Report
on
Monthly Faculty Lecture

Series	August, 2025-26

Date: 27th August, 2025; Time: 2:00 PM

Title: Plastic and Microplastics Contamination: A Crisis in Today's World

On 27th August, 2025 the Monthly Faculty Lecture was held under the aegis of Swami Vivekananda University at NND block, Room No: 314, where **Prof. (Dr.) Nimai Chandra Saha, Director, School of Life Sciences and Dean of Science, Swami Vivekananda University, West Bengal, Former Vice-Chancellor, The University of Burdwan**, delivered an insightful lecture on the crucial topic of "Plastic and Microplastics Contamination: A Crisis in Today's World" The event was graced by the presence of SVU officials, directors of various departments, faculty members, staff, and research scholars, making it a significant gathering of academic and professional minds.

Introduction

The session commenced with an opening address by **Prof. (Dr.) Ranjan Chakrabarti, Director, Research & Academic Development, SVU**, who underscored the urgency of addressing environmental challenges arising from the unchecked use of plastics. Drawing parallels with contemporary sustainability debates, he emphasized how research and awareness on plastic contamination are no longer academic luxuries but global necessities. The event was chaired by Prof. (Dr.) Swapan Datta, Director, School of Agriculture, Swami Vivekananda University, Former, Vice Chancellor, Visva Bharati University, Santiniketan West Bengal.

Following this introduction, the distinguished speaker **Prof. (Dr.) Nimai Chandra Saha** was welcomed to deliver the keynote lecture. A renowned academician and researcher, Prof. Saha's credentials include his leadership as Director, School of Life Sciences and Dean of Science, Swami Vivekananda University and his previous role as Vice-Chancellor of The University of Burdwan. His expertise in aquatic toxicology, environmental biology, and pollution studies set the stage for an impactful session that blended scientific rigor with practical solutions.

In his opening remarks, Prof. Saha posed a striking question to the audience: "How much plastic have you touched today?" He reminded participants that from toothbrushes to mobile phones, packaging to clothing, plastics are deeply embedded in daily life. Yet, this convenience masks a dire legacy of pollution and toxicity. Each year, over 300 million tons of plastic are produced worldwide, of which nearly 8 million tons find their way into oceans,

degrading into microplastics that infiltrate water, soil, the food chain, and even the human body

Key Highlights of the Lecture

Prof. Saha structured his lecture around three broad dimensions:

- The scale and sources of plastic and microplastic contamination.
- The environmental and health impacts of this crisis.
- The preventive and remedial measures needed at local, national, and global levels.

The following sections outline the key discussions.

1. Why Plastics Dominate Our World

The session began with an exploration of why plastics became so ubiquitous despite their environmental risks. Prof. Saha explained that plastics are:

- **Lightweight and durable** – reducing transportation costs and damage.
- **Versatile and moldable** – easily formed into bottles, films, fibers, and more.
- **Cost-effective** – cheaper to produce compared to glass, paper, or metal.
- **Water and chemical resistant** – ideal for packaging food, chemicals, and medical supplies.
- **Safe and hygienic** – particularly for disposable medical use such as syringes, gloves, and face masks.

However, these very properties—**durability, chemical stability, and resistance to degradation**—also make plastics highly persistent pollutants.

2. From Plastics to Microplastics

Prof. Saha elaborated on the classification of plastics by size:

- **Macroplastics** (>25 mm)
- **Meso plastics** (5–25 mm)
- **Microplastics** (1–5 mm)
- **Nanoplastics** (<1 μm)

Microplastics, the central concern of the lecture, originate in two ways:

- **Primary microplastics** – manufactured directly, e.g., microbeads in cosmetics, synthetic textile fibers, tire wear, and plastic pellets.
- **Secondary microplastics** – formed when larger plastics degrade due to sunlight, abrasion, or environmental exposure.

These microscopic particles are now ubiquitous—in oceans, rivers, soils, mountain snow, and even the atmosphere.

3. The Environmental Fallout of Plastic Pollution

Plastics and microplastics affect ecosystems across multiple levels:

- **Oceans and Rivers:** Floating plastics entangle marine life, while sinking polymers disrupt benthic ecosystems. Major Indian rivers like the Ganga and Yamuna carry vast plastic loads.
- **Land and Soil:** Chlorinated plastics release toxins that seep into soil and groundwater, endangering terrestrial species and agricultural health.
- **Mountains:** Even remote, high-altitude regions show microplastic deposits, underlining their global spread.
- **Food Chain Disruption:** From plankton to whales, organisms ingest plastics, leading to malnutrition, false satiation, and toxic exposure.

Prof. Saha stressed that plastic pollution is not merely an environmental issue—it represents a **cascading ecological crisis**.

4. Impacts on Aquatic and Terrestrial Organisms

Drawing on recent studies, the speaker illustrated the multi-layered impacts of microplastics:

- **Mechanical effects:** Entanglement, ingestion, digestive tract blockage, and starvation.
- **Chemical exposure:** Release of additives like phthalates and BPA, or adsorption of pollutants like PCBs and PAHs.
- **Physiological changes:** Oxidative stress, endocrine disruption, impaired reproduction, and behavioral changes in fish and other species.

Fluorescence imaging studies, Prof. Saha noted, reveal bioaccumulation of microplastics in the **gut, gills, brain, liver, and reproductive organs** of aquatic organisms.

5. Microplastics and Human Health

Perhaps the most alarming segment of the lecture was the discussion on human health. Prof. Saha presented compelling evidence that humans ingest **39,000–52,000 microplastic particles annually**, with higher exposure levels among those who consume bottled water.

- **Entry Routes:** Ingestion (food and water), inhalation (airborne fibers), and dermal contact (medical supplies, cosmetics).
- **Tissue Penetration:** Microplastics cross the intestinal barrier and infiltrate vital organs such as the liver, kidney, and brain. **Plastic can cross the blood brain barrier and enter into the brain from blood.**

- **Health Risks:** Intestinal inflammation, endocrine disruption, metabolic disorders, insulin resistance, and even potential carcinogenicity.

Citing studies from 2024–2025, he noted discoveries of **microplastics in human blood, lungs, brain tissue, placenta, and even reproductive fluids**, describing this as a *"silent invasion"* of human physiology.

6. Preventive and Mitigating Measures

The lecture then shifted focus toward solutions. Prof. Saha emphasized that **preventing plastic pollution requires multi-pronged approaches**:

1. **Reduce Consumption** – Avoid single-use plastics; adopt reusable bags, bottles, and containers.
2. **Promote Reuse and Recycling** – Strengthen circular economy models.
3. **Develop Biodegradable Alternatives** – Invest in bio-based plastics (e.g., PHAs from algae, jute, cotton).
4. **Policy and Regulation** – Enforce bans, implement **Extended Producer Responsibility (EPR)**, and build strong waste management infrastructure.
5. **Awareness Campaigns** – Initiatives like India's *"Prakriti"* campaign and *Swachh Bharat Mission* serve as examples.
6. **Global Cooperation** – The **UNEA-5.2 resolution of 2022** to negotiate a legally binding treaty on plastic pollution represents a milestone in international policy.

7. Research and Innovation

Prof. Saha highlighted the crucial role of research in combating this crisis. Innovations include:

- **Bioplastics** derived from microalgae (*Chlorella*, *Spirulina*).
- **Advanced recycling technologies** for plastic waste.
- **Monitoring microplastics** using novel analytical tools.

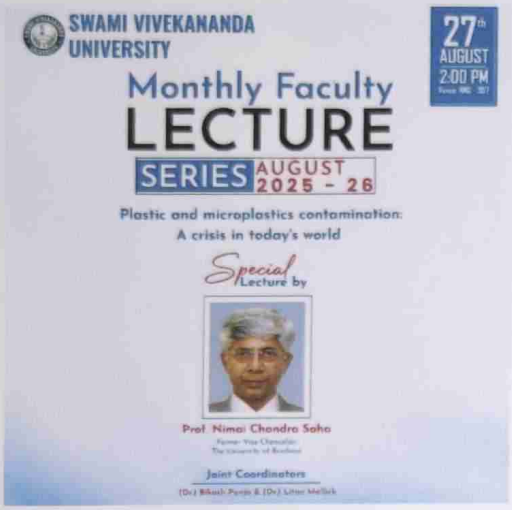
He also referenced pioneering works by Thompson (2004), Jambeck (2015), and others that have shaped global understanding of plastic and microplastic contamination.

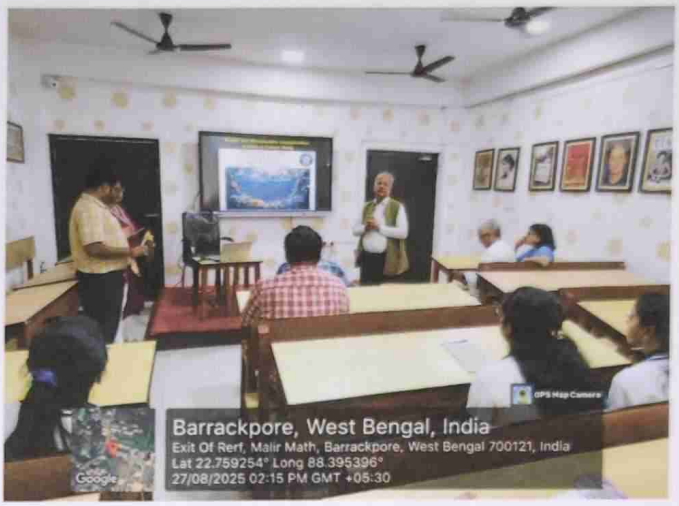
Discussion and Q&A Session

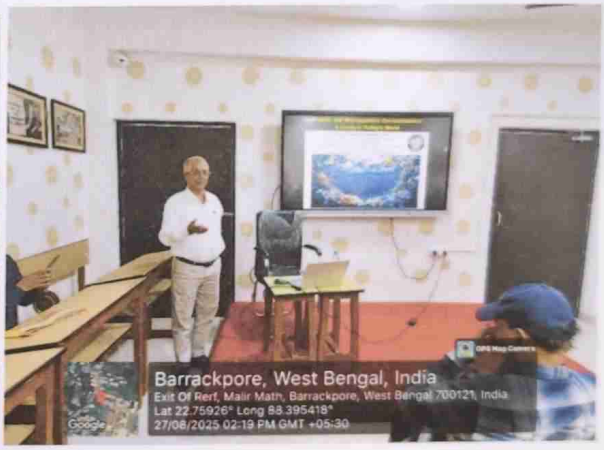
The lecture was followed by an engaging Q&A session where participants raised concerns regarding the challenges of replacing plastics in the medical sector, the effectiveness of India's single-use plastic ban, strategies for reducing microplastic pollution in freshwater ecosystems, and even an interesting query on which fish is better—those from ponds or the sea. Prof. Saha's responses were both practical and thought-provoking, as he emphasized that although plastics cannot be entirely eliminated, their adverse impact can be significantly

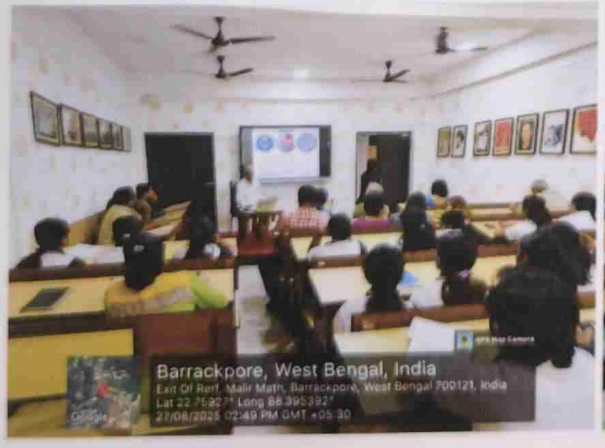
mitigated through responsible use, strict regulatory measures, and continuous technological innovation.

Glimpses for Lecture Session:









Concluding Remarks

The session concluded with a vote of thanks by Prof. (Dr.) Swapan Datta, Director, School of Agriculture, Swami Vivekananda University, who praised Prof. Saha's ability to combine scientific insights with pressing social relevance. He remarked that the lecture was not only an academic discussion but also a call to action for students, researchers, and policymakers alike.

Impact and Takeaways

The lecture left a profound impact on the audience. Key takeaways included:

- **Plastic and microplastic pollution is both an environmental and public health crisis.**
- **Humans are not immune;** microplastics are already inside our bodies.
- **Sustainable practices, circular economy models, and bio-based alternatives** are essential for reducing plastic dependence.
- **Research, awareness, and policy convergence** are needed at both national and global levels.

The event was widely considered a resounding success, reaffirming Swami Vivekananda University's commitment to fostering environmental consciousness and research excellence. Participants left with a renewed sense of responsibility to adopt sustainable practices in their personal and professional lives.

Dr. Bikash Panja
Joint Co-ordinator
Monthly Faculty Lecture Series, SVU

Prof. (Dr.) Ranjan Chakrabarti,
Director, Research & Academic Development, SVU

Dr. Liton Mallick
Joint Co-ordinator
Monthly Faculty Lecture Series, SVU

Date: 18th August, 2025

To

Prof. Nimai Chandra Saha

Director, School of Life Sciences
Dean of Science
Swami Vivekananda University
West Bengal -700121
Former Vice-Chancellor
University of Burdwan

Subject: **SVU Faculty Lecture Series August 2025, Invitation regarding**

Dear Professor Nimai Chandra Saha,

Greetings from SVU!

At the outset, we would like to acknowledge your significant contributions in the field of research and academic administration.

Swami Vivekananda University, Barrackpore, West Bengal, organizes a Faculty Lecture every month under its Monthly Faculty Lecture Series. It is with great pleasure that I invite you, on behalf of the University, to deliver the Distinguished Faculty Lecture on **"Plastic and Microplastics Contamination : A Crisis in Today's World "** on **August 27, 2025** at **2 pm** in our campus.

Your expertise and insights will be invaluable in enriching the program, and your lecture will be a source of inspiration for our faculty members and research scholars.

We would greatly appreciate a line of confirmation at your earliest convenience.

For any further information or clarification, please feel free to contact me or Dr. Liton Mallik at Mobile No. 7003185671.

With best regards,

Received 25.08.25

Professor Ranjan Chakrabarti,
Director Research and Academic Development, Swami Vivekananda University
Hony. Visiting Professor, Jadavpur University
Former Vice Chancellor of Vidyasagar University and Netaji Subhas Open University (WB)

Gmail

Bikash Panja <bikashp@svu.ac.in>

Faculty Lecture on 27 August

3 messages

Director, Research & Development <director.research@svu.ac.in> Mon, Aug 25, 2025 at 8:47 AM
To: Swami Vivekananda University - Info <info@swamivivekanandauniversity.ac.in>, debnarayanb@svu.ac.in, Director School of Life Sciences <dir.solc@svu.ac.in>, "Director, Research & Development" <director.research@svu.ac.in>, Director School Of Management <director.som@svu.ac.in>, director.sos@svu.ac.in, Swapan Datta <dattaswapan1953@gmail.com>, Shorosimohan Dan <dan.shorosimohan@gmail.com>, Sukumar Mukhopadhyay <mukhopadhyay21@gmail.com>, Pinak Pani Nath <registrar@swamivivekanandauniversity.ac.in>, Tanmoy Mazumder <deputy.registrar@svu.ac.in>, Mita Banerjee <mitabanerjee@hotmail.com>, mitab@svu.ac.in, Bikash Panja <bikashp@svu.ac.in>
Cc: Subrata Dey <vc@swamivivekanandauniversity.ac.in>
Bcc: bikashp@svu.ac.in

Dear Esteemed Directors, HoD and Faculty Members,

Greetings !

Swami Vivekananda University, Barrackpore, West Bengal, regularly organizes a monthly Faculty Lecture Series and it is delivered by a distinguish scholar from within SVU or outside.

In this context, I am pleased to invite you to kindly make it convenient to attend the upcoming Faculty Lecture of the University on 27 August 2025, to be delivered by Dr Nimai Chandra Saha, Dean and Director, School of Life Sciences, Swami Vivekananda University **at 2.00 pm in Room 307, NND. The title of his Lecture is 'Plastic and Microplastics Contamination : A Crisis in Today's World'. Please find the poster of this event attached herewith for your kind perusal.**

Your graceful presence along with your departmental colleagues shall enrich the program and inspire our faculty and research scholars.

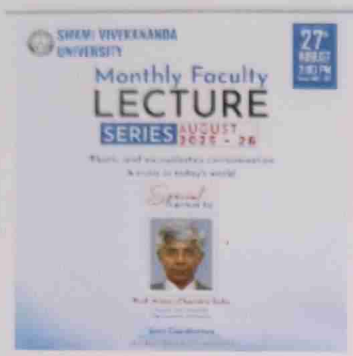
Please make it convenient to attend.

Warm regards

Sincerely

Professor Ranjan Chakrabarti,
Director Research and Academic Development, Swami Vivekananda University
Hony. Visiting Professor, Jadavpur University
Former Vice Chancellor of Vidyasagar University and Netaji Subhas Open University (WB)

Fulbright Scholar, Brown University 1994-95
Charles Wallace Fellow,London University 1997
Alexander O'Vietor Memorial Fellow, Brown University 2004



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Director, Research & Development <director.research@svu.ac.in> Mon, Aug 25, 2025 at 8:50 AM
To: Bikash Panja <bikashp@svu.ac.in>

Dear Professor Panja

Kindly forward this invite to our esteemed Hods with a request to intimate our faculty members.

Regards

Ranjan Chakrabarti

Dear Esteemed HoDs and Faculty Members,

Greetings !

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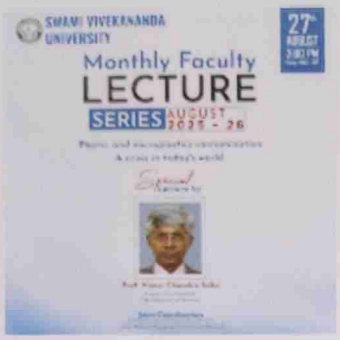

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Bikash Panja <bikashp@svu.ac.in> Mon, Aug 25, 2025 at 1:13 PM
To: ashesb@svu.ac.in, Ranjan Kumar <ranjank@svu.ac.in>, "Dr. Sudip Das" <sudipdas1380@gmail.com>, digantab@svu.ac.in, ranjankm@svu.ac.in, subhabratab@svu.ac.in, tanmoys@svu.ac.in, prithap@svu.ac.in, souravm@svu.ac.in, dipanwitag@svu.ac.in, manisham@svu.ac.in, nilanjanam@svu.ac.in, olyb@svu.ac.in, subhranilm@svu.ac.in, rituparnac@svu.ac.in, pramitir@svu.ac.in, litonm@svu.ac.in, anirbanh@svu.ac.in, kallalb@svu.ac.in, debanjalia@svu.ac.in, Sujoy Bhowmik <sujoyb@svu.ac.in>, subratan@svu.ac.in, najnin.islam92@gmail.com, kazi hasibur rahman <via.kazi786@gmail.com>, sudips@svu.ac.in, srijanh@svu.ac.in, subhasiss@svu.ac.in, arups@svu.ac.in, moumitad@svu.ac.in, papiam@svu.ac.in, rajend@svu.ac.in, shubhamb@svu.ac.in, moumitac@svu.ac.in, Amitava Bhowmick <amitavabmce@gmail.com>, shantanuc@svu.ac.in, neelanjanm@svu.ac.in
Cc: director.research@svu.ac.in, deputy.registrar@svu.ac.in, abhishek.dhar@svu.ac.in, sourav@svu.ac.in

Dear all HODs and Research Coordinators

Please find the invitation to the upcoming said program and circulate among our faculty members, research scholars and students. We encourage your participation and look forward to your valuable presence.

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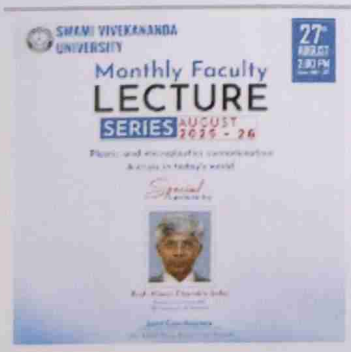
Thanks & Regards.

Dr. Bikash Panja

Professor, Department of Mechanical Engineering
School of Engineering, Swami Vivekananda University
Kolkata - 700121, India

Mobile: **(+91) 9635973141**



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Monthly Faculty Lecture Series

Swami Vivekananda University

Barrackpore - Barasat Rd, Sewli Telinipara, Malir Math,

Bara Kanthalia, West Bengal 700121

August – 2025

27/08/2025

SL No.	Name	Department	signature
1.	Dr. Abhijit Banerjee	Biotechnology	
2	Dr. Samanti Ghosh	Biotechnology	
3.	Dr. Palash Kr. Pal	Biotechnology	
4.	DR SUBHASIS SARKAR	MICROBIOLOGY	
5.	DR BIDISHA GHOSH	BIOTECHNOLOGY	
6.	Dr. Tanmoy Sarkar	Agriculture	
7.	Dr. Nilanjana Mitra	Psychology	
8.	Anirban Mondal	EE	
9.	Tuisna Sarkar	LAW	
10.	Raima Roychowdhury	LAW	
11.	Ankita Mukherjee	LAW	
12.	Koyel Modak	LAW	
13.	Ushita Das.	LAW	
14.	Subangana Gupta.	Law	
15.	Madhurima Dalui	Law	27/8/25

Monthly Faculty Lecture Series

Swami Vivekananda University

Barrackpore - Barasat Rd, Sewli Telinipara, Malir Math,

Bara Kanthalia, West Bengal 700121

August – 2025

27/08/2025

SL No.	Name	Department	signature
01	Chandralekha Gayen	MSc. Biotechnology	Chandralekha Gayen
02	Monisha Sarkeri	MSc. Microbiology	Monisha Sarker
03	Aditi Dinda	M.Sc. Biotechnology	Aditi Dinda
04	Riyanka Sarkar	M.Sc Biotechnology	Riyanka Sarkar.
05.	Priyanka Das.	Law	P Das.
06.	Dr. Rituparna Chakraborty	English	Rituparna Chakraborty
07.	BENAZIR WARSI	LAW.	Bwarsi.
08	Malayendu Saha	School of Management	M Saha
09	Anindya Mukherjee	Science	AM
10.	DR. DEBJIT DE	Dept. Of Biotechnology	D. Dey
11.	Dr. SAMUDRA PAL	Dept. of Biotechnology	SPal.

Monthly Faculty Lecture Series

Swami Vivekananda University

Barrackpore - Barasat Rd, Sewli Telinipara, Malir Math,

Bara Kanthalia, West Bengal 700121

August – 2025

27/08/2025

SL No.	Name	Department	signature
1.	Trisha Paul	ECE	27/08/25
2.	KISHOR KUMAR HIRA	JMC	27/08/25
3.	Tanisha Sengupta	M.Sc. Microbiology	Tanisha Sengupta 27.08.25
4.	Puja Dutta	M.Sc. Microbiology	Puja Dutta 27.08-25
5.	Anuska Biswas	M.Sc. Microbiology	Anuska Biswas 27.08.25
6.	Saheli Ghosh	M.Sc. Biotechnology	Saheli Ghosh 27/08/25.
7.	Ankana Ghosh.	M.Sc. Biotechnology.	Ankana Ghosh. 27/08/2025.
8.	Anushree Guchhait	M.Sc. Biotechnology	Anushree Guchhait 27/08/2025
9.	Mauab Paul	M.Sc. Biotechnology	27/08/25
10.	Mainak Barua	M.Sc. Biotechnology	
11.	Dipanjana Adak	M.Sc. Biotechnology	D.Adak

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Bara Kanthalia, West Bengal 700121

August – 2025

27/08/2025

SL No.	Name	Department	signature
1.	Mayuree Mondal	MSc. Biotechnology	Mayuree Mondal
2.	Anuska Laha	Msc. Microbiology	Alaha
3.	S Vinitha	MSc. Microbiology	S Vinitha
~~4~~	~~Anirban mondal (T.A)~~	E	
4.	Dipanjana Adak	MSc. Biotechnology	Adak.
5.	Mainak Barua	Msc. Biotechnology	Barua
6.	Manab Paul	Msc Biotechnology	Paul
7.	Dr. Kajal Das	Education	Das 27/8/25