



Romance should never begin with sentiment. It should begin with science and end with a settlement. Oscar Wilde.

One day after October 31 Time to look ahead

'Conditional Naga flag,' shutdown called by the Coordination Committee on Manipur Integrity (COCOMI) extended till 6 pm of November 1, Union Home Ministry cautioning against misinformation and rumour campaigns and assuring that all stakeholders including Manipur would be consulted before the final deal is struck with the NSCN (IM). This in brief was how October 31, 2019 passed and even as the full impact of the information coming from Delhi has begun to sink in, only some points seem to be crystal clear. One is that the negotiation is over but the final deal is yet to be signed. A report carried in a Guwahati based English daily clearly states that the time frame for signing the final deal may be extended by another three months. And significantly there is the written assurance from the Union Home Ministry that all stakeholders, including Manipur, Assam and Arunachal Pradesh would be taken into confidence and their concerns taken note of before the final agreement is inked. So far, so good. The NSCN (IM) also seems to be happy at the moment, with its general secretary and chief negotiator Thuingaleng Muivah personally expressing gratitude to the Nagas for their continued support and prayers. The political prudence so far demonstrated by the Government of India under Prime Minister Narendra Modi and the leadership of the NSCN (IM) is taken note of and this is a point which should be acknowledged.

Tough to say how things will unfold, but it is interesting to see that the Government of India and the NSCN (IM) are open to the idea of exploring the possibility of a 'conditional Naga flag' which can be allowed only for non-Governmental purposes. Something like an arrangement in which the flag may underline or visually demonstrate the culture of the Naga people. This is where a pan Naga arrangement, which may deal with what comes strictly under the understanding of culture may define the 'conditional Naga flag.' This is where it becomes important to question whether the idea of a pan Naga body may be acceptable to the people of Manipur, who have been raising their stand against any arrangement that may bypass the State Government. However as assured by the Union Home Ministry, such an arrangement, if any, will be discussed with the State Government. This is what the State Government and the various CSOs which have been at the forefront defending what is Manipur's interest will need to study minutely. And when the Centre does confer with the State Government, it stands that the State Government will have to speak on behalf of the people of Manipur, while at the same time ensuring that the issues with the NSCN (IM) are settled to the satisfaction of all concerned. October 31 has come and gone, but there is still a lot of homework to be done by the State Government and the different CSOs of Manipur.

Science News

New data on the evolution of plants and origin of species

Nov 1: There are over 500,000 plant species in the world today. They all evolved from a common ancestor. How this leap in biodiversity happened is still unclear. In the upcoming issue of Nature, an international team of researchers, including scientists from Martin Luther University Halle-Wittenberg, presents the results of a unique project on the evolution of plants. Using genetic data from 1,147 species the team created the most comprehensive evolutionary tree for green plants to date.

The history and evolution of plants can be traced back by about one billion years. Algae were the first organisms to harness solar energy with the help of chloroplasts. In other words, they were the first plant organisms to perform photosynthesis. Today, there are over 500,000 plant species, including both aquatic and terrestrial plants. The aim of the new study in Nature was to unravel the genetic foundations for this development. "Some species began to emerge and evolve several hundreds of millions of years ago. However, today we have the tools to look back and see what happened at that time," explains plant physiologist Professor Marcel Quint from the Institute of Agricultural and Nutritional Sciences at MLU.

Quint is leading a sub-project with bioinformatician Professor Ivo Grosse, also from MLU, as part of the "One Thousand Plant Transcriptomes Initiative," a global network of about 200 researchers. The team collected samples of 1,147 land plant and algae species to analyse each organism's genome-wide gene expression patterns (transcriptome). Using these data, the researchers reconstructed the evolutionary development of plants and the emergence of individual species. Their focus was on plant species that, as of yet, have not been studied on this level, including numerous algae, moss and also flowering plants.

"This was a very special project because we did not just analyse individual components, but complete transcriptomes, of over one thousand plants, providing a much broader foundation for our findings," explains Ivo Grosse. The sub-project led by MLU scientists looked at the development and expansion of large gene families in plants. "Some of these gene families have duplicated over the course of millions of years. This process might have been a catalyst for the evolution of plants: Having significantly more genetic material might unleash new capacities and completely new characteristics," says Marcel Quint. One of the main objectives of the project was to identify a potential connection between genetic duplications and key innovations in the plant kingdom, such as the development of flowers and seeds. Quint and Grosse carried out their research in collaboration with scientists from the universities in Marburg, Jena, and Cologne, and the Max Planck Institute for Evolutionary Biology in Plön. The majority of the analyses was conducted by Martin Porsch, a PhD student in the lab of Ivo Grosse.

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NE development: Lean on regional planning techniques

Dr BK Mukhopadhyay



Whither NER? Being a real resourceful region NER calls for appropriate planning so that the latent talent could be explored, which, in turn, can help flourish the national economy in a big way. Large cardamom of Sikkim, pineapple and orange of Tripura, strawberry and haldi of Meghalaya, grapes of Mizoram, vegetables of Assam, among others, still remain cloud-covered, why not to target silver-lining!

Backward region development essentially calls for exploring the existing and potential resources. Human resource management backed by marketing strategies always stays at the top of the agenda on this score. While the resources availability is not that difficult under the ongoing business environment scenario, more often than not appropriate utilization itself remains a laggard. As a result the result achieved in the next period remains sub-optimal in spite of creation of institutional facilities. Time has come to see that the latent resources – human, technological and physical – are bolstered over time so that the markets [domestic and overseas] offer excellent opportunities to forge ahead by recognizing the competitive skills. Creation of facilities over time and space is the starting point since a lot depends on how the same is absorbed in as much as business is a continuous and spontaneous process. In this paper an analysis is made mainly been focusing on North East Region of India which continues to struggle against number of odds that have been holding back the overall development process.

Stressing On The Development Indicators Actually, any study / scanning of development is important and at the same time interesting. It is important because in any economy, developed or developing, the scope for further economic and social development is always there through optimal utilisation of resources over a finite time and space. The challenge before the biggies is how to maintain the level of development already reached for ensuring a better life to its citizens and to aid trailers so that the latter can climb upon the development track. For the developing block the challenge is all the more crucial and at the same time difficult especially considering the complexities of the globalization process. Newer techniques and innovation [innovation plus invention] process call for continuous searching and unearthing. Thus, the arena is interesting, more so because the process of development today is not well defined nor there exists any short cut routes!

Especially, as of now the change has been so fast that it has become increasingly difficult to adapt quickly to the ever changing processes where one technology is being fast substituted by the next one. The orthodox view - considering development as relating to the process of increasing the relative and absolute wealth of LEDCs [least economically developed countries] usually through notions of increased output of either industrial or agricultural goods – has also been under scanner. The modern age economists contend that development of LDCs [least developed countries] to the wealth levels of the richer OECD [Organization for Economic Cooperation and Development] nations, using

extractive production and trading processes similar to those of OECD nations, is untenable because of the ecological and environmental damage which would ensue. New paradigm of development has no doubt, reasoning and validity considering the reality that has been increasingly there globally.

Who thought that the cheaper flights will be contesting with the railways, sub prime crisis paving the topsy-turvy way to global meltdown. Satyam be under scanner??

In fact development means 'upward drift of the entire social system', as rightly opined by Prof. Samuelson. Truly, development studies as an area calls for an inter-disciplinary and multi-disciplinary approach where the economic factors are equally important as the non-economic factors so that all of the relevant issues of concern to developing economies in particular are addressed in an holistic manner – regional studies, demography, economics, anthropology, management and essentially sociology, pedagogy, social policy, migration, human security, philosophy and ethics, international relations, gender issues. The crucial need remains: to learn lessons of past development experiences of Western countries. Harry S. Trumann rightly stated that 'for the first time in history, humanity possess[ed] the knowledge and skill to relieve the suffering of these people'. Time stays, we go out. Ecological and environmental damage was not there on tea-time discussion table, whereas the same has now been talk of the town.

It has the especial focus on issues related to social and economic development and the relevance goes to communities and regions beyond the developing world. That is one of the foremost reasons why the area is attached much of importance by the leading global institutions – the World Bank, United Nations, Asian Development Bank and the like. Non-government Organisations as well as the private consultants have also to borrow a lot from this discipline.

The Saviour : Regional Planning Actually, emergence of development studies as a separate discipline started emerging from second half of the last century, mainly emerging out of concern hovering around economic and social prospects for the trailers [third world] after decolonization when it was largely felt that economic aspects alone could not fully address the development requirements [viz. educational provisions; political effectiveness] and thereafter it could reasonably assume an inter-disciplinary and multi-disciplinary area of thought. That encompasses variety of social scientific fields.

Clearly speaking, the very overall objective of a regional Plan is to achieve sustainable development harmonizing social,

economic and environmental needs through appropriate planning and management of land and its resources in as much as regional planning deals with the efficient placement of land-use activities, infrastructure, and settlement growth across a larger area of land than an individual city or town. Regional planning is a sub-field of urban planning as it relates land use practices on a broader scale. Regional development refers to the provision of aid and other assistance to regions which are less economically developed. The implications and scope of regional development may therefore vary in accordance with the definition of a region, and how the region and its boundaries are perceived internally and externally.

Especially, in today's world the severe shortage is there especially in Asia for skilled personnel who could join the team that shoulders the responsibility of ensuring not only growth but development as well ensuring a balanced regional growth - drifting apart from the incidence of rural exploitation for urban growth! In fact it is the very incidence of regional imbalances that go on keeping the rural counterpart as the depressed corridor. Skilled personnel with a better understanding of the growth-environment can only be the instrument for developing the backward regions and ensure creation of lasting assets as well as the human factor utilization and thus ease social tension, terrorism and destructive politics.

What is more, human security aspects have emerged to be an area where there exists a high degree of correlation between security and development aspects. Clearly, as on this day, inequalities and insecurity in one region have definite direct and indirect bearings on global security and development of the global economy.

Today's happenings – sub prime crisis, financial crisis, food insecurity, distributional hazards, corruption, communal disharmonies are hindering the growth process in many ways. So, the traditional thinking is to be heavily replaced by the latest regional planning techniques in as much as regional development and regional policies have to pursue two overarching aims: - increasing economic growth and / or augmenting social justice by reducing spatial disparities hierarchically, temporally, sectorally and functionally.

So, why not to lean on regional planning techniques for overall development of the NER? Let it be resumed with segmentation, followed by targeting and finally settling on positioning.

Obvious enough development efforts can be divided into short-term and long-term. Needless to say plan is always the starting point, followed by proper implementation which, in turn, cannot be there in the absence of supervision and follow up on a regular basis. Piecemeal efforts simply cannot have overall impact.

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Medicinal cannabis revisited – Strength through science

Dr Sona A Pungavkar



In an ancient Chinese pharmacopoeia titled *Divine Farmer's Herb Root Classic*, which was published in 2727 BC and is considered to be the world's oldest manual on medicine, Cannabis is listed as one of the most potent cures for a range of maladies. The books of our very own Indian Ayurveda, including Atharvaveda, have long recognized Cannabis as a crown jewel of healing. Western medicine has also been aware of this drug for centuries. In fact, the British performed a massive research in 1894, the Indian Hemp Drugs Commission, during their rule in India to study its health, social and moral impact. Their findings proved that moderate Cannabis usage was a) either relatively harmless or possibly even beneficial and b) banning of the plant would be unjust given its established cultural and religious importance. The La Guardia report in 1944, New York, endorsed by New York Academy Of Medicine, also firmly established that not only did the herb not have any of the deleterious effects, but instead possessed potential therapeutic and medicinal benefits that needed

to be explored and there was absolutely no question of banning it.

These events prompted research on the plant, which eventually led to the discovery of THC, the psychoactive component, in 1964 by an Israeli team of doctors. This allowed a breakthrough in the understanding of the plant as well as the endocannabinoid system of the human body, which is known to regulate various systems in the body.

American President Richard Nixon brought about policies, which waged a war on drugs. In the process, a report brought out by The Shafer Commission Report in 1972, by Cannabis experts after 2 years of research, suggested removal of criminalities against its use in view of the massive benefits, it offered. However, this report was ignored and Cannabis took the brunt getting branded as a narcotic drug. Despite this severe blow, progress in Cannabis research continued in the USA as well as other countries. In fact, the first study in 1974 designed to show the dangers of the plant, accidentally ended up proving its benefits when it successfully

shrank tumours induced in mice in the laboratories. This study has been published in Journal of the National Cancer Institute and had a grant from American Cancer Institute and funds from National Institute of Drug Abuse.

A similar study confirming shrinkage of tumors in mice was published in Nature Medicine, 2000. Marihuana Reconsidered, a book penned by noted psychiatrist Dr. Lester Grinspoon was first published in 1971 and updated in 1977, becoming a Harvard Press bestseller. He methodically reviews the effects of marihuana and proposes it to be appropriate for medical use. A publication in 2014 in the esteemed New

England Journal of Medicine documents reduction in seizures with use of cannabinoids.

Over the years several more studies have been conducted and have revealed Cannabis as a possible treatment for Cancer and the side-effects of chemotherapy such as nausea and also illnesses like AIDS, opioid addiction, post-traumatic stress disorder, and many more. This is why over 30 countries have gone ahead and legalized or decriminalized the cultivation, sale and usage of Cannabis and its derived products.

Now that most of the world has opened up to the facts about Cannabis, a new era of medicine is ready to be

ushered in and India needs to be at the forefront. By learning from countries, where the plant has already been legalized for medicinal purposes, we need to implement modern policies that allow its cultivation and the production of Cannabis based medication. Understanding the rise in such a public opinion and expecting the eventual legalization by the Indian government, Cannabis Health And Sciences (CHS) has already begun to lay the groundwork to be an industry leader when that happens.

Backed by a talented and qualified team of doctors with international training and exposure, CHS is founded on a strong ethos to not operate as a corporate pharmaceutical company but as a community based scientific organization built for the betterment of humanity. The cultivation and development of our products will be done using only state-of-the-art technology and the highest possible safety standards. This way, we will ensure the natural benefits of the herb are retained completely and delivered to the end consumer, in the most wholesome way possible. The organization is in constant

contact with leading agricultural universities and associations studying Cannabis in India as well as in various countries such as the USA, Canada and Thailand.

It is this continuous knowledge sharing of techniques and information that makes us one of the leading Cannabis research organizations in the country.

We hope to take this expertise to the various state governments and work alongside the lawmakers of our nation to formulate the necessary regulations for medicinal Cannabis. We are extremely optimistic about the government's reception to our efforts and hope to begin clinical trials as well as cultivation and manufacturing of Cannabis products as soon as a positive decision is made. Until then, we will continue on our path to research and educate the public about the miracles of the plant.

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Carbon neutral journey through e-mobility

Contd from previous issue

Coal India Ltd, where she is the second largest consumer of coal.

Recently India gifts solar panels to UN HQ with an aim to reduce carbon footprint and promote sustainable energy by declaring hash tags 'ClimateActionNow' and 'Equality'. India also committed to generate 100 GW of solar/wind power by 2022 from renewable sources. At the same time India's Infosys won the 2019 UN Global Climate Action award for their journey to carbon neutrality India. Their efforts for community offset program help India to reduce firewood consumption at rural communities. People are freed from

Kamal Baruah

dangerous smoke inhalation by using biogas-fuelled cooking and organic farming. Infosys has sought to address global operations by using solar energy while reducing dependence on thermal power.

There are issues like safety, space and consumers' trust towards conventional engines that runs on the road for many decades. Commuters don't want to face interruption of charging experience. Also they feel that new technology in the market is available at affordable cost. The worldwide e-mobility revolution is not possible unless India and China

co-operate because its size and scale in EVs. It's questionable for the plan to shift to electric mobility at a time when the manufacturers were trying to upgrade their models to comply with BS-VI emission norms that probably reflected the recent slowdown of Auto sector. Also it costs the car industry for replacing conventional internal combustion engines. Achieving carbon neutrality by 2050 requires unprecedented political will and cooperation but it's not impossible. These initiatives need stronger national and international climate policies to thrive the world liveable.

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Cost of inaction to prevent and treat TB is very high

Shobha Shukla

Prevention of TB was the focus of many a sessions at the 50th Union World Conference on Lung Health in Hyderabad, India, on the theme of 'Ending the Emergency: Science, Leadership, Action.' This conference comes one year after the first ever United Nations High-Level Meeting (UNHLM) on TB.

One of the commitments made in the political declaration of the UNHLM on TB is to prevent TB through rapid scale-up of access to testing for latent TB infection (LTBI) and provision of preventive treatment, so that at least 30 million people (out of the global pool of estimated 1.7 billion with latent TB) including 4 million children under five years of age, 20 million other household contacts of people affected by TB, and 6 million people living with HIV, receive preventive treatment by 2022. What is Latent TB Infection?

Dr Rohit Sarin, member of government of India's Technical Working Group on latent TB, and Director of National Institute of Tuberculosis and Respiratory Diseases (NITRD) said: When a person inhales the TB germ there is a 30% possibility that he/she will get infected. Individuals who are so infected are said to have latent TB infection (LTBI). They have a 10% risk of developing active TB disease in their lifetime. Without infection there is no disease. So every individual who develops active TB disease passes through this phase of latency, which could last from days to weeks to even years. In very few people the period of latency or incubation is very small and the individual goes into active

disease almost immediately after the first infection. A very small number of people with LTBI will progress towards active TB disease though.

In India, 40% of the population (over 400 million people) is infected latently. Somewhere down the line 10% of them (40 million) are estimated to develop the active TB disease.

To prevent more active disease happening there have to be some interventions to reduce the latent TB pool. That means we have to cut down transmission - and - to cut down transmission in communities the best way is to diagnose a person with LTBI early on and to put him/her on TB preventive treatment (TPT) so that he/she does not progress to ac-

tive disease. At the same time we have to also diagnose early and treat those who already have the active disease so that they are no longer infectious and will no longer transmit.

In one of the sessions at the conference, Dr Suvanand Sahu, Deputy Executive Director at the Stop TB Partnership, made a fervent appeal to move out of the comfort zones of TB and go from treatment of sick people to treatment of people with no symptoms (those with latent TB); from TB clinics to households/communities; from ruling-in TB to also ruling out active TB; to include skin test and blood test to rule out latent TB, alongside diagnosing active TB.

TB prevention is no longer a choice anymore. It is an

essential component of the end TB strategy. We have to dismantle the mindset that TB Preventive Therapy (TPT) is not needed. Rather it should be an integral part of a comprehensive strategy to end TB. Preventive treatment starts with active case finding (ruling out active TB); access to LTBI test and treatment regimens, said Dr Sahu. Vishwanath Pingali, an economist at the prestigious Indian Institute of Management (IIM), Ahmedabad, made a case for preventing TB, rather than just curing it, as TB poses a huge financial risk on countries. He presented the results of his research that evaluated the cost of TB purely from an economist's perspective. His calculations are based on evaluations of 3 components of costing (i) loss in productivity from days of employment and wage loss perspective; (ii) cost

of medicines and medical services; (iii) contagious nature of disease. And the figure he arrived at is mind boggling. As per his calculations, the average financial cost of TB is around USD 7500 (INR 525000) per patient in India, which is 137% of the per capita income of Indian economy. This of course does not include the huge social costs associated with the disease. "So treating and controlling TB is not a charitable venture. It is a profitable business model. Drug discovery should focus on medicines aimed at neutralising latent TB and not just treating active TB", he said. No one needs to die of TB. No one needs to deal with active TB disease. If we are to end TB we need to recognize TB prevention, control and care as a human rights imperative, as well as invest fully in end TB agenda as it is a smart investment too.

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