symposium on Microbial Ecology in Dhulikhel of Nepal from November 1-3, 2023, declare hereby a common commitment.

Realizing climate change as a high burden real-time problem and that South Asian countries and people are destined to suffer the most from it, the symposium focuses on studying role of microorganisms in global warming gases production as well as inhibition of it so as to decrease amount of the greenhouse gases in atmosphere.

Considering the rise of antimicrobial resistance developed by microorganisms into an alarming level, the symposium motivates to work to reduce the trend and find alternative way to treat infections.

Focusing on the diverse ecological microbiomes in South Asia, the Symposium motivates the urgent need of groundbreaking study using cutting-edge technologies to find out environmental microbiomes and microbiota in the region.

Observing high possibility of useful metabolites and enzymes of diverse microbiota of South Asia, the Symposium realizes the need to utilize the metabolic capabilities of tremendous genetic pool of microbiomes for the benefit of human kind.

Monday, 6 November 2023 | Gorkhapatra | E-paper | E-paper Archive

NATION'S 1ST ENGLISH BROADSHEET

THE RISING NEPAL

ALL BE HAPPY, ALL BE WELL

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South Asian symposium on microbial ecology concludes

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The Rising Nepal

Mon, 6 November 2023

5.8 Magnitude aft
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Relief and rehabili

By A Staff Reporter,Kathmandu, Nov. 6: The Second South Asian Symposium on Microbial Ecology, held in Dhulikhel, Nepal, saw the participation of nearly 200 senior, mid-level, and early-career microbial ecologists from various South Asian countries and beyond.

This international symposium, organized by the Microbial Ecology Network – Nepal and Tribhuvan University from November 1 to 3, 2023, brought together scientists and students representing 11 countries, who shared their research findings and experiences.

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Tuesday, 07 November 2023 02:58 PM

HOME | POLITICS | ECONOMY | SOCIETY | SPORTS | OPINION | LIFESTYLE | THE WEEK | CORONAVIRUS

Second South Asian Symposium on Microbial Ecology concludes successfully

Published On: November 6, 2023 11:03 AM NPT By: Republica | @RepublicaNepal

TRENDING

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KATHMANDU, Nov 6: The second South Asian Symposium on Microbial Ecology, 2023 (SASME 2023), jointly organized by the Microbial Ecology Network – Nepal and Tribhuvan University (TU), has concluded successfully. This three-day symposium took place in Dhulikhel, Nepal, from November 1 to November 3, 2023.

The symposium was inaugurated by Honorable Minister for Education, Science and Technology, Ashok Kumar Rai, at Himalaya Drishya Hotel on November 1, 2023. It brought together nearly 200 senior, mid-career, and early career microbial ecologists from various countries in South Asia and beyond.

A total of 130 scientific research papers, including seven plenary and 13 invited talks, were presented during the symposium, with scientists and students representing eleven countries participating in this international event. The symposium also featured three capacity-building workshops, a session dedicated to women scientists, and an industry-academy panel discussion.

One of the key objectives of the symposium was to promote early career researchers and young students in building their research capacity while celebrating the achievements of under-represented researchers, including women scientists in the field of microbial ecology.

In-depth discussions during the symposium revolved around pressing issues such as climate change, which is a real-time problem with a high global burden, especially affecting South Asian countries. The symposium focused on studying the role of microorganisms in the production and inhibition of greenhouse gases to address global warming. Additionally, the event emphasized the need to harness the metabolic capabilities of the vast genetic pool of micro biomes for the benefit of humanity.