



**Microscale Industries Sector**

# **TECHTALES**

## **Real Life Success Stories**

**Series I**



**CSIR - North-East Institute of Science & Technology, Jorhat**

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***Dedicated to the People of the North East***



## **CSIR-NEIST**

CSIR-NEIST, situated at a distance of 7 km west of Jorhat town by the side of the AT road, is one of the major national R&D institutes of CSIR in the North Eastern region with a glorious existence of 50 years ever since 18 March, 1961 when it was established. With more than 100 technologies developed, most of which have been commercialized, and innumerable agrotechnologies that have benefited thousands of farmers and agro-industry of the region, the CSIR-NEIST has been a major player in the economic and societal upliftment of NER in particular and the country as a whole.



• • • *and there are  
many more tales  
to tell*

CSIR-North East Institute of Science & Technology took upon itself the onerous task of developing a few simple technologies suitable for the micro-scale sector of the industry. Development of these micro-scale technologies were intended to benefit entrepreneurs as well as the consumers from the rural and urban poors of the unreached section of our society. While developing and screening the technologies special attention was paid to the facts that these technologies ought to be simple, easy to operate with low skill and minimum land, labour and capital, and at the same time having ready market. As these technologies are meant for the unskilled or semi-skilled entrepreneurs who may be unemployed or underemployed educated or uneducated youth of the rural and urban poor these are written in a simple, unsophisticated style instead of stereotyping with polished and urbane English. To facilitate transfer of these technologies to the intended group we are presenting this booklet containing a few such stories and propose to serialize it which will include many more such tales. I must record my special acknowledgement for the help and assistance I received from one past colleagues Sri A K Hazarika in preparing the stories.

*On the occasion of CSIR-NEIST'S Golden Jubilee Celebrations we offer hearty thanks to all our well-wishers and our salutation to the NATION.*

P. G Rao  
Directora

**“Small and Medium Scale Enterprises (SMEs) play a crucial role in the process of economic development by value addition, marginal capital intensity, employment generation, equitable distribution of national income , regional dispersal of industries, mobilization of capital and entrepreneurial skills and contribute to export earnings. Considering the industrial scenario of the region, SMEs are the only suitable option for economic development and CSIR-NEIST will develop technologies suitable for this sector and help in industrialization of the region.”**

**Vision Document 2010, CSIR-NEIST**

## Lighting up the dark alleys

\*Bapuram and his wife Keteki were sitting on a cot placed in a corner of the room. That was their drawing room, bedroom, dining room all rolled in one. Their mud plastered thatched house has only one room and a covered veranda which they call 'Randhani Sal' (Kitchen). Bapuram and Keteki were a dejected lot. How to make both the ends meet!

It was raining incessantly for the last ten days. They could not go out in search of work; even if they went, they came back empty handed because nobody engages daily wagers on rainy-days. No work, no pay, and therefore no meals. Hungry, sad and forlorn they were looking at each other, without even a murmur, cursing their fate and blaming God for not extending a helping hand to the needy and the poor.

“Bapuram!” Somebody shouted from outside. Reverie broken, no longer in a trance, they looked up and out through a make-shift peep-hole which they call window.

“Oh Gaon Burha!” “Ahok – Ahok” (“Oh Headman! Come, please come in!”) Bapuram opened the door. The guest was offered a wooden stool. Grumbling about the weather the old man wiped his face and head with the end of the *Gamocha* (indigenous towel), He gave a low cough, cleared his throat, and started speaking - “Bapu! some knowledgeable people are coming from Jorhat to address a meeting tomorrow morning at our village football field. They are good people and I am told, are coming for a good cause. Come and attend the meeting. Both of you. It may be useful! I am alerting the entire village”. After staying for a few more minutes the Headman left for the next house.

The old man did a good job. He could marshal a large number of villagers for the meeting. Yes, some Scientists were coming to speak to the villagers. They were from NEIST, Jorhat i.e. North East Institute of Science & Technology. When all the villagers, numbering about two hundred, settled down peacefully, the meeting started. The Gaon Burah acted as the President and after lot of shouting and cajoling could bring some semblance of order into the place. Without mincing words, the Scientists started speaking about the pathetic plight of the rural poor as a whole and of that particular village of which 80% were below the poverty line (BPL), deprived and depraved. “So, we cannot



**Mushroom farming**

accept this lying down”. The NEIST people said, “We are to do something. Therefore, we, the Scientific Community are coming forward 'to do something', to ameliorate your sufferings as best as we can. You are mostly landless farm-labourers. You have no land of your own, but definitely, you have access to paddy-straw and such other agricultural wastes. We see here a lot of marshy

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\* The story is real, but the names are changed

area full of water hyacinth. You can collect paddy-straw and dried-water hyacinth and with those you can start cultivation, although you have no land of your own". The Scientist-Speaker's lecture was interrupted by raising a ruckus of taunting laughter and cat-calls. "Please do not laugh", said the speaker forcefully. "Do not make fun. Be serious. I know, people have a tendency of making fun with anything new and novel. At first we make fun of it, then make sense of it and then make use of it. I am repeating. You can cultivate a crop inside your bedroom, in your cow-shed or any such covered area. You do not need land and bullocks to plough. This wonder crop can be grown, harvested and consumed within 15-20 days after sowing (spawning). If you are hungry, you can pluck it out, cook and eat it right then and there; and if you are in need of money, we are sure, all of you need money, you can sell it in the market or in top class hotels". This time



## Edible mushroom



### Mushroom spawns

the people cheered. No taunting remarks. "Now, I will talk straight", the speaker continued, "I am talking about cultivation of edible mushroom. It may be Oyster mushroom, White button mushroom or any other edible mushroom for that matter. It can be cultivated inside your room, hanging by ropes from the ceiling. It does not require Mati (land) to grow. It can be grown on paddy-straw, dry grass, dried water-hyacinth or even sugar-cane bagasse." The Scientists then explained about the economics of the crop. The villagers were told about the nutritional quality of the food - that it is rich in proteins, minerals and vitamins. It is two times richer in protein than fish and one and a half time richer than meat. Good for people suffering from blood pressure and diabetes. As it is rich in iron it is good for anaemic persons. Even toothless old people can eat it, it is so soft and easily digestible. Most important, it is a money spinner. By scientifically cultivating mushroom you can earn upto three to four thousand rupees per month." The villagers were told that NEIST, Jorhat was the first to introduce the cultivation of mushroom in the North East. The technology was initially transferred to Kohima village near Kohima town of Nagaland. The spawns suitable for the agro-climatic conditions of the area were distributed free of cost. Intensive training was given first at the laboratory at Jorhat and later on at the sites in villages. In 1983, four families mastered the art (the farming practices) and took-up the cultivation in a commercial scale who produced and marketed five tones of mushroom valued at Rs. 1,20,000/- (in 1983). That means Rs. 30,000/- per family. By proper management, using different varieties, mushroom can be grown round the year, in any weather conditions. A small family may easily earn an amount of Rs. three to four or even five thousand rupees per month and augment their financial resources. The Scientists of NEIST encouraged the rural people of that sleepy village by citing similar activities in other places of the North

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\* The story is real, but the names are changed



East. The villagers were told about the success story in Arunachal Pradesh, where the NEIST Branch, Itanagar distributed 2500 bags of mushroom spawns to 130 beneficiaries to start the cultivation. Within a short time the villagers could earn a total of Rs. 6.20 lakh, which was a great thing for the penniless tribal poors of that remote area. By the effort of NEIST, Science could reach the interior of the North Eastern border of India. The Research and Development activities of CSIR could light-up the hearths and homes of the hitherto forgotten tribal people of the North East. No doubt, it is a humble beginning, but it is a right step in a right direction. A leap forward!

The meeting ended. The Scientists of NEIST could drive home their point. Mission accomplished, they left the place promising to come again after a week to demonstrate and distribute bags of spawn (seed material). The villagers were advised to keep the things (substrate, etc.) ready.

Exactly after a year. The same people, the same place and the same environment! But the scene has changed. Bapuram and Keteki are no longer down and out. They are no longer forlorn and hopeless. They are bathed in a brighter sunshine of monetary solvency and are looking forward *to a brighter tomorrow*.

Bapuram and Keteki from Assam are not alone. Now, through the untiring efforts of the NEIST, Jorhat, Science & Technology could reach the remotest corners of other North Eastern states like Arunachal Pradesh, Nagaland, Meghalaya, Mizoram, Manipur and Tripura. Like Bapuram, \*Mrs Lulan Lotha of Nagaland, Y Nyodu of Arunachal Pradesh, Konumoni and Nekhni Mao of Manipur, Renheln and Thauka of Mizoram, Mrs Uma Sarkar of Tripura, Mrs Jyotsna Bashumatory of Karbi Anglong and thousands of other villagers are reaping the benefits of Science and Technology and could augment their limited financial resources.

### **An ideal entrepreneur**



**Mushroom Man-Pranjal Baruah**

“Veni Vidi Vici”. Yes, he came, he saw and he conquered. A city-bred educated young man Baruah had an ambition to tread on an uncharted path. His searching mind zeroed in on Edible Mushroom, an invaluable futuristic food. He explored, enquired and searched with an inquisitive mind. He found that China has captured the world market of mushroom worth billions of dollars. In 2006 China produced and marketed 35% of the total world-production, whereas India's share was only 20%. The North-East has a tremendous potential because of its unique agro-climatic conditions and human-behavioural pattern arising out of hot, humid and rainy weather conditions which invariably favours indoor activities. Pranjal Baruah gathered some information from different sources and further, to augment his knowledge he approached

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\* real names, real places

NEIST, formerly known as RRL (Regional Research Laboratory), Jorhat. He got in touch with Dr R K Adhikary, Scientist, NEIST and enriched his knowledge further about edible mushroom. Finally he took the mushroom technology from NEIST in 1995 and mastered the finer details of mushroom spawn production and cultivation. From then on he never looked back. Young entrepreneurs may be surprised to know that Baruah could repay his bank-loan of Rs. 2.45 lakh within a period of six months. In 1996 he shifted his spawn producing laboratory 'Protein Food' from Jorhat to Guwahati, and was producing more than 1000 packets per day



## Commercial mushroom products

and was capable of increasing its capacity to 4000 packets per day, depending upon the demands. His turnover has upped to several crores of rupees. Pranjal Baruah not only did pioneering job in this field, but his contribution towards societal work was also commendable. He developed a well-oiled system to link up marginal farmers and market to maintain its sustainability. He helped forming a cluster of 1000 families screened from as many as 50 villages. The farmers got an assured market and a sustainable income. Baruah successfully built a brand 'Mushfill' and under its umbrella sold a variety of mushroom food items like dry and fresh mushrooms, protein powder, pickles, papads and soups. Because of his activities on mushroom Shri Baruah is nationally as well as internationally recognized. He received the prestigious Ashoka fellowship from US based organization Ashoka Innovators for the Public in 2003. In 2004, Baruah received a grant of US \$ 15,000 by Clarence Foundation, USA in an international competition for finding the best solution on alleviation of poverty. In December 2009 he won the prestigious "Wantrapreneur09" business plan award organized by Villgrow.

*In fact, Pranjal Baruah is emerging as a role model to hundreds and hundreds of young entrepreneurs from the North East.*

## NEIST in NORTH-EAST – A True Story

Armed to the teeth, bristling with razor-sharp long-handled *Daos* of various sizes and shapes, their feathered head-gears dancing menacingly, the war-like Nagas were marching and making a bee-line towards the village \*Yaongyimsen, in Mokokchung district of Nagaland, a trouble-torn (then) state, beset with problems arising out of geographical isolation, difficult terrain coupled with insurgency and its remoteness from the main land. Nagaland is a small state, made out of a district of undivided Assam, nestling in a corner of the North-Eastern region.

Yes, the Nagas were marching – but not on a war-path. It is a peace-march. They are marching in their typical, disciplined tribal tradition, to the village centre of Yaongyimsen.



### Nagas in Yaongyimsen

Nagaland. In order to demonstrate the farming practices, supply of planting materials and processing of the end-product CSIR-NEIST proposed to adopt the Yaongyimsen village as a CSIR-NEIST village and set-up permanently a sub-station equipped and staffed by Scientists, and technicians armed with necessary infrastructural facilities. The meeting was a grand success. An instant bon-ho-mie was established between CSIR-NEIST and the people and Government of Nagaland.

Done as said. A model farm for systematic scientific cultivation of citronella grass was established and a 500 kg/batch centralized distillation unit for processing citronella oil was set-up by CSIR-NEIST on turn-key basis. By the year 1972 over 150 families in and around Yaongyimsen were cultivating citronella, the aromatic grass, covering an area of 200 hectares. Seeing these developments, the Government of Nagaland realized the futility and the inherent hazards associated with the Jhum (cutting, slashing and burning) system of cultivation in Nagaland. The Government sought to dissuade the farmers of Nagaland not to resort to Jhum cultivation.

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Yaongyimsen is a small village in the district of Mokokchung tucked away at a height of 4000 ft. above the sea level, inhabited by a population of 3800 Naga tribals belonging to Ao sub-tribe.

Director and Scientists from RRL (NEIST) Jorhat, a CSIR Laboratory with a national style and character, charged with the responsibility of bringing the benefits of Science and Technology to the poor rural people of the North-Eastern states are visiting this hilly village Yaongyimsen. With the active support of the Government and people of Nagaland, CSIR-NEIST scientists were going to talk to the villagers about cultivation of various aromatic plants specially citronella in



**Citronella farm in Yaongyimsen village of Nagaland**



**Distillation plant in Yaongyimsen**

Instead they had been told to accept and practice settled cultivation like citronella and other aromatic plants which were easy to grow and earn money in a relatively short period of time. In this matter the help of CSIR-NEIST was sought by the Nagaland Government. CSIR-NEIST launched a special campaign in Mokokchung district of Nagaland for cultivation of citronella. The result was the stabilization of the population and the crop there.



***Jhum* (shifting cultivation) land (left) and citronella cultivation in fallow *Jhum* land at Hime village, Arunachal Pradesh (right)**

Meanwhile, CSIR-NEIST organized awareness and training camps in remote areas of the North East, organized and assisted farmers to form cooperatives and above all supplied them with improved varieties of planting materials.

While launching the campaign, the simple people of the rural areas were explained by the CSIR-NEIST Scientists, as best as possible, the use and usefulness of the citronella, the farming and processing of which would bring economic prosperity to the people at the grass-root level. CSIR-NEIST also trained the trainers who would horizontally transfer the information to the other people. The trainers had been told that Java citronella is the best source of citronella oil from which citronellal, hydroxy citronellal, geraniol and other similar high-value perfumery bases can be made. The oil and its derivatives are used in a variety of products like scented soaps, sprays, deodorants, detergents, polishes and in mosquito repellants. Citronella oil is endowed with typical characteristics, and is used as antiseptic, antibacterial, antifungal, anti-inflammatory, insect-repellant, anti-rheumatic and anti-arthritic.



**The way to Pengeri, the village which derived its prosperity through cultivation of citronella**



**Large scale citronella cultivation in Pengeri area, Upper Assam**



**Villagers carrying citronella grass to distillation plant at Pengeri using various modes of transport**

After attaining resounding success in Nagaland and some parts of Assam, CSIR-NEIST then extended its activities to other states of the North-East. CSIR-NEIST took up on a systematic manner to industrialize the entire Pengeri village in Upper Assam which was surrounded by thick forests populated by hordes of wild elephants. Because of the marauding elephants which cause large scale depredation of cultivated paddy, the villagers were at a loss what to do. CSIR-

NEIST thought of entering the scene at that stage, because citronella being an aromatic grass would not be eaten by elephants or any other herbivores. Consequently within a short period of time the Pengeri village could boast of having a cluster of 250 families cultivating and marketing citronella oil worth of about Rs. 1 crore per year. So much so, that the Pengeri village earned the sobriquet as an "oil town". The village had several distillation plants of various capacities and therefore the farmers found a market to sell the grass at their door-steps. One could see villagers carrying citronella grass on bicycles and bullock-carts. The cultivation of Cironella was gradually extended on a massive scale in Assam, Arunachal Pradesh, Meghalaya and Nagaland with the involvement of State departments and NGOs.



**Citronella cultivation at Palin (left) and Hime (right), Arunachal Pradesh**



**Citronella distillation plant at Tipi, Arunachal Pradesh (left) and Chumukedima, Dimapur, Nagaland (right)**

## **The employment generation and economic gain in NER through citronella technology**

Period	Area under Cultivation (ha)	Employment provided (no)	Prod. of oil (tones) year	Value of oil (Rs. In Cr.)
1970-73	850	4260	30	0.1
1974-78	2350	11,790	50	0.6
1979-83	2770	13,850	200	2.1
1984-88	3260	16,300	250	3.2
1989-93	3770	18,850	389	3.8
1994-98	3320	19,900	445	6.5
1999-03	3260	19,360	436	7.9
2004-07	3400	19,800	460	10.8
2008-10	3600	20,000	500	17.5

**CSIR-NEIST's** developmental activities have also been able to utilize 2000 hectares of low grade land (waste land) like mountain slopes, averted Jhum cultivation in some of the hill-areas, created employment for about 12,000 people in remote areas, generated local resources valued at Rs. 8 crores annually.

CSIR-NEIST's work was appreciated, endorsed and subsequently recognized by all and sundry. The state governments of the North Eastern region were fully cooperative and providing funds for centralized distillation units at several places. The Federation of Indian Chambers of Commerce & Industry awarded the FICCI award for Science and Technology in 1982 and FICCI award for rural development in 1985. CSIR had provided a special grant to proliferate the work further. The Department of Biotechnology, Govt. of India provided a special fund over the period 1997-2007 for a similar purpose and the support is still continuing.

Besides providing agro-technologies and basic market information CSIR-NEIST Jorhat provides extensive training to growers. During 2000-2009 special training programmes were conducted by CSIR-NEIST for 1158 beneficiaries from 8 districts of Assam, 607 beneficiaries from 18 districts of Arunachal Pradesh and 82 from 2 districts of Nagaland.

"The intention of RRL, It was not to derive revenues from this work for CSIR but to contribute S&T inputs for the social and economic development of a remote and backward region of the country. Even valued as a 'private good' with a deemed 'surrogate royalty of 5% on the value of oil produced, the revenues to RRL, It would have been far in excess of Rs. 100 lakhs, the expenditure it incurred. The other additional intangible returns that have resulted are the social costs of employment generation and stabilization of population in a difficult region." ("Reinventing the CSIR")

## Non-Technical Information

### Citronella-

a commercial crop which on steam distillation yields essential oil containing Citronellol, geraniol and hydroxyl citronellal and other high value perfumery bases.

### Propagation

It is propagated by splitting the clumps into slips. Planting by vegetative slips at 60x60 cm spacing during April-September. About 25,000/- slips are required for planting in one hectare. Irrigation is necessary according to season.

### Soil & Climate

Citronella requires moderately humid climate with abundant sun light and water throughout the year. It is grown in a wide range of soil conditions from sandy loam to sandy soils.

## **Advantages**

- Low investment
- Eco-friendly
- Can be grown on barren/waste land (Wasteland utilization)
- Having export potential

## **Technology package**

Offered on consultancy mode  
Technical service charge: Rs.25,000/-  
Service tax @ 10.3% to be paid extra

**Technology transferred:** to more than 97 entrepreneurs

## **Techno-economics**

Cost of cultivation = Rs.25,000/ha/year  
Net Return = Rs.40,000/ha/year

## **Training module**

Training is provided to the entrepreneurs at NEIST (including in Branch Laboratory at Itanagar and Substation at Manipur). For SHGs, NGOs and backward class (SC/ST) beneficiaries the training is provided in groups.



## Chalking out a grandiose plan



**Pratim Jyoti Baruah**

A sprightly young man, Pratim Jyoti Baruah, just graduating in Economics from Symbiosis College, Pune started looking for a job without wasting much time. Son of a School Teacher from Sivasagar, Assam he wanted to stand by his father and be an active earning member of his family. Pratim was very much aware of the pressing needs of the middle class families of our society. To avoid the turmoil and bickerings arising out of cut-throat competition, and evils of nepotism, favouritism and all kinds of isms he looked only for private-jobs and not the few government services. His smartness and visible persuasive nature could land him a job of stationery marketing.

He was given the task of selling Rotomac and Laxi pens. Like ducks taking to water he plunged head-long into the dynamic market of stationery items like Rotomac pen. And he did a grand job! He recorded the highest sales of Rotomac and Laxi in Assam, Meghalaya, Nagaland and all the other states of the North Eastern region. But he did not remain satisfied with his success, because he thought it might be a 'flash in the frying pan'. Because market is volatile, uncertain and unpredictable, specially of stationery items in the North-Eastern region. Then again, another thought flashed through his mind. Instead of selling company products, WHY NOT SELL HIS OWN PRODUCT? Absurd! Day dreaming! What to produce? How to produce? But his better part of mind said, "Why not? you can do it. Concentrate. Open your vistas." Like a streak of lightning, the word 'Chalk' came to his mind. Why not Chalk-pencil? Meanwhile, while selling pens, he observed the market demand of dust free chalk-pencil, because people are becoming aware of the hazards of chalk-dust in class-rooms of schools and colleges. There is a demand for coloured crayons too. Astute Salesman's instinctive mind could tell him that because of too much breakage of chalk-pencils on transit while transporting from far away places like Agra and Rajasthan, chalk-pencils are costlier in the North East than those of the other parts of the country. So, if it is made in Assam, naturally one should be able to sell it at a competitive price and even could beat the giants in the field like Kores. It is interesting to note that chalk-pencils are brought to the North-East not only from U.P, Bihar, Rajasthan or Mumbai, these are also imported from Korea and China. So, Pratim Jyoti Baruah thought of converting the disadvantage of breakages of the fragile chalk-pencils to his advantage. Then again, he could derive another advantage. While working for Rotomac he got the feel and the pulse of the market. He can sell.

He had been hearing about the North-East Institute of Science and Technology, situated nearby at Jorhat. He was aware that this Research Institute is working for the welfare of the North Eastern region. It is also developing appropriate technologies for the micro-scale sector of the industry.

Baruah approached NEIST, Jorhat (then known as RRL Jorhat) and enquired whether they could provide a technology for manufacture of Dust Free Chalk Pencil. And hey presto! the technology was ready right there on the shelf! To be transferred! To an appropriate entrepreneur!

In June, 2003 the Dust Free Chalk Pencil technology was transferred to Shri Pratim Jyoti Baruah, Proprietor, Penguin Distributor. The technology was properly



### Inside view of the factory

transferred and demonstrated to his satisfaction. Basically intelligent and inquisitive, Barua could master the nitty-gritties and the intricacies of the process, and returned home, a satisfied and accomplished man, full of hopes and aspirations.

Pratim Jyoti took a loan from his father, a measly sum (for establishing an industry) of Rs. 35,000/- only. Rs. 35,000/- + blessings from his father + zeal + business acumen – was his capital!

After a lot of huffing and puffing and shedding copious sweat of his brow, Pratim could set-up the Dust Free Chalk manufacturing industry on the backyard of his parental house at Sivasagar Town in Upper Assam. Initially he was producing 600 pieces of Chalk pencil per day. As a reward to his perseverance, industriousness and the efforts of NEIST Scientists, the technology had proven and Baruah could produce quality products. The product received immediate acceptance by the market. Demands came pouring in. Convinced about the marketability of the products within three months he increased the capacity of the plant to 1000 pencils per day. But he could not satiate the market demand! He received lot of orders



### Commercial products manufactured using NEIST technology

over Assam, But could not produce that much and therefore could not supply. He was sad! But not disheartened. He started thinking how to achieve the desired results. Baruah brought in a piece of drama into the scene. He closed down the factory, took a holiday for six months and left Assam. Not in search of pleasure or recreation but in search of improved, high capacity machinery.

He met with immediate success. After traveling a lot in U.P, Bihar, Rajasthan and Mumbai, he came across his 'dream machinery' which is capable of producing larger number of chalk-pencils per day. After six months from the 'Shut-down', enriched by experience and fortified with much improved machinery, he started producing 50,000/- pieces of Chalk-pencils per day. After a few months, production went up to 1,00,000 (one lakh) per day. Baruah captured the entire market in Assam and could spread his tentacles to all the states of North-East including Tripura. He went on capturing market in Siliguri and Kochbehar in North Bengal. It is worthwhile to mention that Baruah's Dust Free Chalk Pencil goes to Bangladesh through Agartala and to Bhutan through Kochbehar. Now he produces 1,50,000 (one lakh fifty thousand) pencils per day. As on today his total turnover comes to about Rs. 6 lakh per month. Quality and price-wise he can out-class, hands down, products from Mumbai, Korea and even China. Of late, he has also started producing and marketing coloured crayons which he produces in four different colours. Wonder of wonders! Baruah's coloured Chalk pencils are much lower in price than those of other Indian, Korean or even Chinese products. No doubt, Shri Pratim Jyoti Baruah's eventful journey through the path of progress armed with the technology of NEIST, and a meagre capital of Rs. 35,000/- to start with, to a sumptuous amount of Rs. 6 lakh per month turnover, is indeed a glorious one and an eye-opener to thousands of unemployed youths of the country.

## The Story of Sagacious Singhs

An Engineering graduate and a post-graduate diploma holder in Business Administration from Bangalore, Rajkumar Birendra Singh hails from Manipur, a small state tucked away in a corner of the north-eastern part of the country. Its remoteness and geographical isolation can be gauged by the fact that it is bounded by the Indian states of Nagaland to the North, Assam to the



west, Mizoram to the South-west and by Myanmar (Burma), a foreign land to the South and East. Completely land-locked, Manipuri life entirely depends upon the supply of essential commodities like, medicine, fuel and food items transported through roads passing through its neighboring states. Vagaries of nature and political disturbances often play havoc with the life of the inhabitants of Manipur, as it lacks a rail link with the rest of the country.



Shri Rajkumar Birendra Singh

Shri Maibam Dhanbir Singh

Rajkumar Birendra Singh is from this background. He however inherited the valiant and indomitable martial spirit of his ancestors who in earlier times had to face attacks of marauding hordes from Burma (at present known as Myanmar). Birendra Singh had been nurturing a dream from his very childhood to be independent (“I always had a dream of doing something of my own”, he said to us, when interviewed – Editors) and therefore, he did not run after cushy government jobs, instead he took up the challenging task for setting up an industry in Manipur, the least industrially developed state within North East which chronically suffers from communication bottlenecks and other hazards arising out of its geographical isolation and geopolitical situation.

Rajkumar Birendra Singh, surveyed the Imphal (the capital city of Manipur) market and noted down a few products, other than food items, which are brought from outside the state.

Being an educated and informed man, naturally he visited NEIST at Jorhat in search of technologies which can be commercialized without investing a heavy amount. In fact he wanted a technology suitable for a micro scale sector which should be low capital intensive having no scarcity for raw materials. His searching mind chose a technology developed at NEIST to manufacture “liquid deodorant cleaner”, which is widely used for a variety of purposes viz. cleaning of floors and tiles, bathrooms and toilets, polishing glass and ceramic articles etc. Now-a-days these are widely used in hospitals and nursing homes, homes and hotels, seminar halls and auditorium and such other public places for keeping the places clean, odour-free and in an antiseptic condition. On the top of it NEIST product is ecofriendly, basically organic, safe and free from harmful chemicals.

Rajkumar Birendra Singh wanted to capitalize on these strong points of this eco-friendly product and thought of projecting these features as selling points. As contemplated he acquired the technology from NEIST and got himself trained.



Inside view of the factory

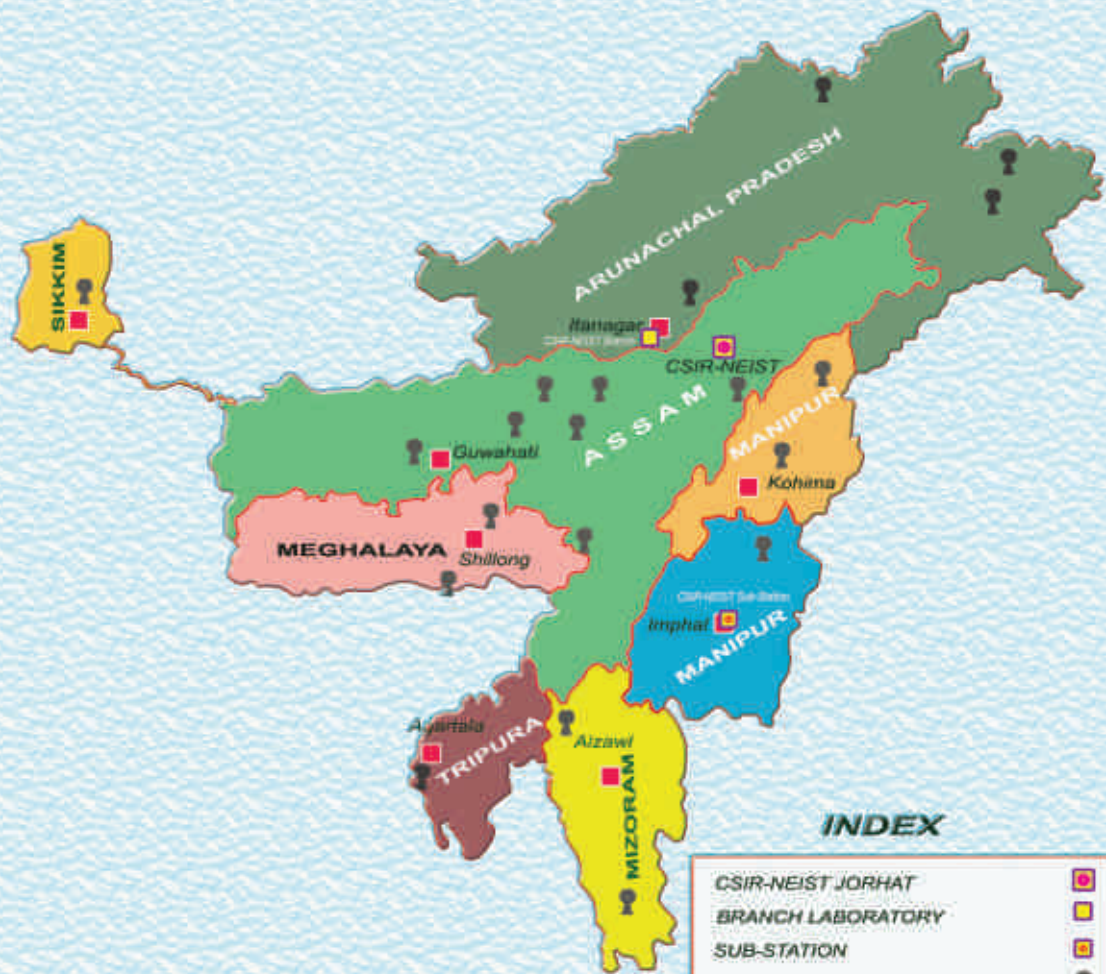
At last his dream came true and joining hands with another young, educated entrepreneur Shri Maibam Dhanbir Singh, set-up the Industry at the Industrial Estate, Imphal, Manipur. Initially they started with a production capacity of 200 litres per day. Now, after capturing 40% of the market demand, they are gaining confidence and hope to capture more market share. At present their total turn-over is worth Rs. 26 lakhs per annum which has a potential to go up to 80 lakhs or even 1 crore per annum. M/s Aroma Healthcare of the Singhs are leaving no stone unturned to popularize their product trade-named BIOKLEEN throughout the North-Eastern states. Very soon they are contemplating to increase the capacity of their unit to 600 litres per day.



Commercial product manufactured using NEIST technology

By setting up an eco-friendly chemical industry in a state like Manipur of the North-East and successful marketing of the product and also providing employment to 15 people is really commendable and an eye-opener to the Manipur youths.

# NORTH-EAST INDIA



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जोरहाट आसाम

CSIR-North East Institute of Science & Technology  
Jorhat, Assam



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