

Scaling the Heights

IIT Mandi's First Decade



Indian Institute of Technology Mandi



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Scaling the Heights: IIT Mandi's First Decade

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Date of publication: February 2021

Creative design and layout: Palladium Documentation (palladium.documentation@gmail.com) and Sushmitha Sathasivam

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Contents

viii Founding Director`s Foreword

ix Director`s Foreword

x Editors` Preface

1-27 Part One: Prelude

- 2 Laying the Foundation Stone of IIT Mandi
- 7 Natural Features of Mandi
- 8 History of Mandi District
- 10 Kamand
- 12 Choice of Location Timothy A. Gonsalves
- 13 First Impressions of Kamand Valley Rinki Sarkar
- 14 Initial Days of IIT Mandi S.P. Gupta
- 15 Wildlife in the Kamand Valley Priscilla Gonsalves
- 20 Bird Heaven at IIT Mandi and an Unkept Promise Enakshi Bhattacharya
- 26 Much to be Done

28-50 Part Two: First Three Years

- 29 The First Year at IIT Roorkee
- 31 History of IIT Roorkee
- 32 Classes and Facilities
- 33 The First Director of IIT Mandi
- 34 Prof. Gonsalves Takes Over as Director

- 34 Taking Charge Timothy A. Gonsalves
- 36 Birth Pangs of IIT Mandi Ashok Thakur
- 37 Life in the Hostel
- 38 Extracurricular Activities
- 40 A Transit Campus
- 44 First Foundation Day
- 49 The Logo

51-112 Part Three: The Transit Campus Experience

- 52 Initial Decisions Timothy A. Gonsalves
- 52 A Growing Family
- 53 A World Renowned Institution Natarajan Mathiram
- 54 Important Stepping Stone Sravan
- 55 Surreal in a Good Way Saurabh Jain
- 56 Every Day is Memorable Prakash Negi
- 57 Scenic but Challenging Manoj Kumar
- 58 Vision and Mission
- 59 Academics in the Second Year
- 60 Curriculum Design Sunil R. Kale
- 66 Experienced and New Timothy A. Gonsalves
- 67 A Mammoth Feat Hema A. Murthy
- 68 Transshipments Lalit Malhotra
- 71 Nothing Will Happen in Kamand Aniruddha Chakraborty
- 72 Is This the Campus? Suman Kalyan Pal
- 73 Walk Down Memory Lane: The Golden Era Prem Felix Siril

- 75 **An Instrument of a Historical Process**
Bharat Singh Rajpurohit
- 77 **Like Family Members** Chayan Kanti Nandi
- 79 **Ambrosia-de-Uhl** R.C. Sawhney
- 81 **It Looked Like a Jungle to Me** Chandan Sharma
- 82 **Impression of Simplicity** C.L. Sharma
- 83 **The Third Year**
- 84 **Execoms**
- 85 **Academic Activity in the Third Year**
- 87 **First CII-IIT Mandi Industry-Academic Conclave**
- 89 **Made the Equipment Themselves** Sunil R. Kale
- 90 **Memories of the Transit Campus Days** S. Samuel
- 92 **Student Activities**
- 93 **Hiking and Trekking**
- 93 **Organizing the First Edition of Exodia**
Athar Aamir Khan
- 94 **My Experience at Inter-IIT Sports Meet**
Mohit Rawat
- 100 **Book Nook**
- 102 **Working as a Team** Subrata Ghosh
- 103 **Enchanting Mandi** P.C. Deshmukh
- 105 **An Abode in the Hills** Deepak Khemani
- 110 **Second Foundation Day**
- 112 **First Faculty-Staff Picnic: October 2011**
Deepak Khemani

113-207 Part Four: Building a Novel IIT

- 114 **A Beehive of Activity**
- 116 **The Permanent Campus**
- 120 **A Small Mountain Community** Timothy A. Gonsalves
- 121 **Creative Environment** Subrata Ray
- 123 **The Design Vision** N. K. Negi
- 125 **Pioneers in Kamand** Priscilla Gonsalves
- 127 **Shifting to the Kamand Campus**
- 128 **Memorable Days as Warden of the First Hostel in Kamand Campus** Venkata Krishnan
- 132 **Teaching and Learning at IIT Mandi**
- 136 **It is Best to Let Our Students Explore the World**
Rajeev Kumar
- 139 **Internships**
- 140 **A Lot of Parallels** Athar Aamir Khan
- 141 **Technical Competence**
- 142 **Para-Badminton Champion**
- 142 **My Six Years at IIT Mandi** Ramesh Oruganti
- 146 **Postgraduate Studies at IIT Mandi**
- 147 **Research**
- 148 **A High Technology Education and Research Institute**
Kenneth E. Gonsalves
- 149 **Proud to be a Part of IIT Mandi** Manisha Thakur
- 150 **A Student-Friendly Institute** Hemant Jalota
- 150 **My Experience at IIT Mandi** Gurinderbir Singh
- 151 **A History in the Making** Khoisnam Steela
- 152 **An Encouraging Environment** Anjana Babu

152	Finest Crucible of Life Mohit Kumar Malhotra
153	Infosys Prize 2019 for Humanities: Dr. Manu V. Devadevan
154	Catalyst
156	Memories of Catalyst Puran Singh
157	IIT Mandi's International Relations
157	A Warm, Friendly and Comfortable Stay Nachapol Wongwantanee
159	IIT Mandi Decennial: A Vision Becomes Reality Wolfram Ressel
160	My Second Academic Family Balthasar Novák
161	The Spirit of Co-operation Yvonne Dittrich
162	Embracing the Challenge Ingrid Shockey
163	National Leadership
163	FarmerZone Project
165	VLSI Resist Project with Intel
166	IIT Mandi in the NIRF Rankings
166	Research Dedicated to the Himalayas
169	Gender-Just Campus
169	Women in Engineering Timothy A. Gonsalves
170	Female Enrolment
170	Girl Students at IIT Mandi Multiple Contributors
172	The Safest Place for Girl Students Shilpa Sharma
173	The Student Gymkhana
180	Impacting the Local Community
180	Social Changes Priscilla Gonsalves
184	Voices from Kamand Multiple Contributors
191	EWOK

192	My Path to Setting up an NGO for Women in Rural India Priscilla Gonsalves
195	Going Out into the World
195	Quoting Garimella Harika
198	What a Journey! Subodh Bhargava
199	North Campus Arises
206	Impossible is Possible Ashok Jhunjhunwala
207	Ingredients of a Successful Academic Institution Timothy A. Gonsalves

208-210 Acknowledgements

208	Acknowledgements
208	Photographs and Illustrations
209	Online Sources

Founding Director`s Foreword

IIT Mandi was founded on a wild dream in 2009: that a world-class research university could arise in a remote river valley in the Himalayas, far from the madding crowd of India's cities. This bucked the trend of locating elite academic institutions near major cities. A disparate group of academics, mostly young but with a sprinkling of seniors, enthusiastically took up the challenge of making this dream a reality. In its first decade, IIT Mandi has crossed many milestones and achieved modest successes. It has provided a springboard for the careers of 1145 ambitious young alumni. It is a leader in some respects in India and is well-known in academic



circles globally. The story of IIT Mandi is essentially a story of the hopes and aspirations, the struggles and successes, and the yeoman efforts of the many people who have made IIT Mandi what it is today. It is therefore appropriate that this book consists largely of memories of many of the founders and builders and products of IIT Mandi.

The idea of this book germinated in January 2020. In a few short months, the team led by Devika Sethi has collated memories and photos from many people, past and present, for the content of the book. Simultaneously, they have worked with Mr. Kumaran Sathasivam of Palladium Documentation and the printer for production to make this book both informative and attractive. Thanks to the members of the editorial and production teams who made this possible. Special thanks to my wife, Priscilla, who has been a source of inspiration and strength during the ups and downs of the past decade. She is responsible for many of the aspects that make our campus eminently liveable: the Recreation and Community centres, the social events, Book Nook; and she founded EWOK to collaborate with and guide the local women in their new environment. Last but not least, thanks to all who have taken time to pen down their memories of the tumultuous first decade of this rising IIT Mandi.

Timothy A. Gonsalves

Founding Director, IIT Mandi

8 June 2020

Director`s Foreword

In some ways, an institution is similar to a living being, it is born with a tiny physical form, it needs nurturing which helps it grow and over a period of time it creates its own identity. Since taking charge as Director of IIT Mandi in July 2020, I have had the opportunity to be a part of the growth journey of this amazing Institute, and in helping it evolve its direction, its ethos and its traditions. Every institution has a unique first decade which will become part of its history and may offer useful learnings for institutions which are yet to be born. IIT Mandi began its journey in 2009 and this book is an attempt to chronicle its journey since its inception, by way of an institutional biography.



IIT Mandi's Vision and Mission statements were first drafted in June 2010, shortly after the first few faculty members had joined the institute. These statements were finalized in April 2011 after extensive discussions. The ideas and ideals at the heart of this vision were societal engagement, development of cutting-edge technological applications, and a research and curriculum ethos which goes beyond any one discipline. Despite the tremendously complex task of building an institute pursuing higher technical education, in a mountainous region, our faculty, staff and students have not lost sight of this guiding vision, and a sense of being part of a larger mission.

The book that you hold in your hands documents IIT Mandi's journey from even before Day One i.e. even before the Institute took any physical form to the present. Institutions usually wait till their silver or golden jubilees before they start capturing their past in words and pictures. As readers may notice, it is worthwhile to do this immediately after the inaugural decade when traditions are established, when the road-map is laid out and when the early memories are still fresh. I am happy that the first decade of IIT Mandi's eventful journey has been beautifully captured in words and images, and hope this book will serve not just as an Institutional memoir, but also as a handbook for future institution builders. I am happy to dedicate IIT Mandi's first decadal chronicle to the hundreds and thousands of people who have been a part of this exciting journey, directly or indirectly.

A handwritten signature in black ink that reads "Ajit Kumar Chaturvedi". The signature is written in a cursive, flowing style.

Ajit Kumar Chaturvedi

Director, IIT Mandi

8 February 2021

Editors` Preface

Like human memory, institutional memory too is fallible. Personnel change; the campus shifts; priorities alter. And before you know it, the fascinating story of an institution's creation and evolution becomes obscured in the hubbub of the daily demands of running it.

This commemorative album seeks to preserve the memories and hopefully some of the spirit and feel of the first 10 years of IIT Mandi. By juxtaposing official records with photographs and personal reminiscences, it hopes to convey many perspectives on the same event and processes. How did IIT Mandi get a Director? What was the experience of the first faculty and staff members? What challenges did they face? What was it like for the first batch of students to be transplanted from IIT Roorkee to IIT Mandi? What was it like to be a woman student on campus in the early days? What are the major landmarks in the institute's evolution? What do we know about the plants and animals with whom we share our beautiful campus? These and many other questions are answered in the pages of this volume.

We hope you will enjoy it.

Editorial Committee



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Concept and Layout



Kumaran Sathasivam

I

2008-2009

Prelude

The Laying of the Foundation Stone

The excitement in the valley was palpable when professors from IIT Roorkee and local dignitaries gathered to lay the foundation stone for the new IIT. Hundreds of villagers gathered to see the auspicious new beginning in their midst here, in the montane hinterland. The dignitaries arrived in great numbers at this quiet corner of the Himalayas.

IIT Mandi is named for the district in which it is located, which in turn derives its name from the town where its headquarters are located, at the geographical centre of Himachal Pradesh. Mandi District is framed by mountain ranges and drained by a number of streams.

Rinki Sarkar, author of an IIT Mandi monograph, says that much of Mandi District 'is not as inhospitable as some of the trans-Dhauladhar mountain districts in the state': It has larger tracts of flat, cultivable land. It is, thus, more densely populated. Indeed, according to the 2011 census, Mandi District is the second most populous district in the state, with a population of 9.9 lakhs.



Foundation Stone of Indian Institute of Technology, Mandi Laid at Kamand, Mandi, Himachal Pradesh



(R to L) Hon'ble Chief Minister Prof. Prem Kumar Dhumal, Prof. S. C. Saxena and Prof. S. Ray lighting the ceremonial lamp

L to R: Shri Anand Sharma, Prof. Prem Kumar Dhumal and Sri Narinder Bragta

Prof. S. C. Saxena, greeting Shri Ashok Thakur (extreme right), Additional Secretary, MHRD

On Tuesday, February 24, 2009, the foundation stone of Indian Institute of Technology, Mandi was laid by Sri Anand Sharma, Hon'ble Union Minister of State of External Affairs and Information and Broadcasting, in the august presence of Prof. Prem Kumar Dhumal, the Chief Minister of Himachal Pradesh, Smt. Vidya Stokes, the leader of opposition, Himachal Pradesh Assembly, Sri Narinder Bragta, Minister, Technical Education, Himachal Pradesh, Sri Gulab Singh, Minister, PWD, Himachal Pradesh, Sri Kaul Singh Thakur, M.L.A., Drang Constituency, Himachal Pradesh and Sri Ashok Thakur, Additional Secretary, Union Ministry of Human Resource Development. The Director of the mentor institute, IIT Roorkee, Prof. S. C. Saxena, who is also the Director IIT Mandi, has conducted the proceedings of the foundation stone laying ceremony, which was anchored by Prof. I. M. Mishra, Dean of Saharanpur Campus. In spite of difficulty in access to Kamand, which is in a remote valley surrounded by mountains all around, the ceremony was attended by about 6,000 people. Prof. Gopal Chaturani, Emeritus Professor WRD&M, organized the ceremony there on behalf of institute.

Sri Anand Sharma in his address to the gathering emphasized the efforts put in by him and other leaders in the sanction of IIT, Mandi as one of the eight new IITs being set up in the country by Ministry of Human Resource Development, Govt. of India. He also expressed hope that IIT Mandi will open up opportunities for receiving quality technical education in the State of Himachal Pradesh. Prof. Dhumal expressed his confidence that IIT Mandi will evolve to become a premier institution in the country and will make significant contribution to the development

of the State following the example of its mentor institution, IIT Roorkee. Smt. Vidya Stokes thanked the Union Government for giving this gift to the people of Himachal, who will derive its benefit in due course. Mr. Kaul Singh Thakur told the gathering that IIT Mandi will trigger development in Kamand and surrounding places, which he is representing in the Himachal Assembly. Prof. S. C. Saxena, Director, IIT Roorkee, thanked all the dignitaries present for gracing the occasion and promised to spare no efforts to develop IIT Mandi to the level required to attain international reputation and standard. On this occasion Mementos were presented to all the dignitaries.

अधि सूचना

सं. भा. प्रौ. सं. / एम. एस.-4 / सी.ओ.जी. (सी) / 2579
दिनांक 20 अप्रैल 2009

श्री जय प्रकाश गौड़, अध्यक्ष, अभिरासक परिषद, भारतीय प्रौद्योगिकी संस्थान रुड़की द्वारा त्यागपत्र दिने जाने के फलस्वरूप, भारत की राष्ट्रपति ने भारतीय प्रौद्योगिकी संस्थान रुड़की के निजिटर की संस्थान से प्रौद्योगिकी संस्थान अधिनियम 1961 की धारा 11 (अ) के द्वारा प्रदत्त शक्तियों का प्रयोग करते हुए, श्री अशोक मट्टावर, पूर्व अध्यक्ष, रेलवे बोर्ड तथा मुख्य सचिव, भारत सरकार को श्री जय प्रकाश गौड़ के स्थान पर उनकी सेवा बहालविधि के लिये, जो कि दिनांक 23 मई 2011 तक है, इस संस्थान के अभिरासक परिषद के अध्यक्ष पद पर सहर्ष मनोनित किया है।





Left to right: Sri Anand Sharma, Prof. Prem Kumar Dhumal and Narinder Bragta



Left to right: Prof. S. C. Saxena (Director of the mentor institute, IIT Roorkee), Mr. Ashok Thakur (Additional Secretary, MHRD), Mr. Kaul Singh Thakur (MLA, Drang Constituency, HP)



Audience at the foundation stone laying

10/02/09

DIRECTORATE OF TECHNICAL EDUCATION
VOCATIONAL AND INDUSTRIAL TRAINING
HIMACHAL PRADESH: SUNDERNAGAR

No. STV(TE)H-G(1) General-IIT/12-2008, 4297 Dated: 6-02-2009

To

The Divisional Forest Officer,
Mandi Forest Division, Mandi, HP

Subject:- Diversion of 136.72 ha of forest land in favour of Department of Technical Education, Vocational & Industrial Training, H.P. for the construction of IIT Mandi at Kamand, Mandi Forest Division, District Mandi, H.P.

Sir,

I am to refer to letter No.FL48-1933/2009(JICA) dated 10.11.2009 from Nodal Officer-cum-CCF(FCA), O/O Pr.CCF, HP received in this office on 10.12.2009 vide your endorsement No.8867-68 dated 2.12.2009 on the subject cited above and the point wise reply is as under:

- The requirement of forest land is not on higher side as it would be clear from the following Table-I which shows areas allotted for setting up of the newer IITs in the country.

Table-I: Area of land for Permanent Campus of new IITs

S. No.	Name of new IIT	Approx. Area of land for permanent campus (Acres)
1.	IIT Bhubaneshwar	930
2.	IIT Gandhinagar	500-550
3.	IIT Hyderabad	530
4.	IIT Indore	510
5.	IIT Mandi	530
6.	IIT Patna	500
7.	IIT Ropar	500
8.	IIT Rajasthan	700

It is in accordance with the guidelines and norms issued by MHRD, GOI under which it is mandatory to provide 500 to 600 acres of land for the establishment of new IIT in the State. In conformity with this stipulation the State Government offered a piece of land measuring 2675 Bighas (530 Acres, 215 Ha) comprising of 1709 Bighas (340 acres, 135 Ha) forest land surrounding in contiguity of another chunk of 965 Bighas (193 Acres, 73 Ha) of land area under the possession of Animal Husbandry Department for the establishment of IIT Mandi at Kamand. A preliminary exercise / site visit was done in consultation with DFO and revenue department Mandi for

- Necessary correction on page 25 has been carried out with respect to Justification for establishment of IIT Mandi at Kamand.
- Legal status of the areas identified for raising CA has been recorded in the proposal folder at page No. 466
- Necessary amendment in the DFO Site Inspection Report has been done in the proposal folders at page No. 465
- As desired, six sets of the proposal folders after rectifying the deficiencies are enclosed herewith.

This is for information and further necessary action please.

Encl: As above

Yours faithfully

S.S. Suleria

S.S. Suleria, E.A.S.

Spl. Secretary & Director (Tech.Edu.)
Vocational and Industrial Training
Himachal Pradesh, Sundernagar

पृष्ठांकन संख्या एसटीवी (टीई) एच-जी (1)/सामान्य/IIT/12/2008-5665 दिनांक: 24-2-2009
1 प्रो०एस०पी० गुप्ता, प्रभारी, भारतीय प्रौद्योगिकी संस्थान मण्डी प्रकोष्ठ (पुराना केन्द्रीय पुस्तकालय भवन), भा० प्रो० सं०, रुड़की उत्तरांचल को उक्त मामले की प्रतिसहित सूचनार्थ प्रेषित है।
संलग्न:-वन भूमि फेरवदल मामले की प्रति।

हे.के. आहुजा
संयुक्त निदेशक तकनीकी शिक्षा,
व्यवसायिक एवं औद्योगिक प्रशिक्षण,
हिमाचल प्रदेश, सुन्दरनगर

Natural Features of Mandi

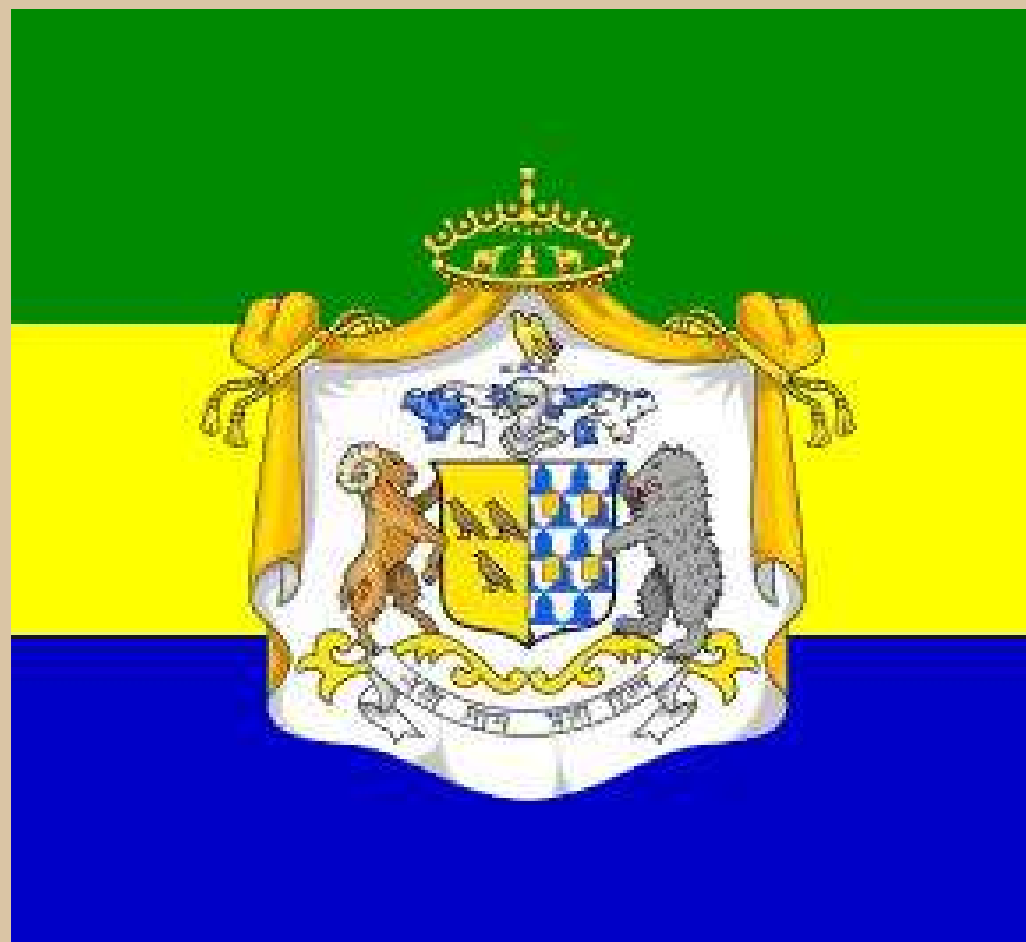
... lying between $31^{\circ} 23'$ and $32^{\circ} 4' N$ and $76^{\circ} 40'$ and $77^{\circ} 22' E$, in the upper reaches of the Beas. It is bordered on the north by Chhota Bangahal; on the east by the Nargu range, which divides it from the Kulu valley, and by the Beas, Tirthan, and Bisna streams: on the south it adjoins Suket, and on the west Kangra District. It is 54 miles long and 33 broad, with an area of 1,200 square miles of mountainous country. The Beas enters at the middle of its eastern border, and leaves it near the north-west corner, thus dividing it into two parts, of which the northern is the smaller. This is trisected by two parallel ranges, of which the higher and eastern, the Ghoghar ki Dhar, is continued south of the Beas and extends into the south-west of the State. The south-eastern corner, the Mandi Saraj, or 'highland', is formed by the western end of the Jalauri range.

Source: Imperial Gazetteer of India, Vol. XVII, New Edition (1908), pp. 152-158

History of Mandi District

Historically, the district is an amalgamation of the erstwhile Suket and Mandi *riyasats* or principalities. It has been the seat of political power for many generations of the Sen Dynasty which originally belonged to Nadia district in West Bengal. They fled to the hills to escape persecution by Muslim dynasties sometime during the 12th century; in course of time they succeeded in establishing their independent capitals across dispersed locations in the region by conquering local fiefdoms. Bahu Sen was the first of this dynasty to explore the Mandi region as a potential political base. Ajber Sen, the 19th descendant of the Sen monarchy, founded Mandi town much later, toward the 16th century, as the administrative capital of a much larger political unit, brought about by progressive consolidation of territories controlled by petty local chieftains who were overpowered and subjugated. It is believed that the name Mandi is associated with Mandavya Rishi, who is said to have meditated at Kilsar, a place in the vicinity of the present Mandi town.

Over the years, Mandi, as a centre of political authority has emerged to become a town of considerable economic and religious significance. By virtue of its strategic location, Mandi has always served as an entrepot town connecting the plains to high altitude mountain settlements across the Dhauladhar ranges. In fact, the eminent English historians Hutchinson and Vogel attributed the name 'Mandi' to mean a market place because of its location on ancient trade routes connecting Ladakh and Yarkhand to destinations such as Hoshiarpur and Punjab in the plains. They reported that the sheer passage of hundreds of mules carrying goods each year through Mandi town stimulated exchange even though the State itself had little interest in the Yarkhand and Ladakh trade. This legacy of Mandi as an important commercial hub continues even today. The town is situated at the junction of important transit routes such as National Highway 21 and National Highway 20 that connect Kullu, Lahaul-Spiti and Kangra districts to metropolitan centres in the plains.

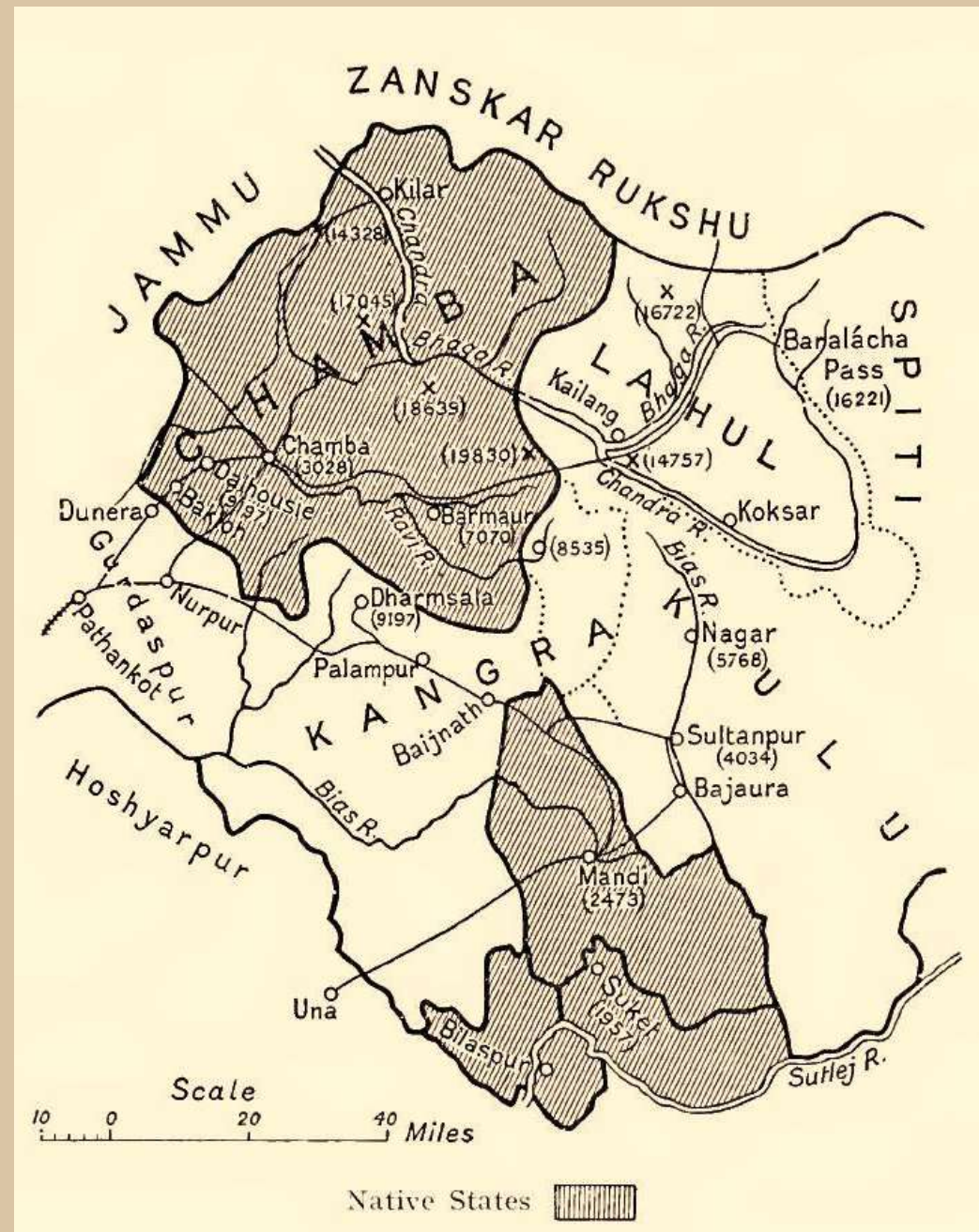


Flag of princely state of Mandi

Mandi town is also an important religious centre for Hindus. It is often considered to be the Varanasi of the hills. Its development as a sacred entity has been reinforced from time to time by the rulers of this principality who were known to be great builders. In order to give expression to their desire for pomp and grandeur, and in part to please their subjects, rajas of the Sen dynasty constructed ornate temples, forts and palaces across their kingdoms. Several of these monuments stand testimony even today to their aesthetic sensibility. Scattered across Mandi town are as many as eighty-one temples dedicated to various deities of the Hindu pantheon. The annual Shivratri festival, which is celebrated around February or March, is a religious fair glorifying the sacred importance of the town.

During these festivities, hundreds of local deities from different regions in the district converge on the town. Ardent devotees carry these deities in richly decorated palanquins in solemn procession. The seven-day festivities draw a huge throng of devotees from all over the district and beyond, transforming the place into a virtual market-centre as well. During the fair, traders lay out their wares that consist of local products as well as general merchandise from Kangra, Kullu, Shimla, Bilaspur and the Punjab. Thus, the Shivratri festival is an occasion that epitomizes the unification of Mandi's economic and religious significance.

Source: Rinki Sarkar, *Kamand Campus and Its Surroundings. Kamand Valley Monographs. Volume III. IIT Mandi (2016)*



Mandi State in 1911

Kamand

Kamand, where the foundation stone was laid, lies within the Sadar Administrative Block. District Road (MDR) 23 provided access from Mandi. The road winds along the Beas and then climbs to the village of Kathindi. From Kathindi the road drops steeply to the Uhl River and the village of Kamand. The distance from Mandi to Kamand is 15 kilometres.

The campus consisted of two distinct parts. The South Campus is bordered by the Uhl on the west and Kataula Khat on the north. The slopes here are largely deciduous. The North Campus also lies along Kataula Khat and across from the village of Salgi. Here there are pine forests and agricultural fields.

The villagers of the area had agricultural holdings. The forests provided them with resources such as firewood, fodder and wood for making furniture. These forests, and the forests of Mandi in general, had supported a rich flora and fauna in the early 20th century.

In the early 1960s, some of the holdings at Kamand had been replaced by an animal husbandry farm. This was a state-sponsored initiative to improve local animal breeds. Imported horse and cattle breeds were reared at the farm. Terraces were flattened, and special fodder was raised on these for the animals. Over the years, the activities waned, and the farm effectively became defunct. The stables and other facilities there fell into a stage of neglect. A nursery of the forest department was functioning near the site where the foundation stone was laid.



Kamand Valley in 2011



Choice of Location

Timothy A. Gonsalves

The campus location had already been decided before they had advertised for the Director's position. A combination of factors was responsible for choosing Kamand. State governments are expected to provide 500 acres of land for the creation of a new IIT. In the mountains, this limits choices as reasonably flat land is required. There was already an animal husbandry farm in Kamand with 200 acres of flat land, surrounded by 300 acres of forested mountainous terrain. Thus there was no issue of land acquisition from farmers.

Mandi was also chosen because there was no major central government institute in the district, and important state politicians who hailed from Mandi District were interested in putting Mandi on the education map of the country.

South Campus in 2010 with old animal husbandry buildings



Rinki Sarkar would pass through Kamand shortly before IIT Mandi occupied the campus. She wrote this about the experience:

First Impressions of Kamand Valley

Dr. Rinki Sarkar

In the monsoon season of 2011, I had accidentally ventured into this region in course of my journey from Mandi to Kullu. Incessant rain and precariously rising water levels of the river Beas at Pandoh left me no choice but to abandon National Highway 21 for a detour along MDR 23. This was the only other alternate single lane road connecting Mandi town to Kullu via Katindi, Kamand, Kandi and Bajaura. At that time there was nothing much that struck me except for the resonating symphony of cicadas as we drove along oak (*Quercus*) and deodar (*Cedrus deodara*) forests. The overcast sky and impending nightfall had blurred my vision. All that mattered was the urgency to reach Kullu town, my final destination. I raced along in haste, oblivious to the region's deep historical and socio-cultural roots as well as well as to the rich biodiversity.



Initial Days of IIT Mandi

S.P. Gupta, Former Professor, Electrical Engineering at IIT Roorkee; Coordinator of Mandi Cell at IIT Roorkee

Professor Gonsalves, the founder Director, had his first office at IIT Roorkee. In the first year, the first batch of IIT Mandi students studied at IIT Roorkee campus. The lectures were conducted in a lecture hall constructed in the old library building and the laboratory classes were held in respective departments. The logo depicting the iconic Victoria Bridge of Mandi was developed at Roorkee. A committee to shortlist architects for the new IIT held initial discussions at Roorkee. IIT Mandi was registered as a society at Roorkee. IIT Roorkee faculty and staff were thickly associated in this initial phase of IIT Mandi development.



As Coordinator of IIT Mandi Coordination Committee constituted by the Director, IIT Roorkee, I first visited the land at Kamand earmarked for IIT Mandi in early 2009. We found that on the land of IIT Mandi, foundations were already in place for erecting a number of tall towers to support extra high-tension power transmission lines. This would mean when completed, IIT Mandi buildings will permanently have this power line going over it. However, with active support of Shri Ashok Thakur, Secretary, MHRD who met the CS, we insisted on changing the course of the power lines and our request was accepted and the transmission line was diverted to the other side of Kataula Khat so as not to interfere with the development of IIT Mandi in any way. IIT Mandi started off on this happy note.

The credit of shifting the students to Mandi town within a year goes to the Director Professor Gonsalves. His zeal to carry out all activities meticulously laid the foundation for the strong IIT Mandi that we see today. I had the good fortune of knowing him and working with him for IIT Mandi. The classes were initially held in the transit campus in Mandi town and the hostels were created to accommodate students of two batches. A number of lecture halls and laboratories were got ready in the buildings of Vallabh Government College. Residential accommodation and a few offices were set up in the nearby Mandav Hotel building. The cooperation received from the Government of HP at all stages was exemplary. In these developments, my colleagues, notably Prof. Gopal Chauhan, Prof. Surendra Kumar and Er. Salek Chand, contributed significantly both at Roorkee and Mandi.

Professor Gonsalves led the shifting of IIT Mandi to main campus at Kamand remarkably fast. He has set the tone for this IIT to become one among the best.

Wildlife in the Kamand Valley

Priscilla Gonsalves, Wife of Founding Director

IIT Mandi's lovely setting in the Uhl river valley is also the home to a variety of wildlife. The area is not teeming with ferocious wild animals as some might fear but offers glimpses of a variety of smaller, unthreatening species. The area is relatively dry, and the forest here is quite sparse, providing less food and less coverage than denser forests. The climate, with the long, freezing winter, also poses a challenge to cold blooded animals. Some migrate, and others hibernate or pass into a state of very low activity. For these reasons, the area is not teeming with large wild animals, but there are many smaller animals that make their homes here.



Rhesus macaque



Indian grey mongoose

The two most frequently sighted animals are the rhesus macaque and the Indian grey mongoose. When we first arrived in the valley the macaques were entirely wild. They stayed in the forests, searching for seeds and fruits. We had two walnut trees in our yard, and the macaques would arrive near our house only when the walnuts grew ripe. Unfortunately, the macaques have quickly learned that messes, canteens and garbage bins are good sources of food. Now they are daily visitors. It is essential that IIT Mandi improve its handling of waste before these animals pose a real threat.

Mongoose enjoy living along the two rivers surrounding the campus (the Uhl, by the South Campus, and the Kataula ki Khad, by the North Campus). They have burrows in the rocks on the hillsides near the streams. They pose no threat to humans and are often kept as pets. The young are very playful and fun to watch. Mongooses eat mice, which helps keep the rodent population under control. They also kill snakes. They are extremely agile and have unusually dense fur.

The combination allows them to attack and kill snakes. As they are beneficial to humans, it would be good to preserve their favourite habitats as IIT Mandi expands.





Yellow-throated marten

My favourite among the more elusive mammals is the yellow-throated marten. This is a very handsome animal. Although it is named yellow-throated, in this area the yellow or golden fur extends from just behind the black head to the black haunches and tail.

Martens are about the same size as mongooses. However, the martens are very agile climbers and spend a lot of time in the trees. They can also scamper straight up the bare faces of dry waterfalls. They leave the trees to hunt small rodents and lizards in culverts and on the ground. These animals are extremely shy but very curious. If one senses something approaching, it will quickly flee, but it will often climb a tree and peer down from a safe branch to figure out what has entered its territory.

Civets are other, small, elusive animals found in this area. They are all nocturnal and are sighted rarely. Three species are found in the Kamand Valley—the small Indian civet, the large Indian civet and the common palm civet.

The small civet might be mistaken for a cat, but it is distinguished by its ringed tail. It also has long black stripes on its neck from ear to shoulder. It spends the daylight hours hidden in burrows in the earth or under rocks and emerges at night to hunt rodents and birds in tall grass.

The large civet is more like a dog in size and behaviour. Its markings somewhat resemble a leopard's, but it has broad bands of black on its tail and distinctive black stripes on its neck. Large civets too live mainly on the ground and hunt small animals in the grass.

The common palm civet is mainly a dark golden brown, with dark stripes from shoulder to hip. It is a solitary animal with a preference for palm fruits and honey, but it also hunts for small animals and birds. It is seldom seen but leaves behind an unpleasant odour that alerts others to its having passed by.

Of the cat family, the most frequently seen is the jungle cat. This cat resembles the domestic cat. Most in this area are grizzled grey. Their tails have black stripes near the black tip.

Another cat that is just moving into this area is the caracal. This cat is commonly seen in Kataula and is now moving into the North Campus area. It is a golden cat with long, black, tufted ears and a short, bushy tail. In this area, caracals are only slightly larger than house cats. One distinctive feature of the caracal is that it barks as well as growls, meows, hisses and purrs. Leopards are found mainly in the higher hills in winter. Ten years ago, one female leopard raised her three cubs on what is now North Campus. Now with all the construction and activity, leopards have retreated to safer habitats.

Jackal



The most common dog in the area is the jackal. Jackals are small dogs with short, bushy tails. Their gold fur is interspersed with black, providing good camouflage. Jackals hunt in packs and enjoy howling at night. They breed easily with other dogs. There are half-jackal dogs among the stray dogs on campus.

Smaller mammals that enjoy sharing our homes, messes, canteens and work places include black rats, field mice and shrews. Shrews are distinguished by their pointy noses and skunk-like odour. They eat insects and so can be better companions. Rats and mice enjoy everything that we enjoy. Considered pests, they are, unfortunately, highly successful breeders. A single female mouse can produce a litter every 20 days, often producing 140–170 pinkies in a single year. Other mammals found in this area include wild boars, hares, bats, barking deer and porcupine. These are all seldom sighted. More common to see are the bats. They emerge from their resting places in the evenings and hunt through the night.

Reptiles and amphibians are challenged by our long winters, but several varieties are found on campus. Most common are the northern house gecko and the common garden lizard. Occasionally we also see a Brooke's gecko. It lives outside on trees and stones, while the house geckos join us inside our houses. In wet culverts you may find a Himalayan ground skink. It is a small lizard that looks mostly like a very small snake with four legs. It has shiny scales and a long vertical black stripe running from head to tail. It scampers quickly through the wet leaf mould in culverts, searching for insects. If some light reaches into the culvert, you may catch a quick glint of silver as it flits about.

The most common amphibians in the Kamand Valley are appropriately named the common Indian toad. These toads settle at night under a street or outside light, hunting for insects. Another similar toad found here is the marbled toad. It is smoother than the common toad and has the darker patches that give it its name. We also have the tiny ornate microhylid. This frog is yellow or golden, with a darker brown arrow marking on its back. It mainly stays hidden in leaf mould and eats ants. During the rainy season, the male finds a pool and issues a surprisingly loud call to entice a female to join him.

Snakes, too, can be active mainly from April to October. We have the checkered keelback, Himalayan keelback, green keelback, rock python and common rat snake. None of these are venomous. They are found especially along the waterways and are most commonly seen in autumn and spring as they sluggishly search out a place to overwinter or emerge from a winter of inactivity. The green keelback is a gorgeous bright green. All the keelback snakes live near water and prefer to hunt toads, frogs and fish. The common rat snake is a lovely smooth, glossy dark bronze. It is useful to humans as it hunts rodents. None of these snakes is dangerous to humans.

The rock python has the misfortune to somewhat resemble the venomous Russell's viper. Both are usually a light golden brown with darker, somewhat diamond shaped markings. On the placid, slow-moving python, the markings are mainly wholly black and all sorts of shapes and sizes. On the venomous Russell's viper, the markings are very regular dark brown diamonds with a lighter centre. The two venomous snakes in this area are the Russell's viper and the common krait. The krait is black with widely spaced thin white horizontal stripes. The viper is buff with darker brown diamonds outlined in black. Most snake bites in this area occur when people are cutting grass or gathering wood and disturb a resting snake. Kamand Valley offers the chance to see and study the habits of a variety of small animals. The sparse forest also grants the patient observer some unusual sights. It is possible to watch the whole course of a chase on the opposite hillside as dogs chase a jackal or a hare darts and doubles back to escape a hunter. And for the more intrepid adventurers, this valley is also the gateway to opportunities to spot exotic large animals in the higher mountains. A drive of only a few hours to the Great Himalayan National Park may offer a glimpse of the Himalayan black bear. In Spiti, the patient naturalist may sight a snow leopard. The rare lynx resides in Ladakh.

Bird Heaven at IIT Mandi and an Unkept Promise

Enakshi Bhattacharya, Professor, Electrical Engineering at IIT Madras; Mentor Professor at IIT Mandi

A morning walk, on the waterworks road behind the guest house, was my first introduction to the birds of Mandi. I still remember the beautiful song of the orange headed thrush. While you do see this bird in the IIT Madras campus during the “winter” months, it is usually seen skulking in bushes. I guess singing with such open abandon requires the mountains. On a subsequent trip, again to Mandav, after the meeting we were taken to Kamand to see the new campus. It is a lovely valley with a river running through it, and I remarked aloud, ‘one must come here for longer’. A colleague from IIT Delhi commented, ‘We always say these things but they never happen!’ But it did happen for me 4 years down the line, when I decided to spend a little over 5 months in IIT Mandi, the best decision ever! After a long journey with several breaks, because I travelled with my dog who isn't a good traveler, I reached Kamand on a rain soaked afternoon and entered the apartment across the Uhl Guesthouse in South Campus. Next morning, as I step out of the house and encounter a spotted forktail, I think I'm in heaven! Only later did I realise it is not as common as I thought, but that was definitely a good welcoming start.





Spangled drongo



Asian barred owlet

Since it rained a lot I was mostly house bound on weekends, but there was this fruiting local *anaar* (pomegranate) tree right outside my window and also a flowering tree with big drooping flowers which provided a lively spectacle all through the day. At daybreak it started with the blue throated barbet, a little later it was the great barbet. All through the day the cinerous and green backed tits did their acrobatics and showed themselves in all possible angles. The crimson sunbird came in the late afternoon and hovered at the pendulous flowers. Rain or shine, the neighbourhood whistling blue thrush was always fussing around curiously, and when it decided it had enough, it would just drop down straight to the next level like a rock. When I walked out in the early evenings, the Asian barred owlet kept an eye, and it continued to do so even on the morning walks.

My favourite walk with Laumbo, my opinionated beagle, was by the river, starting from the Uhl Guesthouse and climbing up to the Pipal Point road. During rains you saw an odd green sandpiper foraging in the small rain pools after the residences. The yellow billed magpies and the cacophonous Himalayan tree pies were ubiquitous. As were the very busy Himalayan bulbuls rushing from one tree to another, with many stories to share. Scaly breasted munias frequented the bushes, while the collared doves cooed in pairs on the trees. Once we reached the security check point at the start of my favourite Pipal Point road, whether we could continue or not was decided by Laumbo. Some days he decided one just must not take that road! The days we could, if we were early enough, we would see the Kalij pheasant crossing the road on foot or in a low flight, just after the medicinal plant garden.

If you went to the edge and looked down, you could see red junglefowl frolicking there. Under the watchful eye of the Asian barred owlet, listening to the calls of the great barbet, you continue the walk and see flocks of plum-headed parakeets flying overhead, a grey headed canary flycatcher on a hanging branch. And then you turn a corner and suddenly come upon a local birding hotspot with so much activity! Spend 10 minutes there and see so many birds, rueing the fact that you are not carrying a camera that day. The fantail flycatchers are often on the road, the grey capped pygmy woodpecker knocking away at the trunk. Watch groups of jungle babblers, a peacock, a steppe eagle, a lesser yellow naped woodpecker, a blue capped rock thrush—all from that road. And if you went the other way towards the Katindhi *khaal*, you could see a crested kingfisher, probably nesting in one of the holes in the mud banks. If you are lucky, you could spot a brown dipper from the bridge.

Sometimes on an afternoon, I'd go with a book and sit in the Uhl Guesthouse garden. The bushes are teeming with white-eyes, and the spangled drongos show up, as do the occasional grey headed woodpeckers. The paradise flycatchers also like the garden, especially the walnut tree. Sometimes a bunch of fire breasted flower peckers surprise you. And then there are the tits and the warblers—you can write a thesis on the warblers! Not much reading gets done.

As the rains stop and we go from monsoon to fall, TAG takes us on a hike to the Griffon Peak, the one I could look at out of my office window and see griffons flying around like moving dots from the distance. Reaching Griffon Peak (after much huffing and puffing), you sit there for a bird's eye view of so many griffons making their lazy, graceful rounds at different levels, one seems to be right above the South Campus playground. You see an occasional Himalayan buzzard, a juvenile Eurasian hobby or a sparrowhawk.

It gets colder and the wagtails appear, as does the white capped redstart, calling out and looking glorious with the sunlight on its bronze feathers. A bunch of black throated tits, who look like dashing bandits with their eye masks, fly from bush to bush. A chestnut bellied rock thrush preens itself. As it gets even colder, and I start missing Chennai, I see the wall creeper climbing the neighbouring wall and don't mind the cold at all! The wall creeper is a grey, drab looking bird with a longish beak, pecking for grubs in the crevices of the wall, and when it flies you see the stunning scarlet wings and get bowled over. The bushes behind the security room at the beginning of the Pipal Point walk have a zillion small birds—a treasure trove of mostly unidentified birds, including the black chinned barbet—where my visiting naturalist nephew spots the golden robin. I keep going back to the bird posters, thoughtfully put up around the campus, to check what I missed and am sad to have missed the goldfinch, which shows up only after January. But then it is time to say au revoir to my Shangri La, and as I leave on a foggy morning, climbing up towards Katindhi, a griffon sits on a tree right next to the road. I'm tempted to stop but then just wave it goodbye from the car window.



Himalayan griffon

And now for the unkept promise. Before I visited South Campus, in Kamand, for the first time, while it was still getting built, both Priscilla and TAG regaled me with stories of tragopans waddling around there. And after one of the meetings in Kamand, TAG even took the whole committee to the pine forest to try our luck for a glimpse of the elusive tragopan. Thus, most of my trips to IIT Mandi have had a suspended carrot, which I could never reach. Of course, there were always the tragopan sighting stories, including of chicks one time, to keep the promise alive! But that unkept promise was/is a sure shot way to get me trooping up from sea level at every opportunity. I guess I have to keep doing that till I have my tryst with the tragopan. And that will be the day!



Plum headed parakeet



Brahminy starling



Blue-capped rock thrush



Rosefinch



Chestnut-tailed starling

Much to Be Done

After the foundation stone had been laid, there were only a few months before the first students of IIT Mandi were admitted. Much had to be done in the interim.

MEETING SECTION
INDIAN INSTITUTE OF TECHNOLOGY ROORKEE
ROORKEE 247 667

No. IITR/MS-57/2508

Dated: 5th March 2009

NOTIFICATION

It is hereby notified for information of all concerned that:

1. IIT Roorkee is the mentor IIT for Indian Institute of Technology Himachal Pradesh and the Chairman BOG IIT Roorkee has been appointed also as the Chairman, Indian Institute of Technology Himachal Pradesh and the Director, IIT Roorkee has been appointed also as the Director of Indian Institute of Technology Himachal Pradesh.
2. The Director Indian Institute of Technology Roorkee and Director Indian Institute of Technology Himachal Pradesh has approved setting up of the I.I.T. Himachal Pradesh (IITHP) Cell at the IIT Roorkee Campus to plan, coordinate, implement and operate all activities of Indian Institute of Technology Himachal Pradesh with immediate effect. The IITHP Cell will remain functional till IIT Roorkee continues to act as the mentor to Indian Institute of Technology Himachal Pradesh.
3. There will be admissions in 3 branches namely Electrical Engineering, Mechanical Engineering and Computer Science & Engineering with 40 intake in each branch in the academic session 2009-10.
4. The activities of the Indian Institute of Technology Himachal Pradesh Cell shall be managed by the Coordinator, Conveners, other members which will include faculty, officers and staff of IIT Roorkee and also some others appointed for the Cell. The Cell will work under the direct supervision and control of Director IIT Roorkee who is also the Director of Indian Institute of Technology Himachal Pradesh.
5. The Deputy Director, Deans, Associate Deans, Professor-in-Charge, Registrar and other officials (as per need) of IIT Roorkee shall also be the respective functionaries for Indian Institute of Technology Himachal Pradesh, till independent administrative structure of Indian Institute of Technology Himachal Pradesh comes in place.
6. All statutory bodies like BOG, FC, Senate, B&WC, etc. of IIT Roorkee will also be the respective bodies for Indian Institute of Technology Himachal Pradesh.

7. The Indian Institute of Technology Himachal Pradesh Cell will ensure smooth coordination and implementation of all activities of Indian Institute of Technology Himachal Pradesh as per Statutes, Ordinances, rules, regulations, procedures of the IIT Roorkee, which have been so adopted for the purpose.

(A.K. Srivastava)
Lt. Col. (Retd.)
Registrar

Copy to:

1. All Deans/All Head of the Departments/Centres/Offices
2. All Professor-in-Charges
3. Prof. S. Ray, Coordinator, IIT Himachal Pradesh Cell.
4. Head, Information Super Highway Centre with the request to kindly arrange to put the above information on the Institute's Website under a separate link, with the title 'IIT Himachal Pradesh.'
5. Registrar
6. All Dy. Registrars/Asstt. Registrars
7. Superintendent to Dy. Director
8. P.S. to Director

In March, the 'IIT Mandi Cell' was set up at IIT Roorkee to steer the activities of the new IIT. By the end of the next month, a preliminary project report (PPR) was drawn up and submitted to the Government of Himachal Pradesh. The PPR laid out a road map of 10 years: development of the academic programme, campus development and other issues were covered. Plans were developed for the use of 538 acres of land at Kamand and a scaled drawing of the land was produced. On 20 June 2009, IIT Mandi was registered as a society in Uttarakhand. Classes would begin for the first batch of students of IIT Mandi in July.



The river Uhl, June 2018

II

2009-2010

The First Year

The First Year at IIT Roorkee

The students of the first batch were admitted into three B.Tech. programmes. The admissions were offered by the IIT Mandi Cell, at IIT Roorkee, on the basis of the Joint Entrance Examination of the IITs. There were two rounds of registration, on 22 and 27 July 2009. A total of 98 students enrolled: 36 in the computer science programme, 36 in the electrical engineering programme and 26 in the mechanical engineering programme.

They came from various places in India. They were very excited to join a new institution but also nervous. After getting their ranks in the JEE, they had had a month to make a choice—they had had to choose an IIT or another engineering college and a branch of engineering. Typically they had had intense discussions with their families. When they had chosen IIT Mandi over other IITs, close friends and relatives of some students had expressed doubts about the decision. Some of the students had opted for the IIT in the Himalayas because they were tired of studying in the plains! They needed a change from life in a polluted city, and they opted for a new beginning.

But many of the first batch chose IIT Mandi not for the Himalayas but because classes would be held, at least initially, at IIT Roorkee, one of the oldest institutes of technical education in India. The reason was that there was no accommodation at Kamand yet. Actually, there was no infrastructure at all there. Thus, until accommodation, classrooms and facilities came up at Kamand, the students



First batch of students at Mandi Cell, IIT Roorkee

would have to stay and study elsewhere. IIT Roorkee was the mentoring institute of IIT Mandi. So arrangements were made for the students at IIT Roorkee. The boy:girl ratio of the students was hardly even—there were only eight girls in the first batch. This was entirely in keeping with the B.Tech. ‘tradition’ of all the IITs, where there had always been many more boy students. Soma, one of the eight girls who joined IIT Mandi, found it ‘weird in the beginning’, explaining that it was because she ‘came from a habitat that always had the ratio of girls more than boys’. Later, she got used to it.

‘I found some good friends and team members at work who were adequately cooperative. Moreover, I could never feel even for once that we were despised by anybody. In fact we were administered special care.’
Soma Banik

Soon the new students made friends among themselves and started experiencing the IIT life.

B.tech Students – 2009 Batch

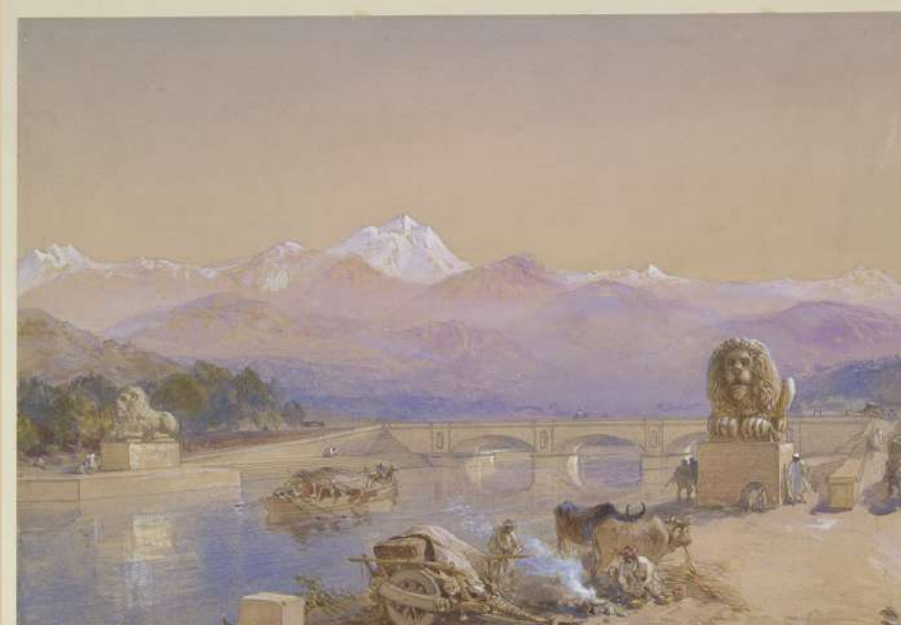
Enroll	Student Name	Branch	Enroll	Student Name	Branch
B09001	Abhimanyu kumar	CSE	B09063	Kuldeep Purohit	EE
B09002	Akhtar shahi qureshi	CSE	B09064	Kumod kumar gupta	EE
B09003	Aman	CSE	B09065	M jhingoniya	EE
B09004	Amanjot Kaur	CSE	B09066	Mohit Kumar Malhotra	EE
B09005	Amit Kumar Swami	CSE	B09067	Nikhil Kandoi	EE
B09006	Anurag Arora	CSE	B09068	Nikki Kumar	EE
B09007	Ashish Gupta	CSE	B09069	Saurabh Jain	EE
B09008	Ashish Kumar Gupta	CSE	B09070	Shammas Mohyaddin	EE
B09009	Devinder Yadav	CSE	B09071	Siddhant Malik	EE
B09010	Divya	CSE	B09072	Suket	EE
B09011	Gavale Samrat B	CSE	B09073	Sunanda Yadav	EE
B09012	Harshul Jain	CSE	B09074	Uday Mittal	EE
B09013	Himani Gaugna	CSE	B09075	V Vignesh	EE
B09014	J.Sai Sagar	CSE	B09076	Bodduna Rahul	EE
B09015	Jitesh Sharma	CSE	B09077	Chandan	EE
B09016	Karri Sai Srinivas	CSE	B09078	Chinmay Dushyant Bhagat	EE
B09017	K. Ramakrishna Reddy	CSE	B09079	Karyamsetty roshni	EE
B09018	Naresh Kumar	CSE	B09080	Kulkarni Akshay Jayant	EE
B09019	Neeraj Kumar Jhingoniya	CSE	B09081	Mahesh Kumawat	EE
B09020	Nikhil Kumar Gupta	CSE	B09082	Mutukuloju Bhanu Prakash	EE
B09021	Pankaj Kumar Yadav	CSE	B09083	Puneet Saini	EE
B09022	Pankaj Sharma	CSE	B09084	Shubham gupta	EE
B09023	Pranav Kapoor	CSE	B09085	Sunil	EE
B09024	Rahul Jain	CSE	B09086	Deepanshu Rastogl	EE
B09025	Raj Kamal Singh	CSE	B09087	Saurabh Saroye	EE
B09026	Ratala Rajeswari	CSE	B09101	Ankur	ME
B09027	Shekhar	CSE	B09102	Ankush Singla	ME
B09028	Soma Banik	CSE	B09103	Anurag Jakhotia	ME
B09029	Sravan	CSE	B09104	Chemuduru Sreeram	ME
B09030	Sumeet Singh Arora	CSE	B09105	Gaurav Yadav	ME
B09031	Suyash Taneja	CSE	B09106	Guntreddi Prudhvi Raj	ME
B09032	Vaibhav Agarwal	CSE	B09107	M.Pramodh Dev Jayanth	ME
B09033	Yugdeep Bangar	CSE	B09108	Manish shankaram	ME
B09034	Basava Raju Kanaparthi	CSE	B09109	Nikhil Chhabra	ME
B09035	Devang Moyal	CSE	B09110	Priyank.B.Patel	ME
B09036	Nishant Goyal (old EE)	CSE	B09111	Puli S. Kumar Reddy	ME
B09037	Shekhar Agargwal	CSE	B09112	Ranjan	ME
B09051	Aaditya Goyal	EE	B09113	S.Vijay rahul raj	ME
B09052	Akhalesh Kumar	EE	B09114	Sachin Singhal	ME
B09053	Amit kumar	EE	B09115	Saksham	ME
B09054	Anshay Agarwal	EE	B09116	Shobhit pal singh	ME
B09055	Choppala Venkata Anudeep	EE	B09117	Subik Kumar	ME
B09056	Sreekanth Dama	EE	B09118	Sunil Chaudhary	ME
B09057	Dhruv Parmar	EE	B09119	Thorat Vijay Ganesh	ME
B09058	Geetha sravya annavarapu	EE	B09120	Vaka Praveen	ME
B09059	Yaswanth Kumar Iddibani	EE	B09121	Vanteddu Teja	ME
B09060	Ishansh Singh	EE	B09122	Mrinmoy Biswas	ME
B09061	K.Manohar	EE	B09123	R Shyam Sundar	ME
B09062	Kanhaiya Mishra	EE	B09124	Rohit Narayan Raut	ME

Source: Annual Report 2010-11

History of IIT Roorkee

The establishment of an Engineering college at Roorkee was suggested to the Honourable James Thomason, Lieutenant-Governor of the North-West Provinces, about 1846, by Colonel Cautley of the Royal Artillery, who had been Superintendent-General of Canals since 1836 and was busily engaged in the scheme, first contemplated by Colonel Colvin of the Bengal Engineers, for the employment of the waters of the Ganges for irrigation. While there is no doubt that the immediate requirements of the Ganges Canal in engineer officers and subordinates were chiefly responsible for the foundation of the Thomason College, it is probable that broader issues also influenced the minds of Mr. Thomason and his advisers and that an important point was the necessity for some systematic training for Civil Engineers in India, or at least in Northern India. The Western Jumna Canals were commenced in 1817 and the Eastern Jumna Canal in 1822. In 1847 the annual expenditure on establishment for these undertakings was Rs.1,04,000 and on annual repairs Rs.35,000. In Dehra Dun, Rohilkhand and near Delhi, works for drainage and irrigation were maintained requiring skilful superintendence. The roads from Jubbulpur to Mirzapur, the grand trunk roads from Calcutta to Delhi and from Agra to Bombay and the Land Revenue Settlement Survey had been completed. It was apparent that there existed a large demand for skill in every branch of Civil Engineering. To meet this demand there were officers of the Army, European non-commissioned officers and soldiers and Indians. To make these men efficient agents, the well-educated Europeans, lately arrived in the country, required instruction in Indian languages and in the peculiarities of materials and construction in India. The European soldiers required scientific instruction, and the Indians, from their local experience and ability to bear exposure to the climate were likely to prove efficient instruments if they were well taught and inspired with a proper sense of responsibility.

Source: Website of IIT Roorkee



Ganga Canal



James Thomason

Classes and Facilities

Classes began in the new IIT on 27 July 2009. The IIT Mandi Cell had a computer lab and a library, which were used extensively. There was also a central library with thousands of books, journals and publications. The system of tutorials and practicals, with the attendance requirements, put all the students, except perhaps the academically strongest of them ('ghissu' in the campus language), under pressure. However, V. Vignesh found that:

'Many lecture classes were enjoyable as the teachers handled the concepts in an easy-to-understand manner, made classes interactive and entertained students' doubts immediately after classes. Some of the teachers used to share their life experiences and crack some jokes and that gave some relief. The morning practical classes and workshops were absolutely refreshing. For example, the Mechanical and Industrial Engg workshops, where we had to make some tools with heavy machines, [were] thrilling, and the group discussions and case studies in Humanities class tested our soft skills. The central library, with its noiseless atmosphere, huge volumes of different and good books, periodicals, journals, air conditioned halls and reading room, computer centre was a great feast. I enjoyed reading many books there even if they were related to academics.'

V Vignesh



Because IIT Mandi had no faculty yet, the classes were conducted, then and throughout the first two semesters, by IIT Roorkee faculty members. The seniors at IIT Roorkee helped the IIT Mandi students a lot. They taught the newcomers about how different professors taught differently. To paraphrase Uday Mittal, they taught them how to save themselves from failing if they had studied only the last night before an exam, enjoy the whole year and still get a respectable CGPA.

Actually, there were no IIT Mandi staff members or administrators either. The first Director of IIT Mandi had been identified, but he would take over the reins only in the second semester. Until then, the Director of IIT Roorkee, Prof. S.C. Saxena, officiated as the Mentoring Director of IIT Mandi.

The First Director of IIT Mandi

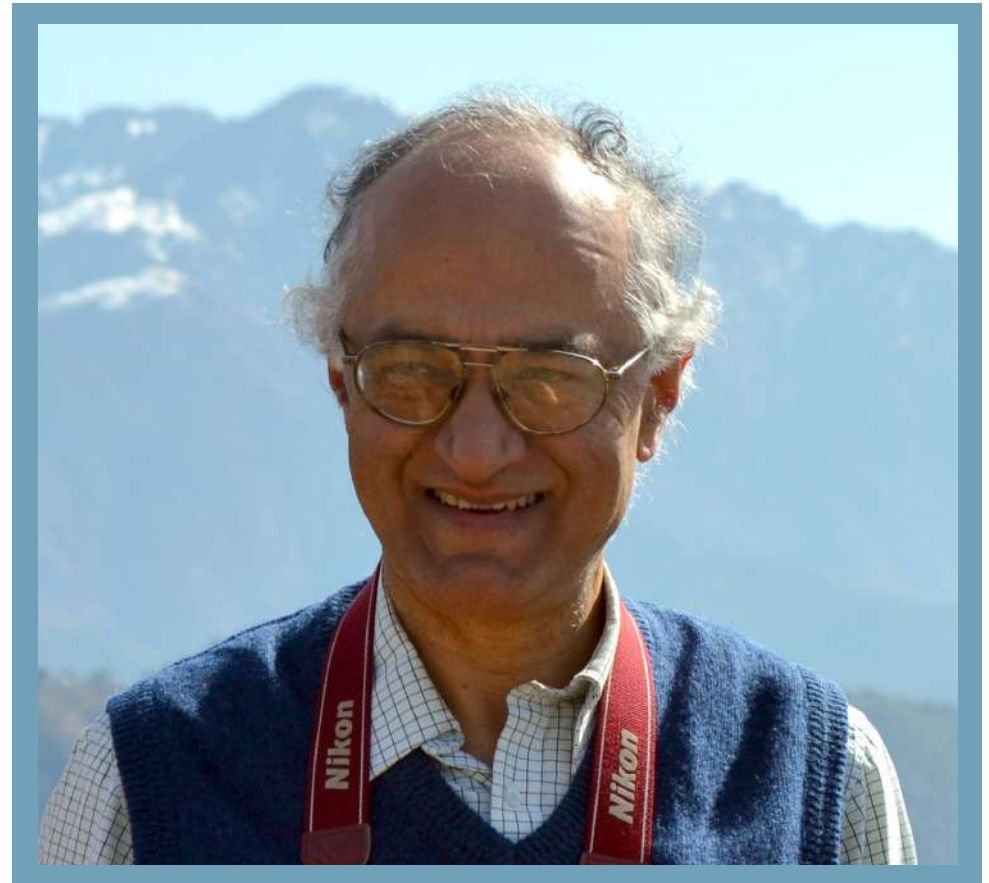
The Director was Prof. Timothy A. Gonsalves. He was a native of Ooty, the well known hill station in Tamilnadu. While Mandi is located in the northernmost part of India, you cannot go further south than Tamilnadu in the Indian mainland. Prof. Gonsalves had undergone schooling in Ooty, after which he had joined IIT Madras as a student, in 1970. He obtained his B.Tech. (Electronics) degree there, and then his M.S. from Rice University, Houston and his Ph.D. from Stanford University.

Prof. Gonsalves began a teaching career at Worcester Polytechnic Institute, Massachusetts. In 1989, he joined the Department of Computer Science and Engineering at his alma mater, IIT Madras. Between 1998 and 2000, Prof. Gonsalves took leave and set up a small company in Ooty. Except for this break, he had worked at IIT Madras for 20 years when he first heard of IIT Mandi.

In May 2009, the Dean of Academics at IIT Madras was asked to nominate professors for the directorship of a new IIT in the Himalayas. The Dean thought that Prof. Gonsalves might be interested since he hailed from the Nilgiri Mountains.

Initially, he was not. But the next month, Prof. Gonsalves, his wife and their daughter went to Darjeeling to trek there. It was Prof. Gonsalves's first visit to the Himalayas, and he 'found it stunningly beautiful'. The Darjeeling experience changed his mind. On returning to IIT Madras, he told the Dean that he was interested in being nominated.

Prof. Gonsalves had a good idea of what would be involved in setting up a new IIT. He had interacted with the Director of IIT Madras, Prof. M.S. Ananth. Also, the Founder Director of IIT Hyderabad was his friend. Further, Prof. Gonsalves knew what it took to set up an enterprise from scratch in a small town in the mountains and how challenges had to be dealt with. He wanted to create an institute that would attract the best faculty members and students.



Prof. Gonsalves Takes over as Director

Prof. Gonsalves ('TAG') was appointed as Director in January 2010. Ten years later he recalled his first days as director.

Taking Charge

Timothy A. Gonsalves

“On 15th January I had met the first batch of students of IIT Mandi at Roorkee, where they were then having their classes. They had joined in July 2009. I promised them they would get to move to their permanent campus before they graduated. Secondly, I had taken up this job partly because of the excitement of setting up an IIT in the mountains, and living above the bus stand in Mandi was a far cry from this idyll! I had an appointment for a five year term, and wanted to begin the process and get things done within a couple of years.

A week after joining I made my first trip to Mandi, reaching there on 21st January 2010. On the journey, I was struck by the immensity of the Western Himalayas. You could drive for 100 kilometres and still be in the same river valley. In January the hills around campus were brown, whereas I was used to seeing the small valleys and perennially lush green hills of the Nilgiris. This was quite a contrast. It seemed very strange to me. I wondered what I'd got into! Mandi town itself seemed like any other town in the plains except for the twisting roads. One loses one's sense of direction, and it was probably several weeks before I really had a good feel for the different parts of Mandi town.

On 22nd February my wife Priscilla, elder daughter Danica, and dog Rusty arrived. On my first visit I had stayed in Visco Resort.

By the time my family came in February the top floor of the Mandav Guesthouse (above the bus stand in Mandi) had been renovated, and we stayed there. A month or two later an apartment was created out of some rooms on the first floor and equipped with a kitchen. We shifted there.”

Minutes of the wrap-up meeting held at Circuit House, Mandi (H.P.) on Aug 13, 2009 at 7:00 PM under the Chairmanship of Shri Ashok Thakur, Additional Secretary, Govt. of India, MHRD, Department of Higher Education, New Delhi regarding setting up of IIT Mandi.

Shri Ashok Thakur, Additional Secretary, Govt. of India, Ministry of Human Resource Development, Department of Higher Education, New Delhi, along with a team of Officers from the Government of Himachal Pradesh and Professors from IIT Roorkee visited the following sites on August 13, 2009.

- The site of permanent campus of IIT Mandi at Kamand
- The site of temporary campus of IIT Mandi at Mandi .
- Campus of Technical Education Department at Sundernagar
- Site for setting up a smaller satellite campus of IIT Mandi near Ner Chowk (Mandi)

The team included the Principal Secretary, Education, Govt. of HP and officials of (a) IIT Roorkee (Monitoring Institute of IIT Mandi), (b) District administration of Mandi, (c) Technical Education Department of H.P., (d) CPWD, (e) Forest Department, (f) HIMUDA (g) Govt. College, Mandi and, (h) Power Grid Corporation of India

A wrap-up meeting was held on conclusion of the visits at 7:00 PM in the Circuit House, Mandi under the Chairmanship of Shri Ashok Thakur

Following persons attended the meeting:

- Shri Onkar Chand Sharma, DC Mandi
- Shri B D Suyal, Conservator of Forests, Mandi
- Shri Ritesh Chauhan, ADC Mandi
- Shri C P Verma, ADM Mandi
- Shri A.K. Ahuja, Joint Director (TE), Sundernagar
- Shri G.C. Negi, SDM Sadar Mandi
- Shri K K Sood, Assistant Engineer HIMUDA, Mandi
- Ar. R.P. Vaidya, Senior Partner, Design Solution Group (Delhi), Mandi
- Er. Gurbax Singh, S.E., CPWD Kennedy Cottage Shimla and his colleagues
- Ms. Kusum Bakshi, Principal, Government College Mandi

Page 1 of 6

Mandi This would be used for construction of heavy manufacturing technology labs etc. and would have to be constructed by CPWD on behalf of IIT Mandi

10 The lawn facing these buildings and the open air theater will be suitably demarcated for activities of IIT Mandi and the Govt. College. The law agreed to by the Deptt of Education and the visiting team from IIT Mandi was along the concrete path from the statue to the peepal tree minus the basket ball court. This area would be fenced by CPWD aesthetically. The entry to this temporary campus of IIT Mandi will be from a separate and independent gate. The Campus of IIT Mandi would thus be in one contiguous area with independent access.

11 Above area including the academic block (the girls hostel when it is completed) and barrack area (building space of Govt. College Mandi will be handed over by the HP Govt. to IIT Mandi within a month's time so that the necessary renovation works can be taken up immediately)

(c) Administrative Block/ Guest House and Girls Hostel (Mandav Hotel Complex)

12. Not very far away (above the bus stand) are located the buildings also agreed to be transferred by the State Govt. These include the following:

- Mandav Hotel of HP Tourism Development Corporation. This was found sufficient for Guest Faculty Accommodation and Administrative Block
- HP PWD Rest House along with out houses. The PWD Rest House and the out houses could be used as Girls Hostel/temporary faculty/staff accommodation.

The entire accommodation available in this complex would be transferred by the State Govt to IIT Mandi within a month's time so that CPWD could start work at an early date. For this Deptt of Technical Education HP would have to coordinate with Deptt of Tourism and Dept of PWD

Page 1 of 6

- Dr. S.P. Gupta, Professor & Coordinator, IIT Mandi Coordination Committee IIT Roorkee
- Prof. Gopal Chauhan, Member, IIT Mandi Coordination Committee, IIT Roorkee
- Er. Salek Chand, Institute Engineer, IIT Roorkee

Based on the above field visits, the following was decided:

(a) Permanent Site of IIT Mandi Campus at Kamand

- The modified proposal of Power Grid Corporation of India to construct a 400KV Transmission line, passing at the periphery of IIT Mandi site was considered and it was reiterated that the proposed line must neither be constructed using the ground space of IIT Mandi site nor it should have any segment spanning over the site of IIT Mandi. The DC Mandi assured that the issue had been resolved at the level of Chief Secretary HP and it was decided that the alignment would be shifted out of IIT Mandi land and an space (Later Added Secy spoke with CS HP and she confirmed the same and assured that the alignment would be shifted out of IIT land)
- A few built up building structures, sheds etc of Animal Husbandry Department on the site of IIT Mandi may not be dismantled and auctioned. In fact it could be transferred on 'as is where is basis' to IIT Mandi so that they could be used for various purposes during construction activities of IIT Mandi
- State government in the Deptt of Technical Education and Forest Deptt assured that the case of forest clearance for land transfer would be sent to MoEF within a month's time. They also informed that the process of delineation of thickly forested area and providing alternate contiguous land for the Campus had been completed to the satisfaction of IIT Mandi. Also the work of enumeration of trees has been completed.
- The non forest land belonging to Govt of HP including that of Animal Husbandry Department would be transferred to IIT Mandi within a month's time. This is important so that activities like fencing, architecture planning etc could be started at the earliest

Page 2 of 6

(d) Transit Hostel accommodation (Jail Road)

- A 100 bedded Boys hostel (Under construction by HIMUDA) in Mandi on Jail Road is in an advanced stage of completion and was found fit for the purpose. Another 40 bedded DIET hostel accommodation is available next to the above building which was also in the initial list of buildings offered by the State Govt. This was also requested by the team to be transferred by the state Govt. by December, 2009

The Chairman observed that IIT Mandi has to cater to at least 3 batches of students at a time in the temporary hostels. It was therefore essential that there should be a provision for 500 students (including research scholars) in temporary hostels by the year 2012/13

Requirement Yearwise	Girls Hostel	Boys Hostel	PWD (H)	DIET	T Shon Fad
2010/11-240	100	100	20	40	NIL
2011/12-360	100	100	20	40	100
2012/13-480 Or say 510	100	100	20	40	220 To 250

In view of the above position it was decided that the Education Deptt may have to not only transfer the DIET building but also the Distt Education Officers (DEO) office located next to the DIET Hostel also for the additional hostel accommodation in the 2nd year. IIT Mandi would be ready to pay the rent for the alternate accommodation for the above office to DEO Mandi. The DC also assured that he would explore the possibility of transferring the hostel accommodation at Drang and IIT hostel near Gurudwara which is close to the Temporary Campus at Paddal Ground

Page 3 of 6

- The road passing through IIT Mandi site to the villages beyond needs to be realigned, be realigned so that there is minimum disturbance to the campus and at the same time the villagers continue to have their access to the villages undisturbed
- The present link road between Mandi and Kamand via Katindi will be widened and improved by the state government as this road will be used as approach road to IIT Mandi site in the first phase. The development of an all weather road along river Uhl which connects to the National Highway shall be taken up in the second phase with the State Government as the investment involved is substantial and will ideally involve construction of a bridge. The DC Mandi also assured that steps would be taken to remove encroachments on the present Mandi Kamand road via Kalindi especially near the forest check post. Since the commercial value of land along this road is likely to shoot, it was suggested that DC Mandi through the Deptt of Town and Country Planning should notify land along this road under the TCP Act so that construction along the road is regulated and controlled

(b) Transit campus at Mandi (Paddal Ground)

- The new four storied academic building of Govt. College, Mandi has been found suitable for operation of IIT Mandi with effect from July 2010, as a temporary campus for holding classes. The class rooms slanting roofs could be modified for labs especially on the ground floor. Overall the Professors of IIT Roorkee were satisfied with the space available for academic purposes for the next 3 years in this building especially keeping in mind the possibility of creating a mezzanine on the top floor for Examination Hall
- In addition, a new hostel (called the Girls Hostel) with about 100 beds capacity is also being transferred by the State Govt to IIT Mandi. This is adjacent to the above academic building and is under construction. The building is in an advanced stage of construction and was found suitable for hostel accommodation
- The space where presently a dilapidated structure (old barracks) stands next to the academic block and girls hostel, would also be handed over to IIT

Page 3 of 6

(c) Satellite campus of IIT Mandi

- As the Main Campus in Kamand is away from the town, the State government on the request of IIT Mandi had agreed to provide sufficient land for setting up a satellite campus of IIT Mandi for faculty and staff on national highway near Mandi town. A land near Ner Chowk, was shown during the visit (measuring about 400 Bighas), which was decided to be kept in reserve. In the meanwhile the DC Mandi was requested to explore the possibility of providing alternate piece of land nearer to the town

(d) Action by CPWD

- CPWD would submit the estimates for
 - Fencing of IIT Mandi site at Kamand.
 - Renovation works of Administrative Block and construction of heavy workshop on barrack site in Temporary campus at Paddal ground Mandi
 - Renovation of HPTDC and PWD Rest House complex
 - Renovation of DIET and DEO building which transferred by State Govt

The meeting ended with a vote of thanks to the Chair.

APPROVED

(ASHOK THAKUR)
Additional Secretary,
Government of India,
Ministry of Human Resource Development,
Department of Higher Education,
Shashi Bhawan, New Delhi

Page 6 of 6

Birth Pangs of IIT Mandi

Ashok Thakur, Former Secretary to Government of India, MHRD

The year 2008 was a turning point in the history of higher education in the country. There was a nine-fold jump in the budget allocation in higher education, and a plethora of new institutions were to be set up. The Union Cabinet had decided to set up eight more IITs in the country, including one in Himachal Pradesh. In addition, seven IIMs, 10 NITs, 16 Central Universities, two SPAs, five IISERs and 12 IIITs were also to be set up. It was indeed a massive task.

The Government of HP took some time to decide the location of this IIT and finally offered us land in Kamand, in Mandi District. Candidly speaking, the Ministry would have preferred a site closer

to Chandigarh as it could have been less of a challenge to attract faculty. Ultimately, the political will prevailed, and Kamand became the chosen site. In a way, it turned out to be a good choice. Where else can one get 500 acres of nature's bounty and pollution-free air to breathe these days?

The next task was to appoint a suitable Director for the IIT. There were not many takers for the IIT Mandi directorship. But then, in one of the rounds, we struck gold: there was one candidate from IIT Madras who wanted only Mandi! I still recall the personal discussion in which he was very explicit about his choice. That is how we were able to appoint the Founder Director of IIT Mandi—Prof. Timothy Gonsalves, a true lover of the mountains!

It was not easy to set up IIT Mandi. The core of any outstanding educational institution is its faculty. Only Prof. Gonsalves can tell us how he managed to get this outstanding faculty that he has today. I recall the teething troubles faced by us in getting the statutory clearances, especially under the Forest Conservation Act 1981, and in getting the civil works started. The road leading to IIT from Mandi was just a village track, to improve which the state government had to be chased regularly. I also vividly remember the hardships faced by the pioneering batches of students and the faculty in terms of lack of basic facilities such as accommodation—residential as well as classrooms and laboratories. A lot of credit goes to them for stoically going through those difficult years. It also goes to the credit of the Director and his team that despite IIT Mandi being one the last to get the go-ahead signal, it was one of the first to complete its civil works and shift into its permanent campus.

Today, one feels proud that this fledgling institution is ranked amongst the top engineering institutions in the country, 31st according to NIRF 2020. I wish IIT Mandi, its students and alumni all the best for the future.



Life in the Hostel

Meanwhile, the students were loving life at the hostels. Groups of friends explored the IIT Roorkee campus. They played football in the lawns and cards on the hostel terrace. The seniors (from IIT Roorkee) were friendly and gave them ‘chapos’ (treats).

Apart from taking part in fun-filled group studying sessions and watching movies together (at night, on laptops, with DTS speakers), the students indulged in gaming night-outs. They could game at the hostel (at times), but the Wi-Fi there did not work (generally).

Fortunately, the Wi-Fi at the Mandi Cell, a place for official meetings, was more reliable.

The students also went on ‘canteen trips’. They went in noisy processions from the hostel to restaurants outside for dinner and ice cream. In the words of Uday Mittal, ‘pointless discussions (‘bakars’ as we called them) at the late night canteens became an indispensable part of the day’. There was no deficit of entertainment.

True, the rotis and the sambar served in the mess left much to be desired (the students described them as ‘messy’). And admittedly, the bathrooms were haunted by mosquitoes. But so what?

There was discipline at the hostels. The students learnt to be conscious about time. They learned how to live independently.



Nesci (canteen), IIT Roorkee

Extracurricular Activities

Organized student life was not only about studies and work. The students participated in several cultural and sports events. At IIT Roorkee, they had ample opportunities to display and develop skills.

There were various sections and societies at IIT Roorkee that they could join. There were Cinematics and Audio sections at the cultural council, for instance, where the IIT Mandi students could work alongside their Roorkee peers. They could become members of the Techno Creative Cell, at the NSS Wing. There was of course a Gaming Section.

There were opportunities to learn how to play musical instruments. The more experienced musicians among the students discovered that there were many people around them who were as good or better than them. A band of four people was formed.

There was a lot of talent—there were gifted dancers, drama people, designers and coders.

There were ample sports opportunities too. One could simply jog on the ‘mega sports ground’ of the campus. One could play tennis on the synthetic courts. Or one could engage in football, volleyball, swimming, table tennis and other activities.

There were workshops that the students could participate in, and there were guest lectures by famous personalities from India and abroad. These events were a great source of knowledge and motivation.



Stand-up comedian Sunil Pal at Thomso



The students enjoyed the cultural festival of IIT Roorkee, Thomso, with its rock shows, fashion shows and Hindustani and Western music performances. They watched bands such as Jal and Benea Reach perform.

IIT Roorkee organised a technical festival called Cognizance. Students from colleges all over India came to Cognizance. The IIT Mandi students were exposed to organization and leadership at the festival when, for example, they volunteered at the robotics event. Of course, they also learnt, from seniors, how to make robots. One student found that 'On the whole, [Cognizance was a] highly rocking journey that had to offer concepts for engineering, fun to the soul and experiences to life.'

The IIT Mandi students won prizes at the events they participated in.

The students were able to contribute to the development of IIT Mandi when they formed the Web Development Team. The team worked hard to make the website of the institute. After about a month of intense effort, on 2 February 2010, the website was activated. In April, with the end of the first academic year approaching, the students organised their own cultural-cum-technical festival. This was a thanksgiving gesture to IIT Roorkee. The three-day festival was called Naissance, and the students organised it at Rajendra Bhawan. Some of the performers were IIT Mandi students. IIT Roorkee Director Saxena attended the event and appreciated it. Also at the event was the Director of IIT Mandi, Prof. T.A. Gonsalves.



Naissance 2010

A Transit Campus

The use of IIT Roorkee's facilities was a temporary measure. After the end of the academic year, IIT Mandi would have to establish itself elsewhere. But the construction work at Kamand would begin only after the Director had taken over the institute. Hence a transit campus was required the next year.

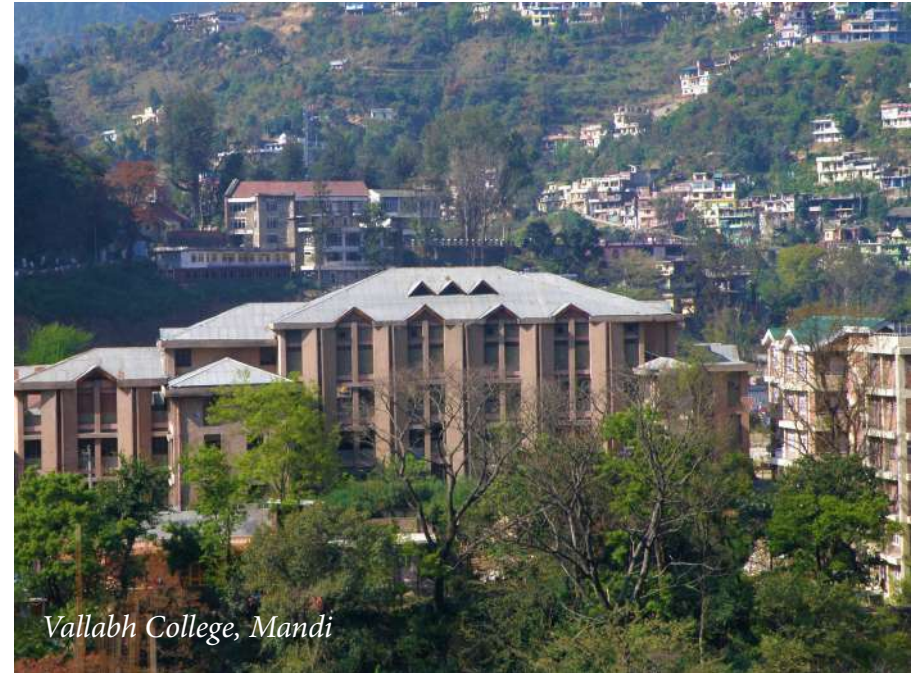
In August 2009, Mr. Ashok Thakur, Additional Secretary, Department of Higher Education, MHRD, Government of India visited Roorkee. During his visit, plans were finalized for the development of a transit campus at Mandi town. The plans were for classes to be held at Vallabh Government College. The college had been established in 1948 and had more than 4000 students enrolled in undergraduate and postgraduate courses in the arts, commerce, science and business management. IIT Mandi would hire accommodation at Mandi for the students to stay in.

Three months later, the Himachal Pradesh Government handed over buildings at the transit campus to IIT Mandi. These needed to be renovated. New constructions were also necessary—a laboratory block, a students' activity centre and so on. Drawings were prepared by an architectural firm, and the CPWD submitted estimates for carrying out the development work. In December, the Board of Governors and the Finance Committee of IIT Mandi approved the development of the transit campus. The Board of Governors also formally approved the recruitment of faculty and staff members.

Ms. Chandan Sharma joined as Director's Secretary on 19th March 2010. Mr. Rajat Sharma, from Gutkar, Mandi District, joined as JE Civil on 10 May 2010. Mr. R. C. Sawhney joined as Registrar on 18, July 2010, and slowly a staff was assembled. With the new professors joining that summer, they managed to build a new college and bring it to life by mid August of that year.



View of Mandi town from Upper Bijni



Vallabh College, Mandi

Proceedings of 6th meeting regarding establishment of IIT Mandi, held on 9th April 2010 in Mandi, under the Chairperson-ship of Shri Ashok Thakur, IAS, Addl. Secretary (HE), MHRD, Govt. of India.

A meeting was held under the Chairpersonship of Shri Ashok Thakur, IAS, Addl. Secretary (HE), Ministry of Human Resources Development, Govt. of India on 9th April 2010 in the office of IIT Mandi to resolve the issues pending with regards to the renovation of temporary campus in Mandi town & establishment of IIT Mandi at Kamand.

The following were present :-

1. Director, IIT Mandi
2. Project Consultant, IIT Mandi
3. Deputy Commissioner, Mandi
4. ADM, Mandi
5. Director Technical Education, Sunder Nagar, District Mandi
6. Conservator of Forests, Mandi, (H.P.)
7. SE (Civil) CPWD
8. SE (Electrical) CPWD
9. Executive Engineer, HIMUDA Mandi
10. Executive Engineer, HPPWD, Division No.1, Mandi
11. Executive Engineer (Civil) and (Electrical) and Assistant Engineer, CPWD
12. Principal and Vice-Principal, Vallabh Govt. Degree College, Mandi

At the outset, the Director IIT Mandi welcomed the Chairperson and the other participants. The progress of various works under renovation/additions and alteration for starting of classes from July 2010 onwards was discussed. A site visit was also conducted to have a first-hand information of progress achieved so far.

The following points were discussed during the meeting and site visits:

1. SE CPWD informed that works for additional alteration of the Academic Block, Mandav Hotel and PWD rest house was progressing in a time-bound manner and same shall be completed by 10th June 2010. The Chairman emphasized that full efforts be made to hand over the works well before the above date.
2. Executive Engineer HIMUDA apprised that two hostels, one in college complex and another at Jail Road were ready but services such as electricity, water and sewerage were still to be provided. It was decided in the last meeting held on 26/2/10 that the Principal Degree College Mandi will apply for service connections. The Principal showed his inability to deposit securities etc as he is short of funds. It was decided that the amount required for deposit of securities shall be borne by IIT, Mandi. HIMUDA would hand over the Hostel to Vallabh College who in turn will hand over to IIT. This should be done in time bound manner.
3. The HP Govt has ordered that the DIET Hostel be handed over to the IIT authorities. The same was visited and it was decided that it will take another 4-5 months. In the meantime Director Technical Education and DC Mandi have asked to take action to shift another location. The Addl Secretary (HE) pointed out that as mentioned in the Site Selection Committee report from next year onwards the adjoining building with Education Department be transferred to IIT(M) so that it becomes one compact complex.

4. Allotment of a piece of land at Dhangsi Dhar adjoining Mandi town for development of a smaller campus was examined. DC Mandi informed that some portion was allotted to the police department and he will explore possibilities to give them alternative land. Tatima plan along with other revenue details shall be got prepared by ADM to handover to Addl Secretary MHRD Govt of India to take up the matter with the HP Govt.
5. Matter regarding transfer public road passing through proposed IIT campus was discussed. Executive Engineer Mandi Division No 1 informed that only two public roads mainly Kamand -Neri-Shiva and Nandal-Amrehar road which pass through the campus can be readily realigned. PWD was requested to expedite preparation of estimates/survey work on alternative alignment for obtaining sanction and funds from HP Govt.
6. EE Mandi Division No. 1 apprised that estimate for improvement/widening of Mandi-Katindi-Kamand Road amounting to Rs 2 crores has been sent to Govt. for approval/accord of AA and ES and providing requisite funds. Sanction is awaited. HP Government was requested to approve sanction at the earliest.
7. The Conservator of Forests, Mandi informed that the case for obtaining permission for transfer of forest land under F.C.A has been sent to the Ministry of Environment and Forest, who shall be conducting spot inspection shortly to assess the situation. MoEF has requested that the boundary be clearly demarcated to facilitate inspection. Hence it was decided to fix boundary posts to give them a fairer idea of the demarcated land. CPWD authorities may take immediate action to provide such boundary posts.
8. Director Technical Education apprised that land from Anima Husbandry Department has been taken over by him and the same can be handed over on lease any time required. Director IIT, Mandi informed that initial planning of land use of the campus must be done in totality for which total land is required. The proposed land includes a few private holdings which would need to be relocated. Addl Sec. (HE) emphasized that the land must be provided by HP Govt to IIT free of all encumbrances including payment of NPV etc.
9. CPWD is carrying out detailed survey work of the proposed campus site which may be expedited as the same shall be required for preparing documents for inviting of tenders for preparation of Master Plan along with other requisite architecture as well as engineering plans.

The meeting ended with a vote of thanks to the Chair.

(Sd)
Shri Ashok Thakur, IAS
Addl Secretary (HE)
MHRD, Govt. of India
10th April 2010



Dhauladhar Mountain Range. View from Mandi-Kamand road



Lone pedestrian



Rusty



Uhl River near Peepul Point

First Foundation Day

The first Foundation Day was celebrated on 24 February 2010.

It was an exciting day for the students. They were staging a cultural performance on the occasion—in Mandi! At Mandi, the students and Prof. Gonsalves visited the site of the transit campus. They also visited the site of the permanent campus, at Kamand, and looked at the foundation stone, which had been laid a year back. The 12-hour journey from Roorkee to Mandi had taken them through fertile valleys and along mighty Himalayan rivers. The experience was far more exciting than anything the students had expected.

When they saw Mandi and Kamand, surrounded by hills, the beauty and picturesqueness of the surroundings left them speechless.

At the transit campus the students saw the place where classes would begin in the coming July. The renovation work had commenced and was proceeding at a great pace. Lecture halls, labs and hostels were being prepared. The students also looked around Mandi. They found no signs of the chaos of a city anywhere. The town was sparsely populated; yet everything was available there. Even the markets at Mandi looked orderly and well organized. The snowy tourist destinations of Shimla, Kulu and Manali were not far away. Even so, the weather was mild. And the students knew Mandi did not have snowfall in winter.

One student noted that Mandi had ‘better areas to hang out than Roorkee, including Indira Market, that beats Civil Lines of Roorkee’. Another student found the food really nutritious and hygienic.

The trip to Mandi provided an opportunity for interaction with the Director. One student found him to be very generous and friendly. Everyone had a great time. Now the students eagerly looked forward to moving to the interim campus of IIT Mandi.



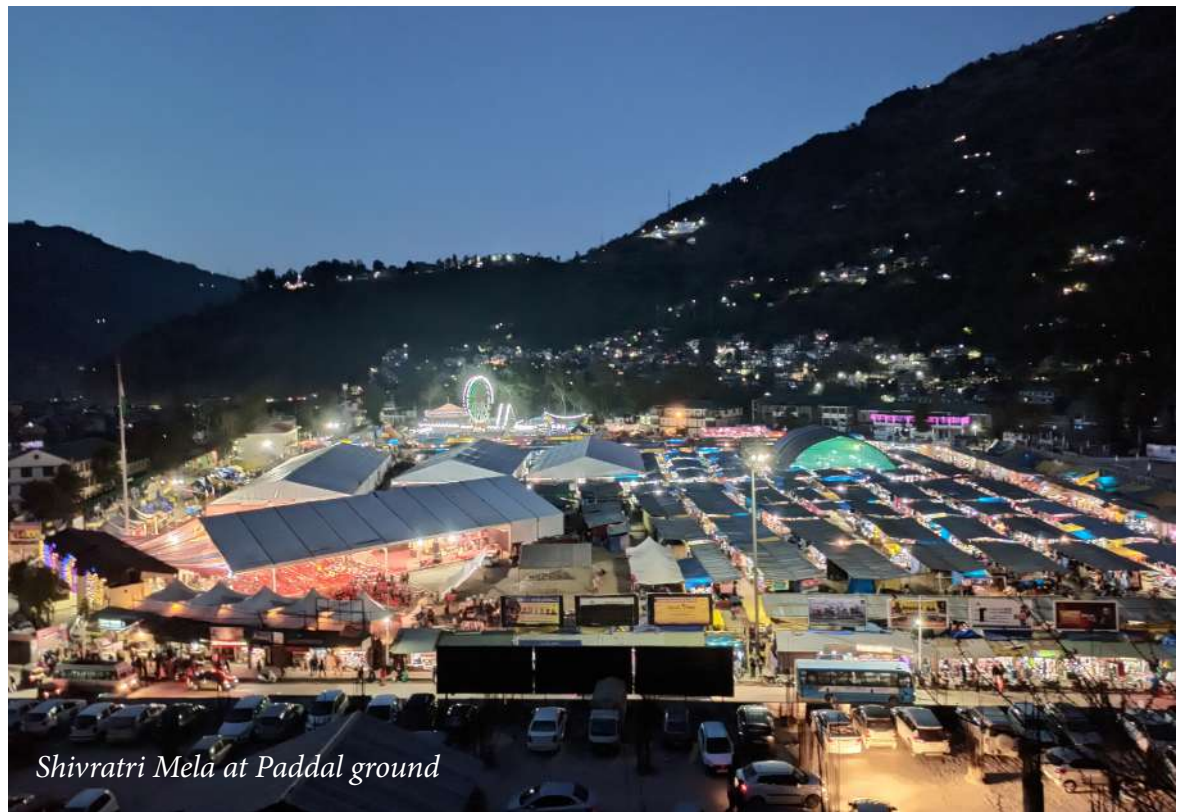
Bhuli bridge view from Bhim



Chowhatta Bazaar



Shakali temple



Shivratri Mela at Paddal ground



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Visit to Kamand on first Foundation Day



Visit to Mandi by pioneering batch and first Foundation Day celebrations at South Campus on 24 February 2010



Issues for discussion with the Chief Secretary, HP Govt. on 26th Feb. 2010 at Shimla

Preamble

IIT Mandi commenced with admission of 98 students in July 2009. The classes of these students are being conducted at IIT Roorkee (mentor institute). It is planned to shift the classes of these students to a transit campus of IIT Mandi at Vallabh Govt. Degree College, Mandi (HP) in July 2010. Second batch of 120 students and 20 research scholars will also be admitted at this transit campus, making the total student enrollment to about 220.

It is further planned that in the third year of IIT Mandi i.e. starting 2011, the classes of all the three batches are conducted at the main campus in Kamand. Hostel facilities in the transit campus for 360 is required. This would be the first step in making IIT Mandi an 'IIT with a difference' – a resource centre of excellence which will impact the local scenario with world class research and development.

Action Plan In order to implement the above plan, the following issues are to be addressed with urgency and passion:

Main Campus at Kamand

1. Transfer of the entire about 530 Acres of land earmarked at Kamand for the main campus to IIT Mandi. Clearance for the forest land.
2. Widening and maintaining the existing link road connecting Mandi, Kamand and Bhunter to enable safe transportation of construction material, sophisticated and heavy laboratory equipment and safe movement of students and staff of IIT Mandi.
3. Diversion of public movement on roads passing through the Kamand campus.
4. Upgrading of the road along the Uhl River to a motorable road.

Transit Campus at Mandi

1. Students' Hostels: The accommodation in two new hostels under construction is barely sufficient for 200 boys. Additional accommodation in the proximity of Vallabh Govt. Degree College is required to enable safe movement of students in late hours. DIET Hostel at Jail road should be given to IIT Mandi to meet this shortfall.
2. Housing for Research students: It is planned to admit about 10 research students in July 2010 at IIT Mandi. The outhouses of PWD rest house are ideally suited to accommodate them. These outhouses should be handed over to IIT Mandi.

Other

1. Allotment of a piece of land in or near Mandi for development of a smaller campus.

H. S. Grew
Kamand file



Salgi Village in March 2011



Two views of South Campus in 2011



The Logo

By the end of the first academic year, IIT Mandi had its logo—the first annual report of the institute displayed it. The logo showed Mandi town's landmark suspension bridge, as well as the hills, the sun and the Beas. The colours of the logo were symbolic: the blue, signifying the limitless sky, symbolized the vast expanse of knowledge. The green, evocative of vegetation, represented youth and freshness of ideas. The orange stood for energy and a spirit of dedication. The depth of the logo signified the unending nature of the quest for excellence. The logo was designed by Dr. Ila Gupta, Associate Professor at the Department of Architecture, IIT Roorkee.

The bridge is known as the Empress Bridge or Victoria Suspension Bridge, and it is of historic significance. It was built by Raja Bijai Sen in 1877 at a cost of Rs.1 lakh. 1877 was the year a Proclamation Durbar had been held at Delhi to proclaim Queen Victoria as the Empress of India. Raja Bijai Sen had attended the Durbar. The bridge was a specimen of the cutting-edge engineering skills of yesteryears. The logo stood for similar wondrous creations by the students of IIT Mandi.



Navneet Sharma
Victoria Bridge, Mandi



Another view of Victoria Bridge

III

2010-2012

**The Transit Campus
Experience**

Initial Decisions

Timothy A. Gonsalves

I am proud of some of the decisions that were taken right at the beginning. Among these was the idea of involving a number of senior people from other IITs (Prof. Lalit Malhotra, Prof. Sunil Kale, Prof. Subrata Ray, Prof. B.K. Mishra, for example). Their contributions to the Institute's establishment have been invaluable. Some of the USPs of the institute were decided in the early days and have stood the test of time. These include the idea of having Schools (not departments), fostering an inter-disciplinary culture and emphasizing project-based learning.



15th of August 2010

A Growing Family

At the end of the first year, IIT Mandi had students being housed and taught at IIT Roorkee, the Director with offices in Roorkee and Mandi and the Chairman advising from Tirunelveli in Tamil Nadu. On 8 June 2010, Dr. Aniruddha Chakraborty became the first faculty member on the institute. A specialist in theoretical physical chemistry with a Ph.D. from IISc, he joined as an Assistant Professor in the School of Basic Sciences. By early August the faculty had grown to about twenty-five professors in engineering, sciences and English.

There was an amazing “can do” spirit shared by most members of the IIT community. Professors, staff and even some 2nd year B.Tech students who came early, all pitched in to get the institute up and running in a remarkably short time. Everything from plumbing and electrical connections to setting up labs, hostels and messes was very much a work in progress.

On the 14th of August 2010, IIT Mandi started functioning in Mandi. The transit campus on Paddal Ground actually only had one academic building and one hostel. All other parts of the “campus” were scattered around Mandi town.

The first year boys were accommodated in Suvalsar next to the Academic Block. The women’s hostel, Renuka, and several administrative offices were across the main highway and up the hill from the Paddal Ground. A few faculty and staff also occupied former hotel rooms and suites here. Other faculty and staff found housing in private flats in the town. The second year BTech boys and male research scholars were housed in Dashir Hostel on Jail Road. In August 2011 Nako, another boys’ hostel, was opened about as far from the Academic Block to the east as Dashir Hostel was to the west. An annexe was added at Dashir hostel for the growing number of male M.Sc. students and research scholars. Buses took the boys from their hostels to the Academic Block each morning and back to the hostels in the evening. Somehow from this incomplete and scattered beginning, a new IIT arose.

The freshers arrived on 14th August. The Chairman of the Board of Governors, Mr. Natarajan, raised the national flag on the 15th. He went on to inaugurate the new academic block.

A World Renowned Institution

Natarajan Mathiram, First Chairman of the Board of Governors, IIT Mandi

It was indeed a distinctive and exhilarating experience for me to have worked as the Chairperson of the Board of Governors for IIT Mandi in its formative years (2010–2016). Professor Dr. T.A. Gonsalves and his young team of about 20 teaching faculty and a couple of experienced visiting professors together drew up a plan of action for the development of IIT Mandi to match with the sylvan settings of the Himalayan ranges!

The team worked with dedication and commitment in giving shape to its academic policies, in recruitment of capable postdoctoral teaching faculty in different disciplines, and in establishing courses of study at the B.Tech., M.S., M.Tech. and Ph.D. levels. Likewise, great care was taken to recruit competent technical and administrative staff. Each and every one of them was actively involved in a multitude of tasks for building this prestigious institution. Their enthusiastic participation and the hustle and bustle of activities were truly matching with the roar of the Uhl River winding through the Kamand campus. They maintained high spirits for painstaking efforts, unmindful of the innate hardships of the remote location.



The Chairperson and the Board of Governors were indeed privileged to have worked with this team, sharing continuously their counsel, concerns and possible directions and assistance for growth and development. The Board's aim was to provide encouraging support for the teams, initiatives and activities, while carefully avoiding any postures of overbearing. The Board also played its useful role in ensuring requisite resources for expeditious progress on all fronts, viz, academic strength, laboratory facilities, classrooms and conference areas, residential and living accommodation and a host of other facilities that would truly blend learning and living to be a unique experience that those transiting through the campus would cherish for the rest of their life.

To me personally this tenure was a challenge as I had to operate largely through Internet services and telephone talks as I was located 2500 kilometres away at my home town, Tirunelveli, in Tamilnadu. I can say proudly that despite that I managed to ensure, to give sanctions and approvals as early as possible, seeking clarifications only on rare occasions. I am sure the Director and his team would acknowledge the same!

The campus in all its grandeur is close to getting fully completed now. The student strength has gone up to 1600 from less than 100 ten years back. The choice of courses offered in the B.Tech., M.S., M.Tech. and Ph.D. programmes, the faculty strength, fully equipped laboratories in different disciplines, the institute's research and project related publications in journals of repute, the placements being offered to its graduands, the accomplishments of some students in the real world are all reflective of the steady and praiseworthy progress IIT Mandi has made in just a decade!

Important Stepping Stone

Sravan, B.Tech. in Computer Science and Engineering 2009-2013

I consider the decision to move IIT Mandi from the mentoring institute of IIT Roorkee to Mandi in 2010 as an important milestone in my development. In my mind that step is analogous to how a fledgling decides to venture out of its nest and tries to find its wings and forge its own path and destiny. This was one good choice for me even though it was a choice made by the Director. IIT Roorkee had great basic science labs and infrastructure, but I felt it was lacking in terms of CSE outlook. My takeaway at that time was once TAG Sir was appointed as the Director for IIT Mandi, things started to turn around at a quick pace with a clear vision and execution. Despite some of the initial hardships of transitioning to a campus with limited/no infrastructure, I consider this transition an important stepping stone for a brighter future and worth the inconvenience. I also believe that IIT Mandi was able to attract awesome young faculty because of its clear vision and outlook.



I am particularly proud of being a member of the team which designed, developed and deployed the online application portal for IIT Mandi. That occurred just as I started my second year of B.Tech. IIT Mandi strove to nurture our entrepreneurial spirit while simultaneously improving our skills through practical projects. I also benefited from being able to learn from some of the best professors of IIT Madras, which is something that I never dreamt of when accepting to study at IIT Mandi. Throughout our time at IIT Mandi the institute provided encouragement, guidance and recommendations for master's programmes and internships.

Surreal in a Good Way

Saurabh Jain, B.Tech. in Electrical Engineering 2009-2013

On the eve of the IIT results, I had jokingly remarked to my Dad, “I will go to Mandi. The Himalayas seem to be a good place to travel and enjoy”. Flash forward a few months and I was enrolling myself at the newly born baby of the IIT system. This was not in the Himalayas though—it was all starting in Roorkee—situated at the foothills of the Shivaliks and a few hours from the holy place of Haridwar.

The time we spent in IIT Roorkee (as mentor IIT) was surreal—in a good way. We had the privilege of having access to some of the best facilities and faculty members in the system. Yet, we didn't have a single professor (or Director for that matter) who was IIT Mandi's own in the first many months. The feeling was that of a loved step-son who is showered with all the love that the parent can give. We were pushed to participate in sports, extra-curriculars and technical competitions and were graded at par with fellow Roorkee students. There were 98 of us, and most were active in some field or the other. This special environment was the foundation of IIT Mandi—as it is today.

A year down the line—in 2010—we shifted to Mandi.

And we shifted to makeshift hostels, bare minimum facilities and a borrowed campus with one building and enough space for a volleyball court. I think this feeling was consistent at that time: “let us stay in Roorkee for a few more years while the campus gets built”. Over the next few months, that feeling changed to something more constructive—thanks to efforts of the staff, students, professors, et al. There were facilities built wherever possible—a badminton court that doubled up as multipurpose hall, a library run by students themselves and many other small things.



Where we couldn't build things, we had partnerships—be they sports facilities in Mandi city or lab facilities in other universities.

These years were the first in many aspects—first professors, first fest, first academic papers—the list is endless. Some of those things have aged beautifully like an old wine. Some have disappeared to give place to new initiatives. Those years also gave us our most cherished memories and our closest friends. The time spent in hostels (and classrooms, whenever we went there) is something that makes us nostalgic every time we meet. Our spouses have heard incidents from our hostel days multiple times now as we reminisce old days with great fondness.

I was lucky enough to visit the campus again on the 10th Foundation Day—and it was a reminder how far we have come. I still remember that the first Foundation Day was celebrated in the basement of a hotel where we were staying during our visit to Mandi from Roorkee. We were busy watching Sachin hitting the first 200 in Gwalior rather than starting the musical evening that was scheduled. This time, I was accompanied by my wife and was sharing the stage with some of my friends in a huge hall (probably as big as the original campus itself) while the campus around us was bustling with life, ideas and folks eager to get out there and make a mark. A sapling is now a tree.

Every Day Is Memorable

Prakash Negi, Junior Assistant at IIT Mandi

My first morning in Mandi. It was early morning, in fact around 3 am, on New Year's Day 2010, when we reached the Mandi bus stand. Our journey had been very hectic, and it was the coldest night of my life! We had reached a place where nobody knew us, there was nobody to guide us or even to tell us where to go. Initially there was no set-up at Mandi, and everything was operated from the IIT Mandi Cell at IIT Roorkee by the Mandi Cell Coordinator. The first time we came to Mandi was to check the site location of Mandav Complex, Vallabh College and one of our hostels on Jail Road.

In mid-January, IIT Mandi's first Director joined: Prof. Timothy A. Gonsalves. He also visited the location of Kamand campus. The Kamand campus site used to look like a jungle, and the site had belonged to an animal husbandry farm. Only a few apartments were there. In these circumstances we celebrated the first Foundation Day of the institute in the Kamand campus on 24 February 2010. When I joined, neither North Campus nor South Campus was ready. At that time there were many challenges to build up the institute, and our Director Sir took the initiative and started the task. At that time there was hardly any transport facility available from Mandi to Kamand campus. We started our work—there were few of us and nobody had any fixed responsibilities.



I was to do everything that was assigned to me by different officers. I am always thankful to Director Sir because he gave me this opportunity to live in a beautiful environment, with well educated faculty members. I have always learnt one thing from him: “See a dream, think about it, and after that plan how you will fulfil your dream; decide your goal and work on it, and success will always be with you, and it will walk with you just like your shadow; always give your 100%, never think whether it will be all right or not.” I have learnt so many things during this journey in IIT Mandi—among others, how to survive and live with very limited resources.

I have so many memorable moments in this IIT. But I think if you are part of this IIT then every day is memorable.



Scenic but Challenging

Manoj Kumar, Junior Attendant at IIT Mandi

I have been associated with the IIT Mandi family since 17 July 2009, when I joined at IIT Roorkee. I visited Mandi for the first time in February 2010. At that time the institute had only 98 students. The institute started with two rooms only in its transit campus. Very soon, classes began in the temporary campus, and construction work began in the permanent campus. Although Kamand was a very scenic site, the distance from Mandi and the lack of facilities there made construction extremely challenging. Director Sir worked alongside the HP Government and with local people to get the permanent campus started. Just like the weather and scenic beauty, I think the local people too are very nice and clear-hearted. There were problems of all kinds on account of the mountainous terrain, but like a good leader Director Sir was able to handle them. In 2012 when Director Sir shifted to Kamand, I moved too.

In 2020 the IIT Mandi family has grown very large. Director Sir’s sincerity and perseverance over the course of the last 10 years are a source of inspiration to me. I am fortunate indeed to have been associated with an institution that provides such good education to its students.



Vision and Mission

The Vision and Mission of the Institute were discussed by a committee of faculty members at IIT Mandi and put in place early on.

Vision

To be a leader in science and technology education, knowledge creation and innovation, in an India marching towards a just, inclusive and sustainable society.

Mission

- To create knowledge through team effort and individually for the benefit of society.
- To impart education to produce professionals capable of leading efforts towards innovative products and processes for the development of the Himalayan region in particular and our country and humanity in general.
- To inculcate a spirit of entrepreneurship and to impart the ability to devise globally recognized solutions for the problems of society and industry, particularly in the fragile eco-system of the Himalayas.
- To train teachers capable of inspiring the next generation of engineers, scientists and researchers.
- To work intensely with industry in pursuit of the above goals of education and research, leading to the development of cutting-edge and commercially-viable technologies.
- To operate in an ambience marked by overriding respect for ability and merit.

Academics in the Second Year

IIT Madras and IIT Roorkee faculty members helped out with some courses, coming to Mandi to teach or reaching out from Roorkee through the electronic classroom of the National Knowledge Network (NKN). But most of the courses were taught by IIT Mandi's own faculty. Lending a wealth of experience were Prof. P.C. Deshmukh, of the Physics Department of IIT Madras, and Prof. Lalit Malhotra, former Deputy Director of IIT Delhi, who lived in Mandi. Other senior professors would join later in the year.

In October, 25 research scholars joined the institute. These, the first research scholars of IIT Mandi, were enrolled in M.S. and Ph.D. programmes in engineering and the sciences. The male research scholars were housed in Beas Kund, in the Annexe; the female researchers were in Renuka Hall.

The faculty were organized in four broad, multi-disciplinary schools:

- (1) School of Computing & Electrical Engineering,
- (2) School of Engineering,
- (3) School of Basic Sciences and
- (4) School of Humanities and Social Sciences.

The object was to encourage synergistic mingling of minds. The offices and labs of the schools even overlapped.

Research Laboratories and Computational Facilities

Three major research laboratories and computational facilities were planned. Orders were placed for Rs.5 crores worth of equipment for these:

Characterization Lab. *FT-IR spectrophotometer, atomic absorption spectrophotometer, spectrofluorometer, HPLC system, electrochemical work station, magnetic susceptibility balance, TGA-DSC-DTA, dynamic light scattering equipment, UV-visible spectrophotometer, powder XRD, polarimeter, GC, time-correlated single photon counting (TCSPS) detector*

Synthesis Lab. *Rotary evaporator, muffle furnace, fume hood, deep freezer, vacuum oven, flake ice making machine, double stage water purification system, ultracentrifuge, programmable spin coater, ozone generator with oxygen concentrator*

Thermo-fluids and Design Labs. *NI data acquisition unit, Phantom high-speed video camera, Coriolis flow meter, pressure calibration system, temperature calibration system, NMR, single-crystal XRD, HR-TEM*

Computational facilities. *A 128-core rack-mounted High Performance Computation Cluster with Xeon 2.4 GHz quad core processor, 8 GB memory per node, Gigabit Ethernet Interconnect and 6 TB storage*

Apart from these, two electronics laboratories and three electrical laboratories were established during the year. A project room was established for the Design Practicum course.

In the Design Practicum, inter-disciplinary teams of students would each take up a problem of society and by the end of the semester devise and implement a working prototype. These would be demonstrated in an open house.

Curriculum Design

Sunil R. Kale, Professor, Mechanical Engineering at IIT Delhi; Mentor Professor at IIT Mandi

In 2010, IIT Mandi had three or four resource people and about 25–30 faculty members. A faculty retreat was held in Visco Resort in Mandi to discuss the curriculum. In terms of educational philosophy, I had suggested some experiments at IIT Ropar, but we went much further in IIT Mandi. We decided that there would be no mono-disciplinary education. The world had changed rapidly. Some faculty members who were used to the older ways of teaching did question the new ideas. Finding adventurous faculty members is a challenge everywhere as people want to teach the way that they have been taught. However, now I do think our approach has worked out well. The first-batch students were in their fourth semester when the Design Practicum (DP) started. I used to fly down nearly every weekend from Delhi to Kullu. This entailed reaching the airport at 4 am at both ends, and starting class at 9 am.

We involved faculty members with different specializations in the DP. Each team had six students, two each from the Computer Science, Electrical and Mechanical branches, and each team had two or three faculty mentors. This is a course we had run in IIT Delhi as well. When the time came for fabrication, the question was how to get supplies. The faculty members listed the requirements and drove down to Chandigarh to shop for these things as no vendor was ready to deliver to the campus. Even when things were ordered online, they had to be collected from Chandigarh. Despite these constraints, the first batch produced some very innovative things. The Interactive Socio-Technical Practicum (ISTP) course had also started around this time. There was a shortage of lab staff members, and so I requested two colleagues from the labs in IIT Delhi to join IIT Mandi. They did so and have proved to be assets.



Design Practicum

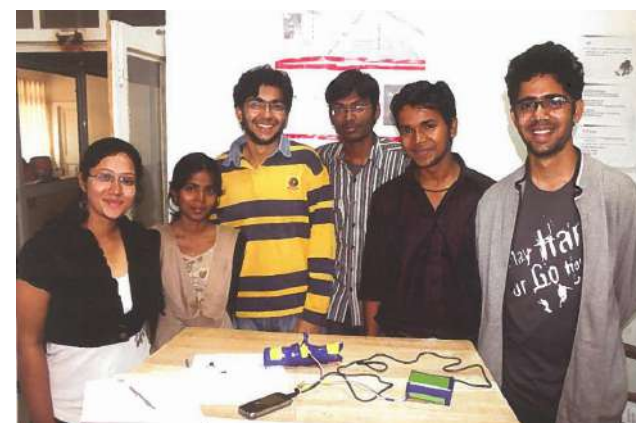
The B.Tech. curriculum was revamped to train design engineers and leaders for India. One of the important aspects was the Design Practicum. The Design Practicum was a course designed to cultivate product design and development skills among engineering students of IIT Mandi. This was a one-semester course in which students were asked to design and build innovative products that address real world problems in our society.

Interdisciplinary teams of six students each were randomly formed, across engineering branches. Each team of students reported its progress to an interdisciplinary team of four faculty members drawn from the engineering, science and humanities disciplines. In the first week, the students were informed about some basics of designing and developing a new product. During the second week they were asked to talk to people and prepare a list of problems faced by people and to list new ideas that would help solve these problems.

Out of the several ideas, they were asked to pick a few and come up with a product design. After thorough analysis of the feasibility and other parameters such as the time and cost, they chose one of the designs for product development. At this stage they prepared a budget, which had to be approved by the faculty mentors. After a detailed designing exercise, they prepared a mock-up and analysed its pros and cons. Next, they worked hard on building a prototype that worked. This stage was really challenging as they faced many common problems such as getting things in time, making components bought for different purposes compatible and finally getting everything to work. On the final day the students put their prototypes on display for viewing by the public.

In 2011, the students developed these prototypes:

- An intelligent irrigation system
- An automated water level monitoring and management system
- Hi-tech shoes
- A clothes dryer that used fuzzy logic
- A temperature-regulated magnetic stirrer
- A special input system using a software bundle for the disabled
- A smart bicycle with an exclusive cell phone charger
- An automated light regulator
- The Solluminator
- A portable cell phone charger that used the principle of electromagnetic induction
- A smart home system
- A portable USB mobile charger that used the piezoelectric effect
- A system that switched off lights automatically
- A voice-operated wheelchair
- An SMS control system
- A device for wireless biometric registration and identification



Students with their Design Practicum prototypes

Even as the institute awaited the equipment that had been ordered for the labs, seven research projects were initiated by the faculty of the institute. The institute's faculty also published the first research papers during the year: a book by Dr. A. Chakraborty, a chapter contributed by Dr. S. Abbas to a book, 32 papers in peer-reviewed journals. Researchers from IIT Mandi presented papers at 14 conferences across India that year. Dozens of eminent academicians, scholars, scientists, industry leaders and policy makers were invited to share their experience with the students and faculty. They delivered lectures on the subjects of their expertise. IIT Mandi signed MoUs with five international institutions to promote academic research, co-operation and development of technical education. The MoUs were for exchange of students and for joint research. In short, IIT Mandi's academic activities were taking various forms in the second year.

B.Tech. Curriculum

During the first year in Mandi, the faculty worked out their vision for a novel curriculum suited to the 21st century.

Goals of IIT Mandi's B.Tech. Programme

Historically, the IITs had a B.Tech. curriculum that was aimed at training experts in each specific branch for careers in research or engineering in the branch. The curriculum had a large and strong core covering all sub-areas of the branch in depth. There was also a substantial component in basic sciences and engineering fundamentals. The courses were carefully sequenced with the assumption that all students would take them in lock-step. With changes in society and considering the nature of technology, IIT Mandi has taken a fresh look at the B.Tech. curriculum.

The Students

The scheme of admission based on JEE ensures that students who join IIT for B.Tech. are highly intelligent and capable of hard work if sufficiently motivated. It does not ensure that they are passionate about engineering or the branch to which they have been admitted. Some do not have a strong aptitude for either. We see that IIT students after graduation go on to make their mark in a variety of ways, some far removed from their core B.Tech. branch. They may focus on technology as researchers, design engineers and professors. They may use their technical knowledge to complement other skills as technical managers, as public administrators, in NGOs and in policy think tanks, venture capital funds and so on. A few leave technology altogether to take up, for instance, school teaching in a village.

The Technology Milieu

Globalization and the rapid march of science and technology have brought dramatic changes in the nature of the engineering profession. Increasingly, engineers are called upon to deliver technology to a wide variety of people in diverse socio-economic strata, cultures, geographies and political systems. Engineering is increasingly inter-disciplinary in nature, encompassing not only a range of engineering disciplines but also management, sociology, linguistics, history and other non-engineering disciplines. The rapid advance of science and technology implies that much of the knowledge that a student acquires during his/her B.Tech. has a useful lifetime of only a few years. Conversely, much of the knowledge that an engineer will use during his/her career of 40–50 years will be learnt only after graduation. Only some very basic principles can be expected to remain current over the next half a century.

The Desirable Outputs

Given the above changes, it is necessary to re-orient the B.Tech. curriculum. As an Indian Institute of Technology, it is our duty to train leaders for the growth of India with a strong technology focus. The necessary and desirable characteristics of our B.Tech. graduates are:

- Self-motivated, with a passion to do something useful
- The ability to learn quickly and devise innovative solutions
- The ability to work hard, in a focused and disciplined manner
- A solid foundation in basic principles and substantial practical hands-on experience
- Sufficient specific knowledge to be immediately productive
- The ability to communicate effectively and work with others.

With these characteristics, our graduates can be expected to make their mark, enhance IIT's reputation and recompense the nation for its investment in their education.

Curriculum Overview

To achieve the above goals, we need a curriculum that is sufficiently flexible to the needs and aspirations of diverse students. For flexibility, it needs breadth. For students who want to master a field, it needs depth. Every student requires significant training in:

- Basics of engineering
- Physical and life sciences
- Humanities, social sciences and management
- The fundamental principles of at least one engineering discipline
- Design and innovation
- Teamwork and communication

For students to explore their passions, there is a large set of electives. Over these, we superimpose formal and informal structures tailored to the typical paths that a student may take. These structures serve as guides for the students and help the outside world to evaluate each student's expertise. Given the diversity of student aspirations and the need to keep them motivated, we allow flexibility in sequencing of courses. It requires some adaptability on the part of the teachers. It also requires firmness as students realize that taking advantage of flexibility now may restrict their options in future semesters, and they clamour for timetables to be aligned to their desires.

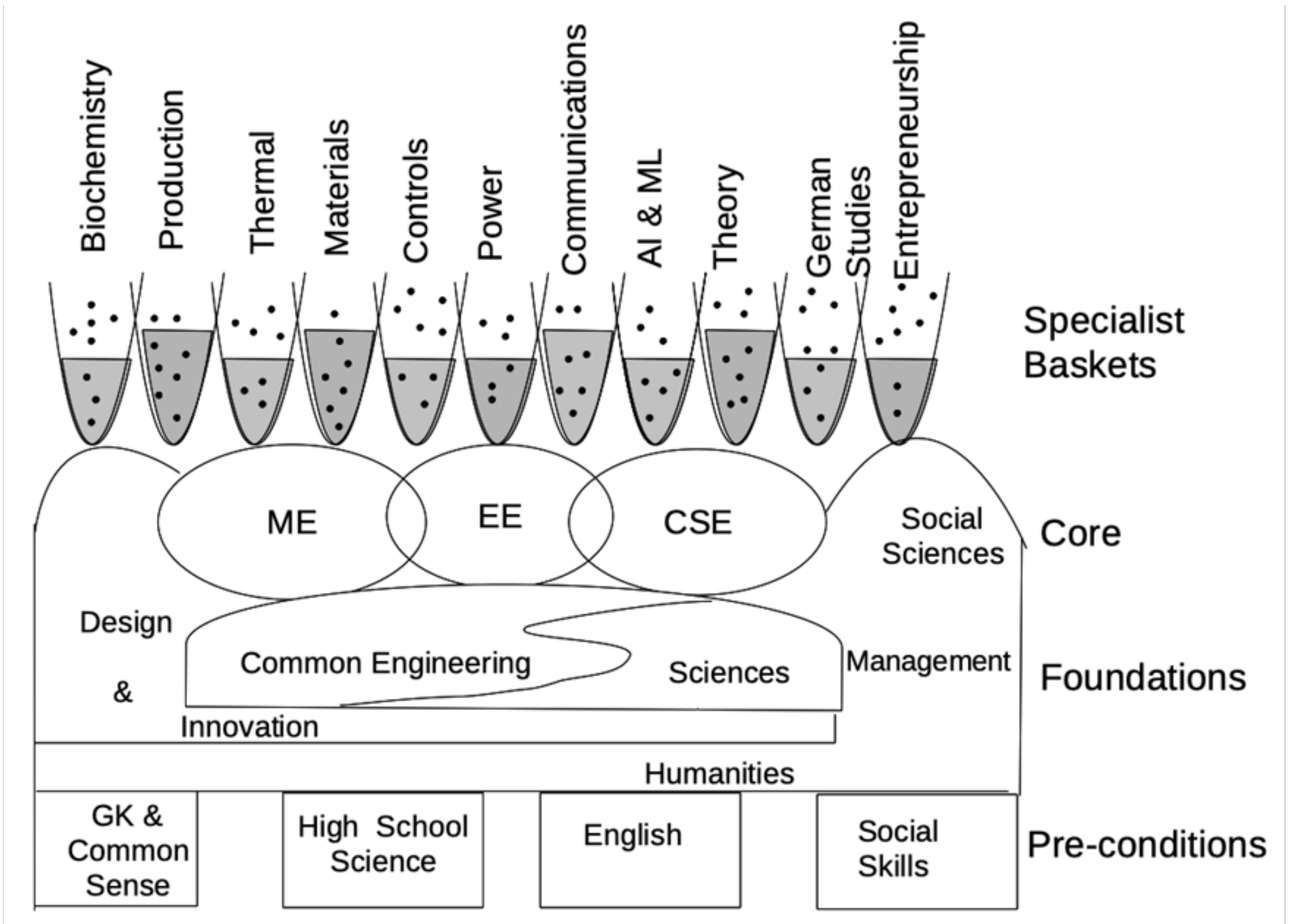
A broad outline of the curriculum is shown in the accompanying figure. Students who are admitted to IIT are assumed to satisfy the pre-conditions: fluency in English, solid grounding in high school sciences and maths, broad general knowledge of the humanities, civic society, common-sense, and good social skills. Deficiencies in any of these must be addressed informally by the teachers in the curriculum or formally outside the curriculum.

The **foundations** of all B.Techs. are: facility in design and innovation; strong understanding of common scientific and engineering principles and methods; and breadth of knowledge outside science and engineering, i.e. in the humanities, social sciences and management.

Next is the **core** of knowledge in the student's chosen branch. This is kept to the bare minimum, with principles and techniques being learnt in theory courses, in labs or in practicums.

Finally, we have a large number of *specialist baskets*. Many of these are interdisciplinary. In each basket, the horizontal line divides the basic from the advanced courses.

The boundaries in the curriculum diagram have deliberately been drawn in a vague and overlapping manner. This is to emphasize the flexibility and the inherently interdisciplinary nature of tomorrow's B.Tech. graduate.



IIT Mandi B.Tech curriculum outline



Experienced and New

Timothy A. Gonsalves, Founding Director of IIT Mandi

When we started out, our immediate priority when the Institute was set up was to hire new faculty. Given the distance, it was not feasible to have faculty from Roorkee teaching here. Within six months of my joining we had about 20 faculty. Some courses were run via the NKN (National Knowledge Network) and through visiting faculty. After one year we started inviting senior faculty from other institutes on deputation. By that time we had started to carve out the USPs of the institute.

The priority was to get like-minded senior faculty from other institutes who were still working and shared the goals of IIT Mandi. We found people who wanted to change things, who wanted to do things differently and had new ideas. They could not easily make radical changes in the old IITs with their legacies, but they could do it here. We found that some mid-career and senior faculty wanted to replicate the methods of their parent institutions, and their vision did not align with IIT Mandi's. They left amicably after some time.

It was a conscious decision not to hire at the professor level directly. The idea was that new faculty would take ownership of the institute, and would grow with it. This strategy has been worth it: lack of experience has been balanced by passion and a feeling of ownership. The young professors will fight to have the institute retain what they think are desirable attributes in future. About 10% of all faculty were senior and more experienced.

The attrition rate in the first three years was about 10%. Since then, it has been 1–2%, which is quite nominal. Most faculty candidates visit the campus and understand the location and ethos, meet current faculty and see the amenities before they take a decision to join. The ones who are interviewed over video and join without having visited the campus are more likely to leave within 1–2 years.

A Mammoth Feat

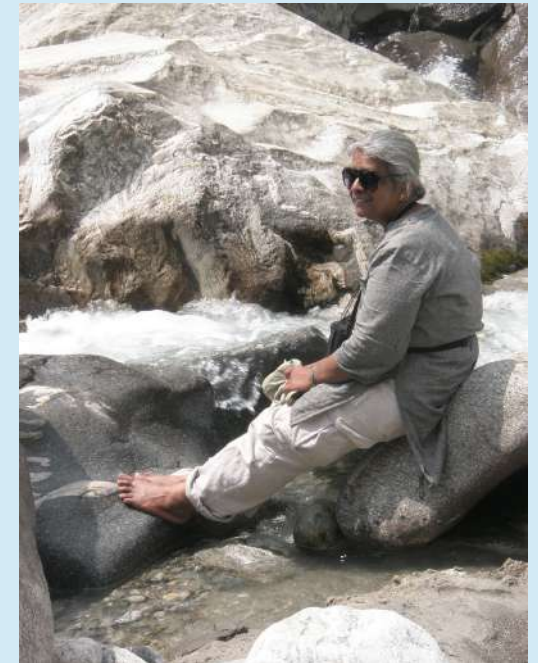
Hema A. Murthy, Professor, Computer Science and Engineering at IIT Madras; Mentor Professor at IIT Mandi

The year was 2010. Timothy Gonsalves, who was the Head of the CSE Department at IIT Madras, left to become the Director of IIT Mandi. While most of us in the department missed his headship, we were in a way happy that he left because it meant a little less work for all us (he delegated every piece of work to the faculty). This was in January of 2010. The jubilation was short-lived, as he wanted our help in running courses at IIT Mandi.

We started using the National Knowledge Network to deliver lectures remotely. The lectures were recorded and shared with the students at IIT Mandi. Many times we suffered bandwidth outages, power outages. Initially I thought it would not work, but the students were serious (most were B.Tech. students; some, research scholars). They were really serious about attending classes and learning. Mid-semester, my teaching assistant from IIT Madras used to accompany me to Mandi. I used to meet a number of the students during breakfast at the mess. We would evaluate their assignments

and have face-to-face sessions with students, both lectures and explanations. 2013 was the last time I went to IIT Mandi to teach. They had recruited faculty members, some who had sat through my courses, and championed the same. That group of faculty have become a very strong machine learning group to reckon with. Finally, about two years ago, in 2019, they took the bold step of launching a UG programme in data science. The motivation of the young faculty that has taken ownership of the institute is indeed amazing.

IIT Mandi's location is in a village called Kamand. Reaching the place is an ordeal—flights, road travel through terrain that is winding, and roads that are in permanent disrepair. When I went to IIT Mandi for the first time in 2010, I really wondered if it would indeed be possible to build an institute there. Starting from a set of horse stables, and making the place an institute that has made its mark in the world of institutes of engineering is indeed a mammoth feat. The credit goes to Timothy Gonsalves, and his committed faculty.



Transshipments

Lalit Malhotra, Visiting Professor, SBS at IIT Mandi from 2010-2016; Formerly Professor in Physics and Deputy Director, IIT Delhi

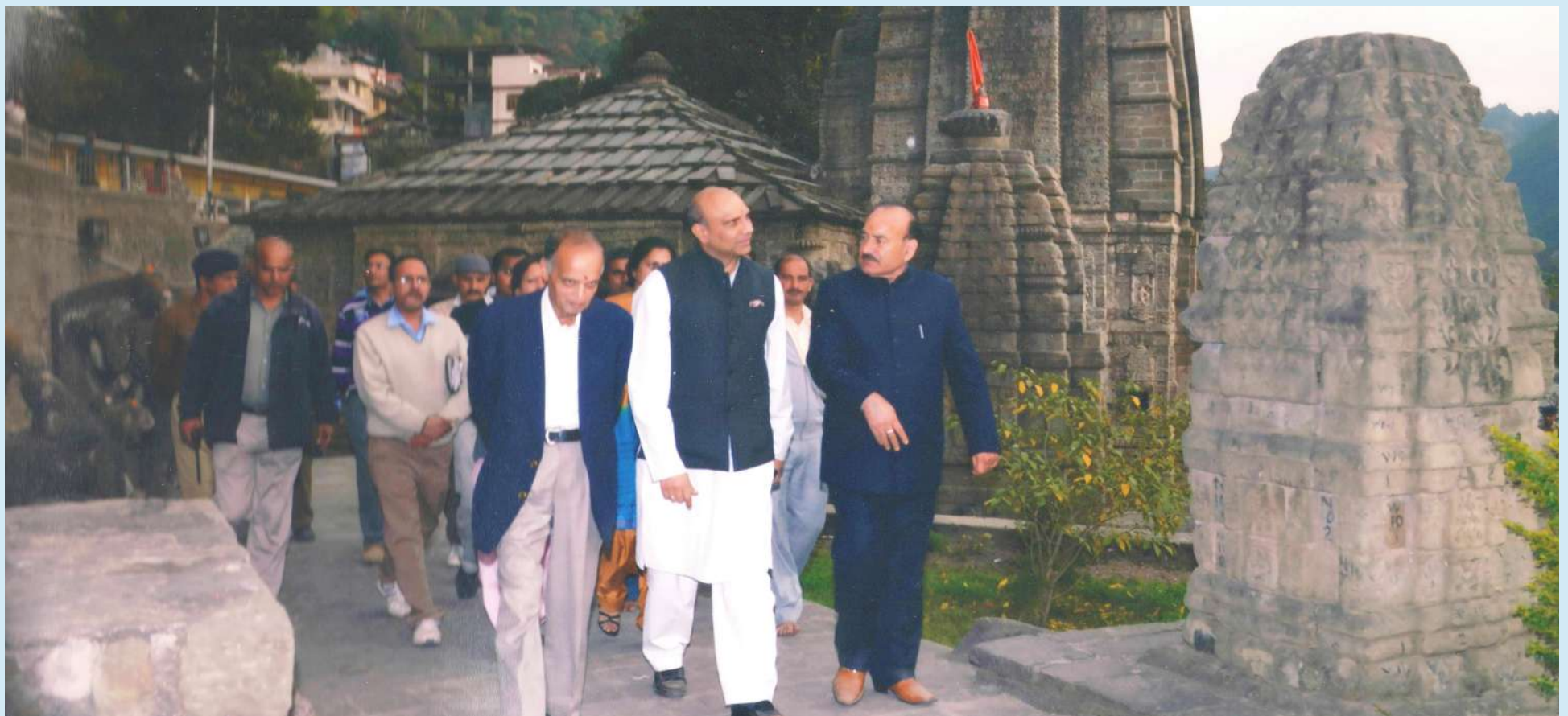
It is almost 4 years since my nearly 6 years' association as Visiting Professor in the School of Basic Sciences at IIT Mandi (2010–16) came to an end. But the bonding which I developed with Prof. Gonsalves, faculty colleagues, Group A officers and the supporting staff will stay in my mind forever. The respect and affection which I got from everyone I will always cherish.



In the formative years of IIT Mandi, the renovated three-storeyed building and adjoining barracks of Vallabh Degree College provided space for lectures, some labs and even a small OPD. Cubicles, mostly two-in-one, were provided for the faculty and Group A officers. They would join twice a day for a cup of tea on the second floor to discuss academic and administrative issues. The second floor also served as a badminton court after office hours. The Public Works Department Rest House, above the bus stand, was used for the girls' hostel and as a small guesthouse. The boys' hostels were located in the buildings rented in Sauli Khad and on Jail Road. The faculty, Group A officers and staff stayed in rented accommodation in Bhiuli, Purani Mandi, Khaliyar and Jail Road.

Some of us assisted the Director in the recruitment process, writing store and purchase rules and guidelines for sponsored research and industry consultancy. All help was given to the faculty in the purchase of equipment required for their research. It is a matter of pride that IIT Mandi today has research equipment any IIT can be proud of. Right from the beginning, soon after their joining, faculty members were encouraged to write sponsored research proposals—an effort that has borne fruit.

Lectures by eminent persons were a regular feature, and some of the intellectuals from Mandi town were also invited. Among the many visits of distinguished persons to IIT Mandi I distinctly remember the visit of Shri M.M. Pallam Raju, the then Union Human Resource and Development Minister, in 2013. After his visit I took him to the Trilokinath temple and was highly impressed with his knowledge of religious matters. Shri Virbhadra Singh, the then Chief Minister of Himachal Pradesh, was very impressed by the progress of IIT Mandi. He appreciated the Director for leading from the front, being the first person to move to Kamand. In 2015, Shri Pranab Mukherjee, then the President of India, was scheduled to visit IIT Mandi, but his helicopter could not land in Paddal as the rain god played havoc. The proposed visit, however, had a positive effect as it led to the improvement of the Mandi–Kamand road. The road was quite bad initially, and sometimes a transshipment had to be made in going from Mandi to Kamand or Kamand to Mandi.



Prof. Malhotra with Shri Pallam Raju, HRD Minister, and Shri Kaul Singh Thakur, MLA, tour of Panchbhaktar Temple, Mandi



Shri Pallam Raju, HRD Minister, interacts with faculty in the presence of Shri M. Natarajan and Dr. R.C. Sawhney, 9 March 2013

I served IIT Mandi in various capacities, dealing with finance, stores and purchase, and vigilance and interacted with faculty members not only from the School of Basic Sciences but also from other schools.

The farewell organized for me touched me, and the coffee table book which was presented to me is a testament to the love and affection of the IIT Mandi community. During my tenure I had interacted with colleagues from sister IITs: Profs. P.C. Deshmukh, Subrata Ray, S.C. Jain, Deepak Khemani, B.D. Chaudhary, B. Subramanian, B.K. Mishra and Arghya Taraphder and Dr. R.C. Sawhney, the first Registrar.

Nothing Will Happen in Kamand

Aniruddha Chakraborty, Associate Professor, SBS at IIT Mandi; First Faculty to join IIT Mandi on 8th June 2010

I joined IIT Mandi in 2010. I was looking for a job after my postdoctoral research at the University of Oregon. I happened to see the job advertisement of this new IIT just at the time when I was ready to apply. I was keen to start teaching and research. I saw Kamand within a day or two of joining, and when I met Prof. Timothy Gonsalves I told him: ‘Nothing will happen in Kamand in the next 20–25 years!’ I generally liked being part of a completely new project. When I joined, I was in charge of developing the institute’s web pages and collaborated with students (who were then studying in Roorkee). I had a good time with them.



Dr. Anirudha Chakraborty joins as first faculty member of IIT Mandi



Is This the Campus?

Suman Kalyan Pal, Professor, SBS at IIT Mandi

I started my journey to Mandi by boarding an early morning Kullu-bound flight from Delhi on 8 August 2010. This was the first time I had boarded a small flight (48 seats) and experienced severe turbulence! Kullu astonished me with its natural scenic beauty, but I encountered a traffic jam because of a landslide on my way to Mandi. I was scared when I heard that the jam had started the previous afternoon. I was fortunate that it took only 2 hours to clear. Mandi is a small town in the hills, and I reached the address mentioned in my appointment letter without much of a hassle. I was curious. 'Am I in the right place? Is this the campus or a residential area?', I wondered. 'Yes, this is the IIT', assured a faculty member who had joined earlier.

The top floor of the building had the Director's office, a small common office, and one room for seating both staff and faculty members. The middle floor had the residences of the Director and faculty members.

The ground floor had a common kitchen and faculty residences. 'At present we have a Director, three or four staff members, four or five guest faculty members and 10 or 12 new faculty members', he continued. Looking at my pale face, he consoled me, 'Not to worry, look down at the big building that belongs to the Vallabh College, we will be shifting there shortly'. He was right: the college building was big enough to cater to the immediate needs of IIT. Soon, I found myself busy along with other faculty members, establishing facilities for starting the next semester in the new place. The hard work of dozens of people converted the building of Vallabh College into a vibrant IIT Mandi transit campus within a span of a few months. The administrative knowledge that we earned in the first few months helped us a lot in establishing high-end research facilities at this remote place. A strong bonding and good understanding was thus established among the faculty members working together since the beginning of the institute. We capitalized on this while building research facilities. I must appreciate the encouragement and training we got from Prof. Timothy Gonsalves, Prof. Lalit Malhotra, Prof. Subrata Ray and other senior members of the IIT family.

I had to cross another hurdle when shifting to Kamand (the permanent campus) from Mandi town. My fear of Kamand began from the day of my first visit there, on the occasion of Foundation Day, in 2011. I was really scared about the steep slope between Katindi and Kamand. Finally, my fears were defeated by the strong urge to establish ourselves (IIT Mandi) as a world-class institute. The journey of IIT Mandi from the PWD guesthouse in Mandi to Kamand enriched me not only academically, but also professionally, as I learnt several other skills. I did not notice when I learnt these skills but realized how useful they had been by the time I successfully finished my 4 years' tenure as Dean Students. As an institute, we took



some steps that seemed then to be over-ambitious but which truly accelerated the progress of the institute. I do not really want to judge our achievements—let the outside world evaluate them. But today I am happy to have seen the growth of a quality institute since its infancy.

Walk Down Memory Lane: The Golden Era

Prem Felix Siril, Professor, SBS at IIT Mandi

Although I am a person whose abilities to recollect memories of the past are poor, I find it a difficult task to summarise what I have lived through in the past 10 years at IIT Mandi. I consider this last quarter of my life to be as exciting as the first quarter, which I spent in a remote village in Kerala as a child. It is indeed a great blessing to have got this opportunity to witness the growth of a world-class educational institution in this nondescript corner of the world.

I was well settled with my family at NIT Hamirpur when I had this wild idea of applying for a post of Assistant Professor at IIT Mandi. In fact, I was just flowing with the crowd as there were a number of my colleagues from NIT Hamirpur who were applying for posts in various disciplines at the newly formed IIT. Our interviews were conducted at Roorkee on 27 May 2010. The journey back from Roorkee was horrific as we met with two accidents en-route, at Saharanpur and Jagadhri. Perhaps it was a prelude to the tumultuous journey ahead! I was informed of my selection telephonically by Prof. Gonsalves in early June, and I made a visit to the office in the Mandav complex the very next week. It was an exploratory visit to see how long it takes to commute between Hamirpur and Mandi, as my wife was still employed in NIT Hamirpur. We soon realised that it was impossible to commute daily. Nevertheless, I submitted my resignation to NIT Hamirpur and finally joined IIT Mandi on 15 July 2010. Many of those who joined in the recent past will not be able to believe that the renovated PWD guesthouse was the only building from where we started. The Director and all of us who joined as faculty members were living and working from the PWD guesthouse. Ms. Chandan Sharma was the only office staff member, with Leeladhar and Hitesh doubling as office boys and cooks for us. One evening, probably a week after I joined, we were waiting for dinner, and no food was in



sight. Later, we were informed that one of the boys, Hitesh had run away and that it was his turn to cook that evening. We witnessed this kind of sudden disappearance of people repeatedly in the first few years. For example, we were planning to have the first formal faculty meeting on a fine day, and we were told a new faculty member had joined that very morning. We were waiting to meet the new colleague, and we were informed that the person was missing. Confirmation came in the evening that the person had resigned! Things started rolling with the joining of Prof. P.C. Deshmukh, our first Dean (Academics), Mr. C.P. Gupta, Superintending Engineer, and Dr. R.C. Sawhney, Registrar. The planning of academic activities at the Vallabh Degree College campus started soon. The academic activities were to be inaugurated with pomp and show on 15 August 2010. I was assigned the task of coordinating the event, and that was one of the first responsibilities bestowed on me by the institute.

To start academic activities in Mandi, we had to set up classrooms, labs and hostels. Security personnel, lab assistants and members of the housekeeping staff were to be hired, and a mess contract had to be worked out. Some of the furniture had fortunately been ordered by the IIT Mandi Cell, in Roorkee. As part of the Classroom Committee, I had to ensure everything was in place in the newly renovated Academic Block in the Vallabh campus. I still remember sweeping and mopping the classrooms along with other colleagues because there was no housekeeping staff around. Subrata, Manoj and Anil Sao had their fair share of cleaning the hostels themselves. We had to go to the shops in Mandi and buy brooms, buckets, mops, phenyl and other stuff ourselves before performing the cleaning ourselves.

The classes started, and our offices were relocated to the Vallabh College building. The offices in the multi-purpose hall were really fun. We often communicated with each other by just shouting out across the half-partition. As an ardent badminton enthusiast, I would wait impatiently for 5 pm, at which time we were allowed to play. A number of us were regular players, and others used to join in occasionally. After the few hours of badminton, many of us would go in groups to some restaurant to chill out.

One of the major challenges for us experimental researchers was the lack of space and infrastructure. It was indeed very difficult to convince a computer scientist who did not even like to purchase commercial software to spend lakhs and crores on instruments. We fought and cried, and slowly we succeeded. Of course, many of the senior mentor professors, especially Prof. Malhotra, Prof. Subrata Ray and Prof. Ken Gonsalves, helped us. As the strength of the administrative staff was not sufficient, many of us doubled as office assistants and often as office attendants. We drafted purchase procedures, policies



and tender documents, processed bids and finally even issued purchase orders. Gradually, we learned a lot of administrative policies and procedures and were often given more and more responsibilities.

A remarkable feature of the period was the enthusiasm of the colleagues, the bonding and excitement to be a part of the making of a new IIT. The morning and evening teatimes served as excellent melting pots—we all assembled and gossiped. Every individual wanted to contribute his or her part. Even when there was resentment, grumblings and groanings, it was all for the benefit of the institute. There was nothing personal about it. I can go on and on. For the sake of brevity, let me stop here.

An Instrument of a Historical Process

Bharat Singh Rajpurohit, Associate Professor, SCEE at IIT Mandi

I remember the day when I arrived at the Mandi bus stand for the first time amid heavy rain with my bag and baggage and looked at the IIT Mandi Annexe Building, above the bus stand. I cursed myself: Where had I landed! But very soon, having met Prof. Deshmukh and Director Sir, my disappointment faded away with the confidence they imparted. Starting from the multi-purpose hall of the Vallabh College Academic Building and growing into the present fully developed campus gave us an opportunity to have a firm footing on the ground, with simplicity.

I must appreciate the first batches of students and scholars who joined the institute when it had virtually no facilities and resources. I commend the faith they showed then in the future of the institute. It was a great source of inspiration. The development of projects from a simple battery charger to a complex 3D printer showed how quickly students as well as teachers

progressed—they in learning and we in teaching. These students are truly the representatives of the spirit of the institute. Things started shaping up soon after, in the presence of our Director Sir and other colleagues and staff members. Most administrative decisions were discussed and agreed upon over dinner, with a good number of faculty and a few staff members present in the guesthouse. Most of the so-called committee work got distributed while walking with Director Sir between the Administrative and Academic blocks. Somehow, as we all worked closely with each other during the initial days, many of us never felt then something which I observed later, a division between faculty and staff members. Unfortunately a few of our excellent colleagues and hard working staff members left the institute for better opportunities



elsewhere as they were not able to see the future of the institute as we saw it.

I often remember the words, during my initial months at IIT Mandi, of Prof. P.K. Kelkar, founding Director of IIT Kanpur, on joining IIT Kanpur: ‘... almost everybody I met in Kanpur asked me ... if I had wanted to commit professional suicide ... I did not at all worry about this because I was no longer myself but an instrument of a historical process.’

An important aspect of the Institute, I must say, is that everything is developed and evolved indigenously, whether it is a simple leave form or purchase rules or the grading system or our unique curriculum. Everything was developed over long and frequently organized meetings that went on till late in the evening, where we could argue about everything without hesitation. I remember having to adapt myself from the Deans’ system to the Execom system and then back to the Deans’ system. The institute never had any difficulty in trying out new things, learning from experience and evolving for the purpose of betterment. The institute has another unique feature, which is that it does not hesitate to give major responsibilities even to younger colleagues.

We must thank the good number of visitors from India and abroad and their views and criticism received during lovely dinner meetings in the Rajmahal, Visco and Black Pepper restaurants. An important lesson I have learnt that changed my attitude completely from ‘job’ to ‘service’ was during one meeting with Director Sir. I was expressing my thanks to the institute for offering me a job when I was a recent Ph.D. graduate. He told me in a very simple and calm manner that now each one of us was IIT Mandi and there was no separate identity called ‘the institute’. From that day onwards, I never faced even the slightest hesitation in offering any service of mine to the institute. What we are today is due to only one person: Director Sir. His smile mostly resolved our issues before we even spoke out. His availability to us at all times, soft-spokenness, truthfulness to all, modesty, clear vision and strong desire for an indigenous education system and reaching the last person of society are highly commendable. These are embedded in the present institute culture. The system adapts the rest!



Rhododendron blooming



Rhododendron campanulatum (Pink Rhododendron, Buransh)



Rhododendron arboreum (Buransh)

Like Family Members

Chayan Kanti Nandi, Professor, SBS at IIT Mandi

I joined IIT Mandi as an Assistant Professor on 30 August 2010, immediately after completing my post-doctoral work at Princeton University, USA. I cannot forget the moment I landed in Bhuntar (Kullu) airport early in the morning on 29 August with lots of excitement and anxiety and with immense energy to start my new independent career. I had mixed feelings when I was travelling from Bhuntar to Mandi by car. As it was my first visit to Himachal, I was very excited by the scenic beauty. At the same time, travelling on extremely narrow roads at great heights was as thrilling as it was frightening. Next day, after formally signing the documents for my new job at IIT

Mandi, I met the Director, who gave his blessings and shared with me his enthusiasm for this unique opportunity to build a premier institute like an IIT, starting from scratch. In the initial stages, it was really challenging to reconcile myself to such a remote place with minimal facilities, compared with Princeton University, in the USA, and with big cities in India. Slowly I settled down, thanks to my family joining me the next month and due to official work and social engagements with my colleagues.

When I am in a stressful situation, I recollect some of the moments from those days, which still gives me lots of energy and happiness. One of these is the visit to our main campus (Kamand) from Mandi.

I had lots of anxiety and excitement before visiting the place, and my fears increased after seeing the location: a dense, deep, silent jungle without any habitation and a pin-drop silence. This site is currently the most beautifully located campus amongst all the IITs! Travelling by an Innova car on an extremely narrow, almost non-tarred road between Katindi and Kamand, my legs were literally shivering when I looked down at the river, flowing nearly 300 metres below. My next visit to the Kamand campus was a couple of months after my first visit. I, along with Prof. Deepak Khemani and his friend and Dr. S.N. Jha, went to the campus to look at different places for sports facilities, a coffee shop, a canteen, etc. On that chilly cold day, when we reached the Kamand campus, it was raining heavily, but we completed our job of locating the sites for these facilities. Since it took quite a long time to check the campus, we all become very hungry. Finally, we managed to find a small shop in Salgi, where we ate the famous local *rajma-chawal*.

Another visit was to the Joginder Nagar School with Prof. P.C. Deshmukh, as part of our outreach programme. I was mesmerized by the overwhelming welcome we were accorded by the school authorities and the students. We were greeted with lots of flowers and had a chance to taste the famous *Himachali dham* (community feast) for the first time.

I was spellbound on seeing all the students (approximately 500) and teachers stand up for a standing ovation after my



Dr. Chayan Nandi, seated third from left

short speech. I also remember that we ate lunch sitting on the ground. It was a completely different but nice experience for me. While having our lunch, we all waited till the end to get any vegetable curry, which is usual in other feasts, but all our efforts went in vain. We got many different types of dal only!

I got to know that there are several wild animals, especially leopards, near the campus. I did not believe this till I saw one with my own eyes, most probably in April 2011. I was travelling to Shimla to attend an outreach meeting. I was shocked at seeing the speed with which the leopard crossed the road and reached the top of a hill. It all happened within a few seconds, and then he vanished.

The initial years were golden, and we had the happiest moments as we all stayed together like family members. We all attended all types of events, festivals and social gatherings irrespective of our religious identity. I remember our first ever festive travel, in a hired bus, to Sundernagar for the Dussehara festival. Approximately 30 people (faculty members and families), along with our Director, boarded the bus and reached Sundernagar. We had dinner in a restaurant at Sundernagar after the festival and came back to Mandi at around 11 pm. We used to visit Kamand occasionally for picnics and barbecues.



Christmas celebrations



Dandia celebrations at Staff Club

Ambrosia-de-Uhl

R.C. Sawhney, Registrar at IIT Mandi from 2010-2014

I joined IIT Mandi on 18 July 2010 when the institute was under the mentoring control of IIT Roorkee. The biggest challenge was to start the induction of the new batch of students in August and to plan the shifting of the first batch from IIT Roorkee to Mandi. The makeshift accommodation at Vallabh College, the HP PWD guesthouse and a tourist lounge were to be converted into places of knowledge creation. The Director started working from a guesthouse room with Miss Chandan Sharma, all-in-one, for administrative support in the beginning. Some of the faculty and engineering support staff members had also joined, and everybody was trying hard to meet the deadlines and welcome the new entrants. The

initial hiccups included the collapse of a retention wall due to heavy rains, which threatened the foundation of the buildings, a *gherao* of me and the Director by Vallabh College students and even closure of the entry road by the agitated students. New procedures for starting academic activities were being evolved, and the induction of the faculty and staff was set in motion. Suddenly, when everybody was focusing on meeting the deadlines, the cook and the kitchen helper ran away before lunch, causing a hunger shock to the dedicated workers. It was a great challenge and an opportunity to keep the new faculty and staff motivated to establish an institute of international standards in the remote town of Mandi.

My first visit to the new site at Kamand was quite frightening as the serpentine, narrow, curvy and fragile mountain road, with steep ascents and descents can force even non-believers to remember God. The valley appeared to be a seat of hidden knowledge in the Himalayas, waiting for intellectuals to explore nature in its raw form. At that time, the only structures in the South Campus were abandoned horse stable barracks occupied by stray cows and some dilapidated houses. The campus at Kamand was the natural abode to some rare plants and animals, absolutely serene, surrounded by lush green mountains, with unique fragrances in the air and the sound of the giggling water of the Uhl river in the background. We had an opportunity to create an institute where the creativity of young minds could be triggered and nurtured.

In the years to come, additional new faculty members from different parts of the country and from abroad and the necessary staff members were inducted. Infrastructural facilities were created at the new campus, and a full fledged institute was made operational at the North Campus. I had an opportunity to organize the first convocation at the new campus with the melodious signature background music, befitting the mountain culture, being played in the background. Besides taking care of the administrative responsibilities, I started the Medicinal Plant Laboratory, created a Medicinal Plant Garden and a fish pond and motivated other faculty members to explore the unique medicinal properties of the natural wealth surrounding the new campus. Ambrosia-de-Uhl, a refreshing and immune-enhancing, health-promoting drink, was the first product



created from this effort. It became very popular and can now be used effectively as a prophylactic to guard the health of the campus residents against viruses like Covid-19.



First sapling planted at Botanical Garden, July 2015, by Prof. T.A. Gonsalves in the presence of Dr. Shyam Kumar Masakapalli (far right)

It Looked Like a Jungle to Me

Chandan Sharma, Superintendent at IIT Mandi

I completed 10 years working with IIT Mandi on 19 March 2020. I had joined the institute initially only for 3 months, as a highly-skilled worker. As my contract was only for 3 months I did not concentrate much on IIT. I did not have a good idea about what IITs are. I started working blindly as directed by the Director, IIT Mandi and as per the requirements. Later, after working for 3–4 years, I understood the structure and system of IITs, especially when we set up labs and centres.

The first time I visited Kamand, in June 2010, it looked like a jungle to me. I never gave a thought to what that jungle would become in the near future. The Director and his small team, or army, converted Kamand village into a *jungal mein mangal*.

Initially, three students came to the transit campus during their vacations, in June or July 2010. They were the students of IIT Mandi's first B.Tech. batch (2009). I made arrangements for their stay. They were very quiet and adjusting. In August 2010, the B.Tech. batch shifted to Mandi from Roorkee, to the transit campus. The students were quite excited in their new abode at Mandi. The institute grew in a very short period. I feel proud to be a founder member of this institute and that I got an opportunity to contribute a little to the building of IIT Mandi.



Chandan Sharma, centre

Unsung Heroes

Timothy A. Gonsalves

“Staff members have been an integral part of the success story of IIT Mandi. They don't often get credit, so they are unsung heroes”

Impression of Simplicity

C.L. Sharma, Deputy Registrar at IIT Mandi

The area where the permanent campus was to be established was having negligible facilities. What to talk of railway and airport, there was a single-lane *katcha* road only to commute between Mandi and Kamand. Some of the structures constructed by the HP Animal Husbandry Department during the decades of the fifties and sixties were in a dilapidated condition as these had not been maintained after the closure of the unit of the AHD. One could see stray dogs, domestic and wild animals, skeletons of dead animals, mosquitoes and flies besides heaps of cow-dung in the allotted area. Anybody coming from outside and visiting the area allotted for establishing IIT Mandi could think hundreds times before deciding to serve here at that time. Young faculty and staff members were also not keen to join for want of communication and proper educational facilities for their children besides the remote location of the area.

It was under these circumstances that Prof. Timothy A. Gonsalves had taken over as Director of this Institute on 15.01.2010. Among the first steps he had taken were (i) occupation and renovation of transit campus accommodation at Mandi; (ii) website activation; (iii) advertisement of posts for faculty and non-faculty positions; (iv) renovation of structures in ruins left by the HP AHD at Kamand; and (v) shifting the first batch of students from IIT Roorkee to its transit campus at Mandi. It was a herculean task to make arrangements for experienced faculty members to teach and guide the students and scholars. Besides new faculty members, some senior faculty members such as Prof. Lalit Malhotra, Prof. P.C. Desmukh, Prof. Deepak Khemani and Prof. B.N. Banerjee, agreed to guide the new faculty and teach the students and scholars. They also took on the administrative responsibilities.

From the beginning, the Director set the tone that this institute was in Himachal Pradesh and working for the people of Himachal Pradesh. All the hostels were named after lakes in Himachal Pradesh.

I still remember the day I was called by the then Registrar I/c for a meeting with the Director on the 12th of February, 2011 at Mandav, Mandi. At that time, I was still in active service in the Indian Audit & Accounts Department (CAG).

Hesitatingly, I told the Director, 'Sir, I have not come for interview as I was told that Director wanted to meet me.

However, if you want to ask me anything, ask about my experience if it could benefit this infant institute.' 'Tell about your past experience', the Director asked in a very simple manner. I was so impressed with the simplicity of the Director that the hesitation which was in my mind disappeared within no time and the interaction continued for about one hour.

Other members of the committee were Prof. Lalit Malhotra and Dr. R.C. Sawhney, Registrar I/c. This impression of



simplicity of the Director of such a reputed institution forced me to serve IIT Mandi even if it is without any designation and salary and that was the reason that I did not request for any designation and salary at that time. More than 9 years have passed since then, and I am still in the institute under the same Director.

The first assignment entrusted to me by the Director after my joining on the 10th of March, 2011 was the scrutiny of tender documents and purchase order files. While being entrusted with this assignment, I was told by the Director that with IIT Mandi being a new institute, having new faculty and staff members, everybody would expect to benefit from my experience. Two boxes of files for issuing of purchase orders were shown to me. The POs were to be issued before the 31st of March, 2011, which meant all the POs were to be issued in two weeks. A difficult task, but again with the simplicity of the Director and the new institute in mind, I gladly accepted the challenge. I still remember there were three persons to assist, viz. Dr. Prem F. Siril, Dr. Subrata Ghosh (both APs at that time) and Ms. Reena Sharma, a Project Associate. The entrusted job was done within the scheduled time by sitting on holidays, and all the POs were issued. I still remember that the Director was so grateful that he did not forget to appreciate the timely job done.

I promise to work hard in my field to make IIT Mandi a world leader in some areas of academic endeavour.

The Third Year

The third year (2012–13) was a year of growth and consolidation for IIT Mandi.

One more batch of B.Tech. students, 120 strong, was added. The number of M.S. and Ph.D. scholars increased significantly. And a number of faculty members were recruited, so that there were 56 of them at the end of the year. There was a steady growth in the staff strength.

Another hostel was needed to accommodate the students. Thus ‘Nako’, at Saulikhad, became the fifth hostel at Mandi.

The first batch of students was in its third year. Internships were arranged for most of them in winter. The Career and Placement Cell was set up, and it started the placement process for the following year.

Most of the members of the faculty were young, and it was relatively early in their careers. So in 2011–12, IIT Mandi experimented with a system of Execoms, faculty committees, in place of the traditional Deanship normally followed in IITs and other universities. This distributed the responsibilities among a larger number of young faculty members. This administrative structure was found to be very effective for the prevailing circumstances.

Execoms

Traditionally in IITs, Deans and Heads are appointed to take executive responsibility for various functions and to guide policy-making in those areas. Deans are selected from among the Professors or, very occasionally, from among the Associate Professors. With a large pool of Professors, it is possible to find individuals who are eager to serve and have the relevant administrative expertise and knowledge of the institutional culture and goals. In IIT Mandi, the number of senior faculty is much less than the desired number of Deans and Heads. Many of the senior faculty are here for a short time, typically 1 year, and would rather concentrate on teaching or research or mentoring young faculty. Of course, they are dedicated to the growth of the institute and take up the role of Dean/Headship when requested. They are often loaded with multiple such roles at the same time. They may leave IIT after stepping down, affecting continuity.



Dr. Bindhu Radhamany being felicitated by Chief Guest, fourth Foundation Day

Many of the young faculty have shown eagerness and ability to take up administrative responsibility to build up the institute. A modest amount of administrative experience will foster their professional growth. However, to elevate one of them to Dean/Head is undesirable as it will stunt their professional growth in research and training.

The solution is to share the responsibility among several young faculty in a committee of peers. Policy-making and execution are distinct activities. Hence, IIT Mandi has started with a new initiative wherein a committee called Execom takes care of different responsibilities. This scheme will initially be tried out for one year, and reviewed after that.

At present, these are the Execoms:

1. Execom (Students) to take care of student activities other than academics
2. Execom (Courses) to take care of academic activities of B.Tech. students
3. Execom (Research) to take care of academic activities of M.S./Ph.D. students
4. Institute Execom to take care of operational matters not covered by other Execoms or Deans. There is also an Execom to take care of issues related to the School of Engineering.

Source: IIT Mandi Annual Report 2011–2012

Academic Activity in the Third Year

The academic activity at IIT Mandi intensified. The following numbers give an indication.

- Colloquium/invited lectures: 29
- Research publications: books/book chapters, 8; papers, 44
- Conference participation/presentations, invited talks: 19
- Workshops/conferences organized: 3

Faculty members attained significant professional achievements, such as being elected to chair positions of associations, they became members of professional associations, and they visited Indian and foreign academic and industrial institutions. They also took part in diverse outreach activities. And IIT Mandi signed three MoUs to promote academic research, cooperation and development of technical education.



With Prof. Volker Epping, President Leibniz University Hannover



Signing MoU with TU9 Germany, May 2011



2-Aminopyridine derivative as fluorescence ‘On–Off’ molecular switch for selective detection of Fe³⁺/Hg²⁺

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ARTICLE INFO

Article history:

Received 26 December 2011

Revised 20 February 2012

Accepted 21 February 2012

Available online 27 February 2012

Keywords:

Fluorescence chemosensor

Molecular switch

Quenching

Aminopyridine

ABSTRACT

2-Amino-6-methyl-4-phenyl-nicotinonitrile **1**, a 2-aminopyridine-based fluorescent compound, was found to be a fluorescent chemosensor for the detection of Fe³⁺ and Hg²⁺ ions over a number of other metal ions. Compound **1** was synthesized in one step using a multicomponent reaction, and characterized using common spectroscopic tools. During Fe³⁺/Hg²⁺ sensing the compound **1** followed a ‘switch-off’ mechanism. Further, compound **1** could sense Fe³⁺ over Hg²⁺ by its distinct absorption and fluorescence quenching behaviors. 1:1 complex formation of **1** with Fe³⁺ and Hg²⁺ was clearly understood from Job’s plot. The present work brings additional evidence on the importance of multicomponent reactions which could lead to the development of fluorescence chemosensor in one step for the selective detection of biologically important metal ions.

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The synthesis of the first novel material in IIT Mandi’s newly set up laboratories represented an important milestone. This material was described in the paper ‘2-Aminopyridine derivative as fluorescence on–off molecular switch for selective detection of Fe³⁺/Hg²⁺, authored by Rik Rani Koner, Sougata Sinha, Sunil Kumar, Chayan K. Nandi and Subrata Ghosh. The publication appeared in the international journal *Tetrahedron Letters* in February 2012.



Dr. Rik Rani Koner, seated right

First CII - IIT Mandi Industry- Academia Conclave

By May of 2012 the dilapidated horse stable on the South Campus in Kamand had been fully renovated. On 5th May, it served as the venue for the first Industry-Academia Conclave to be held at IIT Mandi. Ashok Jhunjhunwala, Padma Shri and Professor of Electrical Engineering at IIT Madras was Chief Guest and inaugurated the conclave. Twenty-five industrial participants joined the conclave, including Nucleus Software, Delhi; Microsoft, Hyderabad; Tejas Networks, Bangalore; Aricent, Delhi; Siemens, Bangalore; TCS Mumbai; Altair Engineering, Bangalore; and Indo-Farm Equipments, Baddi.



Prof. Ashok Jhunjhunwala



Renovated horse barn



Dr. Vishal Singh Chauhan



Conclave volunteers



Dignitaries and participants at the conclave

Many of the industrial participants initiated research and development projects with IIT Mandi as a result of the conclave. Many, also, returned during the fall to recruit members of the first graduating class for employment thus leading to very good placement results from the first batch onwards. Two more Industry-Academia Conclaves were held in 2014 and 2016.

Made the Equipment Themselves

Sunil R. Kale, Professor, Mechanical Engineering at IIT Delhi; Mentor Professor at IIT Mandi

I had served as the Dean of Undergraduate Studies in IIT Delhi, and so when the first set of new IITs were set up in 2008, I took an interest in them. I was associated with the formulation of the academic programme at IIT Ropar. I had known Prof. Timothy Gonsalves from our graduate school days at Stanford, and we had been in touch over the years in connection with academic and research-related issues. I have served on the Board of Governors as well as the Senate of IIT Mandi and have been involved with the institute right from the beginning.

Campus construction. I was a member of the Architect Selection and Construction Monitoring committees of IIT Mandi in the early days. We had a competition for architects, in which 42 firms participated, of whom 16 were shortlisted. Of these, four presented models, and BDP was chosen. We met the architects in Delhi. The IIT Mandi campus was a very different kind of campus: there was very little flat land, and therefore architectural innovations were required. In faculty housing, we decided early on not to have hierarchical allocation (where senior faculty members are allotted bigger houses). Younger faculty members often have larger families and therefore need more space than the older ones. We also kept in mind the fact that IIT Mandi was harder to reach than IITs in the cities, and guests and visitors who arrived were therefore likely to stay longer. From our own experience of campus housing in other parts of the country, we knew that there were some specific requirements for faculty housing, and we communicated these to the architects. For example, the need for energy efficient housing and more power points. Architectural plans were circulated among the faculty for their comments. The architects too visited the campus, had a discussion with faculty members and took their feedback. The architects had conceived lab spaces in the conventional way (dry labs and wet labs), and so we had to specify what we wanted. For example, in the academic spaces we asked for common areas to facilitate greater interaction.

The architects delayed sending the plans, and this was a big challenge for everyone. The academic blocks in the South Campus (A-series buildings) were the first ones to come up, after several delays. Construction material that was to reach the campus from a factory near Rewari could not make it past the dangerous road from Mandi to Kamand. The President of India was invited for the convocation in 2015, on account of which the state government repaired this road. As it happened, the President could not make it on account of bad weather.

When I first visited the Kamand campus in 2010, I saw cattle grazing and dogs roaming around. In the Animal Husbandry farm there were cow, goat and horse sheds in a state of disrepair. Windows and door frames had been stolen. The mechanical workshop was housed in the cattle shed, and the computer lab in the horse shed. Getting things done in this context was a real challenge.

Teaching. When the first batch were in their fifth semester, there weren't enough elective courses for them. At that time I was teaching a power generation course in IIT Delhi. So students from IIT Mandi and IIT Ropar joined that course over the virtual National Knowledge Network (NKN) classes. The course involved site visits as well. IIT Mandi students could visit hydro-electric plants in the vicinity of their campus, but for other site visits, about 65 students came to Delhi by an overnight bus. I graded the course, and Dr. Anil Kishan was the local coordinator. The performance statistics were similar across students from these three IITs (Delhi, Ropar and Mandi), irrespective of JEE rank.

The students of the Mechanical Engineering branch had lab courses but no equipment. We decided not to purchase ready-made equipment from vendors, and the students made the equipment themselves, which cost less than Rs.1 lakh.

Female students. I remember attending a farewell in which there was only one female student in electrical engineering (among 39 boys) and no girl in mechanical engineering. I still remember her speech.

Academia–industry conclave. I recall chairing a session of the third academic–industry conclave held at IIT Mandi, in May 2016. In my speech I asked whether academic institutions should teach students things to make them job-ready. The response I got from industry representatives was that students who had good basics and were independent and capable learners would always learn other skills on the job. I think this is something we must always remember.

Memories of the Transit Campus Days

S. Samuel, Officer on Special Duty at IIT Mandi from 2010-2011

When I joined IIT Mandi, Mandav (the building above the bus stand) was the administrative building. It also had the girls' hostel and a mess. The building near Paddal Ground was the Academic Building. It also had a boys' hostel. On Jail Road we had one more hostel for boys. Later, with great difficulty, one more building, which was meant for working women, was also got from the state government, and it became the hostel for research students. Since the state government did not have any more large buildings to give us, we had to hire a private building to be used as a hostel for the third batch of students.

When the third batch of B.Tech. students were due to report, there was a very heavy rain and the floods washed away the water supply lines to the academic building and the hostel. I remember our engineering unit worked through the night, laid fresh pipelines and restored the supply in record time.



The Paddal Ground and the space in front of our Academic Building had been used by the people during the Shivarathri celebrations in Mandi for several years. They wanted to use the space in front of the Academic Block, which was fenced off, as it was an age-old practice. Our Director immediately agreed, and the celebrations happened without any disturbance to our academic activities. Infrastructure building, setting up of labs, etc. happened very fast, thanks to the good team spirit of all concerned. When there was a shortage of space for faculty cabins, a portion of the auditorium was used. A pharmacy outlet, a canteen, a photocopying outlet and other such facilities were in place in the initial stages itself.



Map of Mandi

An outing was arranged for all the faculty members and their families to a place nearby. It was a day full of activities, including trekking. This was done to help develop better bonding among the faculty, and it was a successful effort. There was good coordination with the state government, and help was always forthcoming. Even for the first internship drive, reputed companies such as Microsoft visited our campus. Our students got good internships. The first persons to shift to the Kamand campus were the Director and his wife, along with their dog. An old building was repaired and converted into a residence for the Director. Without any other building in that campus, the first industry-academia conclave was conducted successfully in a makeshift shamiana. All the students showed maturity and understood that this was the best they could get from a new IIT. There was a very good team of young faculty members working along with senior professors, learning and equipping themselves to play bigger roles. IIT Mandi started from scratch but reached great heights in record time.



Deities at Shivratri Mela





Glimpses of Shivratri Mela

Student Activities

The students were as quick to embrace their new setting as the faculty and staff. Even in the first year in Mandi with just over 200 students who were predominantly first and second year B.Tech students, the students enthusiastically worked to create a variety of extra-curricular activities. They organised and participated in a wide range of technical, cultural and sports events. A small, but dedicated group of students organised the maiden technical-cum-cultural festival, Exodia in the spring of 2011.

Both the NSS and the Trekking club were very active. The NSS undertook a literacy programme in the schools of Mandi, a stress management workshop for the IIT community and quiz and sports competitions for two schools in Kamand and Nalan. The trekking club organised treks to explore the natural beauty of Mandi and neighbouring districts.

Facilities were available for football, cricket, volleyball, badminton, basketball, chess, tennis and table tennis. After office hours, the multipurpose hall in the academic block, which also housed many faculty offices, converted to very popular badminton courts. In December 2011, seventy-two IIT Mandi students participated in various event at the Inter-IIT Sports Meet held at IIT Kharagpur.

Hiking and Trekking

A Hiking and Trekking Club to inculcate the spirit of adventure that resides in the students of IIT Mandi has been established. With the Director himself having keen interest in hiking, the club arranges trips on regular basis for interested students to various places. Recently, the club went to Parashar lake and was welcomed by beautiful snowfall.

Source: IIT Mandi Annual Report 2010–2011

Organizing the First Edition of Exodia

Athar Aamir Khan, B.Tech. in Electrical Engineering 2010-2014

I vividly remember the first cultural cum tech fest of IIT Mandi - EXODIA. We all had very little idea about what to do and how to do it. The resources were limited, the venue was small, but the fire in us all wasn't. A family of faculty and students all led by our Director Prof. Gonsalves took it up as a challenge. We all made different teams. Some worked on getting sponsors, some worked on getting participants and others built stages and hosted programs and competitions. I think in many ways EXODIA was a way for us all to announce that IIT Mandi was finally here. And, yes, it did. Those few days were full of activity, energy and excitement. The programs and competitions hosted by different clubs during the day and the cultural functions in the evenings gave a different aura to our transit campus at Vallabh College in Mandi as well to the adjoining Paddal ground. For me personally, the most memorable part was hosting the Mr & Miss EXODIA event which was a very popular one besides INSTRUMAINA a musical competition. One more exciting part of our first fest was the running around and chaos that falling tents and wheezing loudspeakers would make. Somehow that made it even more special and taught us lessons on how we can learn from our mistakes and at times also find humour in them.



My Experience at Inter-IIT Sports Meet

Mohit Rawat, B.Tech. in Computer Science and Engineering 2011-2015

Competing with institutions having a well developed and equipped sports culture was always a tough task for a nascent college like IIT Mandi. Still, with heads held high, our college started its Inter-IIT Sports Meet journey in 2010 at IIT Delhi. I was fortunate enough to have been a part of the contingents in the early years. I represented Mandi in football at four Inter-IITs from 2011 to 2014, leading the contingent in 2013 at Guwahati.

Training. The college administration and the sports officers were quick enough to make arrangements for the winter camps by coordinating with the district sports administration and making provisions for the Paddal Ground at critical hours of the day. Well qualified coaches were recruited to put in their weight behind the assiduous students who tirelessly worked to improve their game and team bonding. One could feel the energy even at sub-zero temperatures in the morning hours of December.

Inter-IIT. Ruthless competition and initial losses dented the morale of the contingent. But as famously said by Austin O'Malley, 'If you learn from a loss, you have not lost'. We brought back better strategies, coordination tactics and, the most important thing, experience.

A sense of responsibility, discipline and an urge to win were cultivated in students in the coming years. Every day's evening practice became a norm, and as the number of students in the college grew, it became tougher to get into the team. The Sports Society contributed by organising inter- and intra-college events—Rann-Neeti and Aagaz, respectively—that helped the teams get an actual feel of competition at their home turf.

A continuous and conscious effort from the administration, the coaches, and the students helped develop a sense of confidence at mega-events. The culmination of these factors provided a suitable environment for the growth of a healthy sports culture and cemented our status as a formidable opponent for the upcoming Inter-IIT Sports Meets.





Scaling the heights by Dr. Hitesh Shrimali

Wintery Parashar lake





Summer trek at Kandi pass



Winter trek at Kandi pass



View of endless mountains from the top



Hikers at Prashar



Hikers at Khani top above South Campus

Book Nook

Book Nook, the recreational library at IIT Mandi, was an initiative by Dr. Priscilla Gonsalves and Dr. Shweta Rao to facilitate good reading habits in the students. Book Nook houses books on wide ranging topics and is run by volunteers consisting of students, faculty, staff and their family members. Book Nook had about 400 books when it opened, and now has more than 2600. Popular sections other than fiction are children's, self-help, science, religion, innovation and entrepreneurship, sports and biography.



Book Nook in 2019



Volunteers setting up Book Nook in 2010



Volunteers setting up Book Nook in 2010



Setting up Book Nook in 2010

Working as a Team

Subrata Ghosh, Professor, SBS at IIT Mandi

It is now 10 years that I have been associated with IIT Mandi. I joined the institute on 12 July 2010. After arriving at Mandav Guesthouse Complex on 10 July 2010, the first person whom I met was Anil Sao. We had a nice chat. The faculty strength before I joined was four. Within a few days of my joining, I was given the responsibility of being the warden of a hostel. I started my journey without having any administrative experience. I just started working with other colleagues to establish the minimum facilities at the hostel. There was almost no facility other than the hostel building. It was a great experience working with Anil Kishan, who was the Assistant Warden. The first challenge was to establish the mess facility and find a caterer to run the mess within a short time as the students were about to arrive. I remember, in the initial days, Manoj Thakur (warden of another hostel) and I used to go to shops to buy toilet cleaning liquids, brooms, etc. as the staff strength was too small. Water shortage was another issue which needed urgent attention. We had to put in a lot of effort to get an extra water connection to meet the water requirements of the hostel. There have been many funny moments which are now my sweet memories. To mention one, I remember Anil Kishan was staying in the warden's room in the hostel. He asked students not to make noise late in the night, and the students locked him from outside as they were not happy with this. While the institute was developing the minimum infrastructure for running hostels, administrative offices, etc., another challenge was to establish an experimental research facility in the Mandi campus. We, the newly joined faculty, had no experience with the purchase of instruments. The Director, Prof. Subrata Ray and Prof. Lalit Malhotra taught us all the nitty-gritties of the purchase process. I would like to narrate another interesting event. As we had to develop infrastructure for experimental research, we floated our first tender for a large number of instruments. After the evaluation of the technical bid, we wanted Prof. Ray to review our final recommendation. As he was at IIT Roorkee at that time, Prem Felix Siril and I packed all the purchase files and headed toward IIT Roorkee to meet Prof. Ray to get his inputs. We stayed there a few days to complete the task. Even with all these hurdles, we could complete the purchase process for the first set of instruments, and these were installed in the Mandi experimental lab, which I would say was the starting point in the creation of AMRC. When we were settling down slowly, some student-related issues popped up in 2012 that needed to be addressed urgently. Prem and I drove from Mandi after dinner one evening and reached Kamand. We had a meeting with the students which went on till almost 1.30 am. Then we left Kamand and reached Mandi around 2.30 am. During the last 10 years I have had



the opportunity to work with my colleagues as a team member to handle various administrative responsibilities related to students, construction, SBS administration, finance and many more. Though initially the journey was arduous, I always enjoyed it. I feel fortunate that I could become a part of the team who took part in establishing IIT Mandi. I would like to end with noting that the leadership of Prof. Gonsalves as founding Director in establishing IIT Mandi in such a remote location will always be remembered.

Enchanting Mandi

P.C. Deshmukh, Professor, Physics at IIT Madras; Professor (On Deputation) at IIT Mandi from 2010-2011)

IIT Mandi had its first batch of students at the mentor institute, IIT Roorkee. Toward the end of this period, TAG was appointed as the Director of IIT Mandi. I had known him for long, first and foremost as one of the first persons to contribute to the voice-over-data technology the whole world employs and then for his love for the mountains. Along with V.N. Shukla, I was the co-founder of the Trekking and Mountaineering Club at IIT Madras. Our first trek was to the Chamba-Khajjiar-Dalhousie region, in Himachal Pradesh. I remember the day he walked into my office and said, “Pranawa, I am going to make you an offer you cannot refuse”. Then, he showed me pictures of Mandi he had on his laptop. My only question to him was “When can I join?”

The first batch started out at the IIT Roorkee campus. The second batch was received at Mandi, first starting at the temporary campus, leased from Vallabh College, in Mandi town. Thanks to TAG’s hard work, the permanent campus at Kamand came up very fast, especially considering the challenges in construction work in the mountains. We often used to visit Kamand for treks and to acquaint ourselves with the terrain. The 2 years I spent with IIT Mandi were easily among the best in my life—thanks to wonderful team work under TAG’s leadership with intellectual giants like Professor Malhotra and friends like Dr. Ramesh Sawhney, with whom I enjoyed regular walks every morning in the mountains. The extended visits of Professor S.T. Manson and Professor Vojislav Radojevic were a great stimulus to research in the initial days. TAG’s vision is seen in how research has grown at IIT Mandi, making it one of the premier leaders in both fundamental and applied sciences. TAG’s initiatives in undertaking projects for societal benefit in the immediate surroundings inspired a large number of faculty members and students. There are very many events that were unforgettable. TAG’s simplicity, hard work, commitment and sincerity continued to inspire me even after I returned to IIT



Madras, from where I had been on deputation at IIT Mandi. TAG would come to the Academic Block in the Vallabh College premises and use a tiny cubicle to conduct his business. I had to use my powers as the then Dean (Academics) to make him use a proper office. His simplicity prevented him from using one, on the ground that he already had another office in the Administration Block. Such was his simplicity. It continues to amaze and inspire! He would often drive himself and ask his driver to go home and take care of his family. We learned many things from him—responsible administration, societal concerns, human values and academic excellence. Yes, the Mandi days were awesome. I have visited IIT Mandi subsequently several times and am now looking forward to a course I am about to offer for IIT Mandi students titled ‘Introduction to quantum superposition, entanglement, and quantum computing’. IIT Mandi was very close to my heart and remains so.



Prof. Radojevic



Moon rising over Lahaul Valley

An Abode in the Hills

Deepak Khemani, Professor, Computer Science and Engineering at IIT Madras; Mentor Professor at IIT Mandi

My first visit to IIT Mandi was in March 2010 when my colleague Shankar and I landed up in Mandi to help the newly appointed director, whom everyone calls TAG, shortlist the first set of candidates for computer science. TAG was our colleague from IIT Madras, and we were only too willing to come to Himachal. The other two members, Manoj Mishra and Rajdeep Niyogi, were from the mentoring institute, IIT Roorkee.

IIT Mandi had started in 2009, and the first batch was still in Roorkee. But the director moved to Mandi town to set up the new IIT in earnest, taking up residence in Mandav. The four of us were put up in a hotel overlooking the Beas river since the guesthouse was not yet set up. Our journey from Chandigarh was exciting, if not a little hair raising. The driver, who went by the name Sunny, claimed his blood pressure went up if he saw another car driving ahead of him. Another driver who ferried us frequently was Shastriji, not his real name, with a penchant for religious music and a tendency to let other drivers go past us on both sides on the wide roads of Chandigarh, while we worried about catching our flight. Later, on a frosty morning in January 2011, I joined PTG, the better half of TAG, to pick him up from Bhuntar airport. It was a misty cloudy morning, and a drive through the steep rocky valley along the Beas, for me after 30 years, was fantastic. We decided to return via the Kandi pass, driving through the unspoilt countryside. However, as we approached the pass, the colour white started appearing on the hillsides, and just before the pass itself we found ourselves in a queue waiting to negotiate the snow. After a feeble attempt, Shastriji declared it unsafe and decided to turn back. TAG, however, had other ideas, and the three of us got out of the car and decided to leg it. Again after 30 years, I had the experience of walking through snow. It was a very long walk though, and we were lucky to run into a local who showed us a shortcut descending directly to Kataula. Even so, it was approaching lunchtime, and a plate of rajma rice at the dhaba overlooking the *khad* was very welcome! I have often visited it since.

Coming back to shortlisting, we managed to squeeze an afternoon off from the weekend assignment, and PTG graciously became a guide on a trip to view the campus site at Kamand. We stopped, as people often do, at the point halfway down from Katindi, and got our very first view of the South Campus, dotted with a few old buildings, and then went to the North Campus and the customary view from the peepul tree. Also our first sight of the red bus which still plies the route. And the day was also our first introduction to Rajmahal Hotel, a constant now in the lives of many IIT folk. I took extensive photos of Mandi and Kamand Valley and sent out a link to everyone I knew, in the hope of attracting good people. One of the persons who did get enticed was our football coach from IIT Bombay, S.N. Jha, who is still there, even as we speak, after retirement from Mumbai. An epitome of gregariousness, he was instrumental in finding homes to rent for many of the new faculty who were the first to join.

I made a couple of more visits, once to interview the first batch of research students, and we had an extensive CS curriculum design meet in Chennai, and I landed up in Mandi at the end of December to spend a year. Joining on the same



Bus to Navalay passing through South Campus

day was a young mathematician, Rajendra Ray [I have taken the liberty of naming my colleagues without their titles, and seek their indulgence—many of them have since then done their stints as Deans and Chairs], a post doc from France who loved the mountains and claimed to know contract bridge. My idea was to settle into the cradle of the Beas in the Shivaliks, help out with teaching, finish my book and have a lark. It was not to be.

In the summer of 2010 the first batch of students moved from Roorkee to Mandi. And the second batch was set to join. Accommodation was to be found for them. As luck would have it, Samuel, a Tamilian with a liking for the mountains, who was running a youth hostel in Dalhousie, landed up to help. With a never say die attitude, the man, who travelled only by motorcycle to avoid travel sickness in cars and buses, set about looking for hostels. Vallabh College had given us a



Prof. Khemani (left) felicitating Dr. Rajendra Ray, eighth Foundation Day, 24 February 2017

sizeable one, but others had to be found. When the time came for the third batch to join in the summer of 2011, I remember going out with him to all nooks and corners of Mandi. Yes, a small town as it is, Mandi does have nooks and corners, and we visited any prospective building on offer if it had more than a few rooms. How did I get involved in this? Because quietly the office of the Dean of Students had crept upon me. Even now when I look back I marvel at the tireless work put in by the first wardens, Subrata Ghosh, Anil Sao, Anil Kishan, Rajendra Ray and Nitu Kumari. Without them I don't know how IIT Mandi would have survived. When the time came for me to leave we all had a fine dinner at Rajmahal to celebrate their efforts. One of the earliest matters I had to attend to in January 2011 as Dean Students was a call I received from my counterpart in Roorkee saying that one of their students was missing and that they suspected that he had come to Mandi in quest of an IIT Mandi student who had moved along with her batch. Fortunately, we found him lurking near the Academic Block, given to us by Vallabh College, and we managed to feed him and convince him that the best course of action for him was to head back

to Roorkee, and his studies, especially since the subject of his amour was disinclined to meet him.

I had a tiny flat just behind Mandav, meant originally for the hotel staff, but with a splendid view of the Suketi brook, ideal for a relaxed evening as the sun set and the lights on the opposite hillside started glimmering, something my friends Sushmita and Barun Banerjee will vouch for. Barun had just taken voluntary retirement from IIT Kanpur and was, willingly, plucked out from Calcutta into the Beas Valley. Along with Pranav Deshmukh, from IIT Madras, he contributed to raising the average age of the faculty to respectable levels. Pranav was a stickler for discipline, and I remember a story about him keeping an entire class waiting for hours till the culprit of some misdemeanour, what I do not remember, confessed by sending an SMS anonymously to him. The road going up from Mandav to the water treatment plant was

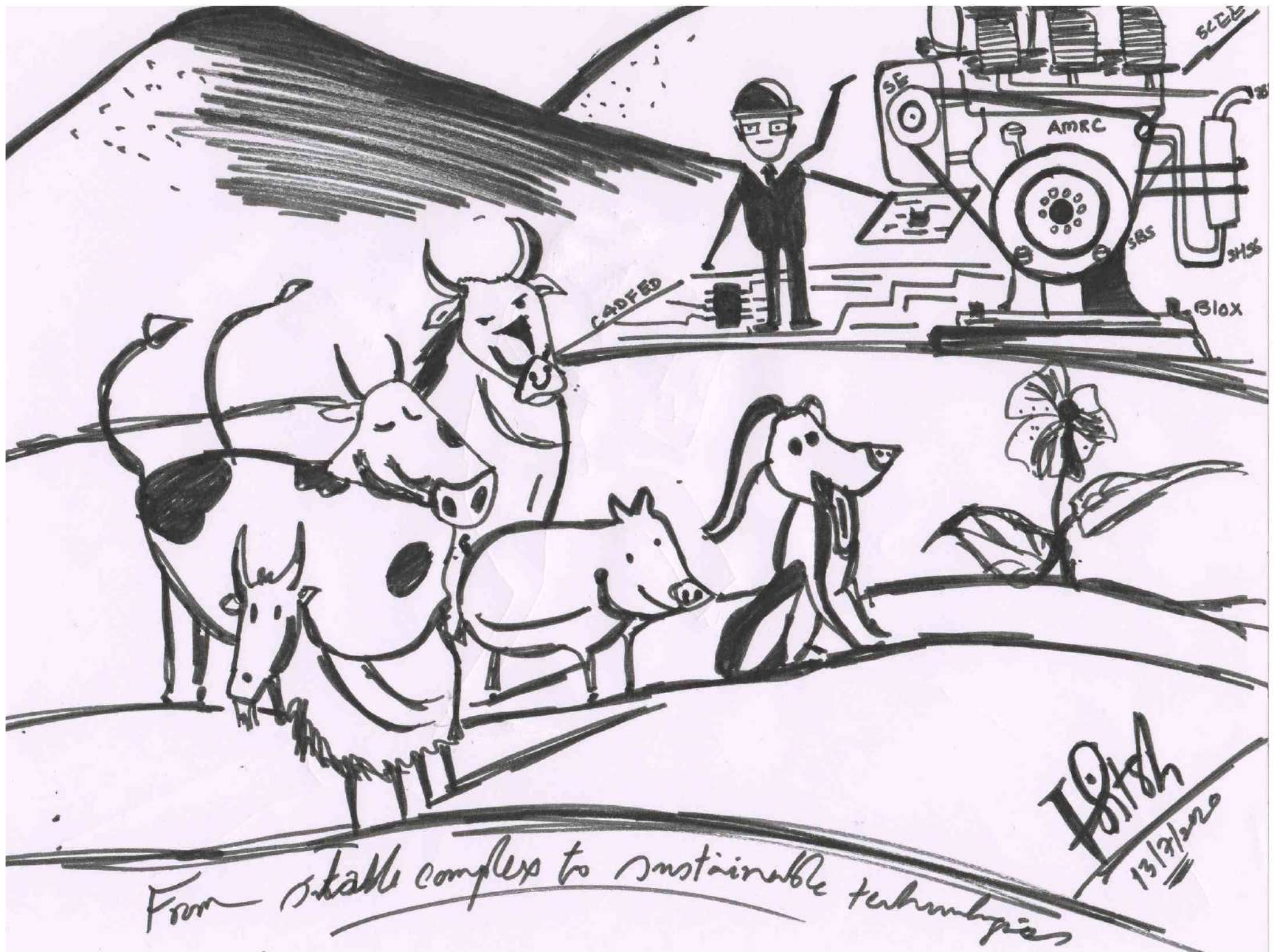
a frequent strolling haunt for research students and the staff alike, all of us staying in Mandav. TAG once told me that the road led to a nice long hike through the interiors with vistas not imaginable in the congested town, and on one afternoon Subrata Ghosh, Suman Kalyan Pal, Rajendra Ray and I set out despite a drizzle. The rain fizzled out thankfully, and the 14 kilometre walk was an afternoon very well spent. Rajendra displayed a hitherto unknown interest in birds when he excitedly pointed to one scurrying across the road a little ahead. 'It tastes excellent', he said! This walk was to

become a favourite amongst some of us, also because the other end, where we rejoined NH 21, the Chandigarh–Manali highway, on the outskirts of Mandi, was right opposite the Black Pepper restaurant, which was to become the second favourite eating place after Rajmahal, especially for the students whose hostel was next door. Mandav was also home to the girl students and the faculty members who chose to stay in the tiny flats around. The Registrar, Ramesh Chand Sawhney, had a slightly bigger house next to the gate. He had a liking for paneer, which he constantly instructed the common mess staff to make, while the girls had a marked preference for Maggi. The ensuing push and pull was interesting to watch. Prem Felix and Rajendra Ray chose to run their own mess, with frequent non-veg food.

There was a considerable camaraderie amongst the small set of faculty members who joined first. About 25 or 30 in all, including visitors. In particular our young colleagues from Bengal and Kerala, led by the enterprising Prem Felix, he was later to become the Dean Sponsored Research, would organise a barbecue for fish at the drop of a hat. Once we hired three cars and carried a load of fish, looking for a suitable picnic spot, all the way to Manikaran. However, on spotting the Sanjha Chulha Resort in the Parvati Valley, we took the easier way out for a sumptuous lunch. They refused to cook our fish for us, and in the end the barbecue had to be held on the premises of the Academic Block after our return in the evening.



First students arrive - 10th June, 2010



From stable complex to sustainable technologies, by Dr. Hitesh Shrimali

Second Foundation Day

In February 2011, the Second Foundation Day celebrations took place with fanfare and enthusiasm. Many students and staff and faculty members were recognized for their contributions to the growth of the institute. The entire IIT Mandi family visited Kamand campus. The first-year B.Tech. students entertained the gathering with an enthusiastic performance.



Glimpse from the Second Foundation Day celebrations



First faculty-staff picnic: October 2011

Deepak Khemani

The first faculty picnic was organised in the Dhuma Devi temple, on the outskirts of Mandi. Situated at a height amongst the forests and the dish antennas linking Mandi to the outside world, the location also offers a splendid view of the Pandoh dam from a distance. Cooks prepared a feast while everyone explored the surroundings. I remember Bharat commenting 'future Dean' when I clicked his photo with Anil Sao. Little did he know then that it was a prophecy. The high point of the afternoon was when young Danica Gonsalves produced a couple of bottles of wine, spreading cheer all around. It is a well kept secret.



Group photo at the forest rest house, Dhuma Devi

Enjoying the picnic

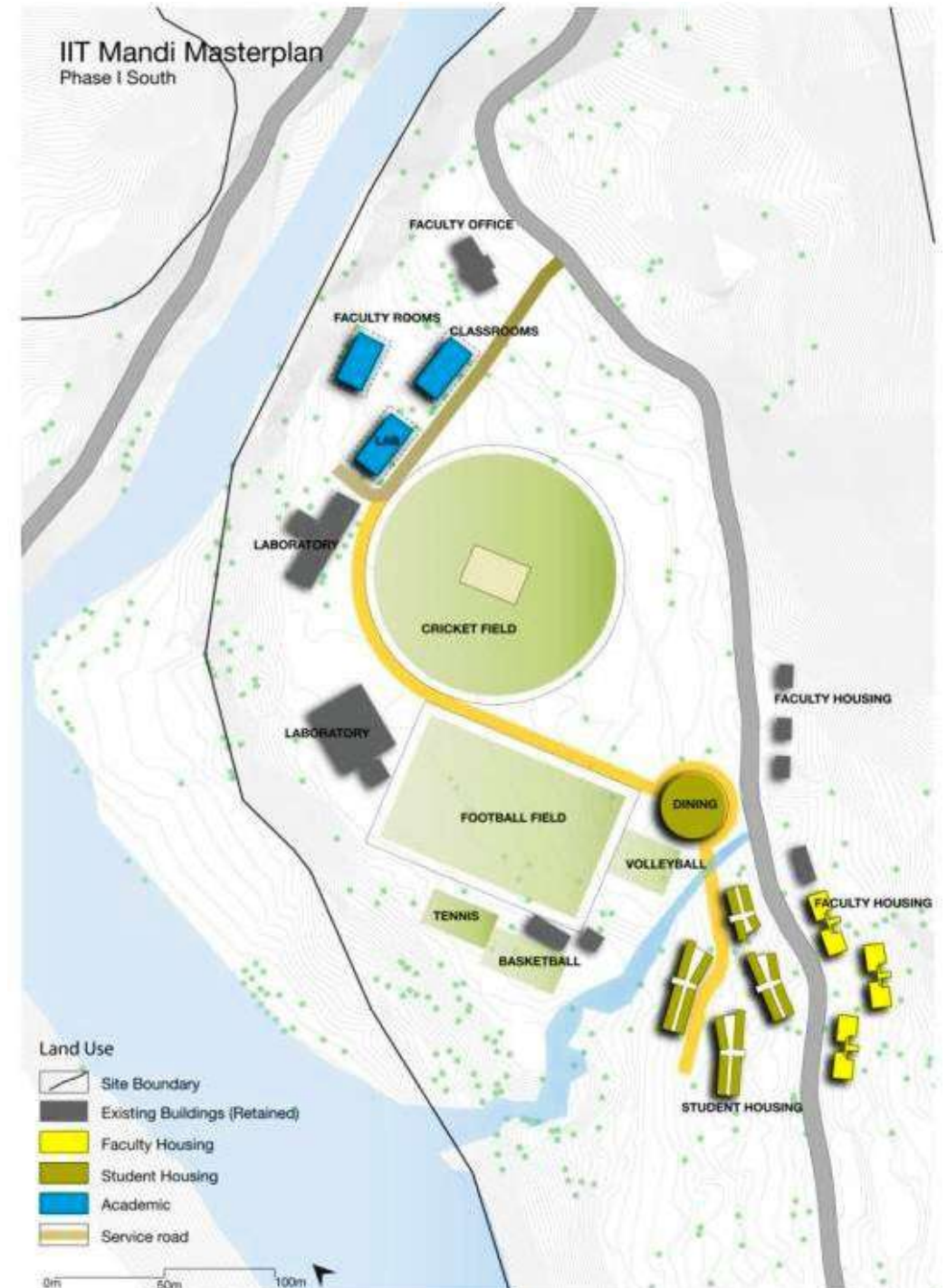
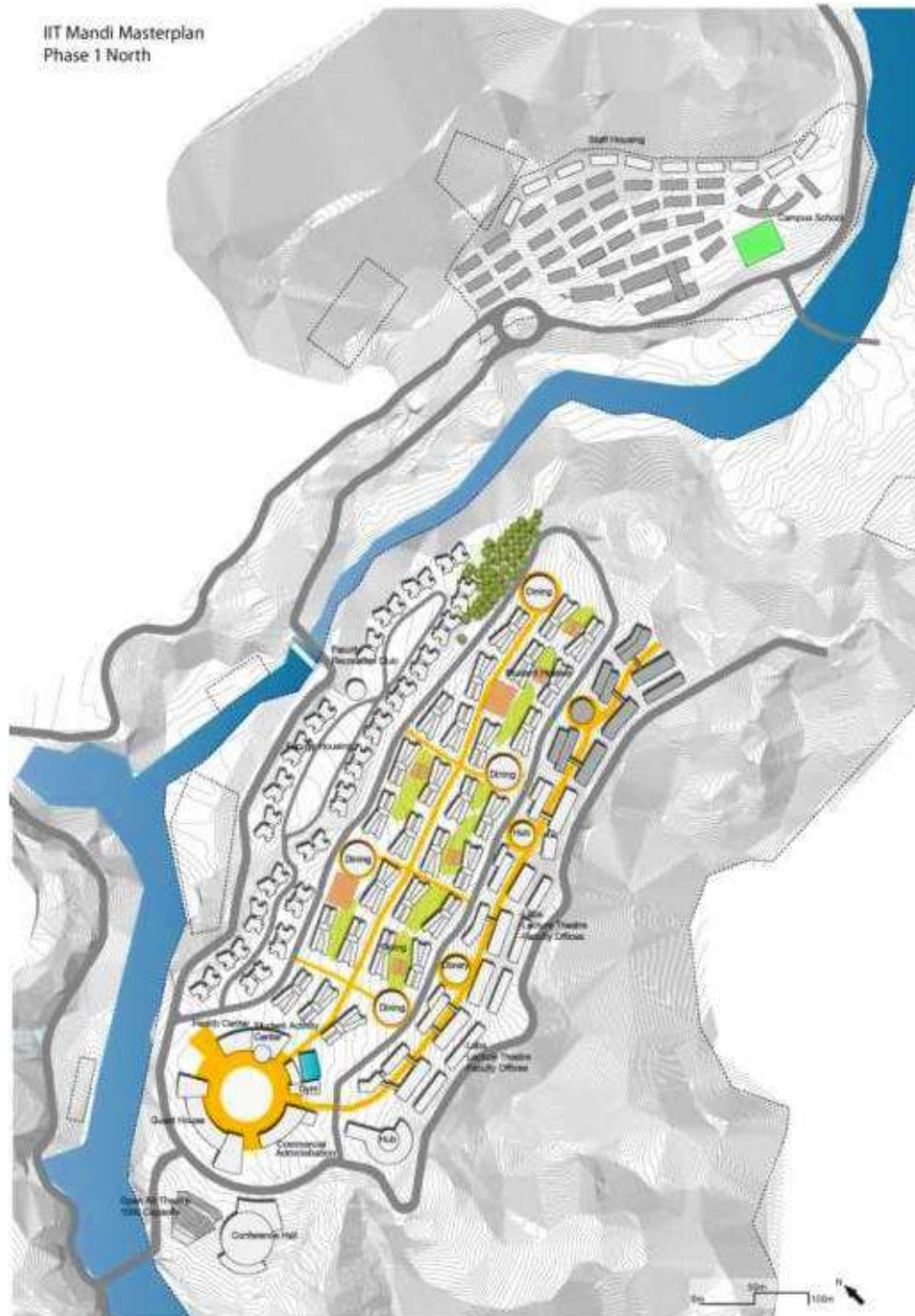
IV

2012-2020

Building A Novel IIT

A Beehive of Activity

The fourth year, 2012–2013, was indeed an eventful one. IIT Mandi began moving into the permanent campus in a phased manner as planned. That year, and in the following years, infrastructure came up, and research equipment, including very sophisticated instruments, was installed at both the South and North campuses.



Sections of campus Master Plan


 भारत सरकार
 GOVERNMENT OF INDIA
 केंद्रीय लोक निर्माण विभाग
 CENTRAL PUBLIC WORKS DEPARTMENT

कार्यालय:- कार्यालय अधिवक्ता
 केंद्रीय लोक निर्माण विभाग
 आई.टी. मण्डल टी.ए. प्रोजेक्ट मण्डल,
 कमान्ड मण्डल-175005 हिमाचल प्रदेश
 दूरभाष :- 09418282362



Office of the Executive Engineer
 Central Public Works Department
 IIT Mandi Project Division
 Kamand, Mandi-175005 (HP).
 email:eciitmandi@yahoo.in

संख्या/कः 54(Labour)/ई.ई.मण्डल आई.टी. मण्डल /2013/ 20

दिनांक 9-1-13

सेवा में,

M/S Ahluwalia Contracts (India) Ltd.
 1, Okhla Industrial Estate, Phase - III
 Near Modi Mill, New Delhi - 110020

विषय: C/o of different building under Phase-I south (Hostel Blocks -4 nos. (G+2), Faculty Housing Blocks -3 nos (G+2)
 Academic Blocks-3 nos. (G+2) and Dining Hall-1 nos.(S/S) for IIT Mandi at Kamand (H.P) including Water Supply,
 Sanitary Installation, Drainage, Internal Electrical Installation and Development of site etc
 Agreement No.:- 01/EE/IITPD MANDI/2012-13.

संदर्भ में,

In continuation to this office letter even no. 10 dated 05.01.2013 enclosed herewith please find
 Himachal Pradesh Building & Road Construction Labour Union IIT Kamand, Mandi (related to CITU) labour union
 complaint/ demands received letter no. Nil dated 30.12.2012 received through SE IIT Mandi vide their letter no.
 IIT Mandi/SE-104/2012-13/8845 dated 08.01.2013 (copy enclosed) wherein D.C. Mandi has directed to take
 necessary action and to report in the matter. Therefore, you are once again requested to kindly take necessary
 action and report compliance thereof so that the IIT Authorities and local Administration can be reported about
 the action taken in the matter. The matter has also been discussed with your site representative Sh. A.S. Saini
 AVP and has been requested to get the various issues related to labour problems settled out.

Encl.: As Above.

भवदीय,

कार्यालय अधिवक्ता
 आई.टी. मण्डल टी.ए. प्रोजेक्ट मण्डल
 कमान्ड मण्डल, कमान्ड मण्डल
 हिमाचल प्रदेश-175005

प्रतिक्रिया:- N.O.O.

- The Chief Project Manager IIT Project Division Mandi for kind information please
- The Superintending Engineer (P), Office of the Chief Engineer, (MZ-II), CPWD, Kendriya Sadan Sector - 3A, Chandigarh for kind information please.
- The Superintending Engineer IIT Mandi w.r.t. their letter no. IIT Mandi/SE 104/2012-13/8845 dated 08.01.2013 for kind information please
- Sh. Bhem Singh, Secretary, Himachal Pradesh Building & Road Construction Labour Union IIT Kamand, Mandi (related to CITU) for kind information with reference to their letter no. nil dated 30.12.2012.
- The Assistant Engineer-IIT Project Division, Mandi, CPWD Mandi, along with copy of above labour union letter to get the facts verified and to put up the factual position in the matter.
- The Assistant Executive Engineer IIT Project Division, Mandi, CPWD Mandi, along with copy of above labour union letter to get the facts verified and to put up the factual position in the matter

F.D.O.
to the Registrar
Rajiv
01/1/13

CPWD
Mandi
Amesherkar

कार्यालय अधिवक्ता
9/1/13

The permanent campus in Kamand shortly became a beehive of activity. The range of this activity is best seen through an impressionistic lens. What emerges is a series of images of construction activity, IIT Mandi interacting with the immediate surroundings and with the world beyond, students setting out into that world, the institute making contributions and gaining recognition. One gains an impression that a bird might gain, a griffon if you will, from a vantage high in the sky, occasionally dropping lower for a closer look.

As the years passed, the institute grew. The family-like group of the initial years grew into a full-fledged university community. By January 2020, there were 1655 students and 125 faculty members.

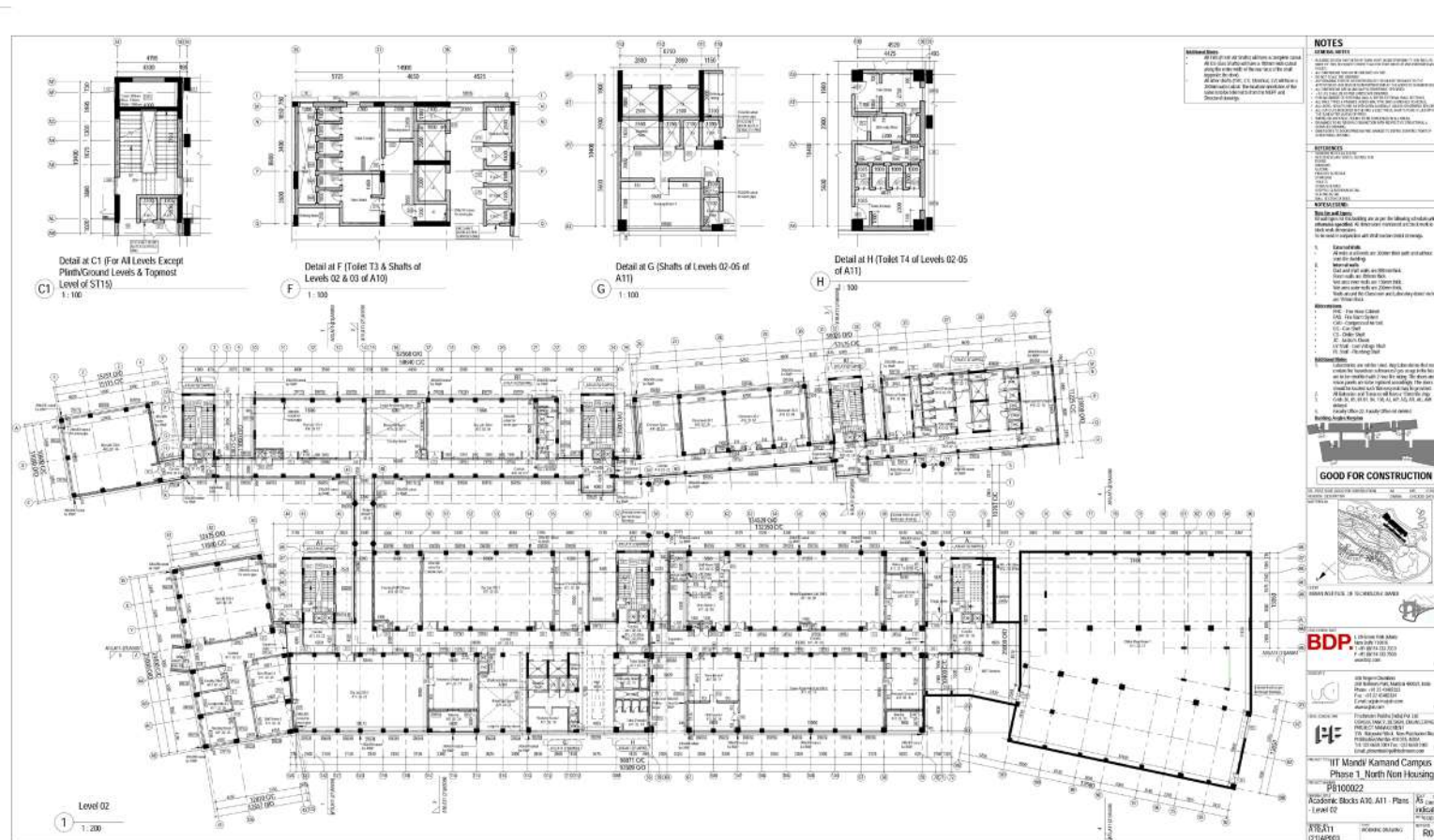
The Permanent Campus

The location of the permanent campus was one of the major attractions of the institute for young faculty members and students. On 18 January 2011, IIT Mandi signed a 99-year lease and took possession of 203 acres of land of the Animal Husbandry portion of the Kamand campus from the Director, Technical Education. The MoEF gave the clearance needed for the transfer of 327 acres of forest land to IIT Mandi. Development of the 530-acre permanent campus and shifting the academic activities there were a high priority to IIT Mandi.

The institute had a three-pronged strategy for shifting to Kamand:

- (1) renovation of existing buildings to make a workshop, labs and residences,
- (2) the use of pre-fabricated buildings to accommodate 150 students and faculty members by mid-2012 and
- (3) construction of additional buildings, in the first phase, to accommodate a further 1500 students.

In June 2011, Messrs BDP were appointed the architect and design consultant for the first phase of construction. The constructions would accommodate about 1700 students. In October, BDP completed the design of the first 11 buildings to be located in South Campus.

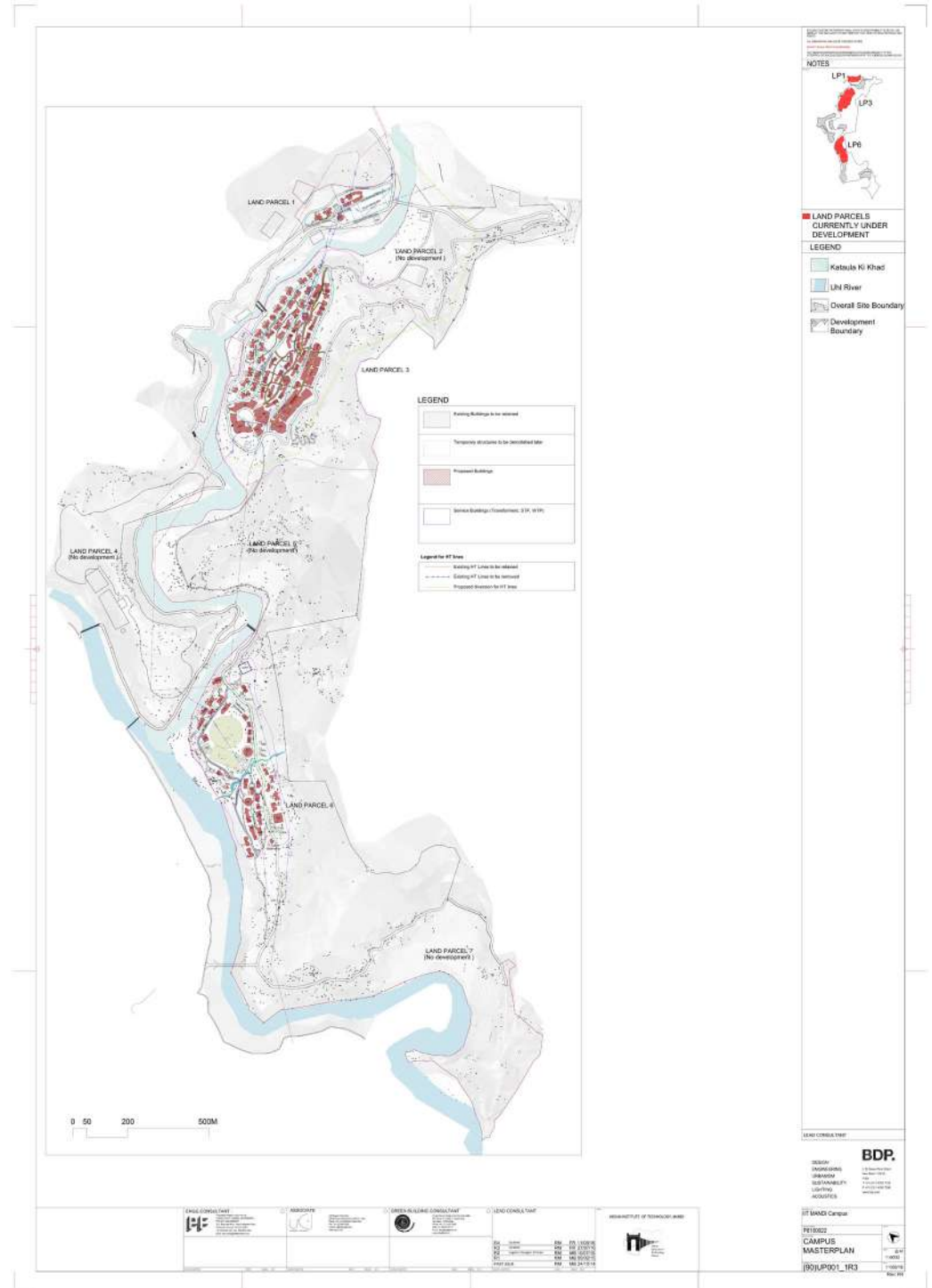


Floor plan of academic building in North Campus

IIT Mandi Masterplan
18.12.2017



BDP.
100 Green Park West
New Delhi - 110028



NOTES

LP1
LP3
LP6

LAND PARCELS CURRENTLY UNDER DEVELOPMENT

LEGEND

- Katula Ki Khad
- Uth River
- Overall Site Boundary
- Development Boundary

BDP.

IIT MANDI Campus

PHASE 02

CAMPUS MASTERPLAN

(B01/P001_H3)

Campus Master Plan

Ground breaking ceremony at Kamand campus

On April 13, 2012 Director, IIT Mandi, Prof. Gonsalves performed the ground-breaking ceremony at the Kamand campus in the presence of various faculty members and the administrative staff. The ceremony organised by M/s Ahluwalia Corporation began with a hawan, followed by the ground breaking and a high tea. CPWD has formally awarded the contract to M/s Ahluwalia Contracts



(India) Ltd. Mr. Saini, Vice President of Ahluwalia Contracts promised that the first few buildings of the South Campus will be ready by July. They expect to have up to 250 workers on the job at peak times.

Source: IIT Mandi Annual Report 2012-13, Page 90

Some of the existing buildings inherited from the Animal Husbandry Department were renovated. A 4000 square foot hay store was converted into a mechanical workshop. Complete with lathes, milling machines, CNC machines, etc., this workshop was used by students for course work and projects from March 2012. A 6000 square foot cow shed was renovated to serve as laboratories. It eventually housed the first sophisticated instrument at Kamand, the powder X-ray diffractometer.

The CPWD was entrusted with the task of supervising the first phase of construction. The contract was awarded to Messrs Ahluwalia Contracts (India) Limited, and a ground breaking ceremony was held on 13 April 2012.

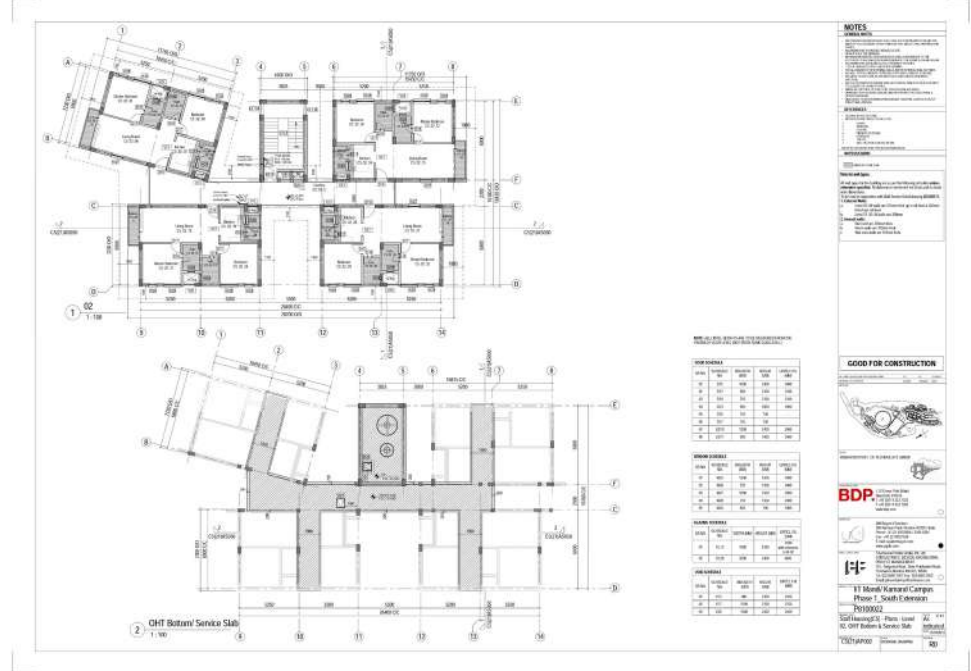
The year had been exciting and eventful for IIT Mandi. The next year, 2012–13, was expected to be even more so. Apart from the completion of the first phase of construction and shifting of part of the institute to the new campus, the plans for the year included the first placement season, completion of several sophisticated research labs, implementation of a new project-based B.Tech. curriculum and winning of international recognition by IIT faculty members and students in academic and extra-curricular pursuits.

Many important decisions preceded the construction work in the North Campus. Given 500 acres of land, with practically no constructions on it, how do you plan the layout? Where do you put the houses and where the hostels? Where do the classrooms and laboratories go? What about the playgrounds, the dining facilities? What kind of buildings do you create? Once the building is over, how do you decide who goes where? In 2020, Professor Gonsalves described how philosophical and aesthetic aspects were involved in the decision-making process. And he explained how the idea of boundary-free working shaped the campus.





Building plans of student and faculty housing



A Small Mountain Community

Timothy A. Gonsalves

“We decided to have a non-hierarchical model of allotting campus housing. In most places type of housing is assigned according to rank. Here we did not follow this for three reasons: one, we realized that younger people often have larger families and so need more space than older people. Hence as an engineer I felt that allocation should be done in the most efficient way possible. Two, differentiation in housing causes dissatisfaction, and we wanted people to invest their intellectual potential in other things. Three, in our remote location people have no reasonable option to rent homes off campus, and we wanted to provide an attractive housing option to new faculty. One thing we did not anticipate is that some people prefer living in one- or two-bedroom homes. Hence in [a] new construction that is coming up in the South Campus we are mixing up one-, two- and three-bedroom houses in the same block.

In order to foster inter-disciplinary culture, there are no separate buildings for schools. Faculty across schools have offices alongside each other. In IIT Madras in 2005 the then-Director Prof. Ananth incentivized inter-disciplinary research by announcing that 20 projects would be given Rs.1 crore funding each with the proviso that each must involve faculty across three departments.

Here we encouraged interdisciplinary work in a more structured way by having schools instead of departments. In terms of campus design, the idea was that the hostels too would be part of the overall academic mission of the institute. As a residential institution, we wanted to facilitate interaction between faculty and students at all times. In the North Campus we have three parallel spines: the academic, the student housing, and the faculty housing. This facilitates more interaction

between faculty and students as they live close to each other and the campus has a small town atmosphere with frequent social interaction. I grew up in a small town, and so I value this. This has helped significantly since faculty notice students who are having problems, and students can approach faculty easily. We don't have the kind of problems that are there in other institutions where faculty and students are in physically segregated zones. Students sometimes say that they have to be quiet in the hostels else teachers complain, but this consideration for your neighbours is training for living in society! The flip side is that when they want to discuss something they can reach the faculty's house in a few minutes.

The terrain also meant that if we were to have distinct zones (hostel zone, residential zone and academic zone), then it could be the case that all faculty would have lived in the South Campus and all students and academic facilities would have been based in the North. This would not have worked because after working hours faculty would not have been accessible to student at all.

In order to preserve the atmosphere of a small mountain village community, and to enjoy good views and sunlight, we decided not to have tall buildings. In any case, if you build high-rises you have to leave more space between them, so the total population accommodated does not go up. We also followed the advice of architects and the district Town & Country Planning authorities, given that this is an earthquake-prone zone”.

Creative Environment

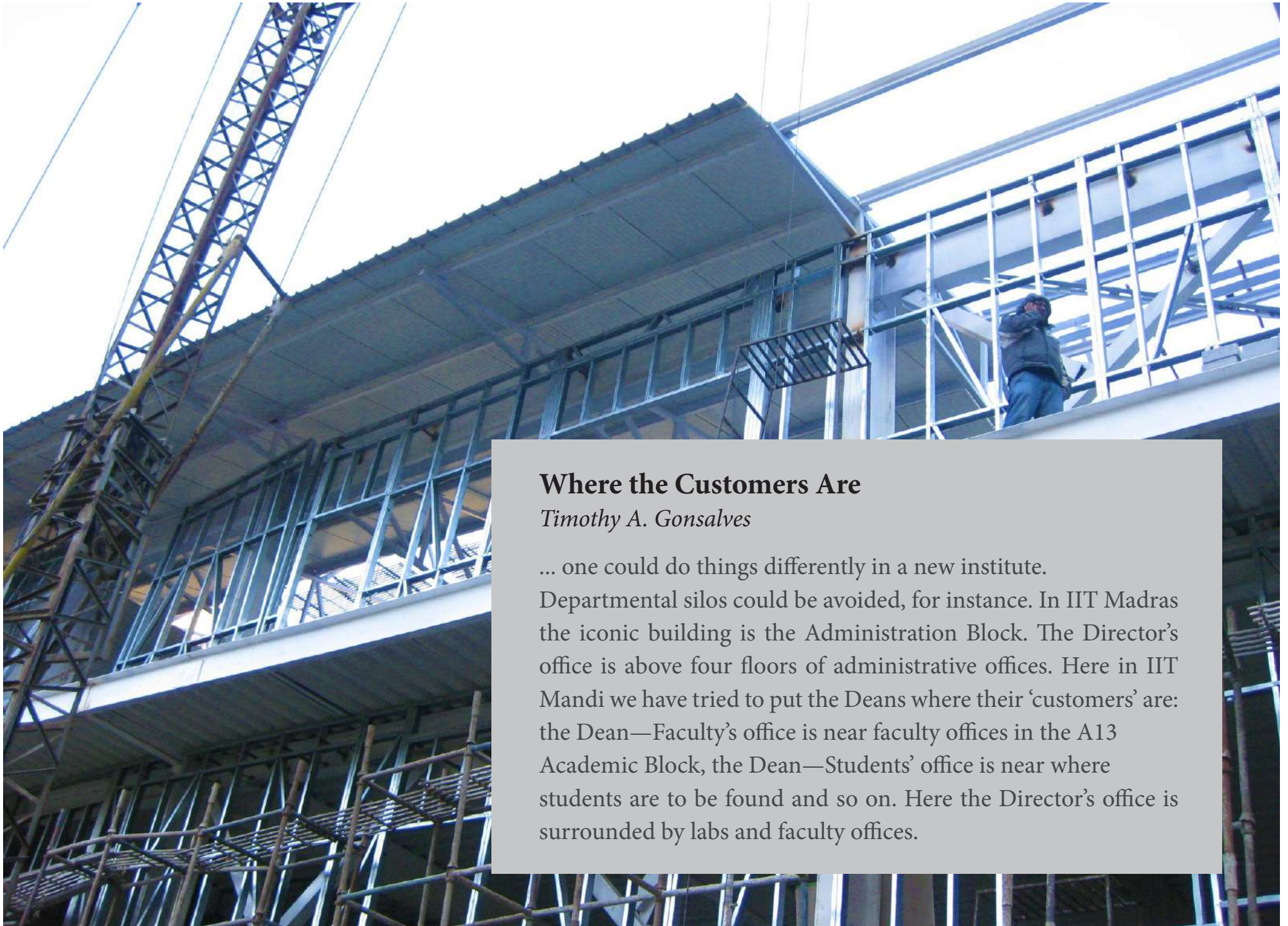
Subrata Ray, Distinguished Visiting Professor at IIT Mandi; Formerly Professor, Metallurgical and Materials Engineering at IIT Roorkee

Since ancient times, the Himalayan eco-system has inspired sages for original thinking and wisdom. When IIT Mandi was proposed in this environment, the challenge was to preserve its peaceful, serene ambience while providing the facilities for an institution befitting the 21st century. A broad based committee of architects, civil engineers and experts on the Himalayan flora, fauna and environment, chaired by a non-expert like me, was tasked to identify an agency with the required sensitivity to evolve its architectural plan and design. We were very uncertain but evolved a methodology to ensure that our objectives are taken care of. Finally, we have reached the destination. The achievements of IIT Mandi and its future leadership in knowledge will judge us with time as to what extent we have succeeded in retaining the Himalayan creative environment for original thinking and wisdom.



Prof. Ray on the right with Dr. Samar Agnihotri

A factor that had a great bearing on how the land would be used was the fact that half of it was forested. This governed the way the buildings came up. Keeping in mind the fragile environment of the Kamand Valley, IIT Mandi had commissioned the NGO Care Earth Trust in April 2010 to aid and advise it in preparing a blueprint for campus development. An ecological management plan was drawn up for the campus—the site was home to a host of wild creatures.



Where the Customers Are

Timothy A. Gonsalves

... one could do things differently in a new institute. Departmental silos could be avoided, for instance. In IIT Madras the iconic building is the Administration Block. The Director's office is above four floors of administrative offices. Here in IIT Mandi we have tried to put the Deans where their 'customers' are: the Dean—Faculty's office is near faculty offices in the A13 Academic Block, the Dean—Students' office is near where students are to be found and so on. Here the Director's office is surrounded by labs and faculty offices.

LGSF Building under construction, December 2014

The Design Vision

N. K. Negi, Chief Architect in Himachal Pradesh

It is my proud privilege to have been associated with the initial planning of the IIT campus at Kamand. My memories of the place go back to the time when the land was originally selected to set up a horse breeding farm by the state government. This was in the 1960s when my father, late Dr G.C Negi, was the Director of the Animal Husbandry Department. I have fond memories of visiting this place as a child of five or six years with my elder brother and sister who would be allowed to ride the horses. The Uhl river, that flows along the campus boundary, those days had a plentiful supply of trout fish, and we always greatly enjoyed a visit to this site. So I feel very fortunate to be able to see this place grow into a beautiful IIT campus, especially since it was for quite some time in a dilapidated condition.

Planning and designing campuses of this scale can be time consuming and their execution even more cumbersome. In this case, since time was a constraint, the first phase process was expedited in the South Campus. To enable this, some of the existing structures were retrofitted to accommodate the immediate requirements. The new structures had to be largely designed and executed in prefab technology. To build on hills is always a challenge and not everyone is familiar with handling contours. We tried our best as a team to contribute by addressing the bottlenecks with our expertise in both hill planning and engineering aspects.

I had the opportunity, as part of the selection committee, to shortlist the firm for the master plan and concept design and also to directly work on the design detail of the Director's residence and faculty dining block. The former was later converted to the Uhl River Guest House.

The design vision for the campus was to make it self sustainable by use of energy saving and environment friendly tech. Rain water harvesting systems, with water economy fittings along with solar energy lighting and heating in maximum use areas had been planned. Furthermore, pedestrian and cycling paths alongside a footbridge were integral to the design proposal. The challenges of establishing a campus of national importance on a site with a hard terrain, remote location and consequent logistic issues were many. But the combined efforts of the team of experts from IIT Chennai, DRDO, SPA and IIT Mandi faculty under the able guidance of Director T.A Gonsalves have enabled the building of a campus that is an exemplary image of courage and determination.

I wish to thank Dr. Gonsalves and his team for allowing me to be a part of this effort and so add to my learnings.



Sri N K Negi, second from right

Pioneers in Kamand

Priscilla Gonsalves, Wife of Founding Director

I had eagerly anticipated shifting to Kamand ever since I first visited the campus for the first Foundation Day celebration. The campus was glorious with open terraced fields, two rivers and views of surrounding mountains, and forests. As a nature lover from a family that always sought out the less inhabited places as we followed my father's career through six states and twelve different cities, I had found it difficult to adjust to the urban life of Mandi. Kamand was a place where I could breathe freely and was offered the chance to learn about the local animal and bird population.

Finally in June 2012, I packed my bags and set out with Rusty and three graduate students, Runa, Sujeet and Reena, to be the first IIT settlers in Kamand. We all settled into the renovated Animal Husbandry housing just above the Uhl Guesthouse. When we reached South Campus, the stables and some housing had been renovated and some foundations had been laid, but nothing had risen above the earth yet. The campus still looked like rough terraces falling towards the river. That would change just a week after our arrival when the first steel beams started to rise around us.

Some facilities were still elementary. If we typed some messages in our residences, we would then set out with laptops open before us, seeking the appearance of the Internet 'fan' and the posting of our messages. But the place was lovely, open and wild. Jackals roamed the campus in the evenings, and a mongoose and jungle cat came to inspect their new neighbours.

One difference I noted immediately was in the perception of space and the decision of how to reach a destination. In urban settings we always calculate our path by mainly straight and rectangular routes. Even in agricultural settings, we navigate around rectangular planted fields and animal pastures. Here suddenly there were no obstacles, no roads, but a multitude of small paths left by animals. The possible routes were many and in all directions.

Another welcome difference was the lack of the formality of the settled campus. Even though we were settled adjacent to the girls' hostel in Mandi, there was only limited interaction. Few intruded on our space. Kamand was more like a camping trip where the happy campers shared resources and helped each other out.



Uhl River in January 2012



North Campus in 2011



Ms. Reena Singh with Rusty



Director's Bungalow (South Campus), now the Uhl Guesthouse



Rough terraces falling towards the river

Shifting to the Kamand Campus

On June 26 [2012], IIT Mandi Director Prof. Timothy A. Gonsalves shifted to Kamand, 15 kilometres from the transit campus in Mandi city. After the ribbon-cutting ceremony by Mrs. Priscilla Gonsalves, the IIT Mandi Director occupied his office in the renovated Hospital of the Animal Husbandry Department. As the building now has the conveniences of modern life, his first act was to send an email via the 100 Mb/s optical fibre connection to the Internet.

Professor Gonsalves, his wife Mrs. Priscilla Gonsalves, their dog Rusty and a Ph.D. scholar Reena Singh are among those who have shifted to the beautiful and serene campus at Kamand. They are residing in renovated staff quarters overlooking the Uhl River. The shift is definitely a step towards speeding up of ongoing activities at the new campus. The second-year B.Tech. students would be the next to move to the Kamand campus in the forthcoming academic session starting in August 2012. The Director has set an example by being the first one to shift, [with] other faculty and staff to join him at the Kamand campus soon. The entire Institute is expected to operate from Kamand by July 2013.

Source: IIT Mandi Annual Report 2012-13



Second year B.Tech. students move into South Campus, 23 September 2012

Memorable Days as Warden of the First Hostel in Kamand Campus

Venkata Krishnan, Associate Professor, SBS at IIT Mandi

It was serendipity that I became a warden of a hostel and that too the ‘yet to be established’ first hostel in Kamand, the permanent campus of IIT Mandi. I would like to briefly describe my journey here in my first administrative role at IIT Mandi.

I joined IIT Mandi on 11 April 2012 as a young Assistant Professor after completing a 10 years’ stint out of India, with absolutely no prior experience of work or administration in India. In addition, I had never stayed in a hostel in my entire life. The first 2 months, from the middle of April to the middle of July, were quite smooth, with not much work as there were no teaching commitments for me and I was just coming to grips with the cultural shock, which I was experiencing for the fourth time in my life, after returning to the home country, finally for good.

In mid-July 2012, I was told by Dr. Subrata Ghosh, then Execom (Students) Convener, that his committee was in search of two Assistant Wardens for hostels in Mandi and the Warden and the Assistant Warden for a proposed hostel in Kamand. I did not take it seriously at that time as I thought that I was out of the competition as I was very new to IIT Mandi, had had no prior experience in administration and had never stayed in a hostel. But a few days later, he told me that the committee had had an internal discussion and that my name has been proposed for the post of Warden of the hostel in Kamand. This took me back by surprise as I had never anticipated this decision. Subsequently, I was called by our Director to inform me of this decision. At that meeting, I mentioned to him that I had never stayed in a hostel and did not have any idea about life in hostels. He smiled and replied, ‘Then you are the best choice for this post’. I took his words seriously, agreed to venture into this unknown territory and was formally appointed as the Warden on 16 July 2012. Later, through other sources, I got to know that no other faculty member was willing to take up this task as they did not want to shift base from Mandi town to Kamand Valley at that point of time!

From the first day of my appointment as the warden of an unnamed hostel, usually just called ‘the Kamand Hostel’, my life became very busy although there were no students on campus at that time because of the summer vacation. I had to sign several bills pertaining to the purchases that had been initiated even before my joining and had to plan for accommodating the students once they arrived on campus. Interestingly, as the proposed hostel in the Kamand campus was not ready at that time, we made makeshift arrangements for their stay at Hotel River Bank, Ekant Palace and Shubham Home Stay, at Sauli Khad, Mandi. This was a Herculean task as my colleague, Dr. Ashok Kumar, then Assistant Warden of our unnamed hostel, and I had to travel back and forth between the transit campus in Mandi and these hotels in Sauli Khad multiple times in a day. In addition, we were provided with a list of students (2011–15 B.Tech. batch, 100 boys) who all needed to be accommodated in the hotel rooms. To complicate the matter, the charge of transportation was also given to me and Dr. Rajeev Kumar. When I look back now, I still wonder how I managed these tasks although they provided a great deal of experience.



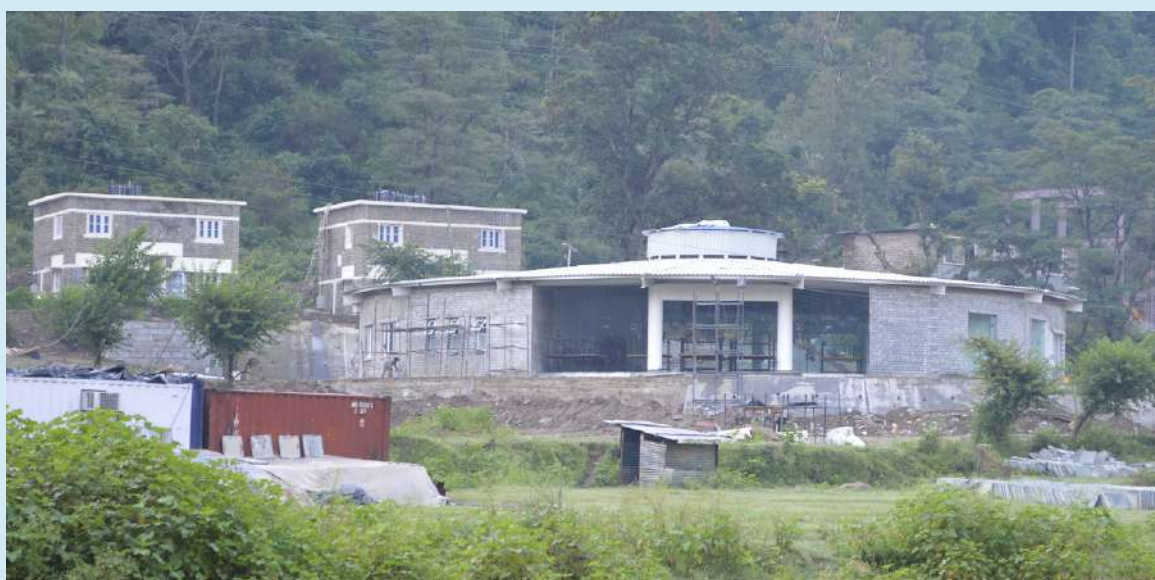
Dr. Venkat Inaugurating Cedar Mess hall

By late July 2012 came the students, hoping to get two-seater accommodation in newly constructed spacious rooms in the permanent campus. They were quite disappointed with the makeshift arrangements, with four or five students in one room in these very old hotels. Almost every day, I had to resolve their issues, ranging from small to big, as I was their main point of contact. With the able assistance of our hostel caretaker, Mr. Chamanlal Thakur, I was able to handle many of their urgent and real needs. During this time, I realized that lending a patient ear to the students solved half of their problems, and making efforts to solve their problems and having an open discussion with them solved the other half. In this way, I was able to build a good rapport with the students.

After spending 2 months in these hotels, finally the day came to shift our students to Kamand. The bamboo blocks and the D-1 mess (dining hall) were almost ready there. Along with our hostel committee student members, I had visited Kamand several times in the 2 months and had seen the construction activities in progress. I had recorded my memories in the form of photographs.

When planning the shifting of our students to Kamand, there were a lot of hurdles. First, our Assistant Warden, Dr. Ashok Kumar, resigned from his post as he was not convinced about the decision of the administration to shift the students to Kamand when the rooms and mess were not fully ready. Second, the Khaliyar road, which connects Mandi with Kamand (shortest route), broke because of heavy rains. So we had to take the long route, through Darang, to reach Kamand. Third, the Central Minister for Human Resource Development (HRD), who was to supposed to visit IIT Mandi to inaugurate the hostel and the dining hall, cancelled his visit. Despite all these setbacks, our Director and I were quite firm on shifting the students to Kamand. Within a day after Ashok's resignation, Dr. Bharat Singh Rajpurohit was appointed the new Assistant Warden to facilitate the shifting and settling of the students in the new hostel at Kamand.

Finally, on 23 September 2012 (equinox day), with the assistance of our students, caretaker, labourers, some supporting colleagues from the faculty and many other people, known and unknown, we all (100 boys and eight girls of the B.Tech. programme, two M.S. students (Runa and Sujeet), two Ph.D. students (Reena and Rajiv) and myself) moved to Kamand. The shifting was witnessed by the entire IIT Mandi community, including those who were very sceptical about the move. It had been planned that our Director would inaugurate the dining hall and the hostel blocks. But to my pleasant surprise, he called me, gave the scissors in my hand and asked me to cut the ribbon and inaugurate the dining hall (D-1 mess), the first newly constructed building in Kamand campus. From that day onwards, I started staying in the renovated building at the Kamand campus. This entire period was very eventful.



Cedar Mess under construction



Waterfall on Navalay road

The following weeks, till the winter vacation, were very memorable as we all had a great time enjoying the beautiful campus, which was all that mattered for us! We slowly started establishing all the required facilities in our hostel, ranging from a dance room to a sports room. All the 112 students were very happy and enthusiastic. I still remember the names of all these students and am in contact with many of them. We all developed a sense of belonging to this place and wanted to improve it as much as possible. With strong support from the Director and institute administration, we could establish a lot of things in our hostel. These included (a) a mini-gym, (b) a small library cum reading room, (c) a music and dance room with speakers and (d) office automation software to handle requests (developed by our student Vinod Kumar). I was experiencing hostel life, which I had missed during my student days, through my role as Warden of the hostel. After the winter vacation, there were several changes, which included a change in the caterer of the mess, a change of van operator, changes of the canteen and provision store operators and many more. In January 2013, we also welcomed Mr. Pavin Samuel as Assistant Administrator Students, who ably helped me in managing the affairs of the hostel. On 9 March 2013, our hostel, now named by the students as Prashar Hostel, was formally inaugurated by Shri Virabhadra Singh, then Chief Minister of Himachal Pradesh. Ours was the only hostel whose name had been selected by the inmates till that time. The tradition of naming hostels after lakes in Himachal Pradesh had been maintained. Incidentally, on the same day, the Advanced Materials Research Center (AMRC), also headed by me, was inaugurated by Shri Pallam Raju, then Minister of HRD.



MHRD Minister Shri M M Pallam Raju and Himachal Chief Minister Shri. Virbhadra Singh inaugurating South Campus buildings in 2012.

The ensuing period, till July 2014, saw the expansion of our Prashar Hostel. We welcomed the 2010–14 batch of B.Tech. students, AMRC research scholars and a few M.S. students to be a part of our hostel over the course of time. At one point, the strength of our hostel touched 450 students. We were able to cater to all of them. I enjoyed a very good rapport with all the students of our hostel and got their full support during my entire tenure, which I value more than the Foundation Day Award that I had received for my contributions as Warden of this hostel. After completing my 2-year term as Warden, I declined an extension and gracefully demitted office on 8 August 2014. Overall, it had been a highly cherishable and rewarding experience to serve as the founding Warden of the first hostel in the permanent campus of IIT Mandi!

Teaching and Learning at IIT Mandi

New B.Tech. Disciplines

In 2015, IIT Mandi introduced a new discipline, civil engineering, in the B.Tech. programme. Four years, later, it introduced two more disciplines—one of these was data science and engineering, and the other was engineering physics. Thus there are six B.Tech. disciplines when this book is being written. In 2019, IIT Mandi also introduced an integrated dual degree programme through which a student could work for B.Tech. and M.Tech. degrees in bioengineering simultaneously.

5 WIP: Induction Programme for New Students

Since 2016, first-year undergraduate students have spent their first 5 weeks on campus in an intense, meticulously planned daily routine known as the 5WIP. A report presented in April 2019 describes the 5WIP (short for 5-week induction programme) thus: ‘This unique fully faculty-mentored [programme] is based on the assumption that although there are pronounced differences in both abilities and skills among college-entering students, these students are not given enough time and training to get used to the ethos of an IIT. The 5WIP treats all students as unique individuals with their specific strengths and weaknesses. It gives all students a chance before their rigorous, grade-oriented classes begin to acquire the critical skills that will enable them to follow lectures with ease, gain the confidence to ask questions of their teachers, and to feel at ease in their new home: the IIT residential campus.’ The components of the 5WIP are grouped in five categories: (1) **Engineering Modules**, (2) **Life Skills**, (3) **Life Essentials**, (4) **Life Enhancements** and (5) **Inspirational Activities**.



Keeping in Touch with Students

Timothy A. Gonsalves

One thing that has kept me going is that every semester I have taught, usually first-year students. When one is in a classroom, all the difficulties one has outside it disappear. This helped me keep in touch with students as I could get direct feedback from them, and they felt free to approach me with their ideas, aspirations and problems.

Project Based Learning

Following on the successful implementation of the Design Practicum Course in the spring of 2012, IIT Mandi went on to design a curriculum which incorporated project-based learning throughout the four year Btech course. There were two main driving forces for this development. The first was that engineering is fundamentally oriented towards problem solving. To be successful in their careers the BTech graduates would need to be able to solve real world problems working in inter-disciplinary teams. The second driving force was the fact that in the 21st century knowledge grows dynamically. Yesterday's great discovery is replaced tomorrow. To work competently in this world of rapid technical development, IIT graduates would need to learn how to learn so that they could continue to learn and adapt throughout their careers.

IIT Mandi developed a curriculum that is project oriented. Students develop devices that meet real-world needs. They work in interdisciplinary teams. They learn by doing.

In the first year, the Btech students all participate in the Reverse Engineering course which introduces them to hardware design. They experience electronic design in the Applied Electronics Lab which concludes with the open house called Aavishkar (Innovation). The second year they all develop working prototypes in the Design Practicum course. In the third year, many join the Interactive Socio-Technical Practicum (ISTP). In this course they look for technical solutions to real problems in Himachal Pradesh. In their final year, many Btech students take up a major technical project. These projects involve two semesters of work. Students develop a project, apply for a patent and publish their findings.

In the IIT Mandi BTech curriculum, students go through all the major activities that they would face as engineers designing and delivering a new product in a company. This includes understanding the competition (Reverse Engineering), developing a quick prototype to test the waters (Design Practicum), a systematic market survey (ISTP), and finally a complete re-design of the prototype to result in the first solid product (MTP). In IIT Mandi, students get this range of experience during their BTech, while in the traditional curricula followed in most institutions, they might gain such experience only after working for many years after their studies. Thus, the IIT Mandi curriculum trains design engineers ready to develop innovative products to tackle real-world problems of our society.



Student interaction and outreach with local community

Reverse Engineering

In 2013 IIT Mandi included reverse engineering, as a compulsory project-based learning course in the BTech curriculum. Reverse engineering is an efficient tool in industry where competitors' products are dissected and evaluated for performance and costs. It can, also, play an important role in the reconfiguration and redesign of legacy and/or undocumented systems. At IIT Mandi first year BTech students take this course in their first semester. The course helps students to understand an existing engineering system, the interactions between its subsystems and their functionality.

Students focus on hardware reverse engineering. By carefully disassembling, observing, testing, analysing and reporting, students gain an understanding of how something works. Typically they work on electrical appliances such as microwave ovens, induction stoves, electric kettles, mixies, printers, vacuum cleaners, and table fans.

The reverse engineering process is non-destructive. This means that the object or component will be reassembled and still function just as it did before it was taken apart.

Throughout the reverse engineering project, the students are encouraged to think of ways these objects could be improved. Is there some way it could function better, or be manufactured less expensively? The students will use their observations to make suggestions for improvement of the product.

Aavishkar - Invention by Freshers

Aavishkar (invention) is an annual intra college technical festival. Aavishkar involves several activities like competitions by various technical clubs, an open house for all the technical clubs to showcase their activities and achievements of the session, and a display of the innovative projects developed by the first year students as a part of the Applied Electronics Lab. The projects showcased as a part of the Applied Electronics Lab are mentored by 2-3 senior BTech students along with the instructors. The emphasis is on learning by doing.

At Aavishkar students show a variety of projects using Arduino, PIC micro-controllers, various sensors, and transducers, FPGA, opamps, 555 timers etc. Some of the noteworthy projects that have been presented are a self-balancing platform, an advanced version of a collision detection unit, money utilization through digitalization in remote areas (MUDRA), Hosty - the automated room, the voice & internet enabled smart home, a prosthetic arm prototype, smart street lights, a rock-fall alarm, an autonomous fire extinguisher, a 3D-plotter, a blind stick, a voice wheeler, an automatic floor mopper, etc. Each project costs less than Rs. 3,000/-.

During Aavishkar, school children from nearby schools and technical institutions visit and enjoy the moving robots, running cars, and automation in day to day life events. Visitors, and especially small children, are thrilled with Transformers in live action.

Tell me and I forget, teach me and I remember, involve me and I learn.

Tushika Singh, B.Tech, 2019-2023

Design Practicum

The Design Practicum course, a compulsory course in the second semester of the BTech students' second year, continues to be a popular course that excites many of the students and draws a large audience from local schools and colleges and the local community to the display of the product prototypes at the open house held at the end of the term.

It is Best to Let Our Students Explore the World

Rajeev Kumar, Associate Professor, SE at IIT Mandi

I had the opportunity to coordinate the Design Practicum course 5 times. In this course Btech students in the second semester of their second year work in a team and develop a prototype to solve a real life problem. They learn by doing. Student teams sit with their respective faculty mentors and discuss various issues related to the project once a week. The student teams demonstrate their prototypes during the open house at the end of semester.

My experience from this course is that when faculty introduce students to hands-on activities and projects, the students enjoy more. The excitement builds as the semester progresses and the deadline approaches. It is really amazing to see students work whole nights in the

mechanical workshop on their projects. Since they have lots of energy, this is a good use of it. They learn better when they are allowed to move around and be creative. Their lives are not going to be pen on paper or books forever. It is best to let our students explore the world and use their skills. This course strengthens their understanding of daily life that is sometimes hidden from them and exposed to them abruptly once they become adults. Instead of short-term memorization strategies, project-based learning provides an opportunity for students to engage deeply with the target content, bringing about a focus on long-term retention. Project-based learning takes the essential characteristics of what we value most about education and puts them front and centre in our formal learning environments. It is a popular and noble aspiration for educators to inspire and develop life-long learners.



Dr. Rajeev Kumar (Right) with Dr. Ajay Soni at Design Practicum open house, May 2015

Interactive Socio-Technical Practicum (ISTP)

IIT Mandi decided to offer an integrated socio-technical project to third year BTech students because the development of useful products and technologies requires an understanding of the socio-economic context in which they will be used. The ISTP course gives students experience in collecting social data relevant to the technical change proposed. Also, as the introduction of a technology in a society often changes the society, it is essential that the technology leaders of tomorrow understand the interaction of society and technology. It is observed that often the problems in the society require simple solutions and can be resolved easily with the right technological intervention. On the other hand, the “perfect” technical solution will not work if the requirements of the end users are not taken into consideration.

Through the ISTP, our students explore various issues and problems of the local society. After understanding the problem, the students propose technology-based solutions for these problems. Finally they evaluate the proposed solutions from social, technical, economic, environmental and other aspects. Wherever required and possible, help from the local administration, non-governmental organizations (NGO) working in the region, etc. is sought for the implementation of the solutions.

The ISTP course exposes students to the complex interactions of technology and society. The course also equips the students with the tools and skills to systematically understand and evaluate these interactions.

On a higher plane, ISTP is intended to sensitize students to the problems around them in the local, rural mountain society. It seeks to help the students develop a sense of responsibility by being the solution provider. The course, also, nurtures the qualities required to become an excellent engineer or technocrat who contributes to society in a variety of ways. The overall objective of this course is to make a positive contribution to our community.

This course is run in collaboration with the Worcester Polytechnic Institute (WPI), U.S.A. Every year, two faculty members from WPI visit IIT Mandi along with about 25 undergraduate students during the spring semester to jointly work with IIT Mandi faculty and students on a variety of socio-technical projects.

ISTP started in the year 2013, when Dr. Ingrid Shockey from WPI visited IIT Mandi with a cohort of undergraduate students from WPI to work jointly with our third year B.Tech. students. Dr. Shail Shankar and Dr. Arti Kashyap were the coordinators of ISTP during that year.

Over the years, the projects taken up by ISTP students have been many and varied. Some focus more on Mandi town, investigating traffic and parking issues, trash collection, building a pedestrian path along the Beas, etc. Other focus more on the Kamand Valley, tackling issues such as local education and skills levels, water quality and storage, inexpensive lighting solutions, school libraries, earthquake preparedness, etc. An ISTP study on the level of education, skills and aspirations of women in the Kamand Valley led to the establishment of EWOK, Enabling the Women of Kamand.

Major Technical Project - The final battle

The Major Technical Project (MTP) is a year-long project taken by many B.Tech. students in their fourth year. The MTP is a capstone task which builds upon the previous three years of study taken by a B.Tech. Student. It is always emphasized that any interesting project taken at Design Practicum or ISTP level may be taken up to MTP level. MTP is the final signature course in the project-based learning curriculum developed at IIT Mandi.

MTP provides an opportunity to students, to apply the knowledge gained during coursework, to learn and apply organisational and collaborative skills essential for successfully carrying out project work, to learn about advanced concepts and cutting-edge technologies, and to contribute in terms of theoretical work, analysis or system development before they embark upon their professional careers.

Students may take up MTP as individuals or as teams. Every MTP has faculty mentors, across the disciplines, who supervise progress throughout the duration of the project. MTP projects are expected to bring out a product, a patent and/or publications. Indeed many of them succeed.

The overall evaluation scheme is divided into four stages with two stages in each semester, a mid-semester evaluation and an end-semester evaluation. From 2017, there is also an open house where students display their prototypes/posters to their peers and the public. A good number of B.Tech students and school children from nearby areas come to see the projects.

An Immense and Beautiful Scene

Dr. Bharat Singh Rajpurohit

At the MTP Open House students from all the B.Tech streams present their work side-by-side. The open house is an immense and beautiful scene. It displays how science & technology is getting merged at final delivery level. The fine distinction of the various engineering streams start fading out and only engineering remains alive!

Internships

With the first batch of students in the third year it was time to arrange industry internships for them. Owing to the colder weather we decided to have a long winter break in December and January. Although most companies in India normally take interns only in the summer, we were able to arrange winter internships for most of our students. During the year, the Career and Placement Cell was set up, and [it] started the placement process for 2012–13.

Source: IIT Mandi Annual Report 2011–12



Internships were frequently converted to job offers. In 2019–20, out of 112 offers made during the first phase of campus placements, 34 were pre-placement offers (PPOs) resulting from internships. Some of them were international PPOs. A total of 75 companies registered in 2019–20 for the first phase of the placements alone. Within a period of some 6 years, IIT Mandi could claim to have a strong history of hosting some of the top multinational companies during the placement season. Students embarked equally impressively on other careers. Pradeep Servi, final-year B.Tech. (Electrical Engineering) student in 2015, secured All India Rank 1 in the GATE exam.



A Lot of Parallels

Athar Aamir Khan (All India Rank 2, Civil Services Exam 2015)

IIT Mandi has been like a cradle for us. We have learnt to stand on our feet here. The institute helped us discover ourselves and develop our world views. The best part is that being from initial batches we sort of grew up along with the institute. So the journey and the struggle have a lot of parallels.

Technical Competence

The achievements and demonstrations of technical competence took other forms as well. IIT Mandi students won laurels in prestigious competitions they took part in. One recent example that presents itself is the performance of Nishita, Ruchika Sharma and Mehak Jain, all second-year B.Tech. (Computer Science) students, at the Fourth National Level Hackathon for Women in Computing, conducted by the Association for Computing Machinery's (ACM) Council in November 2019. The hackathon was conducted at Symbiosis Institute of Computer Science and Research, Pune, and 120 teams from all over the country participated.

The contest consisted of three rounds. In the first round, the participants were asked to submit their ideas on the theme 'Environment Health Improvements' or 'Human-Health'. Considering the future scenario of a fast-growing need to use electric vehicles to reduce pollution and minimise fossil fuel usage, the proposal of the team from IIT Mandi was to build an electric vehicle charging assistant (EVCA) in the form of an Android/Web application.

In round two, the shortlisted teams were interviewed by a panel of five interviewers who examined the proposals and their applications. The Mandi team explained the features and utilities of the application developed by them.

In the final round of the contest, the participants were directed to design an innovative software solution to a problem within 24 hours. The problem given to the IIT Mandi team was 'to analyse the before- and after-effects of afforestation and deforestation'. With their knowledge of data analysis, acquired during a course at IIT Mandi, the team was able to gather the required data and provided customised solutions to reduce deforestation in various locations. The software solutions were presented to a panel of judges who examined and reviewed them. The IIT Mandi team was declared the winner of the hackathon. They won a cash prize of Rs.25,000.



Para-Badminton Champion



Students at IIT Mandi have made their mark in fields other than engineering, science and academics. Nitesh Kumar was in the third year of the B.Tech. course when he reached the quarter-finals of the Third Indonesia Para-Badminton Championship, in 2016. At the Asian Para-Badminton Championship too (held in Beijing), Nitesh Kumar reached the quarter finals that year. In 2017, he won a gold medal at the Forza Irish Para-Badminton Championship. Two years later, he won the silver medal in the doubles event at the World Para-Badminton Championship.

My Six Years at IIT Mandi

Ramesh Oruganti, Adjunct Professor in SCEE; Formerly Professor in Electrical Engineering, NUS, Singapore

It was the year 2012. After working in Singapore for several years, I wished to spend some time in India, preferably in one of the newer IITs. There were offers for visiting positions from a few institutions, including IIT Mandi, whose remote setting in the Himalayas was a bit off-putting. However, after much deliberation, the attraction of living in the foothills of the Himalayas proved too strong to resist for my wife and I, and we moved to Mandi on 29 January 2013. Our initial plan was to spend a year or so at IIT Mandi and then move on to some other, more easily accessible institution within India. Little did we know at that time that IIT Mandi and Himachal Pradesh would captivate us so much that we would end up staying for a full six years there and develop deep connections with it.



The Naggar Valley Dragon painted in 2019 by Dr. Astrid Kiehn

The first batch of B.Tech students were in the final year. Course work-based postgraduate programmes had not yet been introduced. Pioneer batches of M.S. and Ph.D. scholars were bravely carrying out their research with limited facilities. There were about 40 or so, mostly young, faculty members. A few senior faculty members were sprinkled about. These included Prof. Subrata Ray and Prof. Lalit Malhotra, who, with their extensive experience, were helping our Director, Prof. Timothy Gonsalves, in guiding and mentoring staff and faculty members. Prof. B. Subramanian, a distinguished German studies professor, with an encyclopaedic knowledge of many things, was guiding the activities of the Humanities and Social Sciences School. Prof. B.D. Chaudhary joined a few months after me, and Prof. S.C. Jain joined in the following year. Their contributions to the building of the institute were, and continue to be, diverse and immense.



It must be made clear that, despite the presence of this small number of senior faculty members, the institute was mainly run by the junior faculty members. They were the future of the institute, and the Director entrusted them with responsibilities which in mature institutes, more senior faculty members would be holding. This trust was amply repaid by the junior faculty members. For fear of mentioning some names and leaving some, I refrain from mentioning any of them!

The institute was simultaneously being built up and run with total dedication by Prof. Gonsalves, popularly known as TAG. He was singularly focussed on establishing the institute, both its hardware and its software. He set the direction for the institute clearly and took care of both the overall vision of the institute and the day-to-day details and issues. A few things stood out from the beginning. The first and foremost among these was the sense of mission, purpose and energy which pervaded the staff and faculty members. Junior faculty members were shouldering heavy multiple administrative responsibilities and getting things done, at the same time taking several new courses and trying to build up their research.

The ideas of holidays and weekends did not seem to exist! The commitment to the institute from both the faculty members and staff was near total. The idea of a broad-based B.Tech. education with emphasis on hands-on, practicum-oriented learning had become entrenched in the institute. Also well established was the mantra of a near-borderless and boundaryless work culture, with a focus on interdisciplinary and collaborative research. Borders between groups, divisions and schools were minimal or even non-existent. Everyone was easily approachable. The institute's small overall size at that stage no doubt helped. A B.Tech. student or a Ph.D. scholar could walk up to the Director in the hallway and tell him about problems he or she faced—and often did. Such easy and meaningful access to the staff, to faculty members and to even senior administrators helped in overcoming, to a large extent, the difficulties encountered by a young student in a fledgling institute.

In many instances, this reduction of boundaries also extended to aspects of academics, both teaching and research. I remember attending a faculty meeting chaired by TAG on the Design Practicum course, a few days after I joined the institute. Engineering faculty members, of course, attended the meeting. Interestingly, several faculty members from the Basic Sciences and Humanities and Social Sciences schools also attended and took part in the discussion actively. TAG gave the initial briefing on the course, both the spirit behind it and the mechanics of it. Topics were brainstormed, and mentor groups were formed. There was an unstated and implicit understanding that everyone, irrespective of the discipline they were in, brought something of value to the course and would contribute to it. That was nice to see. Like all Asian students, the students of IIT Mandi were respectful to teachers. Yet, this respect did not stop them from interacting freely with their teachers without holding back on ideas. Many faculty members also were motivated to be good teachers and cared deeply about the well-being and development of students. I derived a sense of fulfilment teaching students and mentoring faculty members in such an environment. At the time when I joined, the institute had a more centralised structure. Instead of deaneries to manage the administration, there were faculty committees, called Execoms, to help the Director in running the institute. As the institute grew larger, in May 2013, the Director reorganised the administration structure into the more traditional system, with deaneries, etc. After much hesitation, I agreed to take on the responsibility of Dean of Academics. Fortunately, Dr. Pradeep Parameswaran (who later took on the Academic Dean's responsibilities himself) and Dr. Bindu Radhamany, who had been the Convenors of the Execom (Courses) and the Execom (Research), respectively, joined me as Associate Deans (ADs). Also, Mr. Vivek Tiwari, who had prior experience in academics-related administration, joined as Assistant Registrar (AR) a few months afterwards. The knowledge and experience of the two ADs and the AR helped me immensely and were crucial in running the deanery effectively. Also, in the initial days, the academic office work was manned by Mr. Kuldeep and Mr. Vivek Sheel, a two-man army who carried out the difficult and tedious academic office work manually and tirelessly. As I mentioned, I took on the responsibilities of Dean of Academics with some trepidation. During my 2+ years as the Dean of Academics, I realised that above everything else, the main requirement of the work is communication.

Talking and listening to all the stakeholders, and sometimes with even non-stakeholders. Communication with faculty members, students, scholars and staff members. It was amazing how often the issues became clarified during these discussions. Motivations became clearer. Trust and persuasion became possible.

I have to tell you about our first convocation, which was held on 20 October 2013. Mr. Subodh Bhargava, Chairman of Tata Communications Ltd., was the Chief Guest. We introduced many of the now well-known features of our convocation in this first convocation itself, including the medal for the best overall female B.Tech. graduating student (Rani Gonsalves Medal), the graduates' oath and the valedictorian's speech. Things were quite unsettled on the eve of the convocation. To say that the rehearsal was chaotic would be an understatement. I was not confident that the convocation would go well the next day. The convocation day came, and the hour of the convocation came. Everything was in place, and everyone knew their roles. No one needed to be prompted. The convocation went off like clockwork and took exactly the planned 2 hours' time. Someone mentioned that the function was executed with German precision.

This story encapsulates for me the spirit of IIT Mandi in a nutshell. When needed, the whole institute comes together and gets the job done and gets it done well. I am sure that this spirit of 'we are all in it together and will have to do our part' will help the institute through this difficult time of a global pandemic and help it scale even greater heights in the future.

Postgraduate Studies at IIT Mandi

The postgraduate teaching programme at IIT Mandi started in 2014 with the M.Tech. course in energy engineering and the M.Sc. in chemistry. In 2016, M.Tech. courses in mechanical engineering and in biotechnology were introduced, as was the M.Sc. in applied mathematics. Four more M.Tech. courses and one more M.Sc. course have been introduced since then. The duration of the M.Tech. and M.Sc. programmes at IIT Mandi is 2 years. The School of Humanities and Social Sciences introduced the 2-year M.A. course in development studies in 2018.

Good Teaching

Timothy A. Gonsalves

In IIT Madras there is great value attached to good teaching, and that is what I tried to bring to IIT Mandi.

In the 10th year of the institute, the number of postgraduate students was greater than that of the undergraduates. And predominant among the postgraduate students were the research scholars. The total number of students enrolled in the M.S., Ph.D. and Integrated Ph.D. courses was considerably greater than the number of students in the M.Sc., M.A. and M.Tech. courses put together. This represented a significant growth since the second year of the institute, when, for the first time, a modest number of research scholars had been admitted. As with the taught courses, in research too, IIT Mandi nurtures an interdisciplinary environment to develop innovative technologies for widespread use. The institute actively supports convergences between the science, engineering and social science faculties.

Research

Like the taught courses, the research activities at IIT Mandi gathered momentum. Within a few years after the shift to the permanent campus, the scientific and technological research and development activity at IIT Mandi was supported by well equipped centres:

AMRC. The Advanced Materials Research Centre (AMRC) of IIT Mandi aims to support and foster the research enterprise by providing state-of-the-art instrumentation and ancillary equipment, and expertise in its use and application. The AMRC came into existence in 2013. The research equipment at this centre is worth Rs.60 crores. The instruments can be broadly divided into two categories: (1) general characterization instruments and (2) sophisticated instruments. They include a powder X-ray diffractometer, a single crystal X-ray diffractometer, a high-resolution transmission electron microscope (TEM), a 500 MHz nuclear magnetic resonance spectrometer, a confocal microscope, and a high-resolution mass spectrometer.

BioX. The BioX Centre of IIT Mandi has a focus on agriculture and the environment. Another important focus area of research in this laboratory is human health. The vision of the BioX Centre is to advance the frontiers of technology development and engineering towards applications in disease prevention and affordable healthcare, agricultural practices with respect to the Himalayan region, Himalayan biodiversity, and exploration in biotechnology. The name of the centre reflects its aim to bridge the gap between life sciences, physical sciences and engineering. Building industry-academia partnerships to conduct cutting-edge research and development in priority areas is an important mission of the BioX Centre. The BioX Centre building was inaugurated on 13 May 2017.

C4DFED Centre. The Centre for Design & Fabrication of Electronic Devices (C4DFED) at IIT Mandi is a facility for multidisciplinary research in electronic device design and a fabrication facility. It was inaugurated in 2018. The centre has Class 100, Class 1000 and Class 10000 laboratories. The C4DFED Centre is equipped with sophisticated electronic device design, fabrication and characterisation tools worth Rs.50 crores.

The total number of research and development (R&D) projects that the faculty had been involved in since the inception of IIT Mandi was over 275, and these were worth more than Rs.120 crores. In 2019 the total number of publications of the faculty members of the four schools (School of Engineering, School of Computing and Electrical Engineering, School of Basic Sciences, and School of Humanities and Social Sciences) was 306. IIT Mandi faculty members had applied for several patents. They had made presentations at conferences, conducted workshops, delivered lectures at other institutions by invitation and so on. And they had won awards and prizes.

A High Technology Education and Research Institute

Kenneth E. Gonsalves, Visiting Distinguished Professor at IIT Mandi; Formerly Celanese Acetate Distinguished Professor at University of North Carolina

Congratulations to IIT Mandi that, despite its remote scenic location in the majestic Himalayas, is a high technology education and research institute imparting the values of social justice and inspiring innovation. All in a span of ten incredible years, a bustling awesome campus has emerged in the mountains! My association with IIT Mandi started in its relative infancy when it lacked any significant infrastructure but abounded with adventurous enthusiasm. It has evolved as a higher education entity with a unique curriculum and research capabilities and above all a humanitarian focus. In the establishment of the Center for Electronic Design and Fabrication, C4DFED, a world class competitive gem exists not only in Himachal Pradesh but in India. Its faculty, students and scholars can take pride in this magnificent achievement. It is definitely a spire of global excellence.

As the digital universe expands in this changing and challenging environment, the concepts of IC fab have undergone disruptions based on the emergence of sub nm scaling design due to extreme ultraviolet technology [www.photoresistgroup.com]. IIT Mandi is an important participant in this universal endeavor, despite being far from the established high tech centres in East Asia, Silicon Valley and the European Union. Collaborative linkages have been established with such centres in the USA, EU and Brazil. The extreme ultraviolet (EUV) beamlines at a leading advanced synchrotron facility in Brazil are used for mechanistic studies. Analogous interactions with a leading IC fab in India also exist and are expected to expand as the country is anticipated to be the emerging international hub for electronics manufacturing. Hopefully, this leadership of IIT Mandi will continue to flourish and contribute immensely to the Indian vision of economic and technological progress, manpower development and strategic innovation. A solid foundation has been laid for these achievements.



Inauguration of C4DFED, Shri R. Subrahmanyam (left) with Prof. T.A. Gonsalves and Prof. K.E. Gonsalves (right), 31 October 2018

Proud to Be a Part of IIT Mandi

Manisha Thakur, Ph.D. in SBS from 2011-2016



Manisha, first on left

worked together, but it was a good experience, we learnt a lot from each other. Our daily routine was coming to lab around 9.00 am then tea at 11.00 am with friends followed by lunch at 1:00 pm, again tea at 4:00 pm. We shifted our labs and hostels 2-3 times from Mandi campus to Kamand campus. At Kamand we again got a single chemistry lab at AMRC for all PhDs, but this time it was big enough and equipped with many modern facilities. The School of Basic Sciences provided us the opportunity to learn and handle the instruments during installations. All of us PhD scholars worked together in one lab. It was a very nice experience which we can't get at any other campus. There was a lot of gossip and fun along with work in the lab. Non-teaching staff of AMRC were very helpful and supportive.

At IIT Mandi I met a number of good people who inspired me a lot including my colleagues, faculty members and non-teaching staff. Director sir and faculty of IIT Mandi were very friendly and supportive. I remember we could talk and discuss with any faculty member anywhere in the campus. I remember the dining hall where we usually talked with faculty members freely. At IIT Mandi I got an opportunity to work as residential warden for 4 years. It was a great experience for me. Every day I met with new problems of hostel. But I enjoyed resolving these problems with the help of our wardens. I have enjoyed various treks and morning walk near our campus with friends. I remember the celebration of holi, hostel day functions, organisation of conferences and research fair. I cannot forget the birthday celebration surprises of mine and friends at hostel and lab. I have a lot of sweet memories which I want to write but I have word limits. I miss all those days. I miss my friends Diwaker, Abhishek, Ashwani and Shikha who always stood with me at every moment. I miss the beautiful campus, the whole IIT Mandi family and hostel life.

I had joined IIT Mandi as a PhD scholar on 31st July, 2011. I am proud to be a part of IIT Mandi from 2011-2017. IIT Mandi is very special for me as it is situated in my home district. I am so lucky that I was the first student of my supervisor at IIT Mandi. He taught me everything from scratch (how to search literature, how to work in lab, how to establish a lab etc.). He always supports me professionally as well as personally. His office doors were always open for his students to discuss the research problem as well personal problems.

When I joined IIT Mandi there were no research labs, no instruments, no well established infrastructure. Even though our director sir and faculty members tried to provide all the best facilities to students in small town. I remember we had started research in a small chemistry lab where 10-15 students

A Student-Friendly Institute

Hemant Jalota, Ph.D. in SBS from 2010-2016

IIT Mandi is among the few institutes that are in the lap of mountains. The campus is very beautiful and environment friendly. When I first joined the institute, IIT Mandi was functioning from the temporary campus and just one year old. At that time, students had to compromise a lot because of lack of facilities and face a lot of troubles. But even at that time, the director, faculty and staff were very friendly and helping. In just a few years, IIT Mandi has grown tremendously and become the student friendly institute.

The college has made me learn a lot of things not only about studying but also how to become a responsible person by giving me the opportunity to become the Residential Warden and Research Secretary. It also helped me become socially active and gave me lot of friends. I want to thank the director, every faculty and staff of IIT Mandi for making my PhD journey very memorable.



My Experience at IIT Mandi

Gurinderbir Singh, Ph.D. in SCEE from 2011-2017

People normally say that high school will be best of one's life but in my opinion we can make student years in a university even better. During my stay at IIT Mandi as a PhD student, I got the chance to taste-test different programmes, learn from experts in diverse fields and explore my passions to tailor the academic and career path. Time spent at IIT Mandi represents one of the only times when I got the chance to indulge freely in active research and connect with people from a spectrum of diverse educational and cultural backgrounds. Active research in a specific field gives me the confidence that I can switch into a new domain, pick it up quickly and have something interesting to say about it, even if other people have looked at this area for a long time.



The teaching faculties, staffs and all were so supportive throughout the course duration which made the perfect environment for studying. My guide's incredible patience and willingness to provide the requisite resources (i.e. associated books and the equipment) motivated me to work harder and make the best effort possible. I enjoyed my research in a stress-free environment supported by the good weather of Mandi. At last I'll say, "PhD is indeed difficult but not when entered upon with passion".

A History in the Making

Khoisnam Steela, M.S. in SCEE from 2011-2014

It has been nearly 6 years since I graduated, and it still feels like yesterday. I joined the Indian Institute of Technology Mandi as an M.S. Scholar in the School of Computing and Electrical engineering in spring 2012. Back then, the institute was operating with meager facilities in its transit campuses. It was then a newborn institute, burgeoning, indeed "A History in the Making". The institute was run by young enthusiastic faculties under the leadership of equally enthusiastic veterans. While we, as scholars, try our best to explore the width and breadth of a certain matter, the committed mentors help us leave no stone unturned. I enjoyed the design of the curriculum which was so flexible yet so focused. Working in IIT Mandi was indeed 'my cup of tea'. The one thing I love most about this institute is the grand opportunity to frequently interact, with faculty members including very senior positions. The incessant encouragement the teachers gave us was always a great morale booster. The never failing attempt of the institute to provide maximum exposure to its student members was another aspect I personally feel thankful for. I also liked IIT Mandi's approach of encouraging female students. I feel that, in the race of life, my experience as a Resident warden in the hostel and long hours of T.A. duty does contribute a fair share. I am overwhelmed with fond memories of my days in this harmonious place surrounded by many like-minded, good hearted, supportive friends and the best mentor one could ever wish for.

I cherish my days in the lovely campus. Cradled in the lap of Himalayan Mountains, crisscrossed by beautiful rivers, out there amidst the serenity stands this campus with Hi-Tech Labs like a confluence of 'Nature and Technology' at its best. After a long weary day of academic exploration, we could get on to an adventure of exploring nature and feel magically energized. By and large, I consider it a privilege to have been a part of the IIT Mandi Family. The great heights that IIT Mandi has scaled during the past decade make me feel so proud to have been a small character in its history, while in the making.



An Encouraging Environment

Anjana Babu M.S. in SCEE from 2011-2014



I joined IIT Mandi for my Masters (by research) in Computer Science in 2011, back in the days when the fledgling institute was still operating from an interim campus in Mandi town. Apart from the privilege of being in a breathtakingly beautiful town in the Himalayas, being at IIT Mandi was a great experience. Even though not very obvious, looking back at those times, the skills of patience and perseverance that were acquired while following a research masters, and the company of a bright and ambitious group of faculty and students shaped me as a person. The courses and the guidance were extremely good given that the institute was still in its nascent stage. The overall atmosphere was conducive to acquiring knowledge and evolving as a research scholar. Initially, I was apprehensive about a research-based program as compared

to the more common course-based option. The structure of the program was quite flexible, which allowed me to organize my courses around my specific research topic. Also, I liked the fact that IIT Mandi was developing collaborations with other institutes both within India and abroad which have only strengthened over the past decade. There was always an encouraging environment where researchers from multiple disciplines showcased their work broadening our perspectives. Overall, it was a very good experience in my life, both academically and personally, forging strong friendships that last to this date. I am grateful that I had the opportunity to study at IIT Mandi. I would be extremely delighted to be back at IIT Mandi someday, if not to study but just for walking down the memory lane.

Finest Crucible of Life

Mohit Kumar Malhotra, B.Tech. in Electrical Engineering 2009-2013

My alma mater—IIT Mandi—showed me the way of broadening the mind and discovering my hidden latent potential. The professors were very keen about precision, perseverance and an analytical approach to problems and life. I have imbibed their qualities before stepping out in the professional world, which has helped me a lot and made me stand out different from the rest of the world. IIT Mandi is one of the best academic institutions. What I learnt here has powerfully and indelibly shaped my thinking and career, which is why I consider IIT Mandi to be the finest crucible of life. I am privileged to have been a part of this institute that not only imparts quality education but endeavours to bring about a planned change in society. Sincere regards to the IIT Mandi fraternity and special regards to the backbone—Prof. Timothy A. Gonsalves—without whose guidance our journey would not have been this impactful and beautiful.

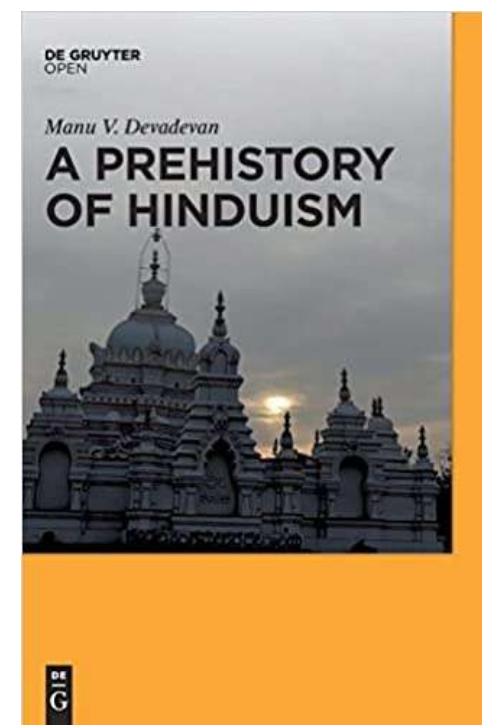
Infosys Prize 2019 for Humanities: Dr. Manu V. Devadevan



Dr. Manu V. Devadevan, Assistant Professor, School of Humanities and Social Sciences, IIT Mandi, won the prestigious Infosys Prize 2019 for Humanities. Dr. Devadevan was recognised for his original and wide-ranging work on the critical reinterpretation of conventional wisdom about the cultural, religious and social history of the Deccan and South India. A panel of accomplished jurors comprising renowned scholars and professors shortlisted the winners of Infosys Prize 2019 from 196 nominations. The jury's citation made special mention of Dr. Devadevan's book *A Prehistory of Hinduism*, stating that it 'offers a powerful and refreshing new approach to the study of the cultural history of India, based on his profound knowledge of sources in multiple languages.

The book offers a revisionist paradigm for the study of pre-modern India.' The award

was announced by Infosys Science Foundation on 7 November 2019 at the Infosys campus, Bengaluru, and presented to Dr. Devadevan on 7 January 2020. The prize comprises a pure gold medal, a citation and a prize purse of USD100,000. The Infosys Prize is aimed at boosting the prestige of science and research in India and at inspiring young Indians to take up a career in research. The award celebrates success in research and stands as a marker of excellence in various fields including Engineering and Computer Sciences, Humanities, Life Sciences, Mathematical Sciences, Physical Sciences and Social Sciences. The jury, comprising eminent leaders in each of these fields, evaluates the achievements of the nominees against the standards of international research, placing the winners on par with the finest researchers in the world. Dr. Devadevan completed Master's degrees in Sociology at Annamalai University, Tamil Nadu, and in History at Jawaharlal Nehru University, Delhi, after which he completed his Ph.D. at Mangalore University. With expertise in multiple languages such as Kannada, Malayalam, Tamil, Telugu, Sanskrit, and Odiya, Dr. Devadevan's work bridges the divide between history and artistic domains, based on his imaginative interpretation of materials from theatre, literature, ritual and religious fields. His publications include the edited volume *Clio's Descendants: Essays in Honour of Kesavan Veluthat* (2018), in English, and *Prithviyallogadagida Ghatavu: Karnatakada Ninnegalu* (2009) and *Sankhakshetrada Kannu: Puri Sri Jagannatha Devalayada Itihasa* (2017), in Kannada.



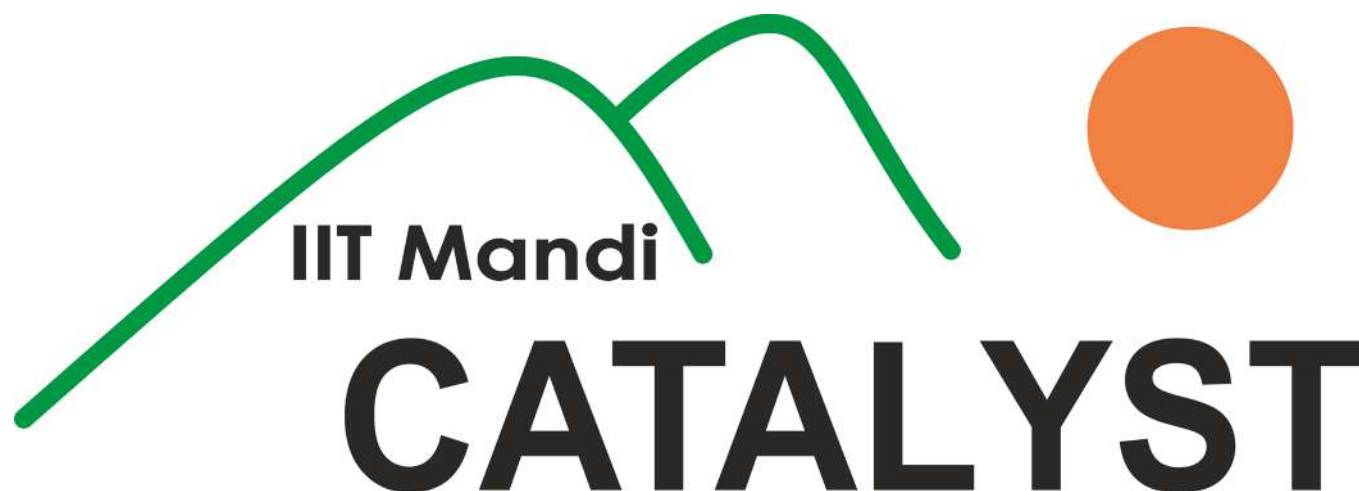
Catalyst

Catalyst was the first business incubator in the state when it was inaugurated by Professor Ashok Jhunjhunwala in May 2016. It has a special focus on startups that want to solve problems in the Himalayan region but also invites startups that want to solve the problems of the world from the Himalayas. It prefers startups aiming at a clear social impact.

The Solar Labs became the first incubated and funded company of Catalyst in 2017. It was started by a young BTech graduate from IIT Mandi named Siddarth Gangal. Gangal won the Young Innovator Award at IIT Mandi's Foundation Day in 2020. He is now the CEO of a growing company.



As the first incubator in the state, Catalyst had an opportunity to create a fertile ground for aspiring entrepreneurs. In the last four years, 77 startup ideas have been supported with over INR 3.5 Cr funding. Close to 100 training sessions have been organised that have brought tens of industry experts to Himachal, creating visibility for IIT Mandi on the national innovation map. Over 25 faculty members continue to mentor startups. These startups have created employment for over two hundred people and have won eighteen national and international awards. Catalyst itself raised INR 23 Crore from various funding agencies to support the cause of entrepreneurship.





Catalyst team with Catalyst Board members



Participants of Himalayan Startup Trek 2018

Memories of Catalyst

Puran Singh, Assistant Professor in SHSS at IIT Mandi

The lifeless walls don't make an institution great, it's the people and their passion that bring greatness. Catalyst has always been about people since its inception. Therefore, my fondest memories of Catalyst involve a number of people, their ideas that led to the creation of many "aha!" moments over the years.

The stereotype is that startups are for the young. During many of our pitch rounds, I was pleasantly surprised by the many experienced people presenting their ideas with unmatched passion and zeal! That Catalyst was able to enable the young and the experienced equally is fulfilling.

In 2017, I remember the Catalyst team brainstorming on how to host stakeholders of the startup ecosystem on the IIT Mandi campus. Thus is how Himalayan Startup Trek, the annual event of Catalyst was born. Hosting Mr. Sonam Wangchuk, a Ramon Magsaysay Awardee, for a thought provoking address in Himalayan Trek 2018, is another fond memory.

One thing that is common across startup founders is a hope that they can convert their ideas into reality. Catalyst's job has been to reinforce that hope. Vipran Dhiman, an auto workshop owner from Una, pitched to Catalyst to complete his dream project – a solar powered electric auto. With guidance from the faculty of IIT Mandi he has been able to make his dream a reality..



Inauguration of Catalyst. Dr. Puran Singh 3rd from left

IIT Mandi`s International Relations

Over the last decade, IIT Mandi has leveraged its idyllic location as well as core academic strengths in order to establish a rewarding relationship with the wider world. This includes student and faculty mobility with several institutes in Germany, including the TU9 (German Universities of Technology). In the past 10 years, the Institute has signed Memorandum of Understanding (MoU) with as many as 11 international and 12 Indian universities. IIT Mandi has been made the national coordinating Institution for Germany under the SPARC (Scheme for Promotion of Academic and Research Collaboration) scheme of the Government of India. Additionally, it has also assumed leadership among the eight second generation IITs for attracting students from SAARC nations. So far, 8 students have joined IIT Mandi for full time PhD and Master's programs from SAARC countries. Since 2013, over 50 of our students have had the chance to go for semester exchange to RWTH Aachen University, Technical University of Munich, Blekinge Institute of Technology, Hepia, Switzerland, IT University of Copenhagen and McMaster University, Hamilton, Ontario. Over 120 international students have experienced the project-based learning approach and other academic offerings of IIT Mandi since 2015, the majority from Worcester Polytechnic Institute (WPI), USA. IIT Mandi provides funds for faculty members for their short term and long term visits to institutes abroad. This has resulted in many joint publications and successful bi-lateral funding of research projects. Additionally, delegations of IIT Mandi Faculty visited Nepal, Bangladesh, Bhutan, Kenya and Ethiopia between 2017-2019 to attract students from these countries. Since 2011, over 100 international faculty have visited IIT Mandi for visits of varying duration.

A Warm, Friendly and Comfortable Stay

Nachapol Wongwantanee, Student Visitor from Asian Institute of Technology, Bangkok

I was a Thai student from the Asian Institute of Technology (AIT) who had a chance to join IIT Mandi for 3 months in the INSA-JRD TATA Fellowship program, and I had a purpose to improve my research study and a target to publish a research paper. This was my first time in India, and I went alone so I was concerned about many things, especially an unfamiliar culture in India. When I arrived at IIT Mandi, my concern faded away because of the great help of IIT faculties and students. They support me in everything. My main mentor gave advices that are very useful for my research study, and many IIT student friends supported my living in India such as travelling around IIT Mandi campus area,



Nachapol (fourth from left) with his lab members

campus rules, student dormitory, good restaurant nearby the campus, even how to eat and cook Indian food, so I had a warm, friendly and comfortable stay and could do my work efficiently. Furthermore, I was delighted and enjoyed with friends when we traveled outside Mandi city during vacation time. I had many experiences and had learned something new from the trip. That was a great trip for me. Therefore, my best memory at IIT Mandi is meeting the helpful IIT faculties and students and traveling around Mandi.



South Campus painted by Dr. Astrid Kiehn in May 2019

IIT Mandi Decennial: A Vision Becomes Reality

Wolfram Ressel, Rector, University of Stuttgart, Germany

IIT Mandi's decennial anniversary reminds us, first and foremost, that a university consists mainly of people. It is the people who are heartbeat of the special organism called university. I use the word organism because IIT Mandi is an outstanding example for it: growing from its very beginning, alive, vibrant. I had the luck to be able to follow the development of this IIT from its very start both as the Rector of the University of Stuttgart and later also as the president of the TU9 alliance. IIT Mandi and TU9 have been successful partners in their research and teaching cooperation financed by the Indian and German governments.



In 2011 I arrived for the first time and saw the city of Mandi with its many ancient temples on the banks of river Beas. I was excited: What a most powerful combination it would be to link the primeval origins of the city of Mandi with the latest ideas science can offer!

I returned five years later - and was stunned: What had started as a vision had become an undeniable reality because people had used their ideas, drive and conviction to build together a place for the future next to a place from the past. What stayed on was the extreme friendliness and openness of the people.

Both, Mandi and the IIT, are surrounded by the breathtaking environment of the Himalayas. It provides the ideal setting for this university since its awe-inspiring nature offers a most productive atmosphere for working on solutions in research and technology for the constant improvement of life's quality in a sustainable world.

I congratulate IIT Mandi on its special anniversary and wish its dynamic people health and professional success on their way to strengthen its position as an exceptionally successful university in India and in the world. I'm sure that IIT Mandi will grow to be a world class technical university. The spirit and people's determination to build an outstanding and successful research campus in the northern mountainous part of India is clearly visible as I often mentioned during my visits in Mandi.

The University of Stuttgart is extremely proud to be one of your international partners in research and teaching. Most of all I would like to salute its Director Prof. Timothy A. Gonsalves for having wisely guided IIT Mandi in its first decade. His outstanding example convinced me that he knows better than anybody what a university is.

My Second Academic Family

Balthasar Novák, Professor, University of Stuttgart; Adjunct Professor at IIT Mandi

The first time I heard of IIT Mandi was in 2012 when Prof. Gonsalves visited the University of Stuttgart. We had a meeting along with the Director of our international office. During the meeting I was asked to support IIT Mandi in establishing the civil engineering stream including setting up the required labs. I had already acted as a founding Dean of the civil engineering program at the German University in Cairo, so immediately I accepted this offer. This was the beginning of a wonderful, creative and impressive experience.

The first trip to IIT Mandi was full of new impressions even though I had previously visited India several times. But now: a remote place but with an incredible atmosphere. Silence paired with nature and academic pulse, reachable by car from Delhi within just twelve hours. But the time required is changing: the construction work on the highway from Chandigarh to Mandi shows progress, and soon the trip from Chandigarh to IIT Mandi will take just three hours.

Coming back to my first trip to Mandi, flooded with impressions, I met young scientists, highly motivated to establish a new academic stream with the program of civil engineering. We had very productive discussions in several workshops, so that we could start in 2014. But besides the challenges to support establishing a new study program and a new faculty, I always shared my expertise in other areas. The South Campus was nearly completed and the work on the new North Campus had started. For me, as a civil engineer in structural engineering, it was essential to check the construction site during each of my visits and to support the IIT construction management team to keep the contractors under control. More than once we had very intense – sometimes angry – discussions with them, but finally they could improve and the North Campus now is nearly completed. I am already excited how the planned new entrance will appear along with the new footpath from South to North Campus and the new river bridge.

Besides the academic work for me, IIT Mandi has become my second home. Every day during my several stays in that beautiful valley of Himachal Pradesh I went for a jog or a hike with the Director or some faculty members. It gave us the possibility to discuss topics without any disturbance. I got new friends and I had the chance to share my passion to cook for other people at several dinners with the Gourmet Club. And we shared our different cooking cultures. Now I know how to cook Indian style and the members of the Gourmet Club know how to prepare German Spätzle und Bratkartoffeln. Finally in my recent position as adjunct Professor at IIT Mandi I am proud to be able to continue my support for the civil engineering faculty, and I am sure that IIT Mandi will develop from the rough diamond into a bright shining brilliant.



The Spirit of Cooperation

Yvonne Dittrich, Professor, IT University of Copenhagen; Adjunct Professor at IIT Mandi

Already during my first visit to IIT Mandi in 2010, I was impressed by the young faculty coming from all over the world to bring the vision of an IIT in a remote mountain valley to life: physics and chemistry labs had to be built up from scratch, curricula needed to be designed and an academic environment for students and faculty had to be developed from scratch. Every step was sometimes a hard-fought achievement: the first functioning mess, the first classes, offices and housing on the Kamand campus, the first convocation, the first graduates, and the first conference hosted.

Prof Gonsalves inspired through his enthusiasm and example. The vision to develop and grow an IIT that combined academic excellence with consideration of the use of the research has led to innovative curricula and research in cooperation with the surrounding environment. Dr. Priscilla Gonsalves nurtured a caring and welcoming IIT community. Her open house, Book Nook, and the Kamand women's NGO are but a few examples for how she complemented the academic development.

I feel immensely privileged to have been invited to accompany the IIT Mandi. The difficulty of software engineering and its teaching lies in the necessity to take joint responsibility for the project collaboration and develop suitable coordination mechanisms and communication channels. This challenge is exaggerated by spatial distance, different time zones and cultural dispositions. We teachers learned together with the students how to make this work. For some of the students, the course provided an important stepping stone for a future career.

I hope that some of the spirit of these early years can be kept. That spirit allowed cooperation and support across academic disciplines, schools and departments.



Wild mushrooms



Snail



Ladybug

Embracing the Challenge

Ingrid Shockey, Associate Professor, Worcester Polytechnic Institute; Adjunct Associate Professor at IIT Mandi



Dr. Shockey first from right

Many years ago, Prof. T. A. Gonsalves appeared in my WPI office to introduce himself and to describe a beautiful new campus in the high terrain of the Himalayas. Our initial visit might have left us a bit sceptical that a fruitful collaboration with IIT Mandi could ever come to fruition. We took a treacherous ride on the road from Mandi to Kamand BEFORE the widening and guardrail improvements. I'll never forget the thrilling view while my WPI colleague opted to close his eyes in terror. Our impression of the new site included beautiful open pastures, grazing animals, and a few old buildings. It seemed a long way from

somehow transforming into a modern campus that could host our center, but Tim's enthusiasm and vision was quite clear. Sure enough, after a series of visits and faculty exchanges between IIT Mandi and WPI, we embarked on a remarkable collaboration between our two universities to launch the ISTP experience.

The task of uniting faculty and students across many miles, time zones, and cultural differences has never been easy, but it has always been immensely rewarding in ways that are often unexpected. ISTP has many learning outcomes, but at the end of the day, it is an exercise in finding common ground, building compassion, and sharing ideas. Our faculty on both sides have jumped in – usually embracing the challenge... sometimes at first under duress – to build a program that must find a way for diverse students, faculty, villagers, and communities, to share their stories, express their perspectives, and to learn from one another in real time. We first navigate seemingly frustrating mundane tasks: how to eat together, how to weather a taxi ride in mountainous terrain, how to communicate across multiple languages. The focus turns quickly to cooperation: what it means to work in a complex international team, how to research with integrity, and the arduous process of shared writing.

As the teams' engagement deepens, critical moments in the lives of our participants start to emerge: students learn how to listen with compassion to extraordinarily painful or hopeful stories from communities, students question their own perspectives, and dramatically alter preconceived notions of their role in the world, students re-evaluate and change their major after the ISTP experience to a more humanitarian approach to science or engineering. How do we quantify the impact of this experience? Those of us who have devoted our lives to teaching know that the value of these hands-on projects is immeasurable in that we are training scientists and engineers how to be open to the experiences of others, to listen, and to engage outwardly with the world. As a student wrote, "truly a day doesn't go by when I don't somehow think about it. I learned so much. This experience has made a significant difference as I look to my future career". Another noted, "It was the best experience of my life". These connections catalyze us to grow the most, and having confidence in HOW to connect serves us for a lifetime.

Congratulations and our deepest respect from all of us at WPI to our greatest champion in these endeavors. We will miss TAG and Priscilla and Rusty, and at the same time, we know that you have an exciting new path ahead. Thank you for everything you have done to build this wonderful place.

National Leadership

IIT Mandi's vision is 'To be a leader in science and technology education, knowledge creation and innovation, in India marching towards a just, inclusive and sustainable society'.

Over the past 10 years, IIT Mandi has grown at all fronts, setting and crossing milestones set for each year, and further setting new goals and standards. In 2020, Professor Gonsalves highlighted some of the milestones:

FarmerZone

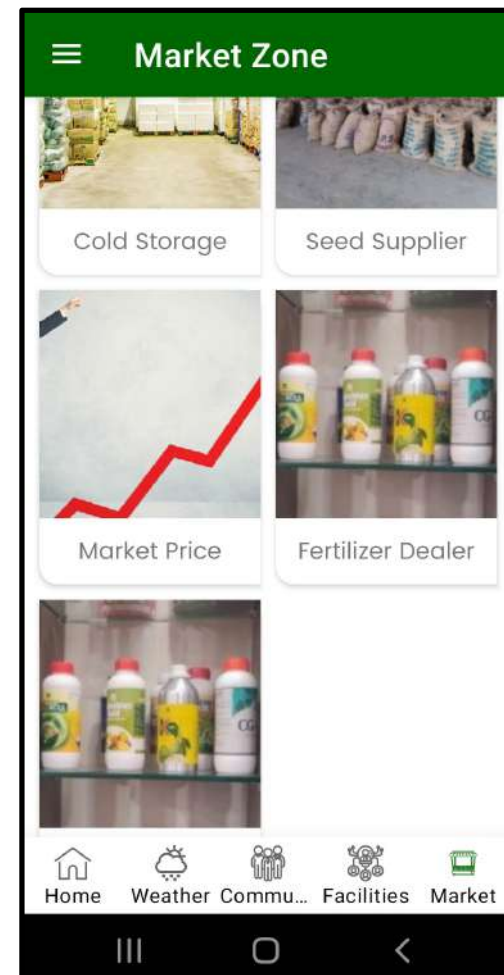
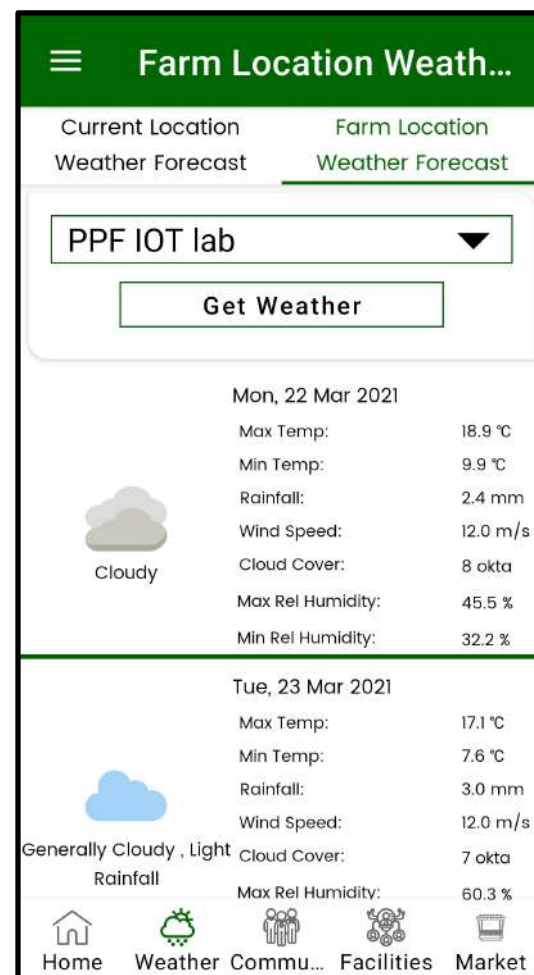
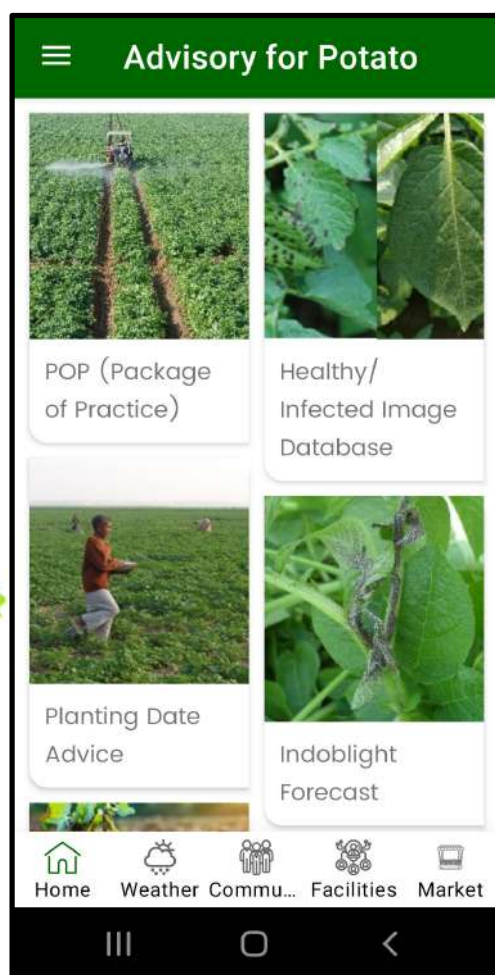
Timothy A. Gonsalves

“In ten years, IIT Mandi has achieved national leadership in several areas. We were chosen as the nodal institute for the FarmerZone project, a national initiative of the Department of Biotechnology with Indian and foreign partners. It aims to use Artificial Intelligence (AI) and Machine Learning (ML) to help small and medium farmers make better crop management and marketing decisions so that they can increase their profitability”.

FarmerZone Project

The FarmerZone project is a vision of the Department of Biotechnology, Ministry of Science and Technology, Government of India, for a cloud service. It is a collective open-source data platform for smart agriculture which will serve as a multi-purpose window for the dissemination of farm-level information to farmers, from dealing with climate change and weather prediction to matters of land, soil, water, seed and market linkages. The FarmerZone Project aims to advance the process of technological intervention to help small and marginal land-holding farmers, who constitute a major component of Indian agriculture. In 2018, IIT Mandi was selected by the Department of Biotechnology to lead this project, which includes a number of national and international partners. Serving as a single platform for collecting, curating and analysing data and distributing it as need-based solutions, FarmerZone will eliminate the data silos that currently inhibit the sharing of agricultural information, by incentivising all key actors in the smallholder agriculture value chain to share their resources in a mutually beneficial model. FarmerZone will link its processed data with affordable decision-enabling solutions that address farmer needs across various geographies. Services will range from weather prediction and irrigation to soil nutrition, seed selection, disease and pest control, surveillance, market access and credit linkages, among others. The platform will work on getting relevant quality data related to agriculture into the cloud, develop sentinel sites to help link with farmers and evolve PPP-based enterprises for data delivery. The FarmerZone Project envisions providing possible solutions through scientific interventions for the challenges faced in each agro-climatic region.

The FarmerZone platform will connect farmers and scientists, government officials, thought leaders in agriculture, economists and representatives from global companies who work in the big-data and e-commerce space to bring about technology-based localised agri-solutions.



Food security is a global concern, and the livelihoods of hundreds of millions of families depend on small scale agriculture. FarmerZone aims to address this challenge collectively and will showcase the enormous research strength of India and its international partners in a global context to make an impact and build strong and sustainable research and innovation partnerships.

FarmerZone™ is a multi-institute project led by Dr. Srikant Srinivasan as principal investigator along with a team of investigators from IIT Mandi and other domestic partners across India as well as collaborators abroad (UK, USA).

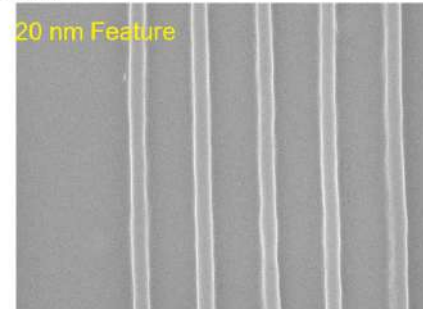
VLSI Resist Project with Intel

IIT Mandi is leading the country in the indigenisation of a wide spectrum of photoresists, which are essential ingredients for electronic chip fabrication. In 2012, the institute took up the challenge of bulk production of indigenous photoresist formulations for Indian semiconductor industries and academic institutes. Photoresists are essential raw materials for electronic chip fabrication and have a large market size in the global semiconductor market. Yet, to our knowledge, no Indian manufacturer is involved in the production of advanced photoresists. Therefore, all Indian semiconductor research facilities, as well as academic institutions, are dependent on foreign suppliers. Hence, there is a dire need for indigenisation of advanced photoresists.

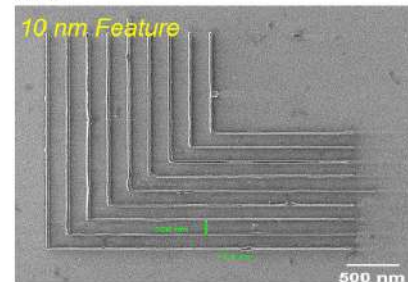
In 2012, Prof. Kenneth E. Gonsalves, as the Principal Investigator, along with Dr. Satinder Sharma, Dr. Pradeep Parameswaran and Dr. Subrata Ghosh, as the Co-Principal Investigators, received USD300,000 from the multinational chip maker Intel for developing state-of-art materials for 20 nm node VLSI technologies. The team, headed by Prof. K.E. Gonsalves, started working on this project and successfully developed a diverse range of photoresists for 20 nm node technology. Later, in 2016, given the need for indigenous photoresists to meet the requirements of Indian semiconductor industries, IIT Mandi received funding of Rs.3 crores for indigenisation of different types of photoresists. The team comprised Dr. Subrata Ghosh (Principal Investigator), Dr. Satinder Sharma and Dr. Pradeep Parameswaran (Co-Principal Investigators) and Prof. Kenneth E. Gonsalves (Senior Consultant). The success of such development depends on the access to the fabrication line of chip manufacturing industries for testing of photoresist formulations.



Intel US, \$300K in
2012: <22nm

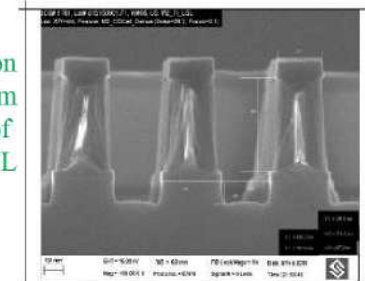


2018



VLSI Resists

Validation
at 180 nm
fab line of
SCL



IIT Mandi indigenizing 11
out of 34 chemicals used
at SCL, Mohali

Indian patents filed:

No. 201611044190

No. 201611018061

No. 201611022219

29

IIT Mandi in the NIRF Rankings

Every year, in April, government-funded higher education institutes and many private institutes in India gear up for the results of the National Institute Ranking Framework (NIRF), released by the Ministry of Human Resource Development. Institutes and organisations across the country are ranked on specific parameters identified as emblematic of an academic institution of the highest standard. In 2019, the rankings brought for IIT Mandi the reassurance that the institute is moving in the right direction and that it must continue to tread on the path for ensuring a holistic approach to education. The institute was ranked 20th in the category Engineering in NIRF 2019. IIT Mandi had improved its position by jumping up six positions in this category. In NIRF 2017, the institute had been ranked at the 28th position.



According to Prof. Gonsalves:

‘The goal of an IIT is to be recognized as the best in the world. In 5 or 10 or 20 years one can expect an IIT to become the best in India in some areas. IIT Mandi has already been ranked by NIRF as the top in both engineering and overall among Himachal Pradesh’s institutions. In India we are leading in some areas.’ He added that IIT Mandi will be a global leader in something in the next 5 years.

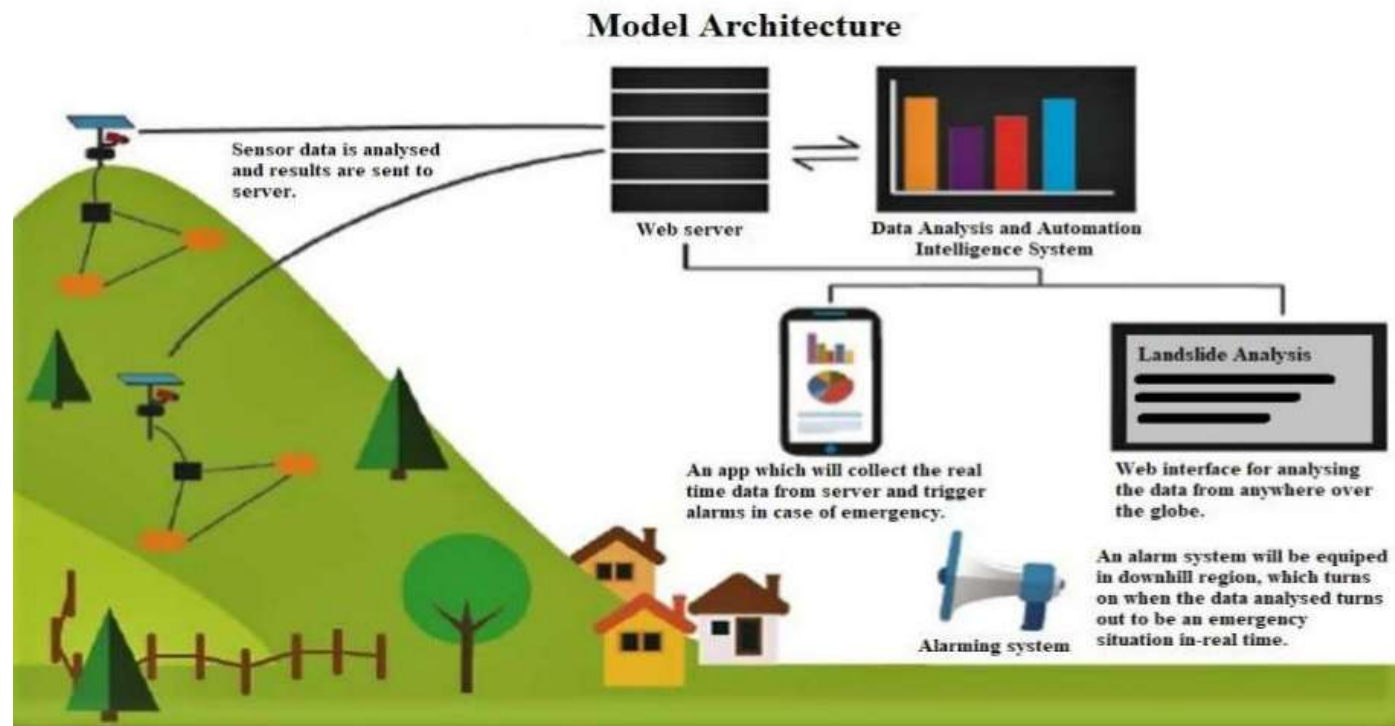
Research Dedicated to the Himalayas

IIT Mandi’s strategy for achieving excellence and having a strong impact locally and globally has been to work on major challenges of the Himalayan region and of India. Notable about this research activity is the fact that much of it has been focused on finding solutions for local problems. In Professor Gonsalves’s words, ‘The idea was to encourage applied R&D for social benefit rather than only blue sky research. As we’ve gone along we’ve kept taking up new projects.’ A few projects aiming to improve the life of local people are described here:

Landslide monitoring system. Researchers at IIT Mandi, led by Dr. Varun Dutt and Dr. Kala Venkata Uday, have developed a low-cost monitoring and warning system against landslides—common occurrences in the Himalayas. The faculty-student group iIoT (Intelligent IoT Solutions), a startup incubated by IIT Mandi Catalyst, developed the system, which records weather parameters and soil properties. The cost of the system is Rs.20,000. It has been deployed in more than 20 landslide-prone locations in Himachal Pradesh.

The device's motion sensors in the soil detect movements and alert road-users to impending landslides through blinking lights.

Landslide monitoring



Pine needle briquettes project. Pine needles accumulating naturally on the ground lead to forest fires and to loss of lives and property in the Himalayan region. IIT Mandi researchers have developed a business model in which bio-fuel, in the form of briquettes, is produced from pine needles. The project is led by Dr. Arti Kashyap, Associate Professor at IIT Mandi. The briquettes can be used for domestic cooking and for generating electricity. The business model is successful, and 16 businesses have been set up and are running. The briquette-making system helps the local economy and supports rural electrification efforts. By reducing the usage of firewood, it preserves biodiversity.



Climate change vulnerability assessment for the Indian Himalayan Region using a common framework. IIT Mandi, along with IIT Guwahati and IISc, has collaborated in this pan-Indian initiative. The Indian Himalayan Region (IHR) is one of the regions most sensitive to climate change. Most parts of the IHR have experienced significant long-term changes in the frequencies of extreme temperature and rainfall events over the last few decades. Recognising this, the Government of India launched the National Mission for Sustaining the Himalayan Ecosystem (NMSHE). One of the key areas identified by NMSHE was to build the capacities of the 12 IHR states for robust assessments of climate change vulnerability, adaptation planning and implementation. For the first time, all the 12 IHR states have used a common framework to produce comparable state- and district-level vulnerability maps. Comparable vulnerability assessments are useful for various agencies, enabling them to assess and address vulnerabilities. Dr. Shyamasree Dasgupta from School of Humanities and Social Sciences is leading the efforts from IIT Mandi.

Herbal tea project. Researchers led by Dr. Shyam Kumar Masakapalli have successfully formulated infusions from various herbs growing around IIT Mandi, in the mid-Himalayan region. These value-added products are rich in antioxidants and have health benefits. The researchers have optimised a vacuum drying process for each herb so that its quality is maintained. Local people are involved in the processing and packaging of the products, and this engagement gives them livelihoods. The products have been branded commercially as ‘Kamand Valley Flavours’. The goal of the project is to create 100 formulations and establish a farmer-academia-industry-NGO network with buy-back and sustainable market linkages.



Herbal infusion technology: Process optimised at IIT Mandi

Gender-Just Campus

Women in Engineering

Timothy A. Gonsalves

When I was a student at IIT Madras, there were only five women students in a batch of 280. I can recall only one female teacher, who taught English. Gender segregation was a fact of life in schools and workplaces, and we took it for granted. That was the way society was at that time.

My mother was an example to me. She was a housewife who, after we grew up, started teaching and even opened her own school. I came across capable women in many walks of life, not just in engineering, including during my time in the US, where I lived between 1976 and 1988. I did my M.S. at Rice and Ph.D. at Stanford. Both had many women in the arts and humanities, though they were still a minority in engineering. Both were far ahead of IIT Madras in gender ratio at that time.

One of these women whom I met in Stanford became my wife and has been an important influence on me ever since! She is also responsible for a number of initiatives at IIT Mandi, including the campus school, and several other amenities that enhance life on campus. Two unique initiatives of hers: Book Nook, that encourages reading amongst all ages, and EWOK, an incubator for businesses by rural women.

I had a few women as colleagues at IIT Madras, too, when I started working there as a faculty member. Although the gender ratio among the B.Tech. students was very low, in the M.Tech. and M.S. streams and in sponsored projects we have many more young women who proved their worth. From these individuals, I learned that women can make important and sometimes very different contributions in engineering. Their needs are also different. These experiences helped convince



Prof. Nandita DasGupta and Prof. Enakshi Bhattacharya, of IIT Madras

me of the pressing need for more women in IITs and in engineering. A fifth of the B.Tech. students admitted to IIT Mandi in 2019 were female. This represented a great change since 2009, when there had been just eight female students. But IIT Mandi's gender diversity compares favourably with even the target of 17 per cent set by the Joint Entrance Examination (JEE) Apex Board Committee for 2019–20. This is the highest in any IIT, and IIT Mandi is therefore a national leader in gender diversity.

Female Enrolment

A total number of 262 students were admitted to IIT Mandi in 2019–20 in B.Tech. courses, out of which 53 are girls and 209 are boys as compared to 38 girls and 158 boys last year. A total of 103 students have been admitted this year in the M.Sc. courses, of which 36 are girls and 67 are boys. The paucity of female enrolment in engineering is often referred to in academic discourse. Prof. Timothy A. Gonsalves, Director, IIT Mandi, led a committee that suggested several measures to ensure a higher female enrolment rate.

One such approach was to instate what we call supernumerary seats. This allowed us to push our total intake capacity by a few seats in the likelihood that we have not met the target

percentage of female candidates during an admission session. To incentivise women further to join the Institutions, IIT Mandi also offered a merit scholarship of a full-tuition fee waiver for women in their first year along with a stipend of Rs.1000 per month for 10 months, which becomes subject to their performance in the subsequent years. The institute also hosts the pan-IIT help desk during admissions, which particularly seeks to address the queries of potential female candidates on key issues such as logistics and safety on campus. Furthermore, the Women in Science and Engineering (WISE) programme at IIT Mandi organises several initiatives throughout the year focused on providing an interactive platform for women to discuss placements, internships and scholarships, hosting guest lectures by entrepreneurs.

Timothy A. Gonsalves



B.Tech. students during Holika Dahan, 2018

Girl Students at IIT Mandi

Pratiksha Jain, B.Tech. in Electrical Engineering 2019-2023

As a first-year in IIT Mandi, and having heard about the alarming gender ratio earlier, I am glad to see a lot of female students around me. It is inspiring to see my seniors excel, not only in academics but also in internships and placements. Also, the student societies are very inclusive, and the spaces provide us with an equal chance to grow and develop :)

Vadlamannati Madhumita, B.Tech. in Electrical Engineering 2019-2023

With the scheme for supernumerary seats in place, we've seen quite an improvement in the gender ratio in IITs. This not only serves to increase diversity within the campus but also encourages girls around the country to aim to get into the premier institutes of our country. Having more girls in the campus helps us in being aware of the various programmes exclusive for girls. Given the fact that the technology industries have fewer women than men, these incentives encourage us to improve our skills and contribute to these industries.



Jai Prakash Yadav, B.Tech. in Mechanical Engineering 2019-2023

It will be better if we increase the strength of women on the campus as I feel most of the boys in my year are not comfortable when they have to speak with girls. So surely, by increasing the strength the communication gap between girls and boys will reduce.

Aarushi Gajri, Dual Degree in Bio-engineering 2019-2024

Having more women on campus has led to progression and development in a multitude of areas. With regard to academic opportunity, education is more well rounded and relates more closely to the real world. It makes engineers who are innovative and create better things. There being a greater number of women makes sure that the opinion of women cannot be ignored. Overall it makes better citizens who have a more intelligent world view than those studying in colleges with poor gender ratios.

Sarthak Kumar Morj, B.Tech. in Electrical Engineering 2019-2023

Having more women on campus will immensely increase the social skill sets of a normal boy who didn't have enough opportunities to talk to a woman during his JEE days. It will help them to overcome their shyness to talk to the opposite gender and will make them more mature. It will also enhance their view of the world and help them to become innovative and creative and a better engineer.

The Safest Place for Girl Students

Shilpa Sharma, Ph.D. in SBS from 2012-2017

I came to IIT Mandi with a dream to be a successful researcher and got enrolled for a Ph.D. in chemistry at the School of Basic Sciences. The infrastructure was limited, and I was amazed to see the management of the space, in which there was everything from classrooms to labs, and the arrangements for indoor and outdoor games. After 1 year at the transit campus, most of the students, including me, got shifted to the newly built campus in Kamand. This allowed me witness the growth of IIT Mandi from a small building to an astonishing full-fledged institution.

When I joined the third batch of Ph.D. scholars, there were only a few girls on the campus, and we even used to know the names of all of them. The girls' hostel was at the Mandav complex, a bit distant from the main building of the old campus. Thanks to our management, during odd hours, a security guard always escorted us to the girls' hostel. The girls were treated nicely by the institute, and there were several committees for the care and upliftment of women on campus. I was fortunate enough to be a part of a few of them as I served as a residential warden and as a member of the women's centre. This centre was formed with the vision of providing a welcoming and conducive atmosphere for the women faculty, staff and students. Additionally, IIT Mandi launched an initiative, Enabling Women of Kamand Valley (EWOK), to uplift the local women of Kamand village and around under the guidance of Dr. Priscilla Gonsalves. EWOK provides training and employment opportunities to the women and opportunities to share their qualifications and availability with potential employers. Prof. T.A. Gonsalves, Director, IIT Mandi, headed the various committees that were involved in improving the number of girls in the campus through a number of measures. First of all, a stipend of Rs.1000 per month was given to the first-year B.Tech. students for 10 months. Second, the institute provided IEEE and ISME student memberships to all female students admitted to the B.Tech. programme.

Moreover, the Pan-IIT help desk also became operative during admissions, mainly responding to the queries of female candidates on critical issues such as logistics and safety on campus. Owing to all the steps taken, IIT Mandi was first among all IITs in Outreach and Inclusivity and 20th nationally in the Engineering category in the NIRF rankings. Finally, I want to mention the placement programme of IIT Mandi for the Ph.D. scholars, through which I was selected as an Assistant Professor at Sandip University, Nashik.

I believe that IIT Mandi is an ideal place and the safest place for girl students to prosper in the fields of their interest. I can never forget the days I spent on the beautiful campus of IIT Mandi.



Shilpa Sharma (right) with friends

The Student Gymkhana

The Gymkhana of IIT Mandi was established in 2011, and since then it has been instrumental in the growth and development of the Institute and its students through its elected secretaries. The Gymkhana oversees student activities through various societies and clubs. There are five major societies: Science and Technology Council (SNTC), Cultural Society, Sports Society, Research Society, and Literary Society and these cater to the main extracurricular activity themes. There are many clubs under each society including: Robotronics Club, Web Design Club, Space Technology and Astronomy Cell (STAC), KamandPrompt - Programming Club, Entrepreneurship Development Cell (E-Cell), Yaantrik Club, Nirmaan Club, Shutterbugs - Photography Club, Perception - Video making Club, Gustaakh Saale - Dramatics Club, Uhl Dance Crew (UDC)- Dance Club, Beats and Notes - Music Club, Designauts - Design Club, Art Geeks - Fine Arts Club, Quizzing club, Debating club, Writing club, Society for Collaborative Research and Innovation (SCRI), IEEE Student Chapter IIT Mandi, ACM Student Chapter IIT Mandi, and Mountain Biking club.

Each first-year student must join the National Sports Organisation (NSO), the National Service Scheme (NSS) or the IIT Mandi Hiking and Trekking Club. First year students must put in forty hours of work in their chosen organisation.

The Web Design Club started work in June 2010. It developed the IIT Mandi website and a variety of software to streamline application and registration procedures.

The Music and Dance Clubs encourage both Indian and Western music and dance. Their efforts led to Exuberance, the first cultural show at IIT Mandi in the spring of 2011.

In the first semester of 2019 – 2020 there were a total of 126 events of all sizes organised by and for the students on campus. Indeed, there were so many attractive events, the students were challenged to hone their time management skills so that they did not neglect their academic pursuits. In addition to special events, many students participated in sports and creative pursuits. The green areas on campus invited informal games of cricket, volleyball and badminton. Many other students enjoyed walking or running in our pristine setting.

Exodia

Exodia is the annual technical cum cultural fest of IIT Mandi. The first Exodia was organised in the spring of 2011 with 35 major technical, literary, gaming and cultural events, and a great variety of informal events and activities. Exodia is quickly becoming the biggest college fest in the Himalayas. The footfall is increasing every year and the media coverage over the years has grown exponentially. Students are involved in the planning, hospitality, security and the successful conduct of the events. As part of the planning and preparation they also solicit sponsors and financial support.

Colleges from all over North India come and participate in the fest. Various cultural events like Synchronians, the group dance competition, attracts vigorous competition. New events like Rap Battle, Open Mic and Drone Watch are introduced each year.

In technical competitions, Robowars is the most famous event with most entries.

The technical events of the fest cater to the inquisitive minds to solve various problems based on their current knowledge about science and its application. The cultural events showcase the ethnic cultures of various places around the country. The main focus of the cultural events is on sharing ideas and culture. Plenty of informal events including a PhotoWalk, trekking, mountain climbing and adventure sports are also organized by the students. The winners of various events are awarded with goodies and prize money.

Rann-Neeti

Held in the odd semester, Rann-Neeti is the sports fest of IIT Mandi and invites colleges from north India to participate. The fest was conceptualized by the Sports society in 2013 and the first edition was a great success. The consecutive sessions have seen increasing participation from colleges around Himachal, Punjab and Haryana with total footfall crossing 1000 in the 2018 edition of the event. The fest witnesses sports events including Cricket, Football, Hockey, Badminton, Table Tennis, Athletics, Basketball, Volleyball and some informal events like Chess and LAN Gaming. Students get the exposure required for the Inter-IIT sports meet through this fest. An invitational event of this kind gives students the necessary exposure to management, hospitality, control and sponsorship canvassing.





Audience at Teachers Day celebration 2018



Junk Yard Wars 2018



Hurdle Rush 2018



Utkarsh 2019



Couture show at Exodia 2018



4th Inter IIT Tech Meet



Participants at Vibgyor 2015, the art festival



Lit Fest 2019



Pronite at Exodia 2018



Dancers at Foundation Day 2018



Riders ready at the starting line for Trails 2019



Closing ceremony of Rann Neeti 2019



Exodia 2017



Gusthaakh Saale performing at Exodia 2018

Impacting the Local Community

Social Changes

Priscilla Gonsalves, Wife of Founding Director

On my first visit to our Kamand campus, I was impressed by the rustic beauty of the valley. At the same time, as a social historian with a minor in development economics, I wondered how the arrival of a modern technical institute would impact the local inhabitants. To the outsider it appeared that their lives for the most part followed the same patterns as did their grandparents' lives and even their grandparents' grandparents' lives. A closer study would certainly reveal many changes over the previous century—the acquisition of land by the landless at the time of the founding of Himachal Pradesh, the advent of electricity, water works and paths and roads, schools established every 3 kilometres or so, etc. But many of the traditional patterns remained—subsistence farming, transhumance, caste divisions, etc. How would the establishment of IIT affect this area, and could we knowingly promote preferred changes and cushion or counteract more painful ones?



Village shops at Kamand

When the first batch of IIT Mandi students arrived from Roorkee in 2010 for the Foundation Day, the local villagers were mainly involved in subsistence farming. The men handled marketing of excess produce and transport, and the women were responsible for most of the agricultural and house work as well as fetching water, wood and fodder, child and elderly care and cooking. Many women also made dairy products, especially paneer and ghee, for extra income. The forestry department nursery was well established and hired a few men. Other men had found work with IIT as security guards and mess workers. Many men tried for army and police appointments and other government jobs.

In preparation for this employment, the boys were often sent to high school and even college. Most girls were sent for basic schooling but were married at puberty. Only a few families in the valley owned vehicles. There was a bus three times a day, but walking was the most common way of getting about. Women often walked up to 6 kilometres each way to cut fodder for their cows.

The walking scene has now changed dramatically. Many men have purchased cycles or two wheelers and use them to get to IIT jobs. Some families have purchased cars. A few women have now learned to drive two-wheelers. Many local employees now commute to work on their own or neighbours' vehicles or by bus or van. On the other hand, IIT professors, staff and students take to the roads to run or walk before and after hours spent at their sedentary jobs.

Initially local men secured jobs as gardeners, sweepers, mess workers, lab or workshop assistants, drivers or security guards. Women secured mainly the lower paid jobs—gardening, head load work at the construction sites and sweeping. Noticing this imbalance, IIT initiated an ISTP study of women's education levels in the valley. That study found that most women over the age of 30 had completed only 8 years of schooling. Many women under 30 had completed high school, and several had taken college degrees in Mandi.

Following up on this study, the Women's Cell at IIT, under Dr. Tulika Srivastava, established EWOK (Enabling Women of Kamand) in June 2016. Initially the aim of EWOK was to make information easily available to local women and potential employers and trainers so that local women who sought to enhance their lives through training, education, employment or entrepreneurship could find the paths to achieving their goals.

EWOK has since guided many women in the valley to fulfilling their dreams. Fifty women have been certified in basic computer skills or spoken English. Twelve women have started businesses, including four women who have become contractors for horticultural labour. Thanks especially to the four contractors, these 12 women now provide employment for 65 women and men from the local community and have achieved a total turnover of 65 lakhs. Given that the six villages in this valley each have only a population of 300 to 600, this is a very significant achievement.

IIT and its associated contractors now offer much more easily accessible employment to Kamand Valley inhabitants. Almost 400 local people are employed for security, housekeeping, horticulture and construction. Many local villagers have found employment on the campus. Two imbalances appear. Women fill only a small percentage of the jobs. Only in housekeeping, they account for 30 per cent of the employees. In construction, IIT employs no women though many have found employment with outside contractors.

In security, women hold 14 per cent of the jobs. The second imbalance is that the supervisory posts are almost all held by people from outside the valley, while the labourers and sweepers are almost all local. IIT should strive to encourage good employees to get the training or education necessary to move into supervisory roles, and with time today's children from the valley will have the necessary qualifications to fill higher posts.



Interaction with local community

In almost every small village, several people have found employment at IIT. In some families, two or more members are employed by IIT. All the villagers who were questioned mentioned how the jobs acquired and the income accrued had helped the villagers rise above their previous subsistence level. One villager mentioned that the advent of IIT had attracted more liquor vending, which, coupled with the greater supply of cash at hand, had led to more drinking.

The growth in employment outside the family property has also led to some changes in the distribution of work at home. Some women are hiring other women to cut the grass which is essential for their cattle to over winter. In other families where the women have found employment at IIT, the men have taken on some of the jobs traditionally allotted to women. Some men are contributing to housework, cooking and gathering fodder and firewood.

Another institution that has had a great impact on the local population and on relations between the IIT and local communities is the campus school. From the time Takshila School first opened its doors on campus, local children have been invited to join the school, and IIT has offered scholarships for those who would like to join but need assistance with financing. When Mind Tree took over the administration of the school, it continued the practice and invited children from Mandi town also to join the school. Today the Mind Tree IIT Campus School has a total enrolment of 254. Of these, 68 are children of IIT professors and staff members, 33 come from Mandi town and 153 come from the villages around in Kamand Valley. Twenty-nine of the village students have scholarships.

When questioned about how the establishment of IIT had impacted their lives, most of the local people and employees at IIT mentioned the improved outlook for their children. Some had enrolled their children in the campus school and extolled the greater opportunities their children enjoyed at the school and how much they and their children appreciated the school. Even others who had not enrolled their children in the school mentioned that the arrival of the students from all over India and even abroad had widened their own and their children's outlook. As a result, their children raised their aspirations, completed high school and college and found better employment.

The school has also helped bridge the gap between the mainly urban and educated IIT community and the less educated

agrarian local community. As children visit classmates and parents get to know classmates' parents, they come to see that they have much in common underlying the big differences that divided them at first. Hopefully they will learn to work together for the benefit of both communities and their children and to preserve and develop the Kamand valley so that all benefit.

Another change brought about by greater education and more exposure to Hindi at school and on television is that the local language, Mandyali, is fading. Women report that their mothers are learning Hindi so they can converse with their grandchildren. Many of the younger generation say that they know some of the traditional songs but no longer speak Mandyali.

Talking to people about the changes IIT Mandi has brought to their lives, I was impressed by how positive most of their responses were. Negative comments related mainly to alcohol consumption and the noise of student events. I hope that in future IIT can build on this positive foundation to secure a better life for the whole community in Kamand Valley.



Delosperma sp.



Mallotus philippensis



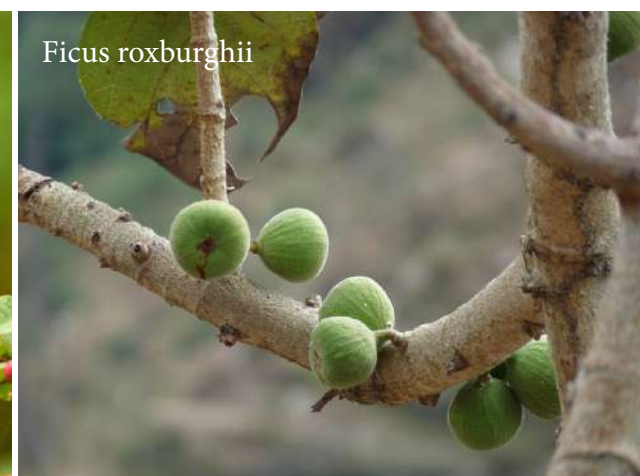
Celosia cristata



Wild flower



Murraya koenigii



Ficus roxburghii

Voices from Kamand

Duni Chand, Gardener, Resident of Kanhara Village

I belong to Kanhara village, which is located above and around the South Campus. The village has about 250 people in all. I went to the government school at Kamand and have studied till class X. My father died when I was in school and I had to discontinue my education and support my family.

Before joining IIT in 2012 as a gardener I worked in Apple Valley Hotel, in Kullu, for about 4 years. Initially I worked as a gardener there, but then I grew curious to see the inside of the hotel. I worked in the kitchen, then as a waiter, then as an order taker, and even in the bar there. However, I had to return home because I had to manage my land. In our village people need to help each other for community tasks. So I needed to be back. I then got a job with the HP Government's Mid-Himalyan

Watershed Development scheme, as part of which I started working in the government nursery. When IIT started in Kamand in 2012, I got a job here. Earlier I knew about big plants and trees only, but now I have learnt about flowers and ornamental plants.

We are four brothers, and each has 5 bighas (1 acre) of land each. On my land I grow wheat, corn, sorghum, and two types of dal (mah (black) dal and kulth dal). I have a cow and two calves, and a bull. We don't use tractors, and so the bull is useful. My brother and wife also work in IIT in the cleaning staff. My son (18 years) and daughter (20 years) attended the government schools in Kamand and Katindhia and now study at Vallabh College. My daughter did a computer course with EWOK and assists Dr. Arnav Bhavsar in his project for a few hours a week. Women in my village are not educated—hence they could not join EWOK. In the earlier days, people who are dead now used to not want to educate women but now we educate both boys and girls.

I remember the time when there was an animal husbandry farm here. We used to milk the cows on our way back from school at 3 pm! There were about 200 milk cows in what is today the South Campus. Pregnant cows used to be kept in what is today the North Campus. When the animal farm was set up (in the 1960s I think), locals were given compensation of Rs.100–2000. This is what I have heard. In my village at least one woman from every family works for IIT as a construction labourer. Earlier too, when there was an animal husbandry farm here, the women were given temporary employment by the farm as they had to collect grass and harvest corn for the animal farm. Both men and women were employed, and we had to put the harvested corn in a water-proof pit with salt and jaggery. This was later used in winter for the cattle. With more women working for IIT, the men have learnt to cook as the women also have to leave for work. My wife leaves at 8 am, and I leave at 9 am. I can make roti and vegetable dishes.



Our village had electricity even earlier (before IIT), and now we have satellite TV. Earlier people did not call DJs for events, but now it is becoming common. When IIT students play loud music, we get disturbed—for example at Exodia, which is coming. With IIT here, the campus school has also come, which is good for our children. About five children from my village study there. About 10–15 people from my village are employed by IIT in the housekeeping, gardening and security departments. Others work in construction for IIT.

There were only a few shops in Kamand earlier, and only one in Salgi. Earlier, we used to go to Mandi to buy things, or to Kamand. Now we buy vegetables and provisions from the stores on campus.

Earlier there was one health centre in Kataula, and recently they opened one in Kamand. I think it is because of IIT.

Earlier there were no alcohol shops here, but now there are so many, near both North and South campuses. People who wanted to drink would drink earlier also. The shops should not be there.

We never abandon our cattle here, but outsiders do it. We would not abandon them because everyone knows each other's cattle in the village anyway. When the animal husbandry farm was here and our cattle wandered into its land, we were fined Rs.50 (in 2005) unless we knew the person in charge, and he forgave us. Now our cattle wander into campus during the monsoons occasionally, and the guards chase them away.

Our lifestyle in the village has not changed due to IIT. Most marriages are arranged. If the boy and the girl are not related to each other, we allow them to marry by their own choice, but it is not common. Dowry is not common, but parents may give what they want of their own free will. Marriage expenses are shared by both sides.

People of one caste only live in my village. In Neri they are of a different caste. We do not marry our children there.

Everyone in the village knows each other's caste, but outsiders don't bother asking us. There is no very rich person in my village. Everyone is poor.



Aerides multiflorum



Malus domestica



Lantana camara



Prunus cerasoides

Recently, two boys from my village joined the army. The father of one of them is a peon in a government school, and the father of the other one has a shop. I think seeing so many children from all parts of the country study here in IIT has inspired our children to think that they too can study far from home. When our girls see girl students in IIT, they too want to study. When IIT first came we thought it was like a government school and locals could also study there. I wish IIT would admit our children too or open a college for them. I know about the GATE exam.

The road to Mandi has improved, as has the bus service. However, access to our village is difficult, only via a narrow trail. Villagers have collected some money and tried to improve the unpaved road to it from beyond Pipal Point. I wish we had asked for better road access when the animal husbandry farm was there. Now there is no chance that IIT will allow us to make a road through their land.

Our village gets water via pipes from the Parashar area. When the snow melts in summer, we face a water shortage. We have a *baoli* [stepwell/tank] fed by a perpetual spring in our village, but it is not enough. Waterfalls are seasonal. It would be good if our water supply could be improved.

Monkeys are also a problem. We don't kill them because we don't have the time, and what would we do with the carcasses? Our dogs chase them away, or else we keep a watch on our fields, taking turns. Three of my dogs have been eaten by leopards—one was taken right from my porch.



Dragonfly



Carpenter bee on rose



Caterpillar on Achillea flowers

Urmila, EWOK Project Assistant, Resident of Katindhi village

I am a resident of Katindhi, and initially we did not know what an IIT meant. We had neither the knowledge nor any interest. Some people in my family admitted their children in the IIT campus school, and once we started noticing positive changes in the children, I became curious about IIT and also determined to have my children admitted to its private school. I also sent in my CV to EWOK. In 2016 I joined the EWOK project as Project Assistant. Over the years I have learned a lot of skills in addition to becoming more confident, thanks to my association with EWOK. My two daughters (Muskaan, aged 14, and Vanshika, aged 12) study in the IIT campus school, and they love it. They always tell me never to withdraw them from the school under any circumstances! To me it seems that IIT Mandi is the only source for locals to know what is happening in their world, for their children to have a different kind of life, and for their future prospects.

I know the local people very well as I grew up in Salgi (near IIT's North Campus) and now live in Katindhi (near IIT's South Campus). Initially the men were very reluctant about allowing women in their families to go to IIT. They thought the women would become spoilt! But when women started earning money, then the situation changed, and now everyone asks me to get them associated with IIT and EWOK in one way or another. Basically employment and income opportunities changed the perspective of local people.

Private schools have many more activities which may be expensive, but kids also learn a lot. So it is worth it.

People here have enough land for sustenance but no more than that. So jobs via IIT or EWOK are very welcome.

The worst thing that scientists have done is to invent tractors. Our cattle are no longer as valuable as they used to be, and people abandon them. This, along with problems with monkeys and wild boars, is a huge menace.

Thanks to IIT, the road connectivity in this area has improved, and bus services have become more frequent.

The caste system in villages has not changed still. Our kids eat with and play with kids from different castes in school, and I don't mind, but I have also told them not to mention this in the village. During *dhams* (community feasts), we do serve people of 'lower' castes but separately. I talk to everyone on campus but would not go to the homes of people from lower castes. Even on campus, we can tell who is from which caste by the way they live and talk.



Bag Chand, Housekeeping Staff, Resident of Neri Village

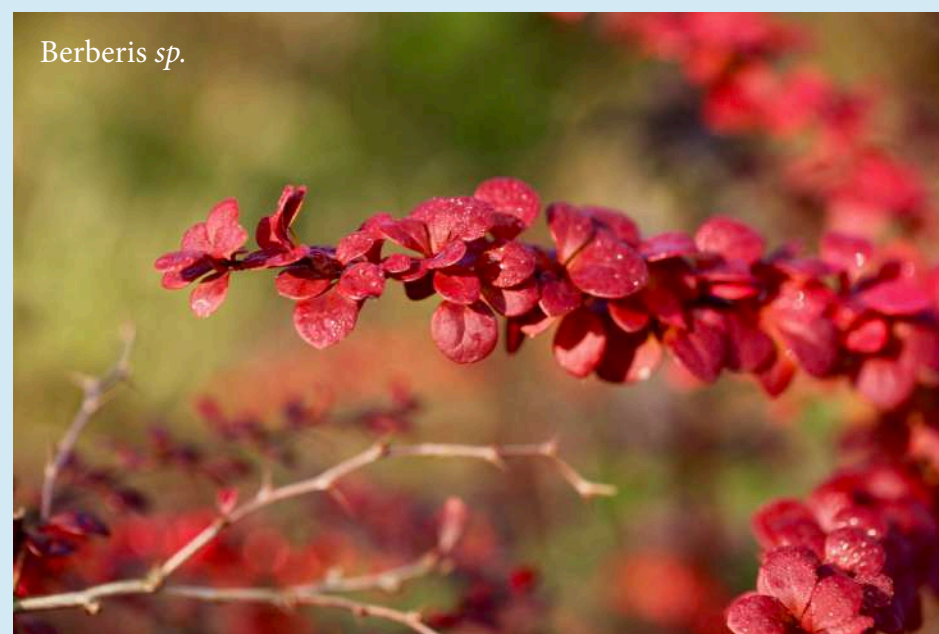
Previously, I would speak in Hindi only and didn't know much English. Now I am able to understand a little bit of English, and my general communication skills have improved as I have to interact with many people as part of my job. IIT has shown us what education can do, and this has motivated village children to focus more on studies. The general financial situation of the village has also improved since many people have got jobs in IIT.

Surender Kumar, Housekeeping Staff, Resident of Mandi Town

Because of employment and increased wages, the situation at home has improved, and I am able to support my family and extended family. Children have started aspiring higher and want to be professionals.

Gulabi Devi, Housekeeping Staff, Resident of Gagal Village

I was a housewife, metric pass, and my children were in the government school before I joined at IIT. After I started receiving a salary, interacting with people and understanding the value of education, I shifted my children to a private school in Mandi. Now my older son is an engineer, and the younger one is aspiring to be a teacher. IIT opened up my world view, and without it I would still be sitting at home and doing housework.





Jungle babbler



Duchesnea indica



Papilionid butterfly



Duranta erecta



Himalayan yellow raspberry

EWOK

IIT Mandi's efforts to assist the local society have been other than technical too. EWOK is a case in point. Empowering Women of Kamand (EWOK) is an initiative of IIT Mandi Women's Center to help rural women set up small enterprises in four panchayats (Kamand, Kataula, Katindhi and Navlaya) of Mandi District. EWOK provides guidance, training and information. EWOK is trying to establish a model in which it evaluates the skills and aspirations of rural women, on the basis of which personalised plans are prepared. EWOK offers two certificate courses under the initiative, a computer literacy course and a spoken English and personality development course. EWOK is working closely with self-help groups and individuals in setting up sustainable businesses. A number of women and their families are involved in various agricultural efforts, ranging from mushroom cultivation to growing aromatic herbs and crops for oil extraction. In collaboration with IIT Mandi Medicinal Plant Laboratory, EWOK has recruited 16 families from nearby panchayats who are interested in introducing new crops, on the basis of the suitability of their land and the availability of potential buyers for essential oils and herbs. In 2019, EWOK was registered as a society. EWOK's future plans include setting up a high-quality multi-purpose food processing unit that can be utilised by the agripreneurs of the Kamand region.



Helping Kamand women take command!

<p>Aligned with UN Sustainable Development Goals</p>	<p>8 DECENT WORK AND ECONOMIC GROWTH</p>	<p>45+ women impacted through</p> <ul style="list-style-type: none"> * incubation * skills training * capacity building 		
<p>5 GENDER EQUALITY</p>	<p>Creating eco-system of women-centric entrepreneurship & employment</p>		<p>12+ rural women led startups incubated Rs 65 lakhs revenue</p>	
	<p>1 NO POVERTY</p>	<p>60+ employment created</p>		<p>Bridging industry, academia, government and local community</p>

My Path to Setting up an NGO for Women in Rural India

Priscilla Gonsalves, Founder and Executive Director of EWOK

When I arrived in Kamand and saw the traditional culture in the area, I sought to find a way to reach out to the women and give those who wanted a chance to finish their education, find training, find employment or start their own businesses.

Initially, local men secured jobs as gardeners, sweepers, mess workers, lab or workshop assistants, drivers or security guards. Women secured mainly the lower paid jobs—gardening, head load work at the construction sites and sweeping. Noticing this imbalance, in 2014 Tulika Srivastava and I initiated an ISTP project by third-year B.Tech. students to study women's education levels in the valley. That study found that most women over the age of 30 had completed only 8 years of schooling. Many women under 30 had completed high school, and several had taken college degrees in Mandi. This trend towards higher education for girls has continued since. Now more women, and even married women, are allowed to complete high school and college.

Following up on this study, the Women's Cell at IIT established EWOK (Enabling Women of Kamand) in June 2016. We were fortunate in hiring Sandhya Menon as our first project associate. Sandhya has put tremendous effort and commitment into her effort to reach out to the women of the Kamand Valley. In 2017, we hired Urmila from Katindhi village to conduct a survey of the women in Kamand Valley. She completed an excellent survey of all the women in the valley, gathering information on the education, family situation, skills and aspirations. She also provided those of us from outside with personal guidance in understanding the local mindset and condition. Both Sandhya and Urmila are still invaluable members of our team.

Initially the aim of EWOK was to make information easily available to local women and potential employers and trainers so that local women who sought to enhance their lives through training, education, employment or entrepreneurship could find the path to achieving their goals. After several years we finished this mainly software project with the dedicated work of a local female intern.

Along the way, we realised that we wanted a more direct contribution. In 2017 we first introduced mentoring. We held meetings with groups of potential female entrepreneurs and assigned mentors to individual women who wished to start small businesses involved in serving the IIT Mandi community. The businesses mentored included beauty, tailoring, home cooked meals, laundry and mushroom cultivation.

A few of these businesses are still operating, but overall our success was limited. There were three major hurdles:

1. The local women were not ready to change their daily routines. They were interested in some small income on the side, but their first priority was their families. Those with school-age children wanted to be home when the children returned

from school, and all wanted to be home at 5 to prepare the evening meal. As people at IIT are mainly free only after 5, this was a major hurdle.

2. Lack of childcare compounded by caste sensitivities.

3. The local understanding of business is totally family centred. Even most merchants in Mandi town are not ready to trust someone outside the family.

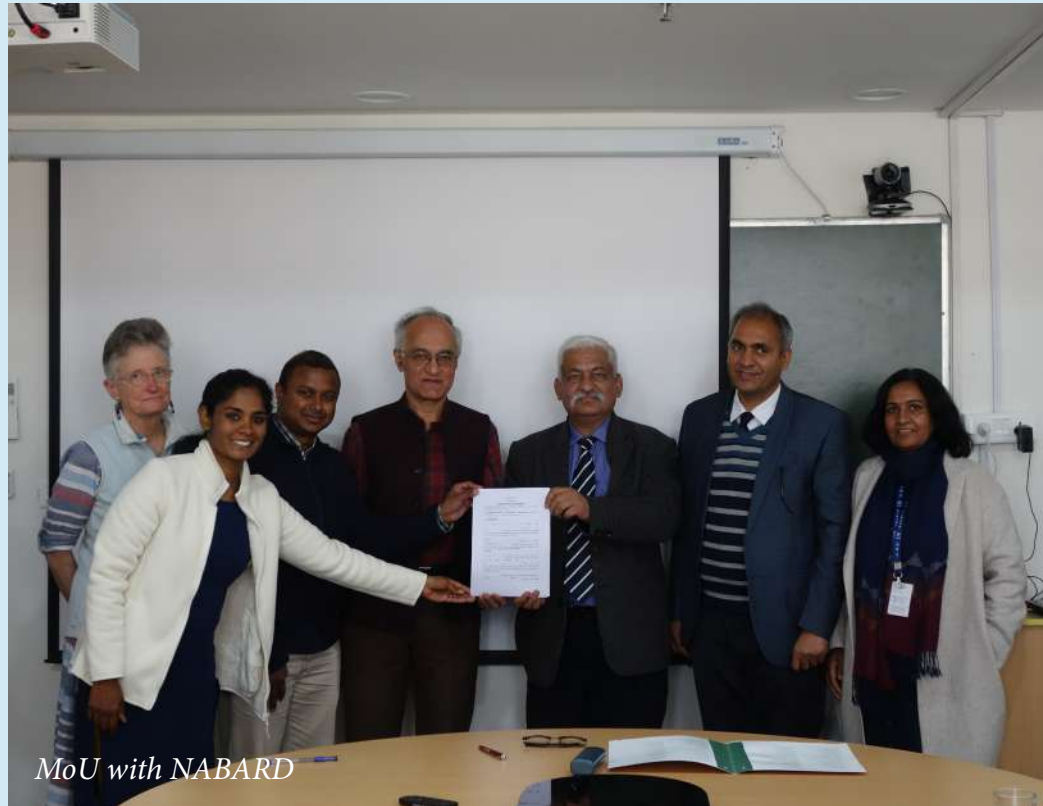
We also noted hurdles on our side. We were competent consumers, but few of us were really capable of guiding a tailor or laundress. Also, we had approached from our point of view, without researching the women's wishes and strengths. We saw mainly that a large new community was coming up, and would require many services, and we sought to prepare local women to provide these services. Somehow, we had actually overlooked the fact that all of the local women have a great deal of expertise in agriculture. The mushroom cultivation project was one of our more successful ones. We finally realised that many of the older women, in particular, had many skills and interest in agriculture. Many of the younger women with more education were, predictably, more interested in government jobs. Government jobs for the men had given a tremendous boost to many families in the area, and government jobs remained the main goal for their prestige and security. Opening a shop and providing services like laundering were definitely less prestigious. At this point we shifted the EWOK office. We had been operating from a lab in IIT. Many of the local women were reluctant to come into IIT, and the bolder ones were sometimes turned away by over-zealous security guards. We took the important step of becoming more open to the local women by shifting EWOK to a small office in Salgi, the small village near IIT's North Campus. This greatly improved our accessibility.

Considering the aspirations of the older women, we guided four of them to register as PWD horticultural contractors. These women are employing 65 women and men and up to early 2020 they had a total turnover of Rs.65 lakhs. We also joined with the Medicinal Plants Lab in promoting a variety of projects, introducing new agricultural techniques, including organic farming, and new crops such as rose for rose oil, tulsi for tea and marigolds for pharmaceutical uses. These projects are all going well, and we have won a grant of Rs.35 lakhs from NABARD to continue this work.

We learned that the younger women were not getting jobs on campus due to their poor spoken English and their weak computer skills. Few had actually used English, and even women with B.C.A. (Bachelor of Computer Applications) had not actually used a computer. We introduced courses from NIIT in spoken English and basic computer skills and hired some of the graduates as interns to finish the development of our local resources app. Fifty women have completed the courses. Some of our graduates are still in college, and others have secured jobs on projects in IIT.

On 18 November 2019, EWOK became a registered society. This enabled us to run projects, seek grants and accept donations independently. We still continue to have several joint projects with IIT Mandi, specifically with the Medicinal Plants Lab and with Catalyst, IIT's technology business incubator. There have been various potholes and hairpin bends

along the way over the 4 years since EWOK started its journey. Now we have successes and strengths to build on. All along, we have stuck by our founding vision: to help the women in the Kamand valley achieve their goals, to listen to them and to try to refrain from imposing our goals on them.



Going Out into the World

The interaction between IIT Mandi and the people who lived in the area was one of the topics Garimella Harika touched in the valedictorian's address at the fourth convocation (2016) of the institute.

... I would like to thank the people of Kamand and Mandi, for their immense support and toleration. I can imagine how difficult it would have been for them to suddenly one day wake up to see a huge institution with more students than their own population coming up right in their backyard. They invited us with open arms and at the same time we helped them out with our strengths namely education and technology. I would definitely urge everyone to take away this attitude to wherever you go in the future and act accordingly. We are now going to be global citizens and our lives inadvertently do affect a lakh others as well. We need to do our part to give back to the society and that too not just for free Coldplay tickets.

In her address, Harika traced her IIT Mandi experience, from the first day and giving a fresher's speech. She talked about how she had chosen IIT Mandi in spite of its being removed from the facilities of a city.

Everyone will tell you about their fears about IIT Mandi being in a remote location and away from all the major cities and resources and commodities like McDonalds, multiplexes and what not. But that was not the only thought that crossed my mind. I happened to visit Himachal one month before [the] IIT JEE results. I did ponder upon the novel idea of being in an institution with such serenity and peace in one of the most exotic landscapes of India. I imagined how I would get the two most ultimate resources for any student: time and freedom. When the time had come when I had to pick, I didn't think twice before putting IIT Mandi as my preference. And it is one of the best decisions I've taken yet.

Like all convocations, this convocation was a happy occasion, for the graduands and the university alike. The IIT Mandi calendar is studded with academic events—workshops, conferences and seminars, apart from classes and exams. The national days, Independence Day and Republic Day, are important dates. Student events such as Exodia and Utkarsh (intra-IIT tech fest) and national festivals such as Holi and Diwali are marked prominently in the calendar. And of course there is Foundation Day, 24 February. But there is no gainsaying the statement that the brightest date in the academic calendar is the convocation. With the seventh convocation, held in 2019, the number of students who had gone out into the world from IIT Mandi had grown to 1145.

CONVOCATION PROGRAM

5 October 2019, 2:00 PM

Academic Procession

National Anthem

Felicitations of Dignitaries on Dais

Declaration of Opening of the Convocation by the Chairperson

Welcome Speech and Report by the Director IIT Mandi

Award of Degrees and Medals

Oath Administration to the Graduands

Convocation Address by the Chief Guest

Closing of Convocation Ceremony

National Anthem

Retreat of Academic Procession



Graduates with dignitaries, sixth convocation, 29 October 2018

Yet a convocation is also a wistful occasion. It will probably be a long time before any of the graduands of the convocation visit their alma mater again. This is not only because of IIT Mandi's remote location, which Harika mentioned. It is also because the graduands will be busy as global citizens for many years to come. Over the years, even the faculty and staff will change, but there will always be IIT Mandi, amid the Himalayan villages. Reunions will be organised. The alumni and the staff and faculty members will return to Kamand, and there will be reminiscences.



PG graduates at 2019 convocation



Graduands of 2017 convocation with dignitaries

What a Journey!

Subodh Bhargava, Chairman of the Board of IIT Mandi from 2017-2020

I am delighted to have been a part of the last 10 years journey of IIT Mandi, and what a journey it has been! From a small cluster of sheds, few small houses and bamboo huts, unpaved pathways with a population of only 520 students in 2012, it has grown now to tall hostel and residential buildings, academic structures including a state of the art auditorium, school, sports grounds, metalled roads, etc. accommodating a population of 1,650 students with 1,500 alumni.

I took over as Chairman of the Board of Governors of IIT Mandi in January '17 – not really qualified to talk about 10 years with only 3 in the bag! However, my first impressions of IIT Mandi go back to 2013, when I was at IIT Mandi for the first time as the Chief Guest at the First Convocation of IIT Mandi. Only after having accepted the invitation did I realise that getting to Mandi could be a challenge! IIT Mandi staff met my wife and me at Chandigarh airport, and the rest was simple and enjoyable. The ride from Mandi town to Kamand was exciting – beautiful landscape, the old iconic bridge across the river and numerous famous Shiva temples en route. We stopped at the 'view point' to get a glance of the campus which looked like a small hamlet in the valley along the river side. The convocation venue was a large tent which meshed with the landscape of the nearly virgin terrain. Tea and the hospitality by Prof and Mrs Gonsalves at their garden by the river was an experience we remember most fondly.

As Chairman from 2017, BoG meetings and walks and drives around the campus on the occasion of board meetings were a pleasure. Each visit I found more completed buildings and new, ongoing construction, new laboratories, class rooms and other new facilities for students, staff and visitors, too. Each visit also showed a growing community of students, faculty and support staff.

Over the years, IIT Mandi has emerged as a humming and dynamic hub. The institute encourages top level academic work but also encourages the students to explore and experience the adventure of the Himalayan setting. In fact, the so called handicap of remote location has been turned upside down attracting so many because of its unique location. Many who enjoy nature, adventure and serene academic environment opt to join IIT Mandi. There is also a strong social focus, both encouraging faculty and students to focus on local problems and reaching out to the surrounding villagers, sharing schooling with many local children, teaching science in local schools and guiding local women in fulfilling their dreams. Let me conclude by saying that the progress and development of IIT Mandi has been piloted and led by the Founder Director Prof Gonsalves who along with his team has done a great job achieving outstanding outcomes.

I have enjoyed my interactions and work with Prof Gonsalves and would like to wish him and IIT Mandi the very best in the next 10 years journey.



North Campus Arises

By the end of its first decade IIT Mandi had evolved from 98 students housed in IIT Roorkee and taught by IIT Roorkee faculty to a full fledged institute with 1598 students, 72 permanent staff and 121 faculty. The Kamand campuses expanded to meet their needs.

The first phase of construction in the South Campus was completed in 2016. By 2020, the former terraced fields covered with grasses and weeds now housed a pleasant rural community, shaded by many new trees and brightened by flowering shrub and plants. Most labs are in the South Campus and most of the research scholars are housed there as well as many faculty and staff. South Campus also has more extensive sports facilities with a full cricket ground, a tennis court, volleyball and basketball courts., and indoor facilities for badminton and table tennis.



Cricket ground in 2018

North Campus has been transformed from a vision and a plan and into a vibrant academic community nestled in the valley stretching along Kataula Khat. The campus features a new library, a clinic and hospital, a student activity centre and a full auditorium and guest house in addition to academic buildings, hostels, messes, and residences for faculty, staff and married students. The following photos show the various components of North Campus standing tall and gracefully following the contours of the *khat* and the land.



View of North Campus from the top of the guest house



Library reading room



Full moon shining above the auditorium



Badminton hall, Sports Complex

Winter morning view of academic building A13 and Tragopan Canteen



Fall sun setting on North Campus

Students heading for class in A10



Aerial view





View of North Campus



Visitors at the ISRO exhibition



© Navneet Sharma



CV Raman guest house



Attending lecture in A10 building



Pathway between hostels in North Campus



Convocation in progress in the auditorium



View of the village square from the guest house



Pir Panjal Range: View from Parashar

Impossible Is Possible

Ashok Jhunjhunwala, Professor, Electrical Engineering at IIT Madras

When I first visited, IIT Mandi was in Mandi town in the building of another college. We were taken to these hill locations, where the campus was to be built. That this barren hilly patch could be converted into a beautiful campus -- one could not imagine. Some young faculty were there. But that they could make this place into a beautiful campus with quality faculty, teaching and research that could match other IITs, leave alone the established IITs, but even the new ones at Hyderabad and Gandhinagar, appeared impossible. But then there are some who do not understand the Impossible. Each of these challenges was taken up and handled individually with vigour. The disadvantages, especially the location, were converted into advantages. It reminds me strongly that Impossible is Possible, something that I have often talked about passionately, but always had some doubts lurking somewhere inside. Maybe I can use that phrase in future with a little more confidence. It took time. Initially the students did feel that they were at a disadvantage. A fast-growing campus anywhere will have gaps. The hills did not make it easier. I used to tell them to etch their names on some newly built wall before they left. They could come back ten years after they graduated, and they will feel proud that they were party to build this campus brick-by-brick. Today, I will tell the first few graduating classes that they need not wait for ten years. They could go now and feel the pride.



Ingredients of a Successful Academic Institution

Timothy A. Gonsalves

The idea is to have talented faculty, students and supporting staff functioning in harmony in an enabling environment.

Leadership is also important. The ‘command and control’ model of leadership does not work in the IIT system in the way that it can function in corporate and other settings. In IITs it is essential to provide opportunities and convince people that those opportunities are in their best interest. You have to find out what passions drive people, and also find ways to persuade them to do other things, as well as give them opportunities to excel. You can sometimes modify opportunities to match people’s interests, or push them to modify their passion to match the opportunity.

The IIT system encourages autonomy, which may make functioning difficult, but in the long run one realizes that a certain number of mavericks have to be accepted. This is similar in all IITs, and so I had anticipated accommodating mavericks in advance. I have always been fairly optimistic about human nature and the essential goodness of people, and I am still optimistic about it. I have seen here and elsewhere that adversity brings out the best in people. Biographies of great leaders and great people—artists, politicians, engineers and others—almost always show evidence of struggle.



Acknowledgements

IIT Mandi Catalyst for sponsoring the publication

Mr. K.K. Bajre (Registrar)

The Archives Project Team (Dr. Astrid Kiehn, Dr. Rajeshwari Dutt, Dr. Devika Sethi, Mr. Naresh Bhandari, Mr. Arun Kumar, Ms Anju)

Botanical Garden and Medicinal Plant Lab (Dr. Shyam K Masakapalli and Ms Bandna Thakur)

Construction Wing (Mr. Sunil Kapoor, Mr. Siddharth Jamwal)

Dr. Rinki Sarkar

Photographs and Illustrations

Prof. Timothy A. Gonsalves

Prof. Gonsalves's Wikimedia Commons Uploads: <https://commons.wikimedia.org/w/index.php?title=Special:ListFiles/Tagooty&ilshowall=1>

IIT Mandi Photographic Archives (<http://library.iitmandi.ac.in/gallery/>)

Prof. Deepak Khemani

Dr. Venkata Krishnan

Shutterbugs (Photography Club) IIT Mandi

Navneet Sharma

Tushar Tyagi

Nikhil TR

Shubham Saurav

Rupesh Kumar

Kumaran Sathasivam

Enakshi Bhattacharya

Dr. Prasanth P Jose

Kartiki Gonsalves

Pavin S Samuel

Dr. Hitesh Shrimali

Dr. Astrid Kiehn

Manan Shah

Hemraj

C Giri Varshith

Aranya Kar

Frontispiece

Hitesh Shrimali

Online Sources

Website of IIT Mandi: www.iitmandi.ac.in

The History of Mandi

The flag: By FOTW database - FOTW database (Original image uploaded to Wikimedia Commons), CC0, <https://commons.wikimedia.org/w/index.php?curid=63041093>

Map showing Mandi State: Map of some Indian princely states in the “Shimla Hill/Punjab Hill Agency” amongst them Chamba, Kangra, Bilaspur (= Khalur), Mandi, Kulu, 1911 (Holland, Thomas H. (Thomas Henry), Sir - Provincial Geographies of India , Vol. III), public domain, https://en.wikipedia.org/wiki/Mandi_State#/media/File:Chamba_Kangra_Bilaspur_Mandi_Kulu_1911.jpeg

History of Roorkee

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James Thomason:

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Classes and Facilities

Classroom:

<https://www.iitr.ac.in/acm/img/events/internTalk.jpg>

Extracurricular Activities

Stand up comedian Sunil Pal at Thomso:

[apsdehal/Wikipedia, https://en.wikipedia.org/wiki/Thomso_\(festival\)#/media/File:ThahakeThomso01.jpg](https://en.wikipedia.org/wiki/Thomso_(festival)#/media/File:ThahakeThomso01.jpg), CC BY-SA 3.0

Cognizance:

http://1.bp.blogspot.com/_Xv_xYRDYVp0/TAuMb94MYiI/AAAAAAAAAbI/lotgJgADJA0/s640/Cognizance.jpg

The Logo

Victoria Bridge:

Satishthakur023/Wikimedia, https://commons.wikimedia.org/wiki/File:Victoria_Bridge_Mandi.JPG , CC BY-SA)

Enchanting Mandi

Dr. P.C. Deshmukh:

<https://iittp.ac.in/dr-p-c-deshmukh>

Curriculum Design

Sunil Kale

<https://ahduni.edu.in/seas/news/professor-sunil-kale-joins-as-dean-of-school-of-engineering-and-applied-science>

Wildlife in Kamand Valley

Yellow-throated Marten:

Dibyendu Ash/Wikipedia, https://en.wikipedia.org/wiki/Yellow-throated_marten#/media/File:Yellow-throated_Marten.jpg, CC BY-SA 3.0

Women in Engineering

Prof Nandita DasGupta and Prof Enakshi Bhattacharya, from IIT Madras:

<http://photoresistgroup.com/gallery.php>

