BIODIVERSITY and IITB

A Story That Transcends Time

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Introduction

Maps of the institute invariably show a spur of land jutting out into the Powai Lake from the place where the trio postgraduate hostels stand. Upon this piece of land lies an impressive forest extending to the shores of the lake. This forest is part and parcel of IIT Bombay, but rarely frequented by campus residents because the entrance to it is subtly hidden away from view. In fact, this peninsula, which has been known as Kol Dongri since long, can be considered an extension of the Sanjay Gandhi National Park to the north. Dubbed the *El Dorado* of birdwatching by none other than Dr. Salim Ali (1896-1987), the "Birdman of India", Kol Dongri is important for the unique geography that it sits on: it provides a woody and marshy ecosystem and is a waypoint for several species of migratory birds. Over the last couple of decades, Kol Dongri has been chipped away at for various purposes, most notably to build three student hostels and to house a construction workers' colony. Today, the Kol Dongri forest has been reduced to nearly half of what it used to be just two decades ago.

A Google search on IIT Bombay will lead one to find the following one-line description given by Google itself - "*Founded in 1958, this technology and engineering university is known for its green, lakeside campus.*" Clearly, the natural environment at IITB is seen as a defining characteristic of the physical campus and is well appreciated by Mumbaikars as well. How well are we doing at taking care of the wealth of greenery that we have been bestowed with, and are so known for? This article attempts to take a look at this very aspect.

Image: A gurgling stream in spate at Soneri Baug, Lakeside area (Aniruddha Dhamorikar, provided by Goldin Quadros)

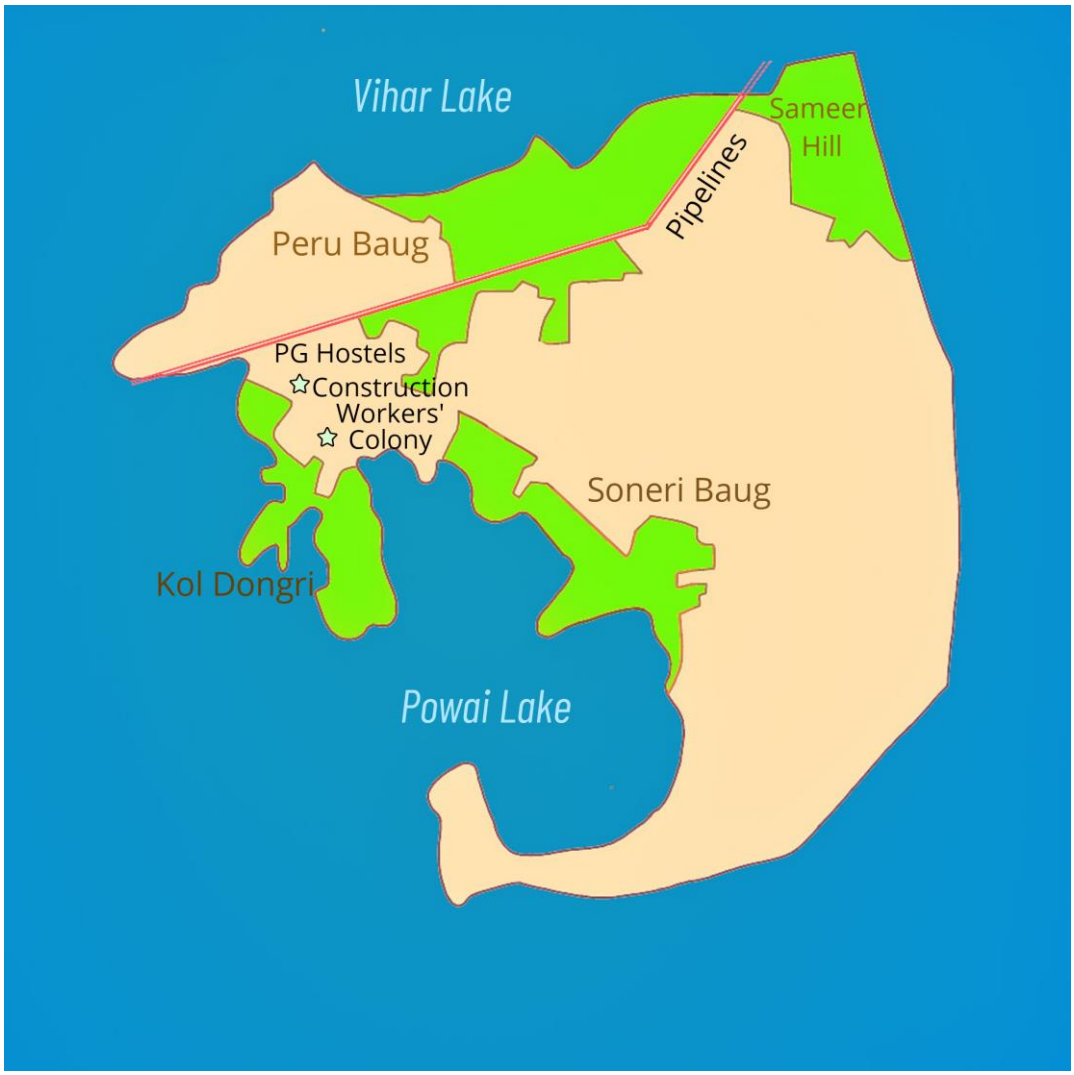
In 2008, the World Wildlife Fund† carried out a study of biodiversity at IIT Bombay under the stewardship of noted ecologist Dr. Goldin Quadros. That there was a study carried out is testimony to the fact that this institute is considered a biodiversity hotspot, which is unique for a college campus. The study notes that the campus is important "not only from an education point of view" but also "as a green lung" and concludes that "the biodiversity of IIT Bombay campus comprises a total of *843 species of flora and fauna*". However this figure may, in fact, be an underestimation, as the study was "limited due to time and survey constraints," Dr. Quadros says. Indeed, the campus consists of "diverse niche ecosystems, including lake and wetland, hill-slope, grassland patch and forest ecosystems," says Prof. Rohit Manchanda of the Biosciences and Bioengineering department. "The flora and fauna here are so rich and diverse because of the overlap of all these ecosystems," continues Prof. Manchanda. "The elimination of a single ecosystem would substantially lower the number of species seen here." It is thus amply clear that the campus is a sanctuary in its own right. Recent developmental activities, however, bode ill to this sanctuary and threaten to obliterate the rich biodiversity found here.

Image: Amrita Mukherjee

The morning rays illuminate the rainbow splendour of a Glossy Ibis as it trots on the lakeside marsh.

†Available at http://www.iitb.ac.in/deanpl/images/basic/WWF_Report.pdf

Core biodiversity hotspots



Representative map of the core biodiversity hotspots in IIT Bombay campus.

The areas marked in green, located generally at the periphery of the campus, are the vegetated sectors (while the rest of the campus is the urban sector). These are the most important areas for sustaining the biodiversity IIT Bombay is known for, with large portions being contiguous to the Sanjay Gandhi National Park in the north. This is so because the urban forestry consists of non-native species and is highly scattered as it majorly comprises the greenery lining the streets. The WWF report notes that a comparison of the vegetated and urban sector "reveals the imbalance in the urban sector, where the percentage of flora is increasing and it does not support the fauna," mainly due to "the exotic trees in the urban sector."

The most accessible spot is Soneri Baug, an expansive forest stretching from Jalvihar Guesthouse all the way up to the erstwhile Hostel 7. Many campus residents may have accessed this area while visiting the popular landmark, the Boathouse. A veritable hotspot for wildlife and popular among birdwatchers, recently-built infrastructure such as the Padma Vihar Guesthouse have displaced parts of the forest. The building of an access road cutting through the forest to facilitate the construction of Hostel 17 has further fragmented this ecosystem. Some general problems afflicting Soneri Baug include the dumping of garbage and alcohol bottles, as well as the illegal poaching of aquatic wildlife that include waterbirds. The recent move to dedicate a piece of land in this area to rehabilitate stray cows could further affect the ecological balance of the area.

Images: Sreesh Venuturumilli

Constructions such as that of Hostel 17 tend to have a spillover effect, with neighbouring areas being adversely affected. Here, a part of Soneri Baug is seen to be badly damaged.

Piles of construction rubble marking the beginning of the Kol Dongri forest

Construction workers' tenements adjoining Kol Dongri

Another large biodiverse area is the thickly-wooded Kol Dongri, the largest unfragmented forest inside IIT Bombay. Not only is this location described as a paradise for birdwatchers by institute nature lovers and visitors alike, it is also the place to encounter indigenous fauna such as the ruddy mongoose, according to Dr. Quadros.

This area was much more expansive until a portion of it was cleared to build the trio PG hostels. Today, straddling the edge of the forest is the construction workers' colony mentioned earlier and heaps of rubble. Indiscriminate waste dumping and cutting of wood by residents of this colony are contributing to the degradation of this forest. The WWF report also mentions that trespassers are involved in trapping water birds and fishing along the shores of this area.

Imagery courtesy: Maxar Technologies

Kol Dongri over the years: Satellite imagery between the years 2000 and 2018 shows the area of the forest in steady decline. In the latest year, 2018, it can be seen that the construction workers' colony reaches down where once the heart of the forest was.

Glimpses of Kol Dongri

Images: Sudip Das

The next vegetated region of significance is the well-known Sameer Hill, relatively undisturbed by development until now because of the unfavourable topography. This hill is significant for the slope ecosystem it harbours. However, even this relatively remote location may not be safe from development: a proposal has been made recently to set up a solar energy park on the slopes of the hill. The SAMEER institution in the area is a known offender, dumping waste along the periphery of their compound, while there is also another workers' residential colony on the hill.

Waste dumping in a hillside stream by SAMEER

Image: Zakia Khan

Imagery courtesy: Maxar Technologies

Then & Now: A comparison of green cover along the pipelines between the year 2000 and now.

The area adjoining the municipal water pipelines, which when surveyed by the WWF was thickly wooded until Hostels 15, 16 and 18 came into being. This area, being closest to the National Park to the north, is one of the locations where frequent sightings of visiting megafauna such as leopards are noted.

Dumping of waste in the forest

Temporary hutment set up by outsider fishermen/poachers at the tip of Kol Dongri

Finally, there are the forests of Peru Baug, an isolated sector of the institute due to restrictions on movement to the area. Located to the north of the pipeline, it adjoins Vihar Lake and comprises a couple of forested hills and an *adivasi* hamlet. While the WWF did not include this area in its survey, being contiguous with the National Park, it is almost certainly as biodiverse as the campus, if not more. The *adivasis* claim that they have lived on these lands for at least four generations, partly depending on the forests and lake for survival. Apart from the under-construction IIT Bombay Research Park, Peru Baug has been largely left untouched, unlike its counterpart along the Powai Lake, Soneri Baug.

It is thus apparent that many quarters of IIT Bombay's ecological sphere are under threat by both development and human activities. In the rest of the article, the role and influence of various actors on biodiversity preservation are examined in detail. Solutions are presented thereafter that attempt to strike a balance between the requirement of new infrastructure and conservation efforts.

The Administration's Role

What is the institute administration's role in all this? How do the Main Building's policies augur for biodiversity? To answer that question, we must gain an understanding of the official machinery involved in the conservation of biodiversity in the campus. First is the Green Campus Initiative (GCI) committee, set up in February 2010 under the auspices of the office of Dean Infrastructure Planning & Support (IPS). This committee was active in the early half of the last decade, even coming up with a 31-point report identifying specific action points encompassing campus ecology, energy, and water. However, this committee has not met in the last few years, especially as the need for it has increased.

After a period of dormancy, in IIT Bombay's *Strategic Plan Document* of 2017, the importance of developing a cleaner and greener campus was reiterated, with this goal being elevated to one of the ten major long-term priorities for the institute. The existence of a Green Campus Committee was acknowledged, and further, the creation of a cell to implement the committee's recommendations was suggested. In pursuance of these goals, current Dean IPS, Prof. B.V.S. Viswanadham has revealed that a meeting of the GCI committee will be convened later this semester in which a five-year green master plan is to be presented.

What about the role of external influences? A cue for all IITs to begin involvement in conservation was given at the 46th and 47th meetings of the Council of IITs in 2013. It recognized that there was a need to '*balance infrastructure needs with environment conservation and sustainable growth*', and, importantly, a '*need to promote a healthy learning environment by creating sufficient open and naturally forested spaces.*' A number of recommendations came out of the meeting, most important among them being the establishment of a Green Office, creation of a master plan for green infrastructure and regular 'green' audits. These points were reiterated in a letter to the Director from the Ministry of HRD in Dec 2013. While the foresight of the Council members is commendable, progress in consonance with the spirit of the meet appears to be slow. Indeed, subsequent IIT Council meetings failed to follow up on the resolutions of 2013.

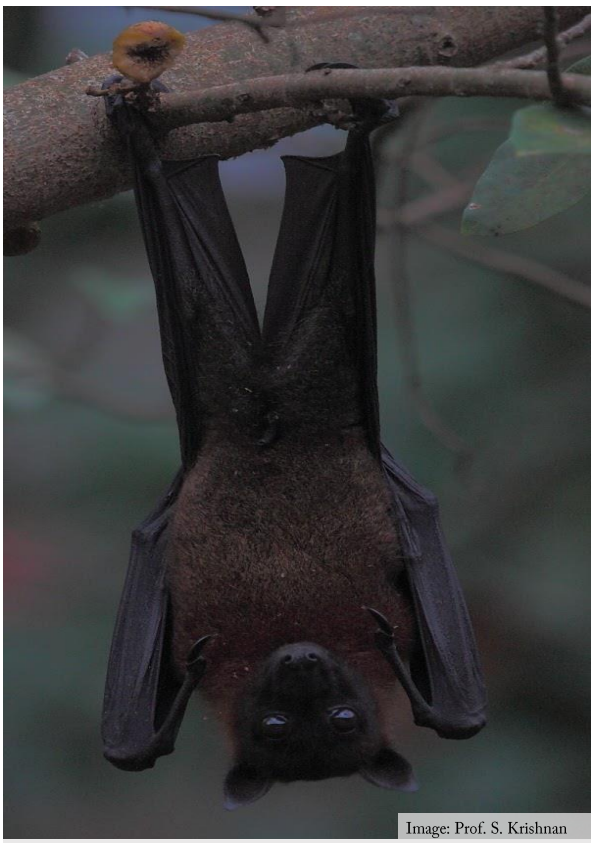


Image: Prof. S. Krishnan

The headstand pose of a hardcore frugivore! A Flying Fox roosting in its colony at IITB. Of late, with its roosting trees disappearing from the main gate area, it has suffered much displacement.

The Dean speaks

Prof. B.V.S. Viswanadham, the Dean of Infrastructure Planning & Support, expressed the institute's commitment to striking a balance between the preservation of green cover and building much-needed infrastructure. He explained that minimizing tree loss was a major consideration in the selection of a site for the upcoming H19. Regarding trees chopped already, he held construction contractors liable, saying they are required by law to ensure the survival of transplanted trees and plant three saplings in lieu of each tree cut. Portions of the campus have also been earmarked by authorities as 'Restricted Green' areas, forbidding any kind of ecologically harmful activities. Parts of Kol Dongri, Sameer Hill and the lake shoreline are some designated Restricted Green regions. In addition to this, all new structures will be built to a standard of at least three stars on the GRIHA (Green Rating for Integrated Habitat Assessment) rating system. Also highlighted were many of the administration's initiatives for sustainable development. These include the construction of a biogas plant near H14 with a tender for a new plant at H18 underway. The installation of power-saving LED lights and BLDC fans, vermicomposting and organic waste putrefaction are some other projects.

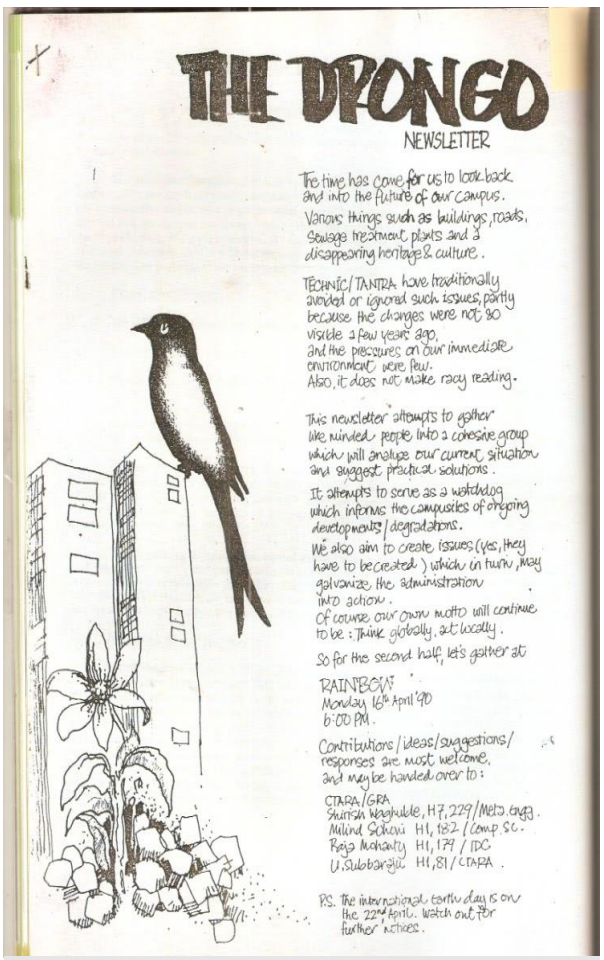
He acknowledges that several challenges still plague the goal of a cleaner, greener campus. Encroachment on vacant institute land, waste dumping from autonomous facilities present in the campus, presence of hutments for construction workers are some hindrances. Apart from this, cooperation from students and student bodies needs to be forthcoming. "Loads of trash, bottles, and foils post-Mood Indigo and Techfest are dumped with the expectation that daily wagers will do this job for us!" Prof. Viswanadham says.

The Campus Community

It is therefore evident that there is space for the administration to do more in terms of environmental conservation. That leaves the other major stakeholder in the field: the campus community consisting of students, faculty and staff.

IIT Bombay has indeed had a rich tradition of concern for nature and a culture of preservation. Around 1976, a mobilization of students against the proposal to build a road cutting through Soneri Baug resulted in the formation of the Wildlife Club in 1977. Student interest in the club soared and it was soon made a Gymkhana body with an elected Wildlife Secretary and independent budget. According to *Raintree*, a magazine published by the PRO in the past, the club was not only active in tree planting on campus, but also published a thorough checklist of birds of IITB containing 180 species, organized field trips to national parks and birdwatching outings, screened wildlife films and held exhibitions. The club quickly garnered attention outside IITB as well, with the field director of Ranthambhore National Park inviting the club to participate in its annual tiger census.

In 1989, when trees were cleared en masse to create parking space for an international pharma conference, IPCE, hosted by the institute, there was yet another uproar. According to Shirish Waghulde, a student at that time, students organized spontaneous *morchas* and protests against the move, which led the institute to undertake tree plantation soon after the event. This movement also gave rise to an environmentally focussed student newsletter, *The Drongo,* named after one of the species of birds spotted on campus. This newsletter sought to gather and inform concerned individuals, and chronicle various conservation measures undertaken by students themselves. One such activity was the planting of 200 saplings on the top of the then-heavily deforested Vihar hill with "the enthusiastic participation of like-minded people." The students took great care to prevent cattle from grazing or trampling on the saplings, regularly carrying water up the hill to water them and protecting against fires by removing grass around the saplings.



THE DRONGO

NEWSLETTER

The time has come for us to look back and into the future of our campus. Various things such as buildings, roads, sewage treatment plants and a disappearing heritage & culture.

TECHNIC/TANTRA have traditionally avoided or ignored such issues, partly because the changes were not so visible a few years ago, and the pressures on our immediate environment were few. Also, it does not make racy reading.

This newsletter attempts to gather like minded people into a cohesive group which will analyse our current situation and suggest practical solutions.

It attempts to serve as a watchdog which informs the campusites of ongoing developments/degradations.

We also aim to create issues (yes, they have to be created) which in turn, may galvanize, the administration into action.

Of course our own motto will continue to be : Think globally, act locally.

So for the second half, let's gather at

RAINTREE
Monday, 16th April '90
6:00 PM.

Contributions/ideas/suggestions/responses are most welcome, and may be handed over to:

CTARA/GRA
Shirish Waghulde, H7, 229/Metg. Engg.
Milind Sohoni H1, 182/Comp. Sc.
Raja Mohanty H1, 179/IDC
U. Subbarajū H1, 81/CTARA.

P.S. The International earth day is on the 22nd April. Watch out for further actions.

Student activism: The cover page of an edition of The Drongo from April 1990.


Image: Anonymous

People trek to Sanjay Gandhi National Park for a glimpse of the endemic Karvi that blooms in this part of the Western Ghats once in seven years. Little do we know that it is here, up the hill, in our own backyard.

The Drongo complains bitterly about the administration of the day. In one issue, the newsletter notes:
When questioned by worried students on tree felling on campus, the DoSA immediately arrives at the conclusion that these students are Gandhian obscurantists. "Don't you want SAMEER on campus?", "Don't you want housing for faculty?", or "Don't you want lights on streets?"; he will ask, implying that the degradation of the surroundings is the compromise between Development and Gandhian traditions. This obfuscates the irrelevant detail of the students' ideology with the fact of needless tree felling. [sic]


Image: Prof. S. Krishnan

A master of all catches! The white-throated Kingfisher on campus preys on many small animals apart from fish.

In later times, this interest in conservation waned as the academic curriculum became more intense (the duration of the BTech degree was reduced from five years to four) and as the beginning of the internet age heralded the creation of a virtual world far removed from the real world. Over the past two decades, new infrastructure has been realized at a remarkable pace. While successive administrations have tried to do their best to minimize ecological impact, greater public participation could have resulted in more efficient infrastructure. The examples of Aarey Colony and IIT Madras exemplify the significance of popular opinion on infrastructure planning.


Image: Amrita Mukherjee

Tiger mimics! Striped Tiger is among the several butterflies found on the campus.

The lively debate and media attention surrounding tree cover in Aarey Colony resulted in greater awareness of the issue of balancing conservation and development. Designs for the Metro Carshed were altered to reduce the environmental impact of the construction. Construction activity has now been additionally put on stay. While it is debatable whether this is justified given the advanced stage of works in the Metro project and the accompanying potential cost escalations, it is noteworthy that the voice of the common citizenry has made such an impact on policy decisions. Similarly in IIT Madras, home of the blackbuck and the spotted deer, measures for balanced development were taken following an outcry in 2013 about a significant loss in tree cover due to construction.

Solutions to the Challenges

Make no mistake: IITB has been nature-friendly for years. Visitors have remarked at how pavement and buildings have been built to carefully sidestep existing flora. A particular case in point is the banyan tree within the Lecture Hall Complex that was left untouched when the building was constructed a decade ago. The trees saved at the end of the Infinity Corridor near the Central Library during renovations is another shining example. The ban on motorized vehicles from entering sensitive areas in the campus such as Soneri Baug and the hillside is looked upon by other institutions as a model for emulation. Alumni have pitched in, too– the Soneri Baug Conservation Project, contributed by the Class of 1984, undertook to help better preserve the Lakeside area for campus residents to enjoy the biodiversity in a tranquil setting. However, the challenges that are faced with increasing student population in the institute as per central government mandates, necessitates us to look at possible solutions to the destruction of ecosystem for necessary infrastructure.

What are possible solutions to development without disturbing too much of nature? Prof. Chaudhari, the Director, recently stated that only one of every three doctoral students receives accommodation on campus. Certainly, the glaring residential and academic infrastructure deficits need to be addressed if IIT Bombay is to reach new heights. Some approaches that may be explored are listed below. The credit for many of these ideas go to Prof. Manchanda and Prof. Patil of the Electrical department, who has served as a member of the GCI committee.

Going vertical

The most intuitive solution is to build taller. Indeed, this idea has caught on over the last decade, with G+17 faculty residences such as *Ananta* and *Aravali* having come up. The ongoing construction of a 21-storey residential building in the lakeside area is another example. This may be implemented across the board, with the latest highrise hostels setting the tone for future such developments.

Redevelopment and remodeling

All of the senior hostels were built over five decades ago and designed for those times, when annual enrolment was in the low hundreds. Clearly, even after mandatory pairing up of inmates, these hostels can no longer cater to the surging demand for accommodation. The way forward could be to demolish and build taller buildings as replacements, retaining the existing footprint.

Space efficiency

Several buildings could have been built to use space more efficiently, which would indirectly alleviate biodiversity loss. Prof. Patil points out that the new CSE department has features that waste space, such as the expansive staircase atrium in the centre of the building, or the seldom utilized lecture theatre fashioned in the shape of a globe. This globe structure precludes any construction above the ground floor in the area that it occupies. Another egregious example is VMCC, where the large open area atop the first floor — rendered unusable for much of the year due to monsoon rains — could have been put to better use. Prof. Patil estimates that several dozen faculty offices and laboratories could have been accommodated if multiple stories had been built in place of this open area. Likewise, the recently inaugurated CESE/DESE department is designed like a shopping mall, with a very large atrium where there could otherwise have been office space. Elsewhere, Prof. S Shivasubramanian points out that the lawns on the rear of the Main Building serve little purpose and are a drain on water resources.

Native over exotic

Native species of plants require far less maintenance than non-native plants do. According to Dr. Quadros, native plants attract local fauna as well, enhancing the biodiversity of the area. He also opines that the humble native grass species are also very important like the larger flora, and are not to be neglected. Prof. Patil concurs over the need for native species, noting that, "raintrees, gulmohar and copper pods are not native to this place, and do not support fauna, such as birds and insects. These should gradually be replaced with native trees."

Second campus

A satellite campus outside the city housing research facilities and accommodation for some doctoral and post-doc students could ease congestion in the Powai campus. Even if all current construction projects are completed on schedule, many PG students including married research scholars would still not be accommodated. Many universities abroad have multiple campuses, while in India, IIT Delhi has already established two satellite campuses in Sonipat and Jhajjar, Haryana.

Administration's policies

Implementing the strategy outlined in the IIT Council's Green Action Plan would be a good way to make a beginning. The institute's Land use Master plan should be made compliant with environmental norms. To prevent extravagant architectural plans that waste space from taking shape, Prof.. Patil suggests that, "the administration, in consultation with all stakeholders, should lay down certain requirements for future buildings (on metrics such as ratio of usable space to footprint) and only designs which satisfy that requirement should be considered." Further, an environmental plan should be created that would protect and delineate permanent green areas to preserve biodiversity. Greening initiatives must not just be qualitative but should be quantified. For instance, the outcomes (eg.: survival rate of trees) of the annual *Vanmahotsav* plantation program are not known. This must be surveyed and data regarding all trees on campus should be collected and made public. Finally, the institute can leverage its Institute of Eminence tag to implement sustainable development and become a role model for other institutions across the country.

Interaction with campus community

There is a need for the Main Building to interact with stakeholders in a transparent manner– including by encouraging consultations on new projects with the campus community, who are the end-users of the infrastructure built. As succinctly put by the Green Action Plan, the institute should make the "greening agenda a participatory, transparent process, seeking to generate greater awareness by sharing reports widely with its campus community and on the institute's web site." Ultimately, there is a need for long-term thinking in the form of a continuous plan, because while decisionmakers keep changing, the effect of their policies on the campus landscape is permanent.

Revival of Green Office

A revived GCI Committee or Green Office (these two terms appear to be used interchangeably in administrative parlance) would be the nodal agency responsible for executing the above activities. Such a committee would meet regularly and fulfil the overarching need for expert opinion on environmental impact of new projects that could otherwise be missed by oversight. Many of the unimplemented programs of the earlier Committees would also be completed, including conducting green and space audits. This committee should have members who are elected by the campus community along with representation from ecologists, who could then be entrusted with organizing a follow-up biodiversity survey to the 2008 WWF one. Empowering the GCI Committee again is a move that would be in consonance with the spirit of the institute's own Strategic Plan document.

Alumni support

As alumni involvement and funding becomes significant, they are increasingly important stakeholders in the future of the institute. There is a need to sensitise alumni about our ecological heritage and get their support for conservation. They could have a say in the conceptualization of new developments. For example, the old design of the Infinity Corridor was retained for the redeveloped version even though it suffered from seepage problems during the monsoon, partly because of alumni requests.

Image: Aniketa Kabir

A gene bank! The hilltop hosts diverse wild plants like the Wild Turmeric

Stray animals

While stray cows bothering hostel denizens is a thing of the past now, their existence on campus "is still detrimental to overall biodiversity," Dr. Quadros says. Herds of cattle foraging in the vegetated areas are responsible for overgrazing of native grasses and other forest floor species while also defoliating trees and shrubs. Meanwhile, stray dogs may pose a threat to native wildlife including birds. An effective policy to control the population of stray animals is therefore a necessity.

Rapid and unpredictably increasing student numbers is, of course the elephant in the room. The abrupt increase in student intake is the cause behind many of the chronic infrastructural issues. These external "shocks" began with a 56% increase in overall UG intake as a consequence of the OBC reservations in 2007, followed later by a 20% supernumerary reservation for women students. Most recently, the 10% quota for economically weaker sections has meant that the IITs will have to further increase seats by 25% so that existing reservations remain unaffected.

The cost of suddenly implemented, large increases in intake is reflected in hastily planned infrastructure projects that do not adequately factor in environmental concerns. There is therefore a need for planned growth in intake so that infrastructure can adequately keep up with the demand.

While the advent of the internet has brought in many a positive change, it is of concern that as a result, the student of today is slightly less in touch with the environment as before. More of us should get out of our rooms once in a while and explore the wonderful nature that we are immersed in.

Image: Prof. S. Krishnan

A winter visitor, the Common Snipe forages amid the floating plastic waste

Call for the Wildlife Club

There is one thing that seems unusual about this whole biodiversity saga. It doesn't comply with the IITB tradition of having a student club based around it. As discussed earlier there was indeed such a "Wildlife Club" in the institute since 1977 that engaged in organizing nature walks, exhibitions, talks, awareness programs and much more. The club was wildly popular among the student community during the mid-80's but slowly faded away into a relic.

Our campus is a unique amalgamation of the busy city of Mumbai and the tranquility of Sanjay Gandhi National Park. Recognising this incredible access we have to Powai Lake, various hills, and remnants of forest area might be one of the most convincing reasons for a call for a Wildlife Club 2.0. Looking forward, the club might be able to bridge the gap between modern lifestyle and the "escape into nature" that we crave from time-to-time.

Image: Prof. S. Krishnan

Image: Amrita Mukherjee

(Left) Yellow-footed Green-pigeon, the state bird of Maharashtra, though found locally, is a winter visitor to the campus; **(Middle)** This fascinating turtle species is part of the thrill one gets in animal tracking; **(Right)** The show-stopper! The black crest and a red and white cheek patch makes the Red-whiskered Bulbul a show-stopper across the campus

Introduction of a new club just requires a strong will from a few students and faculty, as the institute authorities have generally been supportive of student initiatives. It is time to reignite the enthusiasm that deep down each of us has to traverse along the road not taken. Such a club could also serve as the focal point for all campus inhabitants to discuss and channelize solutions to environmental challenges occurring in the institute. Nature conservation is a subject that resonates with a wide cross-section of faculty, staff and other campus residents. We have seen this most recently when the proposal to set up a solar power park on Sameer hill was vociferously opposed by a section of campus residents. An active Wildlife Club could bring all nature enthusiasts on campus under one umbrella and help raise awareness regarding these issues.

Image: NSS, IIT Bombay

A summer day filled with showers of gold: an Amaltas tree in full bloom at IITB

Image: Prof. S. Krishnan

A catch so precious: An Osprey takes off from the lake, its prey tucked securely in the talons

It may be argued that the furtherance of technological education is what should be our concern and the raising of environmental issues should be accorded less priority. However, we must recognize that IIT Bombay represents a microcosm of the future generation of Indians that shall be at the forefront of the society and nation building. It is necessary for the students here to be adequately sensitive to threats to the natural environment and their undesirable consequences. As the theme of sustainable engineering gains traction in a world where climate change is increasingly becoming a reality, and there is increasing recognition of the risks of unsustainable development, it is imperative that concern for the environment begins here on campus.

As Dr. Quadros says, "Life forms [except humans] do not have a voice." Not only should we recognise that the diverse flora and fauna must have a right to exist undisturbed, but also acknowledge that they provide valuable ecosystem services which are intangible in monetary terms. Moreover, the campus environment adds to the overall educational experience of a student and is priceless. Conservation should be accorded due seriousness, and should not just be confined to activities such as *Vanamahotsav*. "Don't kill green and talk green." In the end, "we should all leave a better planet for our children," concludes Dr. Quadros.

Construction in the future should be more inclusive of the campus biodiversity, else we may risk being left with just the trees lining the streets. Then, IIT Bombay as we know it, one of the few 'green lungs' of Mumbai, would cease to exist. That would indeed be a sad fate to befall this campus.

Author's note

As I leave the institute in a few months' time, it is with a slight wistfulness, perhaps even nostalgia, that I write about the institute's gorgeous campus that has been my home for the past four years. We may not realize it, but the memories we make are intimately related to the environment we grow in. For this reason, this story has also been a personal one. Through this issue, I seek to shine a light upon the changing face of our campus. It is my hope that the article will enthuse the reader to better appreciate the vast extent of the biodiversity on our campus. All of the pictures that appear in the article were shot on campus, photographed by nature and wildlife lovers. I am deeply thankful to all those who have contributed. I apologize for any errors that may have inadvertently crept in. For any suggestions or feedback, I can be reached at ganeshc.emerald@gmail.com.

–Ganesh Chelluboyina
Fourth Year Undergraduate

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