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Non-Resident Assamese (NRA) Magazine

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POSOOWA

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Rick and Nick recently performed in the musical South Pacific in New Jersey

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Nisukoni Geet, The Soothing Assamse Lullaby

Some of the early memories of my childhood are those of my Grandma singing lullabies to me. Her familiar and beautiful voice would often calm my discontented restless little body and lull me to sleep. As my Grandma crooned over and over those soothing tender tunes, I would often feel swiftly transported into dreamland, a fantasy world of vibrant colors and sweet imaginations. Today the tables are turned. I often struggle with my kids who many a time tire me out with their boundless energy and their insatiable thirst for stories and songs. I then felt the need to remember, mixed in fond memories, those quaint old songs to sing to my little ones. And help came unexpectedly and in pleasant surprise.

Mr Rajen Baruah of Houston, after painstaking research, has collected and compiled, in the Roman script, around twenty of those lyrical lullabies which in Assamese are called "Nisukoni Geet". On a recent trip to Austin, Mr. Baruah came over to my place and we worked together in compiling and giving voice to these age old songs. He believes that sound has its own energy and that sound breathes and shapes itself into musical work. He also believes in the importance of getting the pronunciations phonetically correct in order to preserve and uphold our Assamese language.

Rajen Baruah is also the founder of Friends of Assam & Seven Sisters (FASS), a non-profit non governmental organization, an international "think-tank" which is aimed at providing an inspirational energy and a motivating force for overall revival and development of the North East India in all spheres. FASS aims to promote research and studies on the social, cultural and economic problems of the North East; to engage in cultural, educational, and social action, based on such research and to endeavor for overall economic development and cultural integration of the people of the North East to its best. Readers may read the FASS website www.friendsofassam.org to know more about these activities.

We were also delighted to have Alpona Barooah of Houston in our midst that day. Ms. Barooah possesses insurmountable energy and has a great passion for life. She enthusiastically volunteered to give her voice to recording those sweet lullabies. We watched in awe and delight as she began singing, putting her heart and soul into each song, some of which she often sings to her

own little grandson. A few of the lullabies also got laced by the melodious voice of Ajanta Baruah of Houston and Ranu Dutta of Austin.

Dear Readers, for all those with little children to enjoy, and for the rest who are far away from their homeland, these beautiful lullabies will touch your hearts and bring back memories of times gone by.

The following is a preliminary collection of such Assamese Nisukoni Geet. These songs are written in Roman Script. Assamese words in Roman Script are written phonetically. That is to say, one will have to pronounce each and every letter as per the following guidelines. Guide in pronunciation of the Roman Script in Assamese are noted below:

Consonants do not need any special guideline except the following:

j is pronounced not as j as in John but as z as in zoo.

x sounds like kh and is pronounced as ch as in the Scottish word Loch, or German word Bach,

Assamese Vowel sounds need to be learned carefully to correctly speak Assamese..words. These are:

a = as in the word father or art

è = as in the word met or end

e = as a in the word map or act

i = as in the word hit or pill

ò = as on the word bone or over

o = as in the word boy or order

u = as in the word put or foot

w = as in the word war or wall (w is used as a full vowel here)

ü = a nasal etc (two dots on top of the vowel denote nasal sound)

(1)
ama.rè moina, xubò,
bari.te bögòri, rubò;
bari.re bögòri, pòki xòribò,
ama.re monai butòli khabo.

(2)
xiali è nahibi rati
twre kane kati loga.me bàti
kan-katir murò.te mòura phul
kan-kati pale.gòi roton.pur

(3)
i bwle kan-kota xi bwle kan-kota
kan-kotai nw ki kam kore

kanot rong a sati aru hatot lòi jathi-da
kankotai lörar kan kati phure

(4)
ròdali è ròd de
ali kati jali dim
samor pira pari dim
tate bòhi bòhi ròd de
ròdalir makor tini.dal suli
ròdali pale.gòi biri.nar guri

(5)
jwnbai è bèji èti dia
bèji.nw kèlòì? mwna xibo.lòi,
mwna.nw kèlòì? dhon bhora.bolòi,
dhon.nw kèlòì? hati kini.bolòi,
hati.nw kèlòì? ut.hi phuri.bolòi,
hatit ut.hi pani.ram ghorò.lòi jai
alibator manuh bwre ghuri ghuri sai.

(6)
bögòli è xoba.hòlòì nögòli kio?
gòi.silw goi.silw batot bөрò.xune pale
rong.doir gho.rote xw.mabo khwjw.te
seng.doi kukure khale
sèi kukur sèi, nahibi, jopona dèi
bàhor mürha bögòrir gura
kòr pora ahile sòku sel.wa bur.ha

(7)
xaliekie kore ròtòu tòu
bhat hòl xak hòl xaliki kòlòì gòl?
ei khini.te asile gwbor khu.sòri
kwnw.bai lòi gòl dingi musòri

(8)
ò phul ò phul nup.hulo kio?
Goru.eje àg khai moi.nw phulim kio?
ò gòru ò gòru àg khàwo kio?
Gòrò.khiai je gòru nerakhe moi.nw
ek.ham kio?
ò gòròkhia ò gòròkhia gòru nerak.ho
kio?
rand.honi.eje bhat nerand.he moi.nw
rak.him kio?
ò rand.honi ò rand.honi bhat
nerand.ho kio?
khòri-kòtiaì je khori nekate moi.nw
rand.him kio?
ò khòri-kòtia ò khòri-kòtia khòri
nekato kio?
komare je da nogor.he moi.nw katim
kio?
ò komar ò komar da nogor.ho kio?
meg.he je bөрòxun die moi.nw
gor.him kio?
ò megh ò megh bөрòxun dio kio?
bhekulie je twr.twrai moi.nw nidim
kio?
ò bhekuli ò bhekuli twr twrao kio?
bwpa kokar brit.titw moi.nw erim
kio?



By Ankur Bora, Dallas, Texas

Rongali Bihu in London

London's recent annual Rongali Bihu saw a record number of attendants with the majority of new comers from the younger generation.

Almost 200 adults and scores of children from across the United Kingdom descended on North London to celebrate the Assamese new year.

Guests of the London Bihu committee, which organised the event, were greeted with *jalpan*, such as *siradoy*, *pitah* and *laroo*, as they arrived at the St Andrews Church Hall, where artists from Britain and India held a cultural festival.

Dr Jiten Borkakoti, the president of the London committee, used his welcoming speech to call for the younger generation to use Bihu as an opportunity to learn about Assamese culture and to get to know their fellow brethren.

"We, as the first generation in the UK, are now getting old and want to know that when we are gone our children and new Assamese that have come to the country are there to support each other," explained Dr Borkakoti. "That's why we would urge you to start using Bihu as a chance to network with fellow Assamese in your generation and to learn about your heritage."

The latter was already taking place with young girl Anya Das exhibiting her talents as an Indian dancer and teenager Reema Kakati performing the Kathak.

The young local talent was counter-balanced with the enchanting classical voice of Assamese guest artist Mandira Lahiri, from Kolkata, who was accompanied by tablist Rajkumar Misra.

The informal and relaxed atmosphere set the right conditions for the younger generation to mingle, leading to some taking their newly formed friendships to local pub The Wishing Well to cement their relationships away from the prying eyes of their parents.

But as the evening turned to night, the absconded young adults were back for

Bihu Bhoj, a typical Assamese feast, followed by a general Bihu dance to work off those calories.

Again the increased inclusion of the younger generation was clear, with many on the dancefloor with their elders.

As the dancing continued, one young adult, who wished not to be named, said: "This Bihu and similar Assamese events have been key in ensuring that we, as second generation Assamese, stay in touch and remember our roots."

"The message to us is clear, with so few Assamese in the UK, all from the motherland are a family within the UK and so we should always be there for each other."

By **Nina Goswami**, a second generation Assamese in London. Nina is a lawyer and a former Sunday Telegraph and Sunday Times journalist, now a reporter for a legal magazine here in London. The piece is about London Bihu which took place in May 6th 2007|

By **Nina Goswami**



Dulari Tahbildar, daughter of Umesh C. & Pronoti Tahbildar of West Windsor, NJ graduated with **Master of City Planning** degree from the Massachusetts Institute of Technology (MIT) on June 8, 2007. As a part of the requirements for the degree, Dulari wrote a thesis on a Case Study of Civic engagement and Planning "from below" to promote Educational Equity in Post-Katrina New Orleans. Dulari currently lives in Somerville, MA where her husband, Keith Catone is finishing his Ph.D at Harvard Graduate School of Education.

Dr. Namrata Gargee Choudhury, daughter of Niren and Shakuntala Choudhury of Bridgewater, NJ recently received her M.D. degree from New York Medical College, Valhalla, NY. She received her Bio-Engineering degree from the University of Pennsylvania in 2003. Among her many honors, she was the 1st Prize Winner of the Medical Student's Clinical Vignette Award presented by the American College of Physicians. During April, 2007, she completed her internship at Sankar Netralaya, Guwahati - a premier eye hospital of North-eastern India. Namrata just started her residency at Northwestern University's Children's Memorial Hospital in Chicago, IL.



The Condition of Surya Pahar - a Neglected Archaeological Site

Situated in the far western corner of Assam is Surya Pahar, a small hill with the potential of becoming a revered and historical site. A few miles from the town of Goalpara lays this site, which archaeologists recently predicted might fundamentally change our understanding of the history of Assam. But unfortunately due to lack of funds, the archeological endeavor stooped early and the excavated structures lie at the mercy of the weather, people and animals.



on a lotus, worshipped as *Dasabhuja Durga*, *Ganesh*, *Harihara*, *Shivalingas*, and *Vshnupadas* - point to the historical significance of the place.

Historical Significance

Surya Pahar is an interesting archeological site. It represents a confluence of Hinduism, Jainism and Buddhism as revealed by the statues and engraved figures found at the site. Several granite **Shiva lingams** are seen in the vicinity of the hill; statues of Buddha and Mahavira also line the hill. To add to all these, legend says there were 100,000 Shiva lingams buries around the hill and once it was one of the holiest pilgrimage sites in the region.

The name Sri Surya Pahar means the abode of the Sun God. The small and relatively modern Sun temple shows that the Sun was worshipped there. In fact, references are available in the *Kalika Puran* that there were two seats of Sun worship in Assam; Sri Surya Pahar was one of them. Inside the temple, a carved stone slab is still worshipped as Surya. The inner circular carving has been identified as *Prajapati*. The outer circle includes twelve lotus petals, each seated with a figure of Aditya. The Adityas depict the twelve-solar divinity of *Dharti*, *Mitra*, *Aryaman*, *Rudra*, *Varuna*, *Surya*, *Bhaga*, *Vivashan*, *Pushan*, *Savitri*, *Tvastri* and *Vishnu*. Other figurines like the twelve armed Vishnu, covered with a seven hooded canopy standing erect

Among the identified Jain figures is one of the first Tirthankaras, Adinath, carved in sitting posture with two bulls in the base. In addition, the 25 votive stupas of different sizes show that there was Buddhist influence in Kamarupa and that too, much earlier than the rest of India.

In addition to being a confluence of the three religions, which is evident from the innumerable sculptures, Sri Surya Pahar can also be called a garden of medicinal plants, most of which await identification.

Archaeological Find

Although, the rumors have it that this historically significant hill has a lot of history behind it, there was no initiative from any government organization

either to protect it or to fund projects to excavate the past. The only thing that has protected this exposed idols and engraved rocks is the reverence of the local people. The yearly held *Surya Pahar Mela*, mainly by the locals and priests, who reside in the hill, generate income that help preserve this historically significant place.

A few years ago, due to the initiative of some prominent archaeologists, a project was funded to unearth the history of the hill. The project hit the jackpot within a few days; a few Shiva *lingams* and a few houses were unearthed. The work continued for a while with great vigor. All findings confirmed the long-held belief that a thriving civilization held sway here some centuries ago. The intricate and scientific designs of the houses that have the same feel as that of the modern houses, with artfully designed bricks led to the conviction that it was a major discovery. The enthusiastic archaeologists even predicted that this might even change the understanding of the history of Assam. Some scholars even referred to the accounts of Chinese traveler, Huen Tsang and to the unearthed relics to claim that it was Sri Surya Pahar and not Guwahati that was the ancient land of *Pragjyotishpur*, the capital of the Kingdom of *Bhaskarbarman*. The finding of the nearby archeological site of *Pagletek* is cited to strengthen this claim.

But surprisingly, within a couple of months everything fizzled. All the excavated findings remain unattended and their significance unpublished!

By Kaushik Phukan, Seattle



Kaushik and Punita Phukan's son Neor takes his first peek at the world. He was born in Seattle on April 25, 2007.

Meenakshi Chivukula Graduates from Duke University

Meenakshi V. Chivukula of Medfield, Massachusetts (USA) received her Bachelor of Arts in International Comparative Studies from Duke University in Durham, North Carolina, on May 13, 2007. Duke has been consistently ranked among the top ten national universities in the United States over the past many years.

Daughter of Suresh and Lakhimi Chivukula of Medfield, Massachusetts. Grand daughter of Srimoti Komol Kumari Baruah (social worker) and the late Sri Hem Chandra Baruah of Jyotinagar, Guwahati.

Meenakshi attended Medfield High School until 11th grade before moving on to Armand Hammer United World College in Montezuma, New Mexico. Meenakshi received the prestigious Robertson Scholarship to attend Duke University. She played hockey (goal keeper's position) at school and was awarded the Most Valuable Player award. She was also class president for three years in a row.

Meenakshi is a very well-traveled woman. For example, during summers she travelled all over the world. She spent a summer in New Orleans, Louisiana (USA) Summer, another in Ho Chi Minh City, Vietnam Summer, and a third summer spending time in the Indian sub-continent understanding well-being as an outcome of culture.

In college, Meenakshi was one of the leaders of the Phenomenal Women community service project. For an hour once a week, Meenakshi met with twelve year old girls at a

local middle school and talked about vital issues including self-respect, gender roles, and body image. They christened the club "Phenomenal Women" after the Maya Angelou poem of the same name. She also is a role model to her peers, serving as a resident assistant for a dorm of 50 girls at her residential high school. On a community service trip to the Chihuahua State of Mexico, Meenakshi did not allow her ignorance of the Spanish language to distance her from



the Spanish-speaking native Tarhuamara children she encountered and instead communicated non-verbally with "giggles and smiles." An esteemed leader, Meenakshi served as class president for three consecutive years at her former high school. Courageously, she left this familiar environment to spend two years at the United World College in New Mexico where she lived and studied with students from throughout the world. It is for all of these reasons and more that Meenakshi is a phenomenal woman.

One of her accomplishments was visiting Cuba, a place prohibited to most Americans by law, as a member of the Duke Students of the World Team in 2004. Meenakshi was also an outspoken representative of the students at Duke and was extensively quoted in the news media on several occasions.

*With compliments of
the Das Family:
Dhruba, Susan
and Elora (standing),
Rupam and Ronju (in
front),
of Coatesville,
Pennsylvania, USA*



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Twin Watch!!

Assamese songs in America. So more than 95% of Rick's performances are confined to English. In addition, Rick's acting performances are solely in English and fully confined to American functions.

Rupak Kumar Bhuyan of New Jersey, popularly known as Rick, is a talented sixteen year old artist. He is a sophomore (i.e., a high school student of Class Ten). Rick has devoted much time to the performing arts. He is an accomplished actor and singer.

Up to date, Rick and his twin brother Nick have recorded forty songs in five different albums. Of these five albums, three are in Assamese; one is in English; and the last is in Hindi.

At the age of thirteen, Rick and his twin brother Nick were inducted into the South Jersey Chorus, representing eight counties. Since then, both have been continuously singing for this chorus.

At age nine, Rick made the debut performance of his singing career at Y2K Assam Conference at the Cherry Hill Hilton, in NJ. Since then, he has sung all across America. There are scarcely any opportunities to sing

In 2005, CN8 (a cable TV show in tri-state area of Pennsylvania, Delaware and New Jersey) had broadcast a 15-minute segment on Rick. Besides that, Rick and Nick both appeared on the NBC Christmas Choral in the Atlantic City Area of New Jersey in 2004.

Recently, Rick was selected to sing in the 2007 All State Chorus in New Jersey, representing State of New Jersey. This is a great achievement for any young aspiring artist and we wish him all the best.

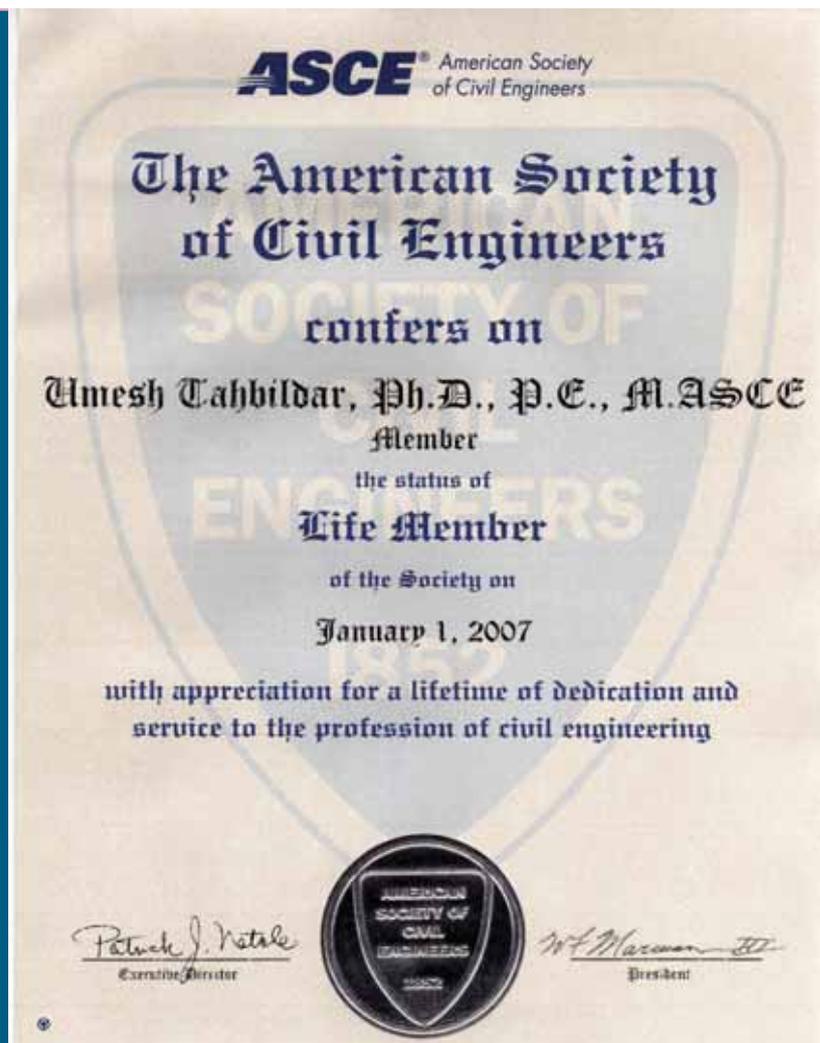


By Ganesh Bora, Lake Alfred, Florida

To sample their singing (Rongali Bihu in New Jersey, 2007)

1. Hussori - Bihu - Assamese:
<http://www.youtube.com/watch?v=mfAy-BXpyDM>
2. Bihu Geet, Assamese:
<http://www.youtube.com/watch?v=yGCddjKS9e4>
3. Adhunik Geet, Assamese:
<http://www.youtube.com/watch?v=APcde9IXM1U>

Umesh Tahbildar of New Jersey was inducted a life member of the American Society of Civil Engineers for his life long dedication and service to the profession of civil engineering.



A Case for Expanding Engineering Education in Assam for Economic Growth and Human Development

By Jugal Kalita, Umesh Tahbildar, Ganesh Bora, Mantu Baishya, Dhruva Bhattacharyya and Jukti Kalita*

This essay presents a preliminary study that makes a strong case for substantially increasing the number of engineering colleges in Assam. Based on Assam's population, the number of higher secondary school graduates and the significant number of students who leave Assam for post-school studies, it is obvious that the Government of Assam should establish a dozen additional engineering colleges in Assam, possibly with private support. The establishment of these colleges will signal to people inside and outside Assam that Assam is ready to turn a new leaf shedding its still mostly agrarian economy and enter the globalized hi-tech, engineering and knowledge-based economy. A Government of Assam that can take the bold steps necessary to expeditiously facilitate the establishment of these engineering colleges will start a sequence of events and processes that will provide for long-term academic and economic well-being of Assam's talented population. Starting the engineering colleges as proposed by this study is likely to lead to

State	Per-capita income (INR, 2003-04)
Gujarat	16,779
Maharashtra	16,479
Punjab	15,800
Haryana	15,721
Karnataka	13,141
Tamil Nadu	12,976
Himachal Pradesh	12,302
Kerala	12,109
West Bengal	11,612
Andhra Pradesh	11,333

chain reactions greatly enhancing Assam's academic environment in fields other than engineering, e.g., medicine, business, entrepreneurship and innovation. Since the 21st century winners are bound to be those states, regions and countries with knowledge-based economies with highly educated pools of workers, it will initiate a silent but much-needed transformation of Assam toward modernity. Knowledge is power; empowering future citizens of Assam

with latest state-of-the art technology will bring revolutionary economic growth to the state and to the region.

1. Per-capita incomes in India

India has 32 administrative units——states or union territories. Of these, seventeen states had a population of 20 million or more, in March 2001.¹ Assam, with a population of 26.7 million is 14th among these states. Of the 17 states with a population of at least 20 million, the ten states with the highest per-capita incomes as of 2003-04, in 1993-94 price, are given below.² Assam's per-capita income in 2003-04 was INR 6,520.

As a state, Assam is significantly behind these states in per-capita income. The goal of Assam Government should be to bring up the state to the level of these states.

2. States in Southern India

Among the states named above, Karnataka, Andhra Pradesh, Maharashtra and Tamil Nadu are prospering, especially in the high technology and related areas. Hundreds, if not thousands, of Assamese students and professionals have moved to these states to study engineering, computer science, information technology and related fields

and then work in these fields in cities such as Bangalore, Hyderabad, Pune, Bombay and Madras.

3. Engineering Colleges and Institutes in Assam

Assam has only three engineering colleges at this time: Assam Engineering College in Guwahati, Jorhat Engineering College and the National Institute of Technology, Silchar (formerly, Silchar Engineering College). Another engineering college has recently been approved to be developed in Goalpara. Tezpur University has started with B.Tech. programs in 3 areas with a INR 50 million grant from the Government of India in 2006.^{3,4} The first entering batch of students will start their education in August 2007. Assam University has also started B.Tech. programs in two areas with the first entering batch in 2007. A private engineering college has also started functioning in Azara. There is the Guwahati IIT, but hardly anyone from Assam gets admitted at the undergraduate level. There are a large number of private institutions, awarding certificates and diplomas of various kinds and some even undergraduate degrees, at various levels of credibility. A Central Institute of Technology was proposed in Kokrajhar by the Central Government in 2006 to provide 3-year diplomas in various fields such as computer engineering and biotechnology.^{5,6} Assam has 9 Polytechnic Institutes and 23 Industrial Training Institutes (ITI).⁷

4. Engineering Colleges in India

It is difficult to get the total number of engineering colleges in the ten states mentioned above. Different Web sites give different numbers. For example, Andhra Pradesh, a Southern India state, has 238 engineering colleges as of 2006.⁸ In 1993-94, Karnataka had 47 engineering colleges of which four were government institutions, nine were aided and the rest unaided. In



Assam Engineering College, Guwahati



Jorhat Engineering College, Jorhat. Photo by: Mr. Ranjit Kumar Dutta, Mechanical Engineer, 1981 batch. Source: <http://www.angelfire.com/ne/jec/>

and the number of entering students per year as of 2004 for some selected states is given below.¹⁶ In addition, there are 105 positions available in engineering colleges in different parts of India for residents of Assam on a quota system.¹⁷

Though it is very difficult to estimate how many students have migrated to other states from Assam for their engineering education, an article in the Assam Tribune, April 13, 2007 stated that students from Assam who go to other states for educational purposes spend INR1800 million

2001, the number of engineering colleges went up to 82.⁹ By 2007, the number of engineering colleges has gone up to 123.¹⁰ These do not include institutes that do not

with 439689 entering students.¹³ In 2004, Assam had an estimated population of 27.9 million out of India's estimated population of 1079.1 million during the same year.¹⁴ In 2004, Assam had 3 engineering colleges with 750 entering students.¹⁵ Thus, in 2004, Assam had 2.589% of India's population, 0.222% of engineering colleges in India, and 0.171% of entering engineering students in India.

rupees every year.¹⁸ The populations of the states mentioned above are given below.¹⁹ Assam's population is projected to grow to 30.2 million by 2010, 33.9 million by 2020 and 35.6 million by 2026.²⁰

	Number of Institutes	Number of entering students
Assam	3	750
Andhra Pradesh	236	82970
Gujarat	37	12965
Haryana	38	12785
Himachal Pradesh	5	1260
Karnataka	118	46375
Kerala	89	24413
Maharashtra	155	48250
Punjab	45	14880
Tamil Nadu	254	80417
West Bengal	54	15477
India	1346	439689

5. Engineering Colleges in High Per-capita States

Compared to almost every state in India with a substantial population, Assam has a surprisingly small number of engineering colleges. When one performs research, sometimes it is confusing to know exactly how many are private engineering colleges and how many are government supported. The best way to get to a core set of numbers is to obtain the list of engineering colleges published by AICTE. AICTE is a statutory body, established in 1945 for the proper planning and development of a technical education system in India. The number of engineering colleges approved by AICTE

6. How many engineering colleges are needed in Assam?

If we look at the table above, we see that the number of entering engineering students in Assam is the smallest compared to the

have approval of the All India Council of Technical Education (AICTE). Tamil Nadu has 350 engineering colleges.¹¹ This is the highest in India. Maharashtra had 115 engineering colleges as of 2005.¹² In 2004, India had 1346 engineering colleges

State	Population (in million, 2001)	Engg colleges per million people	Engg entering students per million people	Ratio of entering students per million people
Assam	26.5	0.151	28	1
Andhra Pradesh	76.2	3.123	1089	38.9
Gujarat	50.6	0.731	256	9.1
Haryana	21.1	1.800	606	21.6
Himachal Pradesh	6.1	0.819	207	7.4
Karnataka	52.9	2.325	877	31.3
Kerala	31.8	2.799	768	27.4
Maharashtra	96.9	1.187	498	17.8
Punjab	24.4	1.844	610	21.8
Tamil Nadu	62.4	5.609	1289	46.0
West Bengal	80.2	0.673	193	6.9

A Poem..

দৌৰ

সকলোৱেই দৌৰে....

পুৱাৰ শীতল নিশ্বাস এৰি
আকাশী পথেৰে বাহঁৰ চৰাই
মলয়াত পাখী মেলি নিৰ্মল ফুলৰ সুবাস
ভৈয়ামলৈ বৈ অহা কুলুকুলু নৈ খন
নিৰ্জনতাত ভাঁহি অহা বাঁহীৰ সুৰটো
মহাজাগতিক যোজনত নিৰালসী নক্ষত্ৰবোৰ
বৈ বৈ দৌৰে গছ বিৰিখে
ঘৰ্মাজ দেহাৰে দৌৰি ফুৰো আমি

আনকি আমাৰ অজানিতে দৌৰি ফুৰে
আমাৰ বৌদ্ধত্ব, আবেগ, সন্তাবোধ

দৌৰি থাকোতেই সন্ধিয়া হয়
এৰি থৈ যায় শূন্যতা
শূন্যতা পূৰাবলৈ নতুন দৌৰ
ভাগৰুৱা জনে
বাট হেৰুৱাই চিৰদিনলৈ

তোমালৈ কেৰাহিকৈ ঘূৰি চালো
বোন্ধি-বৃক্ষ গছলৈ বেগাই দৌৰিছা |

-- Rubul Mout, Tata Institute of Fundamental Research(TIFR), Mumbai

ten states we have chosen to compare with. West Bengal comes closest, but even it has 6.9 times the number of entering students compared to Assam. The South Indian states of Andhra Pradesh, Karnataka, Kerala and Tamil Nadu have the highest number of entering students per million, 38.9, 31.3, 27.4 and 46 times that of Assam per million people, respectively. These are among the most advanced in high-technology fields compared to any other states in India. Assam can try to follow the lead of these four states. These four states have a population of 223.3 million and a total engineering entering population of 234,175. This gives 1049 entering students per million population. Assam has a population of 26.5 million. If Assam is to have 1049 entering engineering students per million population, Assam should have 27,799 entering engineering students. Assam now has only 750 entering engineering students. Assam needs another $27,799 - 750 = 27,049$ entering engineering students. Currently, Assam's engineering colleges have approximately 250 entering students each. If Assam wants to start a number of engineering colleges to make up for the short fall, Assam will need 111 engineering colleges immediately. Of course, that's not possible due to expenses and other issues such as recruitment of high-quality faculty and adequate employment opportunities for graduating engineers. So, what Assam can plan to do immediately, is try to go up to the level of 10-15% of these states. Even that will need Assam to open 11~16 new engineering colleges. Since one college has already been announced, Assam is well-advised to open 10 new engineering colleges.

7. Where should the engineering colleges be situated?

Karnataka decided to start six new state engineering colleges in 2007.²¹ Four of these

are polytechnic institutes upgraded to engineering colleges because it is less expensive than starting new engineering colleges from scratch. Assam has 9 polytechnic institutes:²² Assam Engineering Institute (AEI, Guwahati), Assam Textile Institute (Guwahati), Bongaigaon Polytechnic, Dibrugarh Polytechnic, Indian Institute of Handloom Technology (Guwahati), Nagaon Polytechnic, Silchar Polytechnic, and Diphu Polytechnic. Of these, the AEI, and the Polytechnic Institutes in Bongaigaon, Dibrugarh, Nagaon and Diphu should be converted to full-fledged engineering colleges immediately.²³ The others are specialized institutions and should be left as such. However, we propose that a third engineering college be established in Guwahati in addition to Assam Engineering College and the upgraded Assam Engineering Institute. One of the remaining Polytechnic Institutes in Guwahati be converted to an engineering college as well. This is because Guwahati is the economic and educational hub of Assam, which is easily reachable from all over Assam. This upgrade will give us 5 more engineering colleges bringing up to 9 engineering colleges. These new engineering colleges will give a good geographic distribution to the engineering colleges. To further provide for geographically equitable distribution, an engineering college should be started in each of the following 6 places: Dhemaji, Lakhimpur, Mangaldoi, Nalbari, Dhubri and Hailakandi as well, bring to a total of 15 engineering colleges. Assam has 28 Industrial Training Institutes (ITI). Of these 2 were selected for upgrading by the Finance Ministry of the Government of India in 2004-05²⁴ when it proposed upgrading 100 out of 500 ITIs in India. An initial idea will be to house the new engineering colleges at the ITIs in these or nearby locations. For example, in the case of Mangaldoi District,

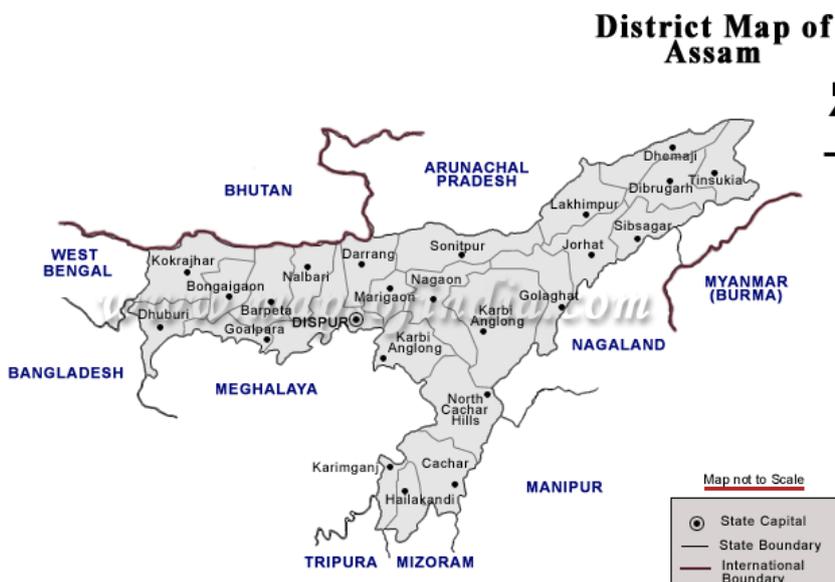
there is an ITI in Majbat and another one in Udalguri, not in Mangaldoi Town.

Some of the proposed engineering colleges can be in the private sector and involvement of the private sector should be encouraged wherever possible. A recent article estimates that a private engineering college started in Assam can break even in seven years and start making profits thereafter.²⁵ A quick perusal of the list of universities and colleges in India shows many private universities and engineering colleges in many states.²⁶ Even states such as Himachal Pradesh are encouraging the concept of private universities to upgrade higher educational infrastructure.²⁷

A deeper understanding of the reasons why a considerable number of students leave Assam to pursue education in engineering outside Assam should be considered in selecting locations for the new engineering colleges. Besides the obvious reason that Assam lacks engineering colleges, other reasons include the lack of a conducive academic atmosphere, better facilities, and the opportunity to pursue engineering careers in one's own state. Many engineering colleges outside Assam are located far away from big urban locations. People are well aware of the number of college days lost in Assam due to strike and other activities. Invariably, students in colleges situated in urban neighborhood participate in these strikes and as a result there is lots of fiscal days are lost in the colleges. Thus, it may be advisable to situate many of the new engineering colleges in rural locations just outside towns so that the effect of strikes is less devastating. In addition, facilities provided, such as library resources and the reliability of Internet computer connections should be of high quality to begin with so that these colleges can function even when there are strikes and other problems in the towns. Thus, in the long run, the campuses of these engineering colleges should be self-contained as much as possible. In fact, it may be an excellent idea to provide for power generation using windmills and solar panels for the engineering colleges so that they don't suffer from rampant power shortage in Assam. Indian companies are quietly become global leaders in selling wind turbine towers²⁸ and these companies should be consulted right from the beginning. Establishing the proposed new engineering colleges in rural districts and areas will distribute the economic growth and human development and provide infrastructure for communication (physical and electronic).

8. Budget

We need to take into consideration Cost of building 7 new engineering colleges, upgrading 5 Polytechnic Institutes, and upgrading the existing 3 engineering



colleges. We also need to consider cost of personnel.

Building 7 new engineering colleges + upgrading 5 Polytechnic Institutes:

Let us assume that we will start each engineering college with 4 departments, one of which is going to be Computer and Information Sciences. The other three departments will be chosen based on the region's needs. One of the remaining three can be geared towards business and entrepreneurial education.

Let us assume that for a good engineering college to be established we need a building of 75,000 square feet for each department for class room buildings, laboratories, auxiliary services, etc. This gives us a total of 300,000 square feet for the academic departments. Let us add a 50,000 square feet of space for administration. Assume we also need 100,000 square feet space for dormitories. Assume that to start with no living quarters are provided for the faculty and staff; they are supposed to rent living space outside campus. The estimated per square-foot cost is INR 1000. Therefore, for the construction of 450,000 square feet of space, we need $\text{INR } 450,000 * 1000 = \text{INR } 450 \text{ million}$. So, the construction cost from scratch is INR 450 million per college. Assume for those colleges that are going to be upgrades of existing Polytechnic Institutes, the cost is 60% of this amount. Therefore, the total cost = Cost of a new college in Goalpara (already announced) + Cost of upgrading 5 Polytechnic Institutes + Cost of 6 new proposed engineering colleges = $450 + 225 * 5 + 450 * 6 = \text{INR } 4275 \text{ million}$. Let us add 50% to this cost to take care of inflation, cost overruns, things not considered in detail in this preliminary proposal. This brings the total to $\text{INR } 4275 * 1.5 = \text{INR } 6412.5 \text{ million}$.

Assume we need 10% of the amount for yearly maintenance. So, the yearly building maintenance budget is $\text{INR } 6412.5 * .1 = \text{INR } 641.3 \text{ million}$.

Initial Computers, Laboratory and other Resources:

Let us assume that the equipment and other resources in each college is going to need an initial expenditure of INR 10 million each for the newly established colleges, and 60% of this amount for the upgraded colleges. This gives us a total of $7 * 10 + 5 * 6 = \text{INR } 100 \text{ million}$. Let us also assume that there will be a need of 10% of this amount yearly for maintenance, upgrade, etc. This yearly commitment is INR 10 million.

Personnel: Assume per engineering college, we need 5 administrators, 15 staff members and 40 faculty members. Assume INR 60,000 a month salary on an average for

administrators, INR 10,000 a month salary on an average for staff members, and INR 40,000 a month salary on an average for faculty members. This gives us a total of $(60,000 * 5 + 10,000 * 15 + 40,000 * 40) * 12 = 24,600,000$ or INR 24.6 million per year in salaries. Let us add 20% overhead on this amount for other expenses associated with the employees. This gives us a total of INR 28.8 million per year for employee expenses.

Assam Budget: The 2007-08 budget for Assam estimated revenue of INR 727,346 million and expenditure of INR 731,010 million with a deficit of INR 28,362 million.²⁹ For Assam to prosper, a focus on engineering and higher education is extremely timely and important. Assam can find approximately INR 7,000 million to start the engineering colleges as proposed in this document.³⁰ Establishing the engineering colleges proposed in this essay is clearly feasible considering the financial resources of Assam Government. The Government of Assam should explore grants from the Union Government to meet part of the initial expenditures. In addition, public-private collaborations should be actively pursued. For example, the government should allow private educational trusts to establish engineering colleges in the new or upgraded sites and provide them with infrastructure support such as availability of land and communication. Private investment in engineering colleges is more like in a city like Guwahati; such investments should be actively pursued.

9. Administration

Karnataka created Visveswaraiah Technological University (VTU) in Belgaum in 1998 to oversee all engineering, MBA and related program in Karnataka.³¹ There is a common entrance examination for all engineering programs within the university. All colleges within Karnataka must have approval from VTU to offer

engineering programs. Assam can follow the lead of Karnataka and organize all the engineering colleges to a technical university, headquartered in Nagaon, a central location which is not Guwahati. Nagaon is easily reachable from all of Assam—Upper, Lower, Karbi Anglong, Barak Valley, etc. It is easily reachable from Arunachal, Manipur, Nagaland, and other North-Eastern states of India as well. An alternative site is Mangaldoi, although a little difficult to reach in terms of road transportation. We note that the technological university in Karnataka is headquartered in Belgaum in the northwestern part of the state instead of Bangalore or Mysore.

Considering the current academic health and financial situations of Gauhati University and Dibrugarh University, and the fact that Tezpur University and Assam Universities are unitary in nature by law, the concept of starting a technological university manned mostly by technical individuals of high caliber to administer the new engineering colleges instead of a Directorate is highly recommended.

10. Recruitment of Students

The number of entering students in each of the new engineering colleges can be capped at 100 to begin with. Assam already has 750 entering students in the 3 existing engineering colleges. If the 12 new engineering colleges accept 1200 more students per year, the total number of entering students will go up 1950 per year.

Where will these students come from? There are several sources:

1. Students graduating in the HSSLC Examinations in the Science Stream in Assam,
2. Students graduating in non-Science Streams in the HSSLC Examinations in Assam,



IIT Guwahati

3. Students graduating within Assam from other Higher Secondary Boards such as the Central Board of Secondary Education,
4. Students from other North Eastern states in India, and
5. Students from outside the Northeast in India.

We will discuss some of these sources below.

Students passing SEBA HSSLC Examinations: In 2007, of the 203,820 students who took the High School Leaving Certificate (HSLC) Examinations, taken by students after 10 years of schooling, conducted by the Board of Secondary Education (SEBA), Assam, 54.93% or 111,956 individuals passed.³² In 2007, the number of students who took the Higher Secondary School Leaving Certificate (HSSLC) Examination at the end of the 12th year of schooling was the 158,878. Of these 99,262 or 62.47% passed and were ready to go to Bachelor's degree programs. In the Science stream, of those who took the HSSLC examinations, 68.44% or 9,471 students passed.³³ If 20.05% of the students who passed the HSSLC examinations in the Science stream in 2007 decide to choose engineering as their intended field of study for the Bachelor's degree, there will be enough engineering students from within Assam's SEBA schools themselves. Of course, the existence of the larger number of engineering colleges will encourage more students to pursue the Science stream during the 11th and 12th years of schooling over the years. This is an absolute necessity for Assam to progress in the current technology-driven knowledge-based world economy. The Government should also start working towards strengthening the secondary and higher secondary school education system to bring it to par with the high per-capita income states mentioned earlier.

Non-Science Stream SEBA HSSLC Students: A very small number of students from among those who do well in the the non-Science streams from SEBA schools in Assam should be given a chance to enter engineering schools as well. Non-Science stream students are more than 90% of the students passing the HSSLC examinations. Remedial classes in Mathematics and Sciences should be offered for such students. Such remedial classes for incoming engineering students are common in most universities in the United States, in particular geared toward disadvantaged entering students.

CBSE Students: Assam has at least 131 schools affiliated with the Central Board of Secondary Education (CBSE).³⁴ ³⁵The education is mostly conducted in English. Students usually come from more affluent background than SEBA schools. The

graduation rate for students in the HSSLC examinations is in the 90% range.

Northeast India Students: The number of engineering colleges in the other seven states of Northeast India is low as well. Mizoram, Sikkim, Tripura, Meghalaya, Arunachal Pradesh and Manipur have one engineering college each. Assam has 68.25% of Northeast India's population by the 2000 Census of India. A large number of students from the other Northeast states also go outside the region for higher education, some into engineering. A large percentage of engineering-bound students will choose to go to colleges in Assam if positions were available.

Students from Outside Northeast India: Assam will also attract some engineering students from outside the Northeast region if positions were available in engineering colleges. Most students at the IIT, Guwahati are from outside Northeast India. If quality education is available, students from outside Northeast India are likely to come to Assam. This will bring money from outside Assam to Assam, which is something usually unheard of.

Students leaving Assam for Higher Education: Though there is not an exact estimate for number of students going to other states for engineering education, according to Assam Government, up to 50,000 students per year leave Assam for educational purposes causing huge outflow of money as well brain drain.³⁶ If some of these students can be directed towards the new engineering colleges in Assam, it would keep the outflow of money as well as recruit plenty of local experts and other people. The new engineering colleges would also help the local business to grow.

Strengthening Employment Opportunities in Assam: The states mentioned earlier in the essay have high capacity to absorb the graduates of the large number of engineering colleges in those states. A lot of the graduates also go abroad. Thus, a key to success for the newly started engineering colleges is to think of employment opportunities for the graduates right from the beginning. The engineering colleges should have highly active employment offices. In anticipation of the graduates from the new and existing engineering colleges, the Government of Assam should start seriously to look into creating industrial policies to attract more employers into the state. One way to minimize the problem of employment is to start with Computer Science, Electrical Engineering and other related programs first, and keep the number of other programs low in the beginning. Another is to make liaisons with companies outside Assam for

recruitment purposes, at least in the beginning till the state can absorb the engineers.

Reservation Policy: It also may be a good time to revisit the reservation policy of the government to allocate engineering seats to pursue engineering education. Current statistics show about 42% seats of engineering colleges in Assam are protected by some kind of reservation policy.³⁷ This may be detrimental to the overall climate in engineering education in Assam causing an exodus of qualified students to outside Assam among other effects. A suggestion is that the new engineering colleges should have a substantial number of entering student positions that are outside the reservation domain, possibly at higher tuition rates so that such students pay the full cost or a substantial part of their engineering education. Increasing the number of engineering entering student positions in Assam to the proposed level may have the effect of opening up these coveted positions to academically qualified and financially able students from non-reserved population categories automatically.

11. Recruitment of Faculty

Faculty recruitment will pose challenges. Faculty shortage is a problem in most engineering colleges in Assam, primarily due to lack of remuneration competitive with industry in an expanding Indian economy. In addition, highly educated engineers are a prized all over the world.

A Ph.D. degree will be preferred for faculty members, but individuals with an M.Sc. or M.Tech. or M.E. degree will be hired. Such individuals will be required to complete their Ph.D. within a few years, say within 5 years of starting to teach. Arrangements must be made with IIT (Guwahati), Tezpur University and other universities in the region so that such individuals can earn their Ph.D. by studying part-time. When a Polytechnic Institute is upgraded to the level of an engineering college, the instructors who usually already have a Masters degree, will also be required to get their Ph.D. degrees within a few years. Thus, the engineering colleges will not only produce engineering graduates, but will increase the number of individuals in Assam with Masters and Ph.D. degrees in engineering. This will be a boon to the society in general.

There are many Assamese engineers working outside and would like to return if there are proper incentives. Retired engineers with Masters or Ph.D. degrees should also be recruited on a temporary basis to teach in these engineering colleges. Many such individuals may be willing to give to the younger generation even after formal retirement. The salary must be kept high so

that the best individuals are attracted. Advertisements should be placed in all-India and international engineering periodicals. Recruitment should be based on merit. Assam should be able to recruit 400 to 500 engineering professors needed over a period of several years. Many of the engineering professors working outside Assam or abroad will be encouraged to establish partnerships with the Assam engineering colleges. The accomplished faculty will be encouraged to take sabbatical leave from their home institutions and spend time at these colleges to provide leadership and help build programs at a minimum cost.

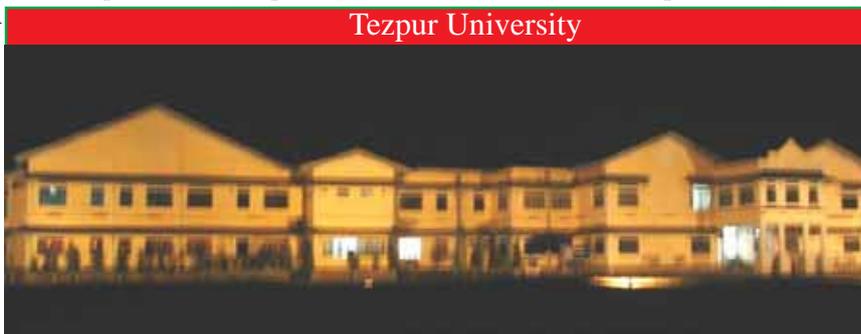
12. Curriculum Development

AICTE is the body that approves engineering programs in India. The new institutions have to be approved by AICTE. The institutions can also get accreditation from the National Board for Accreditation (NBA) although it is not necessary. In fact, Assam has no accredited engineering college as of May, 2006.³⁸ Assam should require all institutions to obtain NBA accreditation within, say 10 years of establishment. In fact, the NBA has had discussions with the Institution for Electrical and Electronic Engineers (IEEE) regarding accreditation issues lately.³⁹ In the US, Engineering undergraduate programs are accredited by ABET⁴⁰ after an elaborate process. It will be advised to ask the engineering colleges in Assam to align their curricula as much as possible with ABET's requirements although it is not essential to do so. Non-resident Assamese (NRA) in the USA who are in engineering teaching and research can assist in developing such curricula. It should be of paramount importance to develop programs, which have the potential to become national leaders. Some of the Non-Resident Assamese engineering educators are already well-linked with other Indian institutions and the Government of India in building partnerships. For example, Dr. Prasanta Kalita of the University of Illinois consults with the Prime Minister of India's Office on engineering education. They will be happy to connect and build partnerships with engineering colleges in Assam.

13. Impact on Local Economies and Assam's Economy

Almost every engineer in Assam of any stripe is from one of Assam Engineering College, Jorhat Engineering College or the National Technical Institute, Silchar. Assamese IIT graduates are a rare breed. There are a substantial number of Regional Engineering College (now, National

Institutes of Technology) graduates from Assam, and some from private engineering colleges such as Birla Institutes of Technology. Engineers from the three local engineering colleges have had tremendous impact on Assam. These three colleges have thousands of alumni all over the world including Bangalore, Hyderabad, Delhi, Pune, US, Canada, Australia and the Middle East. The establishment of 11 new engineering colleges in Assam (over say, 5 or 10 years) will change the perception of Assam to its people as well people outside. The recent history of Assam has made many people unsure of its future although things are starting to change for the better. The establishment of these engineering colleges in Assam will signal that Assam wants to be a player in the emerging globalized hi-tech economy. Each engineering college will provide a boost to the economy of the local region. The salaries of the professors, staff members and administrators, and the money spent by the students will play an uplifting role, especially in the smaller towns. The



students and the professors will provide role models to others, especially in the rural areas. Many of the students will leave town after graduation, migrate to South India or Delhi or abroad. This brain drain is not all that bad. These people will advance through their careers and will send back money to Assam to their families. Many will come back at a certain point in time to work in Assam. Either way, Assam will benefit in the long run. These colleges will teach concepts of business, innovation and entrepreneurship as well as engineering. Thus, some of these students will be primed to start enterprises in Assam. As cities like Bangalore, Pune and Hyderabad become expensive, development in high-tech and other engineering fields will move to smaller cities and towns. In fact, the Government of India is actively supporting the development of a number of second-tier cities. Information Technology jobs and outsourced jobs are going to start moving into these cities in the near future. The establishment of these engineering colleges will get Assam ready for this day that will arrive soon. Although it is difficult to predict how the establishment of the new engineering colleges will impact on Assam's per-capita income in a direct manner, it is a well-established fact that highly educated

societies are able to harness human talent and that they have higher per-capita incomes and quality of life.

Developing a relationship with alumni should be a focus of the engineering colleges from the very beginning. Keeping connections with alumni, organizing "Homecoming" events, inviting successful alumni to give presentations, and encouraging highly placed alumni to recruit students should be given priority. A long-term connection with alumni is also likely to bring in dividends in terms of money and non-monetary contributions. Alumni relations are not a strong point of most universities and colleges in Assam at this time.

If additional engineering colleges are established in Assam, will it lead to growth of software and other high-technology industries in Assam? The answer is most certainly in the affirmative. A recent article explains why Infosys, a leading high-

technology company in India and the world, has a 12,000 employee strong development center in Bhubaneswar, Orissa and not in Guwahati, Assam although Guwahati has better air-connectivity, better hotels and other facilities.⁴¹ According to this article, Infosys has several pre-conditions before starting development centers in a location, the primary being manpower ability. Orissa had 41 engineering colleges in 2004 with 13,000 entering students annually. As a result, 80% of the employees in the Infosys Orissa development center are from Orissa. According to Infosys chairman, as quoted in this article, if a software development center is started in Guwahati, employees have to be hired from outside Assam and it is not cost-effective to do so. The conclusion of the article is that software development is manpower intensive and corporations will set up centers where manpower is locally available. By interpolating from the conclusions of this article, it is possible to surmise that if the new engineering colleges in Assam produce a thousand or more new graduates, it is possible that corporations will come to Assam to recruit them and keep them in Assam.

14. How can NRAs Help?

Non-resident Assamese individuals in other parts of India as well abroad should be encouraged to help in the development of curricula for these engineering colleges. Many such individuals can act as volunteers

or consultants. Non-resident Assamese are highly educated individuals. They make trips back to Assam on a regular basis. They should be tapped to come to these engineering colleges, give lectures, take part in conferences, etc. The NRA should be tapped to provide for jobs when engineering graduates go outside Assam to find jobs. NRA individuals who have become successful should be tapped to invest in Assam and start engineering or high-tech companies in Assam and employ graduates of the engineering colleges.

15. Should we have Business and Entrepreneurship studies along with Engineering?

The new engineering colleges will educate the students not only in engineering, but also in business, entrepreneurship, globalization and innovation. The curricula could be modeled after the Bachelor of Innovation set of degrees recently started at the University of Colorado.⁴²

In addition, professional and technological courses along with short-term certificate programs can boost the idea of self-supporting the institute.

16. Comparison with India and the World: Challenges for Assam

According to the AICTE, approximately 440,000 students were enrolled at Bachelors degree engineering programs in 2004-05 in India, 265,000 at the diploma level and 33,000 at the Master's level. The seven IITs had a total of 25,000 students enrolled at all levels in 2002-03.⁴³ A study by researchers from Duke University estimates the number of engineering Bachelors graduates at 112,000 including Computer Science and related fields, but notes that almost half are graduating from three-year diploma programs.^{44 45} The Duke authors estimate that U.S. institutions graduate 137,437 engineering students annually. In China, that number is close to 640,000, of which approximately 350,000 graduate from bachelor programs and 290,000 from short-cycle associate-equivalent programs. In 2002-03, the seven IITs together graduated 2,275 B.Techs, 3,675 M.Techs and 445 Ph.D.s, with 11,700 undergraduates (four-year program), 9,500 graduate students and 3,800 doctoral students. Taking the Duke estimate of 215,000 first-level engineering graduates, IIT bachelor of technology graduates represent just 1 percent of the total graduating class of Indian engineers each year. After the IITs, there are the National Institutes of Technology. These were called Regional Engineering Colleges earlier. The state-level engineering colleges are the third-tier institutions. The plea in this essay is to have a sufficient number of engineering colleges and entering positions in the state of Assam. The second plea is to fund the

National Institute of Technology, Silchar



state-level institutions and develop the infrastructure in such a manner that these institutes are of excellent quality, at par or above the National Institutes of Technology.

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(Footnotes)

- 1 http://en.wikipedia.org/wiki/List_of_states_of_India_by_population
- 2 <http://sampark.chd.nic.in/images/statistics/SDP2005R6.pdf>
- 3 http://www.tezu.ernet.in/Academic/btech/btech_prosp06.html
- 4 Northeastern Hill University (NEHU) in Shillong also started B.Tech. programs in 2006-07.
- 5 <http://pib.nic.in/release/release.asp?relid=17853&kwd=>
- 6 <http://www.nerist.ac.in/admission/citinfo.pdf>
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- 23 A reviewer cautioned against upgrading the Polytechnics, but suggested that establishment of private colleges be encouraged instead.
- 24 <http://pib.nic.in/release/release.asp?relid=26371>
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- 30 Dr. Gautam Barua estimates that an investment of approximately INR 140 million, including cost for land acquisition, will be needed to start a new engineering college in Assam with 250 entering students (in Gautam Barua: We need more Engineering Colleges in the Private Sector, an article published in Northeast IT Association Souvenir Guwahati, 2006).
- 31 http://www.vtu.ac.in/index.php?option=com_content&task=view&id=45&Itemid=117
- 32 <http://www.assamtribune.com/scripts/details.asp?id=may2407/at01>
- 33 <http://www.assamtribune.com/scripts/details.asp?id=may2307/at01>
- 34 <http://www.cbse.nic.in>, Go to "Affiliated Schools" in the left margin, enter "Assam" as the search term.
- 35 Dr. Gautam Barua, Director of IIT-Guwahati estimates that there are approximately 10,000 science higher secondary school graduates from CBSE schools in Assam.
- 36 <http://www.assamtribune.com/jun1107/state.html>
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