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Microbes: Solutions for Environmental Conservation

INTERVIEW

Professor Roger Liu,
Centre for South and
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FLAME University

RESEARCH SPOTLIGHT

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INTERVIEW

Interview with Dr. Roger Liu

We interviewed Dr. Roger Liu, Chair, Centre for South and Southeast Asia Studies, FLAME University, over email to ask him about his take on recent events on the northern border between India and China.

Can you summarize what happened just a few months ago on the northern border that India shares with China?

On June 15, a series of deadly encounters erupted between the Indian Army and the People’s Liberation Army (PLA) of China in Galwan Valley of Aksai Chin approximately 200 km northeast of Leh. This is not only the most serious event between India and China with respect to territory since the stand-off in Doklam area in 2017, but also the first deadly event after the ambush of 1975 near Tulung La, Arunachal Pradesh. The ambush 40+ years ago caused at least four deaths on the Indian side after a series of fire exchanges. However, without firing a single shot, the Galwan conflict in June 2020 claimed at least 20 lives of Indian soldiers. For those considering this to be a minor clash, it is important to remember that in the context of conflict between nuclear powers, there is no such thing as a minor clash.

Can you tell us a little bit about the historical background of the India/China border that’s important to know?

Conflicts between India and China cannot be analyzed without mentioning border issues. India and China share a 3,488-km-long, not-fully-demarcated borderline with the name of “Line of Actual Control,” or LAC. There are three main sectors of LAC: the Western (Ladakh), the Central (Himachal Pradesh and Uttarakhand), and the Eastern (Sikkim and Arunachal Pradesh). The Western and the Eastern Sectors have seen the most conflict after the Sino-Indian

War in 1962. In 2017, a 73-day stand-off took place in Doklam of the Eastern Sector near Bhutan, while the Galwan conflict in 2020 took place in Aksai Chin of the Western Sector.

Where do the differing interpretations of (or relationships to) the border stem from?

These troubled borders can be traced back to the colonial years. In the Western Sector, what India has claimed to be the “real” borderline is the line drawn by William Johnson, a young British India civil servant of the Survey of India in 1865. In the Eastern Sector, the current LAC is the McMahon Line, the line proposed by Sir Henry McMahon as a result of the Shimla Convention signed between the British India and Tibetan representatives in 1914.

However, it would be too quick to attribute all the roots of conflict to the colonial powers. In different phases of history, either the government of India or China has more or less (at least tacitly) recognized these lines and used them as the baseline to make territorial claims. Geopolitical and historical conditions have made it more complicated. For example, the Russo-British strategic competition in inner-central Asia was used by China—during the Qing Empire—to claim Aksai Chin at the end of the 19th century. The collapse of the Qing Empire in 1911 liberated Tibet from the control of China until the 1960s, which had given India more space in politics to maneuver and hold the McMahon Line as the legitimate border.

Jawaharlal Nehru adopted the “Forward Policy” in 1961 to deal with offensives from the Chinese side on the Eastern and Western sectors. The Forward Policy asked Indian forces to patrol “as far forward as possible” from current positions and establish new posts to counter invasive patrols by the Chinese side. However, in the context of the Dalai Lama’s exile to India and the continuous secret support from the Indian Intelligence Bureau and government, China misinterpreted India’s Forward Policy as a precursor of a larger territorial claim as well as the attempt to create a “strategic buffer zone” by supporting Tibetan independence. This resulted in the war of 1962.

Have the two countries taken any steps to make border disputes less likely to occur?

To prevent conflicts caused by border issues, a complete system of communications at all levels between India and China has been gradually built up. To prevent repeats of events like the ambush in 1975, India and China sought to establish a deputy-ministerial-level dialogue in 1981. In 1988, the Prime Minister Rajiv Gandhi visited Beijing and met with Deng Xiaoping, setting up the Joint Working Group on the Boundary Question (JWBG), designed to be attended by the Deputy Foreign Minister of China and the Foreign Secretary of India.

In April 1994, the Diplomatic and Military Expert Group (EG) incorporating additional experts from different policy areas and government departments was established to tackle the border issues. In 1993 and 1996 two agreements were respectively signed. Their protocols—no use of arms such as guns and rifles—were observed in the recent Galwan deadly clashes.

In 2003, an institutionalized mechanism of Special Representative Meetings was established. Since then, 22 meetings have been held. The latest one in New Delhi was attended by Wang Yi, State Councilor and Minister of Foreign Affairs of China and Ajit Doval, National Security Advisor of India. An agreement was also signed in 2012 to establish a Working Mechanism for Consultation and Coordination (WMCC) with the intention to further institutionalize nascent agreements. So far 15 rounds of the WMCC have been held, with the latest one on June 24, 2020, just eight days after the Galwan Valley conflict.

Ironically, all these institutionalized dialogues have not been able to prevent tensions such as the Doklam stand-off from happening. Thus, to inject more political momentum, India and China agreed to establish an institutionalized but “informal” communication channel between their leaders. In 2018, Narendra Modi and Xi Jinping, the Secretary General of the Communist Party of China (CPC), met in Wuhan in central China. In October 2019, Xi visited Mamallapuram, Tamil Nadu for the second Modi-Xi informal summit.

The management of border issues was one of the major items on the agenda. Protocol for communication between the Indian and Chinese armies was strengthened. A military hotline was set up between the Director General of Military Operations (DGMO) of India and the HQs of the Western Command of the PLA, as the 8th Hand-in-Hand Counterterrorism exercise took place between PLA and IA in December 2019 in Meghalaya.

So the obvious question is if all of this was put into place to prevent clashes like the one in June, what failed?

A possible explanation can be gleaned from political geography. Gray areas laying between the Chinese-claimed and India-claimed LACs such as the one in Pangong Tso (which means “Pangong Lake”) provide incentives for those who wish to firmly control more territories to use tactics such as “salami-slicing” or “fait accompli.” This actually is what happened in May 2020: Indian soldiers found the Chinese had quietly moved further westwards into the “Indian territory” by crossing the Indian-defined LAC, from Finger 8 (that is, spur #8 pointing to the Pangong Tso) to Finger 4. A series of minor territorial conflicts erupted between the two armies in May 2020 as the Indian Jawans asked their PLA counterparts to move back. The accumulated mutual distrust between both sides later brewed into a deadly conflict in the Galwan Valley one month and half later.

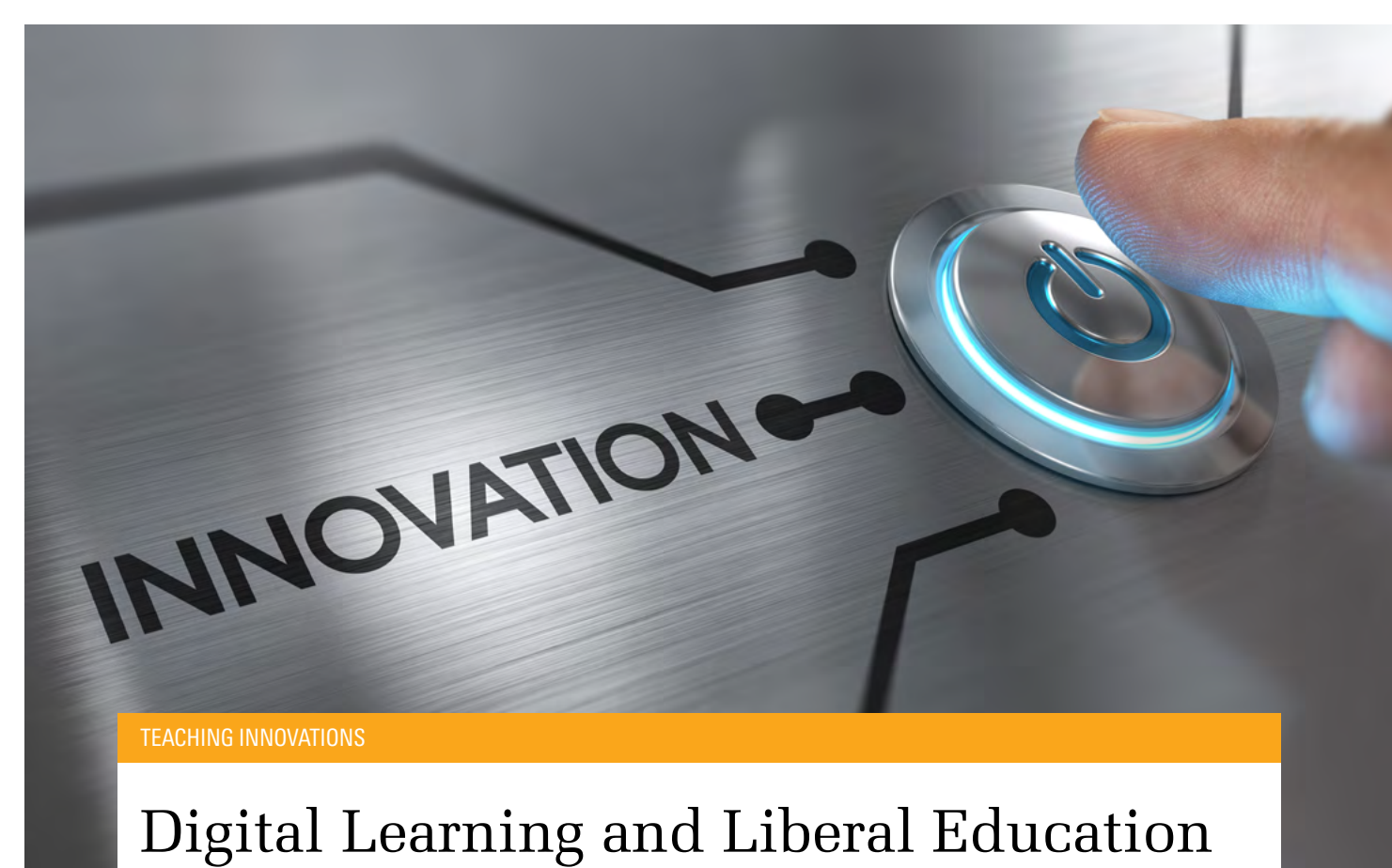
The second explanation comes from the disparity of military strengths between India and China in the border regions. In the past decades China has accomplished major railways, highways, and military airfields that can serve as effective logistic support for possible conflicts with India, while India still lags behind in the infrastructure in the region. When each side initiates construction, it looks like a security threat to the other side. Thus it creates a vicious circle by escalating tensions every time there are military mobilizations.

Looking ahead, will this just keep happening or are their other global players that can influence events for the better or worse?

It’s possible that the trigger of the fatal clashes might come from the recent changes in the international strategic climate. The mutual growing distrust between the US and China, the global expansion of the Chinese influence through the “Belt and Road Initiative (BRI),” as well as the authoritarian growth of the Chinese Communist Party’s domestic control facilitate the revival of the Quadrilateral Security Dialogue, or QUAD, that aims closer security collaboration between the US, Japan, Australia, and India. The deadly clashes in Galwan could be a coordinated and controlled low-level conflict, aiming to send a signal to New Delhi not to get too close with Washington.

What do you think is likely to happen in the near future?

Although there are voices calling for a reset of India-China relations in the post-Galwan era, the prospect of a peaceful relationship between India and China through border management and conflict control is still gloomy. As India is growing into a regional power that demands more control in the Indian Ocean Region, it finds the increased presence and influence of China in the neighboring countries as a hindrance at best and a threat at worst. Meanwhile, for the likely reasons above, Beijing lacks interest in a complete solution for the border issues with India, while India still struggles to find a way to defend its border regions more effectively. The future of India-China relations on border issues will mostly likely become an unpredictable circle between escalation and de-escalation, a cycle that flies in the face of decades of safeguards yet remains propelled forward and backward by forces far away from the snow-capped mountains and the encampments assembled in their valleys.



TEACHING INNOVATIONS

Digital Learning and Liberal Education

MAYA DODD, JASMINE HSU, NIRAJ MANKAD

Faculty Members, FLAME University

The Covid-19 pandemic has overturned campus life in colleges and universities around the world. As of this writing, over 2,000 institutions of higher learning have closed, affecting hundreds of millions of students globally. In our country in mid-March, the Indian government ordered campuses to close, and students to be sent home. The shift happened overnight. Amid the academic semester, many institutions grappled with challenges to adopting prompt measures to minimize the impact of the pandemic and lockdown on students’ learning. Several universities in India, with adequate technological capabilities, successfully transitioned the medium of student learning from classroom-based to online. FLAME University is one such institution that managed to complete its semester on time by migrating to remote learning.

Team Digital Learning

FLAME formed a Tech Task Force team to support the online learning transition and to serve as a liaison to triage issues during this transition. The goal was to help faculty members adopt online teaching within three to four days so students could continue their learning remotely in order to complete academic requirements even after they returned home.

At the outset though, here at FLAME we need to distinguish between remote and online learning. Although the difference is subtle, it is important. Many of the courses that migrated online had not been designed for delivery in this format. The range of courses that a liberal education curriculum brings also invites

unique challenges - how does an instructor teach hands-on, practical courses, for example cinematography or dance, in a remote classroom?

As a first step, the team took stock of current technological capabilities for moving online. Moodle, a learning management system, and G-Suite education resources were already available and accessible for both students and faculty members. The library already provides offsite access so students and faculty members can access from home a wide range of e-Library resources and subscribed databases. Being a liberal arts institution that focuses on the close relationship between students and teachers and building rapport in the classroom, leaning on integrating technologies into teaching and learning is not immediately appealing at the outset. Digital initiatives rarely result in any significant impact at scale. The availability of a tool does not guarantee usage or translate into digital practice. So, the question was, “How well will faculty migrate to online classes in a way that will keep our teaching and learning world-class?” And it was this question of mindset that the Task Force team had to first address.

For faculty, the questions were numerous. “Where do I begin? How will I communicate with students? When will classes happen? How do I redesign my courses? What should I do with assessments?” Along with these, many anxieties went unexpressed but were palpable. For most people, this was the first time they were teaching online. The team openly discussed with everyone that while the circumstances in which we found

ourselves were far from ideal, there was an opportunity buried in here for us to learn (in addition to our students). Once online classes began, the Tech Task Force invited faculty members to share their online experience in virtual meetings and to exchange what they did, along with trading best practices and ideas for troubleshooting. That way, the sharing was not limited to only success stories but we could also learn from each other's failures.

Sharing Best Practices

Moreover, in this situation, regardless of typical social segregation by discipline, specialization, department, or school, everyone had a common goal: learn online. From the very outset, the Task Force team showcased the capabilities of these existing digital resources by using them for training and communication. During the first week of online teaching, the team conducted the training in Google Meet and shared best practices and resources using Google Docs and Google Suite. The digital medium enables sharing and collaboration easily and in some ways more efficiently than off-line cooperation. This early adoption has now made faculty more comfortable with collaborative pedagogies in virtual environments. As early as week two, faculty began to report back on successes in their online teaching experience and discussed new innovations. Instructors came up with new ways to conduct online courses and achieve student engagement. Professors who were used to chalk and blackboards were now using the whiteboard feature on their gadgets and figuring out when to mute or unmute students for spontaneous discussions in seminar formats. A few professors reported that they were surprised to see some students who used to be quiet in classes now actively participating online.

The Tech Team facilitated an online session so teachers could listen to each other's experiences. Some professors openly admitted to students often saving the digital day, to rescue professors who struggled with using the audio-visual tools. More than the content delivery, it was the common experience of being in a challenge together that connected students and teachers on a human level.

The Challenges of Remote Assessment

One such challenge had to do with assessments. In a liberal education university, assessments are carried out on a continual basis. Depending on various learning outcomes expected of a given course, faculty members design the components and select them from presentations, projects, quizzes, research papers, etc. Since the lockdown started on 18 March 2020, it happened to fall towards the end of the semester for some courses while being smack in the middle for all our term-length courses. As we reworked teaching pedagogy for moving online, assessments, too, had to be redesigned. Students and faculty in different locations across the country and abroad made it even more challenging given the variation in connectivity.

Being mindful of the fact that students would be facing challenges of network as well as use of private space and family responsibilities at their homes, evaluations were reworked and submissions, presentations, and projects were encouraged in lieu examinations. A few courses had online examinations using Moodle, that students were already comfortable with. However, some of the courses still required written examinations, and it was a major challenge to conduct them remotely. Several courses in subject areas like Finance, Mathematics, and Quantitative

Methods required the simulation of a classroom-like examination experience online. This was only possible using distance proctoring tools. Though these courses were few in number (25 online exams), they required careful planning and execution. Here is where the team had to seek innovative solutions. For some of these online examinations it was possible to use Moodle. However, for the proctoring challenge, the team used a blend that integrated features of Google Meets. Through this, the instructor was able to monitor the video of the students and thereby proctor the exam. Though quite rudimentary, it was effective.

For six courses we used Mettl, an online proctoring platform that helps in creating tests as well as implementing remote proctoring by using digital features like the tracking of eye movements. We realized that it was difficult for students to take these examinations since they had never been in such an environment. Hence, the online proctoring examination was held twice. The first time as a demonstration for the students and faculty, which ensured students' preparedness.

The Covid-19 situation has resulted in shattering a lot of mind blocks both at the faculty and at the student level. One of these was conducting online examinations, which faculty were always wary of. We were also able to overcome this challenge. During our journey of research about online assessments, we came across multiple tools and software that make it possible for most types of evaluation to be conducted online. There was also a realization by the faculty that designing assessments for a digital context requires a significantly different approach compared to traditional methods. As we go further, it is an opportunity to create blended approaches, not only for teaching, but also for assessments in the long-term.

Education, Virtually

Perhaps the silver lining from the pandemic experience is that as a community everyone has had to rapidly adapt to change. It was heartening to see people accept these challenges. There are lessons to be extracted from this experience that can make teaching more effective in and outside of a digital setting.

Virtual environments can promote interdisciplinary collaboration and high-impact student learning. If faculty members have the autonomy to design an optimal learning experience for students by integrating technologies and digital resources with intention and purpose, the values of liberal education can also be optimally realized. Faculty members should aim to enable learning through different mediums, online or offline, for students to explore, learn, and use tools to provide a futuristic and meaningful learning experience safely and efficiently.

The lessons of the Covid-19 crisis pertain to the fundamental uncertainties of life. The future is unknown. The essence of a liberal education is to help students discover themselves as individuals, and for the University to provide opportunities to develop skills to navigate through life under tough circumstances. As people are social beings, learning too does not occur in isolation. It is the human interactions that bring out the value of education. Class size and the breadth of courses drives our model of liberal learning for effective pedagogy and the online environment suits these requirements well. In a time of social distancing, our experience with remote learning has sparked the realization that we have a very adaptive community willing and able to take on new challenges. At FLAME, we made a successful transition to the

online mode of delivery, with minimal disruption to the learning experience. From March 17 to April 20, 2020, we conducted 2590 classes online, with both full-time and visiting faculty teaching 194 courses and 890 students participating in remote learnings. Unlike MOOCs with millions of students, the liberal model holds students responsible for their active participation—even online. It may be too early to declare the digital adaptation on campus a total victory, but together this community has taken a big stride. The immediate future might hold some additional obstacles, especially for a demanding curriculum rooted in liberal education. Yet regardless of all the uncertainty ahead though, one thing is for sure: we welcome the challenge.

CONSERVATION & SUSTAINABILITY



Microbes: solutions for environmental conservation

SHWETA RANA

Associate Professor, Department of Physical & Natural Sciences

Microbes are everywhere. Bacteria, archaea, viruses, fungi, protozoa, and some algae are categorized as microbes.

What is common among this diversity is the size. They are all microscopic. Structural variations differentiate and unicellularity binds them. Their evolution can be traced back millions of years, before the arrival of macro-organisms or us humans. Their numbers are much larger than the bigger life forms on Earth. All life forms are closely or distantly related with each other through the genetic ribbon. This genetic contiguity carried forward for millions of years makes microbes our real, universal ancestors. Not only do they connect us to our past, but our miniscule forefathers may have plenty to teach us about the future. In fact, studies suggest that microbes can efficiently play central roles in solving important environmental problems that our planet is facing.

issues: world food hunger, reduction of ecological footprints of urban sectors, conservation of ecosystems and natural resources, climate change and global warming, and removal of hazardous chemical and electronic waste. Microbes very well might address these crises and more.

Sustainable agriculture

How do we grow enough to feed the world? An increasing population along side cascading environmental problems have deep impacts on agriculture, leading to decreased productivity of crops at a very high rate. To enhance crop production and yield, farmers are increasingly becoming dependent on chemical fertilizers. Chemical fertilizers not only deplete natural fossil fuel reserves, but they are also major sources of pollution of underground water. They have low use efficiency and lead to eventual soil sterility—in addition to being expensive. There are many instances of bioaccumulation of chemicals and pesticides in the food chain. Thus, these chemicals have long-term deleterious effects on humans as well as the globe's ecological balance.

Scientists are trying to tackle a whole host of various complicated

Microbes offer a response. Bio-fertilizers are the gateways for sustainable agriculture. Bio-fertilizers are preparations of efficient strains of microorganisms that help crops by providing and accelerating the uptake of nutrients in the rhizosphere. There are millions of microorganisms in the rhizosphere of each plant, but specific ones required to increase yield are not present in enough quantities. Artificial application of such efficient strains in the form of bio-fertilizers can immensely increase the growth and yield of the crops quantitatively as well qualitatively. Biofertilizers—combined with organic farming practices—can totally replace hazardous chemical fertilizers.

Some microbes which are pathogenic to plant pests and weeds can be harbored to function as bio-pesticides and bio-weedicides. The formulations of such agents can be prepared and sprayed directly. Alternatively, GMOs (genetically modified organisms) can be engineered by inserting virulent genes from these microbes. GMO seeds can grow to express genes that function to protect them from predators.

Abatement of pollutants

Industrial and related activities generate toxic pollutants causing pollution of soil, air, and water posing serious threat to flora and fauna of the ecosystem they are released in. Excessive use of chemicals as synthetic nutrients render soil heavily leached and unproductive. Release of liquid hydrocarbons in water due to oil spills, shipping travel, and draining/dumping form an impermeable layer on the surface of water, suffocating aquatic forms and stopping the exchange of air and sunlight. Aquatic birds find it difficult to fly as their wings can become coated with greasy residue. Recent times have seen numerous reports of plastic and polythene-centered havoc caused on terrestrial and marine fauna.

Bioremediation, employing direct microbial concoctions of *Pseudomonas*, *Moraxella*, *Aspergillus* or their products, can enhance degradation and detoxification of hazardous wastes, xenobiotics, and petrochemical plastics such as poly vinyl chloride (PVC), polypropylene, and polystyrene. Bio-filtration—a low cost technology—can be used to make filters containing layers of suitable microorganisms to purify contaminated air. Heavy metals are toxic to biological systems. Being inert in nature, they are persistent and have long run cumulative effects. Cadmium, mercury, and arsenic can cause life threatening diseases to humans. Some algae, fungi, and bacteria have been tested to efficiently biodegrade or even bioremediate the toxic metals. Microorganisms utilize the chemical compounds in these noxious wastes as nutrients for their growth and propagation. Their consumption of harmful chemicals is good for them and undoubtedly better for our environment.

Energy production

How much fossil fuel is left under the Earth's surface and how long will it last? Can we depend on these nonrenewable energy sources forever? The answer is obviously no. We are very well aware of renewable energy sources like solar, wind, hydro, geothermal, and biomass and the fact that these resources are

eco-friendly and inexhaustible.

Microbes can play a role in this domain as well. The process of developing biomass energy from microbes is gathering more and more attention and can be replenished quickly. Algae and some phototrophic microbes can harvest solar energy to produce substantial biomass for biofuel as ethanol. Methanogens and acetogens, through anaerobic digestion, can efficiently transform biomass and household waste into biogas. In microbial fuel cells, microbes catalyze electrochemical oxidations or reductions at an anode or cathode, respectively, to create an electric current. They produce low cost bioelectricity from waste materials. These electrogenic bacteria (*Shewanella*, *Geobacter*, and *Rhodoferrax*, for example) generate energy all year long while effectively cleaning up waste. This carbon neutral process in the bioreactors contributes to zero greenhouse gases into the atmosphere.

Climate change and global warming

Globally, scientists are grappling with the most important environmental issue of all: climate change. Anthropogenic sources as main contributing factors to greenhouse gas emissions and accumulation have garnered much attention, but what has gotten less attention is the crucial potential role of microbes in regulating terrestrial greenhouse gas flux. Microorganisms are important parts of carbon, nitrogen, and other biogeochemical cycles; their microbial processes are central in the removal of greenhouse gases as carbon dioxide, methane, and nitrous oxide, among others. Cyanobacteria, *Prochlorococcus*, and *Synechococcus* are photosynthetic microbes found in marine waters. It has been estimated by scientists that these cyanobacteria can remove about 10 billion tons of carbon from the air each year. This is about two-thirds of the total carbon fixation that occurs in the oceans. This microbial power can be tapped to make a decisive impact.

Microbes have a bad reputation, and some of that is understandable, especially given how our current pandemic has brought normal life to a standstill around the world. But now is not the time to consider microbes an enemy of humanity. In fact, they may just be our greatest ally in solving the most pressing problems this planet faces today and in the future.

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CONSERVATION & SUSTAINABILITY

More than just people : recognizing the role of the indigenous communities in conserving the planet

ABHINEETY GOEL

Assistant Professor, Department of Physical & Natural Sciences

Conservation can be understood as sustainable use, management, and protection of ecosystem services, thus safeguarding resources for future generations. Effective and efficient conservation ensures global system sustainability. It is a well-researched and documented fact that indigenous communities play a significant role in conservation and management of forest ecosystems (e.g., sacred groves, traditional medicines) because of their ancestral traditional knowledge, practices, and beliefs. As a result, healthy forests in such spaces act to protect systemic functioning of a wide range of Earth systems (from micro to macro scales), and thus shield humans and other forms of life from different yet interrelated global problems such as climate change, natural disasters, and watershed protection amongst

systems but the social systems and interrelationships at the heart of indigenous wisdom that has maintained a delicate balance. An interruption to this balance is likely to have ripple effects far into the future, past the point of no return.

It is estimated that indigenous communities constitute 6% of the total global population, yet they are counted among the 15% of the global extreme poor population. Approximately 370 million Indigenous people live across more than 90 countries worldwide. They live in over one-quarter of earth's land surface. Yet they are excluded and marginalized politically and economically. These vulnerable, yet long-lasting communities are generally concentrated in environmentally fragile areas and rely on ecosystem resources and services for both subsistence as well as commercial functions. Cases from around the world—including over 400 Indigenous tribes from the Amazon River basin, Indonesian tribes including Orang Rimba and Ibans, African tribes such as the San, Twa pygmies and Samburu, or Gonds, Bhils, Santhals from India—reveal conflicts due to deforestation, state and corporate accountability, identity and land rights that have

been stated and re-stated over time.

Due to the remoteness of such communities in deep-forested pockets, there is often a two-prong threat. First, from large-scale private or government projects (dams, nuclear power plants, oil refineries, infrastructure projects) that threaten their very existence, and second, from inaccessibility that poses a lethal hurdle for introduction, implementation, and execution of new development schemes for such communities due to physical and social distance. Remote spaces shape and reshape environmental, economic, and social inequalities. For instance, within the protected areas network around the world, market-based conservation models have created hegemonic capitalist agencies by regulating the resources from a general welfare to a privatized state, thus creating social relations of unequal power among the different stakeholders. More than often, barring social outcry Indigenous communities are nearly uniformly excluded from equal participation in these developments or decisions.

According to the Census 2011, India has 8.6% of Scheduled Tribes population, that constitutes 11.3% of the total rural population. Over the decades, India has introduced several policies for tribal development across the country related to economic empowerment (TRIFED, namely Tribal Cooperative Marketing Development Federation of India Limited), education development (scholarships, fellowships and Tribal Research Institutes), and social justice programs (PESA or Panchayat Extension to Scheduled Areas Act, 1996 and Forest Rights Act 2006, Ministry of Tribal Affairs, 2020). However, due to improper planning, implementation, and monitoring, these programs have largely failed to come to complete fruition and thus targeted communities continue to live in extreme poverty as dire problems persist. They face loss of access to and control of common pool resources, basic amenities, livelihood opportunities, the formal economy, land acquisition, health facilities, effective governance, and realistic forms of remedy when their rights are violated. In India, several case studies exist where Indigenous groups have not only been dispossessed of their land rights and displaced without proper rehabilitation or adequate compensation, but also they face the problem of identity crisis given how central the land is to their traditions and life priorities.

By controlling spatial actions through policies and governance, social relationships are altered by restricting access to and control

of resources. One such spatial process is territoriality, which is a social construction that emphasizes how people perceive space and how they categorize it by situating things, processes, and people in certain spaces which would ultimately affect their interrelationships. Subsequently, territoriality can be thought of as a resource control strategy, as emphasized by Vandergeest and Peluso (1995) that is put into effect by creating boundaries, and by controlling communities and their interaction with forest resources. For instance, state redistribution of resources from common tenure into private ownership restricts previously allowed income generating activities, thus enforcing commodification of labor and shaping the future for vulnerable communities whether they agree with plans or not.

For the conservation of micro to macro scale environmental processes and services, there is an urgent need to sustainably empower, protect, and develop the global Indigenous communities. While government, private, and academic institutions propose and debate massive strategies to deal with snowballing environmental crises, communities that have been successfully doing this very thing for centuries are being all but ignored. These communities have passed down sustainable knowledge and practices from generation to generation, largely without fanfare and attention. The rights and existence of these vulnerable and marginalized communities need to be protected as they safeguard almost 80% of the world's remaining biodiversity. Their localized yet everyday actions are responsible for conserving the global environment for future generations. Engagement of civil society, scholars, and practitioners is not adequate. States as well as corporates must contribute towards strengthening of the indigenous communities by investing more funds, control, transparency, accountability, and recognition in these communities. After all, if conservation is to be more than just a buzzword or a greenwashing mechanism, then looking to environmental caretakers as partners and even leaders must be part of any realistic strategy for a sustainable future.

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others. However, an increasing number of industrial development projects being implemented by ever-expanding urban boundaries into the forested areas threaten not only the physical Earth



CONSERVATION & SUSTAINABILITY

Challenges for women in conservation science research

ANDREA D. PHILLOTT*, RAMYA NAIR**, NIHARIKA SHARMA** AND ZAHRA JAMILA IKRA#

*Professor, Department of Physical & Natural Sciences

**Alumna, FLAME University, India

#Alumna, Julius Maximilian University, Germany

The involvement of women in the Chipko movement has been celebrated in song, narratives, and literature. Their modern advocates, including conservationist Krithi Karanth (Chief Conservation Scientist and Director at the Centre for Wildlife Studies, Bangalore), ecologist Harini Nagendra (author of *Nature in the City: Bengaluru in the Past, Present, and Future* and co-author of *Cities and Canopies: Trees in Indian Cities*) and environmental journalist and writer Perna Singh Bindra (*The Vanishing: India's Wildlife Crisis*), are similarly lauded for their work. Yet women's voices are less apparent in one of the arenas which contribute to the conservation of wildlife and natural environments: research.



Most educators teaching undergraduate courses in India engage with a student body that nearly has gender parity (if not often a female majority). However, this decreases dramatically over time as women proceed through

postgraduate studies or early-life employment to later stages of their career. The unequal division of domestic responsibilities and length of maternity versus paternity leave often result in women leaving their careers well before retirement age, whether by choice or in response to sociocultural constructs. Those who attempt to rise above mid-level positions frequently encounter a 'glass ceiling'. Individual women obviously feel the barriers to their career advancement at a personal level, but can women's career challenges also have implications for a specific field such as conservation science research?

One of the major measures of accomplishment in a research career, whether the researcher is placed in academia, government, or the private sector, is that of publishing research papers. Authors on a paper are presumed to have made a major contribution to the design, conduct, analysis, interpretation, and/or writing in relation to a study and take responsibility for its accurate reporting. If a research paper has been written by two or more authors then the first (or lead) author is the researcher recognized as having made the largest contribution and has usually led or coordinated the project. The author named last is often regarded

as having contributed the least number of hours to the project, potentially because they are the most senior member of the group and oversee many projects.

Currently in India, many researchers in conservation science - an interdisciplinary field at the intersection of natural and social systems - have backgrounds in ecology, biology, environmental science, natural resource management, or the social sciences. When examining research papers on conservation science in India published between 2012 and 2017, we (NS, RN and ADP) found less than a third had female first authors while nearly half of the studies included no female authors at all. Women were most likely to be the lead author on studies involving human dimensions of conservation and least likely to lead studies of wildlife sciences. Delving deeper into the conservation natural sciences, we found that twice the proportion of field studies included no women in any authorship position in comparison to studies conducted in a laboratory.

The trends we detected reflect old gender stereotypes, including that women are less competent at quantitative subjects. Similarly, the gender stereotyping of subjects and research settings still influence where women may be given opportunities to work. Many female students are directed towards the humanities, social sciences, and biological sciences, the latter long considered the 'easiest' of the natural sciences. In biology itself, the laboratory has been viewed as a safer space for women to work in than the field, which can often be a distant or even remote setting requiring more travel and a longer time away from family. Similarly, studies involving plants are deemed less risky for women than those of wildlife, especially large animals.

Societal shaping of women's careers based on perceptions of safer spaces for the female body and less challenging subjects for the female mind can be compounded by restricted opportunities in the workplace. Early to mid-career women in the sciences in India have identified professional and social interactions, hiring, promotion, and salary as among their greatest challenges. Sexual discrimination by people in authority and peers in all disciplines and settings was described, but sexual harassment was regarded as a greater danger to women engaged in field work (2015 study by ADP and ZJI). All of these experiences influence the choices and progression of women in research and can result in some leaving their preferred career.

Restrictions on women working across all dimensions of conservation science research are of concern. Gender-diverse teams are recognized as being more collaborative and demonstrating better problem-solving and decision-making skills. These are important qualities for research teams working in what has been described as a 'crisis discipline' that often requires comparatively rapid action under conditions of incomplete information. Researchers need all available advantages - including gender diversity - when working towards the conservation of natural environments and wildlife to ensure their persistence alongside the needs of development and economic growth.

Gender diverse teams are also more likely to ensure that different

perspectives are considered when addressing human dimensions of conservation. We (NS, RN and ADP) found that conservation social science studies with women in the authorship team were more likely to describe women as important stakeholders when addressing issues relating to natural resources, such as access, security, and sustainable use. However, we found no difference in the inclusion of women as interview subjects between studies on which women were included in the authorship team and those comprising only men. In this regard, both men and women researchers studying socio-ecological issues in India need to improve; the opinions and experiences of women stakeholders should be valued as equally as those of men for moral and ethical reasons but also because their roles in accessing, utilizing, and managing natural resources have been historically overlooked and/or devalued.

Our combined studies only examined one of the three hierarchies—age, privilege and gender—shaping Indian education and workplaces, and we assumed a gender binary (man/woman) based on self-identification (survey by ADP and ZJI) or name (study by NS, RN and AP). There is obviously more work (and the need for a more inclusive approach) required to understand the challenges for researchers at different intersections among these hierarchies. However, strategies that will enhance women's identity and participation in conservation science, improve positive mentorship, inform mentors and educators about identity and stereotypes, and ensure a diverse pool of employees in all social institutions are in part already known and should be employed to support women throughout their careers. We look forward to a time when all women with aspirations to work in conservation science and other environmental fields have the opportunities—but none of the gender-based challenges—experienced by us at different stages of our careers.

The role of vegetation in managing the urban heat island effect

PRASAD PATHAK

Associate Professor, Department of Physical & Natural Sciences

What is Urban Heat Island (UHI) effect?

According to the United States Environmental Protection Agency, the term “heat island” describes built-up areas that are hotter than nearby rural areas. The difference between the temperature of urban areas (especially urban cores) and rural surroundings may vary anywhere between 1–3°C annually.

What are the factors which boost UHI?



UHI does not affect all the urban areas equally. Urban areas in tropical countries may experience UHI at higher intensity than others because they receive more solar radiation. Within a city, however, road surface density, building density, population, and traffic are among a few factors which are responsible for causing UHI effect.

To negate the effect of UHI or to reduce the temperature difference between rural and urban areas, some cities in India have adopted cool roof systems. Ahmedabad and Hyderabad are

leading that initiative. The cool roofs are reflective layering that can bring down temperatures indoors by several degrees.

Another measure is cool pavements. Road surface made up of tar, sidewalks, and open spaces like parking lots (either open grounds or covered with tiles) increase the temperature. This can be negated by cool pavements or cool surfaces which work on a principle similar to reflectivity. There is research being done regarding maintaining permeability of these surfaces as well which would allow water to percolate and bring down temperatures using that moisture.

What is the role of vegetation?

Vegetation is a significant UHI negating measure. It limits the solar radiation exposure of man-made surfaces and allows the ground to be permeable. Akbari and his co-authors (1997) have shown that vegetation can reduce the temperature anywhere between 11–25°C compared to similar exposed surfaces.

Is a connection between vegetation and UHI being studied?

Yes. Urban geographers are now trying to understand if there is minimum prescription for developing vegetation canopy in cities.

Pramanik and Punia (2019) suggested that only dense vegetation has potential to reduce temperature. This suggests that further research in landscape planning is required to use vegetation effectively in this regard. Santamouris (2014) has claimed that green roofs, in general, can bring down the ambient temperature in the city by 5 degrees. It is still a topic under debate as green roofs are expensive to maintain and require structural support.

Pune’s case study

To demonstrate how distribution of vegetation affects surface temperature, Pune city has been analysed using satellite data via Landsat 8, an image acquired in October of 2018. Pune city is a second-tier city that’s growing steadily every year due to burgeoning industries in and around the city.



Figure 1. Land use change or growth of built-up area 2005, 2009 and 2018 images of Balewadi and surroundings

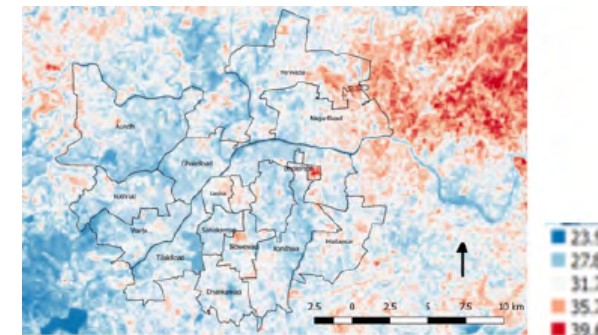


Figure 2. Land surface temperature expressed in oCelsius

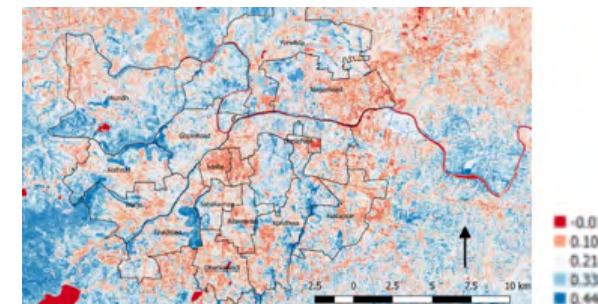


Figure 3. Normalized Difference Vegetation Index indicating vegetated and non-vegetated parts in Pune

Landsat 8 data was processed for the October 2018 season and land surface temperatures were ascertained for the city. In figure 2, you can observe that vegetation in the west of Pune is at much lower temperature (approx. 23-25°C). While agriculture on the north-east side of city is at much higher temperature. Within the city, however, various wards including Kasba Peth, Sahakarnagar, boundaries of Aundh, Yerwada, and Nagar Road experience temperatures as high as 32°C. While looking at the Normalized Difference Vegetation Index map of the city in figure 3, it can be observed that the majority of vegetation in Pune occurs on the small hillocks. Prominent ones are the Taljai Forest area and the hill surrounded by DRDO development near Pashan. They maintain strong amounts of vegetation and hence the surface temperature on those hills is in lower 20s. Interestingly, almost all the other wards experience surface temperature 10 degrees higher.

UHI recommendations for using vegetation

The US EPA has provided urban planners with various suggestions on using vegetation to deal with UHI. Vegetation could be used to cover man-made surfaces which absorb solar radiation. For example, roads and footpaths can be covered or accented by vegetation so that they diffuse light and reduces heat absorption. This is critical for walking communities and vendors who have open shops along roadsides. Buildings can be surrounded by vegetation. There is a recommendation that the west sides of buildings can be covered by vegetation so that cool breezes can take away heat. Additionally, if vegetation provides shade over windows that will also likely reduce indoor energy consumption.

Overall, continuous vegetation patches within built-up areas would be beneficial in many ways. Vegetation would reduce energy consumption, improve soil moisture and permeability, and sometimes save money in frequent repair of infrastructure affected by sun and rain. Fascinatingly, greenery is also connected with positive mental health benefits of urban dwellers. Thus, urban planners should observe, study, and utilize vegetation wisely within urban areas not only for beautification but also to make cities more sustainable.

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STUDENT RESEARCH

Chharanagar in the era of Budhan theatre

SMRITI JALIHAL, ISHA DOSHI

In September 2018, a group of 17 of us, along with our mentor, Dr. Michaela Henry, went to Chharanagar, Ahmedabad for our DIP Research Project titled 'Chharanagar in the Era of Budhan Theatre'. We had begun conceptualizing our research from February of that year. While the broader topic of our research was suggested by our mentor, after watching the documentary *Please Don't Beat Me, Sir!* by P. Kerim Friedman and Shashwati Talukdar, and doing a fair amount of literature review, we narrowed down our research to focus on the stories of the women in the community.

Chharas are a Denotified Tribal Group who were historically marginalized by colonizers. Officially these tribes have been decriminalized by the State under the Habitual Offenders Act 1956, however, they continue to be stigmatized as thieves. To raise awareness about the atrocities faced by these communities, GN Devy, along with prominent community leaders Roxy Gagdekar and Dakshin Bajrange, set up 'Budhan Theatre', a community protest street theatre group in 1998. 2018 marked twenty years from when the theatre group was set up and we wanted to study their progress in terms of the work they have done, the effect it had on the community, and how they raised awareness about DNTs in general. Through the literature review, we noticed that there has been little to no coverage on the women of the community, many of whom are bootleggers in a dry state like Gujarat. We thus decided to specify our research to concentrate on the Chhara

women: bootleggers, women in theatre, and women with other professions.

However, on 26 July, 2018 while we were still in the literature review stage of our research project, Chharanagar was attacked by the local Ahmedabad police arbitrarily. Twenty-nine innocent victims were imprisoned and many others including senior citizens, women, men and children were assaulted by lathis while their personal property was vandalized. This incident paved a new path for our research as we considered it crucial to document and incorporate the testimonials of the 29 victims of this vicious incident.

On the first day of field work itself, we were taken aback by listening to the first-hand accounts of atrocities from Budhan Theatre members as well as victims of the 26 July attacks. While we had read similar things before we went to Chharanagar, listening to these accounts was quite overwhelming for most of us. Because of our social background, we have largely been cocooned from such experiences, right from our childhood. Over the seven days we spent there we interviewed almost 60 people. Every minute spent in the field was one of consistent growth as we tried to implement everything we had learned about how to conduct interviews in real time. All of us came to realize the importance of developing a rapport with our interviewees. One of the hardest parts of conducting interviews was attempting to

maintain certain levels of objectivity as researchers while hearing extremely heart-wrenching, first-hand accounts of the police brutality against these people. Several of us had breakdowns after hearing the interviewees' stories.

As part of the research methodology, we made questionnaires for each of our interviewee groups: Budhan theatre members, women involved in brewing liquor, women part of Budhan theatre, women engaged in other professions, and all the victims of the 26th July police atrocities. However, once we got in the field and started conducting the interviews in smaller groups, we realized that we had to change parts of our questionnaire because of the sensitive nature of our topic. While some of the respondents were uncomfortable answering a few questions, we needed to make sure that we were able to have conversations without being too intrusive—while also getting to the depth of what we wanted to bring out through our research. Personal interviews with semi-structured interview schedules was the primary methodology we used. However, recognizing that theatre as a form of protest was inextricably tied to the lives of members of the community, we also decided to research various aspects of theatre as a part of our overall picture of what was happening. For this, we had theatre workshops every evening with the members of Budhan Theatre where they explained how they conceptualize and execute all their plays. On the last day, all of us also performed a play from the narratives we heard from the community during the course of our field work.

The passion and energy with which each of the leaders spoke showed how central a role theatre plays in their lives. Through the workshop, we were able to expand our understanding of theatre from being an art form that was solely meant to entertain an audience to an art form through which victims of

marginalization could express dissent against the injustices and state oppression inflicted upon them. Through our conversations with these actors and writers, we realized the great extent to which the art of theatre has helped the Chhara community become stronger, more outspoken, creative, and confident. It has given them the spirit and energy to fight against a society that largely doesn't want them to exist. These conversations, along with the theatre workshop, made us all reflect upon the importance of art not just for the Chhara community to fight their battle against marginalization, but also for everyone in fostering self-development, furthering critical thinking, and free creative expression. To go on relentlessly and tirelessly day after day trying to fight against the State in spite of not knowing when their fight will come to an end requires extreme persistence and resistance, traits that we witnessed members of the Chhara community possess. It wasn't long before we realized that the passion with which Budhan Theatre constantly worked towards fighting for their cause could never be understated.

Smriti Jalihal graduated from FLAME University with a major in Environmental Studies and a minor in Public Policy. Her research interests include environmental policy, conservation and social policy. She loves to paint and read in her free time. She is currently pursuing her postgraduate diploma in interdisciplinary studies and research at FLAME University.

Isha Doshi recently graduated from FLAME University with a major in Public Policy and a minor focused on Economics and Sociology. Her research interests include gender, human rights and law. She has an affinity towards photography, languages and music.

A man with short, graying hair, wearing a light blue and white striped button-down shirt, is looking intently at a black laptop. He is seated in what appears to be a classroom or lecture hall. In the background, a green chalkboard is visible with some faint white mathematical or scientific notations. The scene is lit with soft, indoor lighting.

RESEARCH SPOTLIGHT



RESEARCHER FOCUS

The current challenges faced by the banks

ASISH SAHA

For most of his professional career, Dr. Asish Saha was with the National Institute of Bank Management (NIBM), the apex institution of Banking and Finance in India set-up in 1969 as the think-tank for the banking system. Dr. Saha's research work revolved around the challenges being faced by banks. "Savings and Deposits – Trends and Patterns and Assessing the Quality of Customer Services in Banks" based on a survey of 1,00,000 households and Institutions across India sponsored by the Indian Banking Association (IBA) was the first research project he was closely involved in at NIBM. Being unique in the country, the findings of this research work led to a series of interventions at the level of IBA and at the level of individual banks in order for them to craft strategies to increase customer reach and strengthen the market share of their business. NIBM published the report for limited circulation as per the requirement of IBA.



As Indian banks were spreading their network across the length and breadth of the banking sector during most of the eighties and early nineties, the focus of Dr. Saha's research work was on structural set-up in banks and the efficiency in their decision-making processes. In a mostly manual working environment, the nodal flow of data in numerous return statements from branches to regional offices to zonal offices to the banks' central office had inherent problems of delays and data accuracy. Rationalization

of the MIS to ensure the recency and robustness of decisions taken across the organizational hierarchy was the focus of his research work. Dr. Saha was also a key member of the research project on "Farmers' Repayment Performance" sponsored by the National Bank for Agriculture and Rural Development (NABARD). Fieldwork in this project took him deep into the rural pockets in the Beed district of Maharashtra to have face to face interviews with farmers to assess the drivers of defaults of loans to the co-operative banks, primary agricultural societies, and the land development banks. Apart from the inherent travails in the lending mechanism to agriculture, the report dealt at length with the pitfalls in the structural mechanism in the administering of these loans, proposing the solutions.

The year 1991 was a watershed moment in the history of the Indian economy as the country was on the brink of a major foreign exchange crisis. The crisis led to major reform initiatives of the Indian economy, and banking was not an exception. The Narashimham Committee Report of that year proposed sweeping changes in the structural set-up and the governance mechanism of public sector banks (PSBs). The Committee suggested phasing-out the directed lending programmes, freeing-up interest rates, reducing the statutory pre-emptions of banks' funds by the Reserve Bank of India for government uses, and allowing entry of new generation private sector banks to increase competition in the Indian banking space. The Second Narashimham Committee Report seven years later, in 1998, highlighted the need for strengthening banks in India as a pre-requisite to the proposed Capital Account Convertibility and introduced the concept of

Narrow Banking for banks facing the problem of non-performing assets. It also introduced the concept to raise the capital adequacy norms to strengthen the banks further. At NIBM, Dr. Saha was extensively engaged in many sponsored research projects from various PSBs for organizational restructuring and to workout strategic business repositioning exercises during the 1990s. Designing and implementing the "Turn-around Strategy & Shaping the Strategic focus" for one of the country's major banks enabled the bank to return to profit after a long phase of six-years in the red. This research received appreciation from the Reserve Bank of India, which at that stage had different plans to deal with the crisis. It was during this phase Dr. Saha started working on the framework to assess the efficiency of banks in the country and his written work, including the published paper "Rating of Indian commercial banks: a DEA approach" in the *European Journal of Operational Research*, supported this work.

As the minimum capital requirement's maintenance became mandatory, as the apex institution, NIBM initiated major risk management system design initiatives for Indian banks. Dr. Saha led these initiatives at NIBM. A large number of sponsored research projects in the arena of Asset Liability Management (ALM) were awarded to the institute, including the ALM policy formulation exercise by the largest bank in the country. In addition, banks also awarded sponsored projects to design and implement the framework for Integrated Risk Management to NIBM, which were also led by him. The intensive research effort of the NIBM team in analyzing the relevant data, setting up the risk management systems and processes including data capture, and even providing prototypes in ALM, market risk, and credit risk became the hallmarks of deliverables tailored to individual banks in those research projects. The publication of the research paper "Networth Exposure to Interest Rate Risk: An Empirical Analysis of Indian Commercial Banks" in the *European Journal of Operational Research* was one of the outcomes of the research initiative of Dr. Saha in the arena of risk management in the banking sector. His collaborative research with his colleagues in the credit risk management at NIBM led to the publication of the paper "Calibrating Asset Correlation for Indian Corporate Exposures: Implications for Regulatory Capital" in the *Journal of Risk Finance*.

Beginning with the sponsored research assignment on the HR merger of a new generation private sector bank to a PSB in India, Dr. Saha led a series of major sponsored research projects in the arena of HR challenges in the mergers of banks in India. His continued research interest in banking efficiency earned him a research project to from a large private bank during his stint as a Visiting Professor at the Banking and Risk Management Department in the Universiti Utara Malaysia (UUM). It was the first

such research project awarded to that university and has resulted in publications in the *International Journal of Emerging Markets*, *Asian Pacific Economic Literature*, and the *Asian Case Research Journal*. His research team was also awarded a sponsored project "Savings and Investment Behavior of the Consumer of Financial Services and their Service Expectations from Bank" under the Fundamental Research Grant Scheme of the Ministry of Higher Education, Government of Malaysia. It is based on the primary survey of 1107 customers from 247 branches of 8 banks in the country. His collaborative research work in banking competition and concentration and their impacts on banks' risk-taking behavior and the implications for financial stability led to the publication in the *North American Journal of Economics and Finance*. In addition, his collaborative research work of the impact oil price of bank performance resulted in a paper in the *International Journal of Bank Marketing*, and the recent publication "Do oil and gas price shocks have impact on bank performance?" in the *Journal of Commodities Market*, a top-tiered journal in the ABDC ranking. He was awarded a research project on "SME Inclusivity in Malaysia: Strategic Drivers in Promoting its Success", sponsored by the Centre for Entrepreneurship Development and Research (CEDAR) of SME Bank, Malaysia. This research was based on a national level primary survey of entrepreneurs across the states of the country and the report was published in the form of a book by CEDAR for internal circulation.

Dr. Saha has a continued interest in the arena of housing finance since his days of association with NIBM when he led the sponsored research "Study of Residential Housing Demand in India for the National Housing Bank". His research team at UUM was awarded the research project "Housing Demand and Prices, Drivers of Default and rejection of Housing loans in Malaysia – A Micro-level perspective." It was sponsored by INSPEN under the Ministry of Finance, Government of Malaysia. The study, which was unique of its kind, was based on the analysis of information of 47,158 borrower accounts in the housing Loan Portfolio of a Housing development bank in the country. A paper from the findings of this study has just been accepted for publication in *Review of Behavioural Finance*. His collaborative work in the arena of housing finance at FLAME University based on information of 1,02,327 borrower accounts from the housing loan portfolio of an Indian PSB is presently under review in a top-tiered journal.

Presently, Dr. Saha is working collaboratively to analyze the impact of the Covid-19 pandemic on the stock markets and the energy indices around the globe. He continues research interest in both the housing finance market and infrastructure finance in India.

A close-up photograph of two people in business attire shaking hands over a desk. The person on the left is wearing a dark blue suit jacket with four buttons on the cuff. The person on the right is wearing a dark grey suit jacket with a white shirt cuff visible. The desk is covered with a grey and blue patterned cloth. In the foreground, there is a silver laptop on the left and a stack of yellow folders on the right. In the background, a blue folder and a pen are visible on the desk. The background wall is a light blue color.

INTRODUCING NEW FACULTY

We are pleased to introduce new faculty members that have joined FLAME University at the beginning of this semester (Jul-Dec 2019).

ADITYA BHAN

M.Sc. - Quantitative Economics | Indian Statistical Institute - Kolkata



“ I have a Master’s Degree in Quantitative Economics from Indian Statistical Institute, Kolkata. I completed my Bachelor’s Degree in Economics from St. Xavier’s College, Kolkata.

My experience at the ISI included projects on India-US exchange rate, sex ratio in India using Econometric methods and co-movement and casualty analysis of money supply, inflation and output in India. I also developed a model for Customer Lifetime Evaluation, analytical frameworks for debit cards and cash-back campaigns and payments at ICICI Bank.

My research area lies in the broad field of defense and security economics.

I am a quantitative economist with experience in both the private corporate sector and academia, and I bring both of these sensibilities to bear on my research.

I am passionate about my motherland India which I seek to serve with full and unwavering loyalty and devotion. ”

AJAY RAINA

PG Diploma - Film Direction & Screenplay Writing | FTII, Pune

“ I hold a Post Graduate Diploma in Film Direction & Screenplay Writing from FTII Pune & have completed Bachelor Degree in Civil Engineering from R.E.C Srinagar. I have produced, directed, and edited many fiction shorts, documentary films and television programs in addition to writing screenplays for feature films. I was recipient of the prestigious Fond Sud production grant given by the Ministry of Culture & Ministry of Foreign Affairs, France for my feature film script *Letters to God*. My project Aharbal Falls was selected for Open Doors co-production Lab at Locarno Film Festival in 2011. My documentary film *Between Border and the Fence*. On Edge of Map (2011) was short listed amongst 12 best documentaries of the year 2011-12 according to *Walker Reader*.



My work mainly explores the contemporary context of the conflict in Kashmir and the experience of exile, displacement, and diaspora through an exploration of history, memory, and Hindu/Muslims relations post partition.

I have taught courses in Cinema Studies, Film Direction, Documentary and Screenplay writing at University of Pennsylvania, Film and Television Institute of India, Sriшти Institute of Art, Design and Technology and have also held the position of Chairperson Academics at ISB&M School of Communication. I am the founder of Kashmir Oral History project and curator of a travelling festival of films related to the Kashmir conflict. ”

ANINDITA CHATTERJEE

Ph.D. - Socio-cultural Linguistics | Jawaharlal Nehru University, New Delhi

“ I did my undergraduate in English (Honors) from University of Calcutta, and have dual M.A. degrees from the University of Texas at Austin in Anthropology, and University of Calcutta in Linguistics. I completed my M.Phil. (Socio-cultural linguistics; focus on language and gender) from Jawaharlal Nehru University in 2019. I received my Ph.D. from the same institution. The focus of my doctorate was language, gender and labour relations. My research was funded by ICSSR, New Delhi.



I joined as a Postdoctoral Fellow at Max Weber Stiftung (IBO) in 2019, funded by the German Ministry of Education and Research. My project explored the construction of gender identities among migrant female domestic workers which are shaped and influenced by a variety of other intersecting relationships, especially caste and religion.

I have been teaching and researching for eight years and I have shared my research findings at multiple international and national conferences over the past decade. I have published in *International Journal of Sociology of Language*: and I have recently contributed a chapter in the book *Leaving and Living: Social and Cultural dynamics of Migration in South Asia* (forthcoming by Routledge).

For the students of FLAME, I bring my teaching and research expertise, and a strong commitment to student mentorship for productive academic writing. ”

CHETNA MONGA

Fellow Programme in Management - Communications | MICA, Ahmedabad

“ I received my B. Com (H) degree from Delhi University and MBA from Jaypee Institute of Technology, Noida. Thereafter, I worked with a reputed real estate firm in Noida, U.P for three years in its marketing department. This job gave me real time experience in managing HNI customers, personnel training, and team management. It was an opportunity (or rather a peek) into diverse and dynamic human behavior, which further motivated me to take up research in the area..



My thesis study at MICA focused on understanding the purchase and consumption of films as experiential products. During the course my work, I was privileged to work with film industry experts (at both academic and industrial levels), cinema exhibitors, and commercial film audiences in order to understand the business of cinema. Simultaneously, based on my personal experiences, I also developed an interest in understanding the role of a healthy mind in the overall assessment of quality of life, specifically, how being a healthy human does not merely mean being free from physical pain or the symptoms of a disease.

During my stint at MICA, I was exposed to variety of research and training experiences, ranging from a rural immersion in a village in Bihar to exposure to global research culture as international research scholar at New Zealand.

My current research areas include understanding and analyzing consumption behavior of experiential products, marketing communications, and film marketing.

Outside work, I like to dedicate my time and attention to my cats and dogs, while trying my hand at cooking. Happily married, I also like to travel the world with my husband and explore different cultures and perspectives on life. ”

HASHEEM MANNAN

Ph.D. - Disability Policy and Family Studies | University of Kansas, USA

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I hold a Ph.D. in Disability Policy and Family Studies from the University of Kansas. I have previously held academic appointments in the School of Nursing, Midwifery & Health Systems at University College Dublin, School of Psychology and School of Social Work & Social Policy at Trinity College Dublin, School of Population and Global Health, University of Melbourne, and the School of Education, University of Kansas. I have also held appointments with civil society in India, the World Health Organization (Switzerland), the National Center for Health Statistics (USA), and the National Disability Authority (Ireland).



I began my international teaching and research experience in 2000. I have taught courses in Health and Human Rights, Evidence-Based Practice for Healthcare Professionals, Health Policy, Advanced Research Methods, Disability and Developing Countries, and Introduction to Health Systems. I regularly conduct research on the topic of equitable access to healthcare. I have extensive experience in knowledge management of international development projects carried out by the World Health Organization, UNICEF, United Nations Development Program, UNESCO, and the International Labor Organization. I have been an associate member of the United Nations Washington Group on Disability Statistics since 2006 and have been a member of the working group on Children and Psychosocial Disability. I am on the board of The Irish Global Health Network. I have carried out a range of consultancy in the areas of health and human resources, public policy, and data for sustainable development goals for the World Health Organization and UNESCO.”

KAUSHIK GOPALAN

Ph.D. - Electrical Engineering (Satellite Remote Sensing) | University of Central Florida, USA

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I studied Electronics and Communication at the RV College of Engineering, Bangalore, and then moved to the University of Central Florida (UCF) for post-graduate studies. I received M.S. and Ph.D. degrees in Electrical Engineering from UCF in 2005 and 2008, respectively.



From 2008 to 2011, I worked with the Earth System Science Interdisciplinary Center, University of Maryland, College Park. Most recently, I served as a scientist with the Space Applications Centre – ISRO (SAC), Ahmedabad from 2011-2020. My post-Ph.D. experience at the University of Maryland has enabled me to work with the retrieval algorithms used to estimate precipitation from microwave sensors. During my tenure at SAC, I contributed to product and algorithm development for several missions. For example, I was awarded the ISRO team excellence award for contributions to the Megha-Tropiques mission and have served as a Deputy Project Manager for the INSAT-3DR mission. I have also contributed to algorithm development for the SCATSAT-1 and IRNSS/NAVIC missions.

My research has involved applying statistical analysis and methods to solve a variety of problems in satellite remote sensing, with a focus on the retrieval of geophysical parameters from satellite data, conceptually a “statistical inversion” problem where unmeasurable independent variables are inferred using measurable dependent variables. At FLAME University, I hope to use my expertise to work on the broad interdisciplinary theme of reducing societal vulnerability to weather fluctuations and climate variability.”

MALINI DASARI

PG Diploma - Film & Television | FTII, Pune

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I am a cinematographer and my journey began with photography as a hobby. A more serious career to me then was in business management, and that took me to IIM, Bangalore to do my post-graduate studies in Management, and I entered the corporate world starting with Modi Xerox. In a couple of years, my interest in photography increased and simultaneously an urge to become an independent professional was ignited; that led me to pursue cinematography as my second career. So, I stepped into the world of cinema and discovered my passion behind the camera. At the Film and Television Institute of India, Pune I did my post-graduate diploma in Film with specialization in Cinematography and went on to work in the film industry as a cinematographer-director of photography on various feature films, documentaries, shorts, corporate films, and music videos.

Appreciation for my cinematography work came through official selection to participate in Budapest Cinematography Masterclass, Hungary in 2003 for my short-film *Avchetan*. The film also won a national award for best social issue-based short fiction film the same year.

My diploma film *Saankal* was selected for cinematography to participate in ‘Camerimage’ Poland 2005, a festival showcasing global cinematography works.

My third career in academics started when I was invited to teach Cinematography as an external faculty at Digital Film Academy, Mumbai and there I discovered the joy in teaching and sharing knowledge. Film and Television Institute of India (FTII), Pune as an Associate Professor and External Faculty at Mahindra Ecole Central, Hyderabad followed suit, and now I am Associate Professor of Cinematography at FLAME University thoroughly enjoying the place, its people, and the teaching.

I am currently researching and shooting a documentary film, telling untold stories of people in migration entitled *Fire in the Belly*.”

ROHIT TIWARI

PGDM - Communications | FLAME, India

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I have a B.Com from Pune University, and PGDM from FLAME School of Communication with Marketing and Advertisement as my major. It was at FLAME that I acquired an interest in digital marketing. I participated in the Google Online Marketing Challenge as a group project and we did an online campaign for Vega Helmets. Google declared our project as its Asia-Pacific Winner and gave us a fully sponsored trip to its Singapore headquarters. This was a watershed moment of my life; it grew my confidence to explore the field of digital marketing and to leave the sales job that I was doing.

I have a total of five years of experience in Search Engine Marketing, Social Media Marketing, and Amazon Marketing Services. Before this, I was working with Dentsu Webchutney in Bengaluru as Sr. Project Manager in Paid Media. I have also been associated with I Knowledge Factory Pvt. Ltd. as an SEM team lead. My digital marketing practice spans across categories and clients including Max Fashion, TI Cycles, ITC, Piaggio, and Forever 21. At Dentsu, I got a chance to do media planning and execution for campaigns that had multi-crore media budgets. My team and I also won the prestigious Effie Award for best use of data.

At FLAME University I offer courses on Digital Campaign Planning, and Display Marketing. It feels wonderful to be on the other side of the table as a teacher. I am excited and looking forward to doing some great research-backed work along with the students.”

SUPRIYA CHOUTHROY

Ph.D. - Marketing | Savitribai Phule Pune University, Pune

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Consumers and their behavior have always been an areas of deep interest to me. My doctoral research investigated the roadmap that brands take to gain commitment from their customers via the corporate social responsibility (CSR) reputation route. With marketers continuously attempting to answer the persistent question of which marketing mix handles to turn to to steer the brand closer to the customer's heart, I looked at trying to do this through the topic of my research. The conceptual framework of my study looked at exploring consumer relationships more holistically. I examined the aspect of corporate social responsibility (CSR) reputation, brand trust, emotional attachment, brand image and finally, how all these add up to building brand commitment. The objective of my research was to evolve and propose a model of CSR reputation leading up to brand commitment. Additionally, I investigated whether a brand embracing CSR activities could increase customers purchase intention, and have them recommend and advocate the brand to other consumers.



I have a Ph.D. in Marketing from Savitribai Phule Pune University and an MBA from Mangalore University. As a marketing professional, I have worked with organizations like HCL Ltd, Blue Dart, Lowe Lintas, and Honeywell. As an academic, I have taught at the Symbiosis School for Liberal Arts and SIBM, Pune. I offer

courses on Public Relations, Consumer and Audience Behaviour, and Advertising. Besides this, I have also completed a PG Diploma in Psychological Counselling from TISS.”

PRATEEK SHAH

Ph.D. - Innovation & Management in Education | IIM, Ahmedabad

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I recently completed my Ph.D. from IIM, Ahmedabad (IIMA) in the field of Innovation and Management in Education. My earlier degrees include a PGDM from IIMA, and a B.S. and M.S. in Computer Engineering from the Georgia Institute of Technology. My work experience includes working as a hardware engineer at NVIDIA, holding leadership roles at my family business in Kolkata, interning with former President of India Dr. Kalam, and consulting for a major Indian MNC on their digital villages' project.



My doctoral thesis explored the potential role of digital media in the pedagogical institution of the classroom. I plan to continue research looking at how new developments in digital media and artificial intelligence might fundamentally shape our social structures. This would entail not only deep technical understanding of these potential changes, but also a broader sociological and policy perspective on how they could enable more equitable and diversified systems.

My other research interests include exploring the nature of the self, specifically challenges to the classical ideal of the individual, rational, monadic, and controlling self. These challenges come from post-structural and feminist philosophy, but now also from cognitive science and psychology. Putting this together with the cognitive and institutional changes that digital media and artificial intelligence are expected to bring, I am interested in asking how human minds and institutions—our ecologies—and our very 'selves' might become anew in the digital era.

In my spare time, I enjoy reading, playing sports and video games, learning the piano, and writing poetry.”

Gitesh Chavan

Ph.D. - Marketing | NITIE, Mumbai

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I have a Master's Degree in Instrumentation and Control Engineering, and have completed an MDP in Marketing and HR from IIT Mumbai, Shailesh J Mehta (SJMSOM). I also earned an Associate (ATCL) Diploma in Communication Skills from Trinity College London.



I have worked in multiple geographies including Australia, USA, European Union, and the Middle East, in cross-cultural, cross functional teams. My competency lies in the areas of sales and business development of automation solutions and services, marketing strategies, branding, project engineering and management in industrial automation - safety systems, PLC, SCADA, HMI, DCS, automation, C&I project execution, and MAC project pursuits. I have received numerous commendations and accolades for my outstanding performance at Emerson and Honeywell, Houston, Texas.

I was awarded the NITIE Fellow in 2018. During my doctoral research tenure I published research papers in scholarly peer-reviewed journals of repute, including the journal of business and industrial marketing. I have also presented in several international conferences, and have case studies to my credit.”



GET IN TOUCH

FLAME Campus Address

Gat No. 1270, Lavale, Off. Pune Bangalore
Highway, Pune - 412115, Maharashtra, India.

Mailing Address

401, Phoenix Complex, Bund Garden Road,
Opp. Residency Club, Pune - 411001, India.



1-800-209-4567



www.flame.edu.in



enquiry@flame.edu.in



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