

## Recent Trends in Biodiversity Researches

Prof K Kannan, Vice Chancellor,

Nagaland University.

Lumami (Headquarters)

[Email-vicechancellornu@yahoo.com](mailto:Email-vicechancellornu@yahoo.com)

**Needs** are of two kinds. There is a **felt need** and there is a **real need**. It is interesting that there is a real need to preserve biodiversity but unfortunately we do not know the felt need like Dr SubbaRow who created a whole new world of medicine just from an attack of diarrhoea in a period of 25 years.

You have probably never heard of Dr Yellapragada SubbaRow. Yet because he lived you may be alive and well today. Because he lived you may live longer. A statement made after his sudden death in 1948. Unfortunately he never was recognised as an icon like C V Raman, Ramanajum or Chandrashekar. Diarrhoea struck him. A vicious kind that drained him out and reduced him to a bag of bones of some 90 pounds. Allopathy did not cure him. Ayurved proved to be the life-saver. Dr Achanta Lakshmi Pathi the Ayur vaid revived his rapidly falling pulse with a simple treatment of fresh juices. SubbaRow rallied round with the fourth or fifth dose. His weight went up to 138 pounds. Death was not imminent. Dr Lakshmi Pathi diagnosed his case as tropical sprue. More than twenty years later, in 1945, Dr SubbaRow discovered the cure in Folic acid. Dr SubbaRow went on to join MBBS at Madras university and later became Vice Principal of Ayurveda college in Madras. He went on to do PhD at Harvard University, USA, Biochemistry department. He is famous for developing a method for Phosphate estimation in biological material and has been cited more than 17000 times since 1926 to 1980. Further he is credited for discovering ATP, Creatine phosphate.

When owner of American Cyanamid, William Bell in 1940 asked SubbaRow to join Lederle Laboratories with a salary of 15,000 \$, it was a steep rise from 2700\$/year! Bell had an adolescent and starry-eyed infatuation with science. Ideas of cure and rejuvenation from whatever source—press, hearsay or direct observation—flooded his brain like storm waters. And he would send off deluges of notes to SubbaRow. SubbaRow went on to make Lederle the richest pharmaceutical company with several patents and new drugs. Some are aureomycin, tetracycline, Folic Acid, Vitamin B-12, Hetrazan to name a few. By 1948 Lederle had a turnover of 350 million dollars. Dr SubbaRow passed away in 1948 at the age of 54.

Dr SubbaRow could appreciate biodiversity and was keen to combine the art of Ayurveda and practise of allopathy into a new way of providing healthcare. The anti sprue factor, folic acid was synthesised under his Directorship, has had a sustained and widening sphere of use. It is effective in various kinds of anemia, fight heart diseases by reducing levels of homocysteine in the blood. The idea of anti-folate and creation of Methotrexate is not only used in various forms of cancers but also in rheumatoid arthritis and psoriasis.

You must be wondering what has this to do with recent trends in Biodiversity research? We have talked and documented enough on biodiversity but very few have taken it to application

like Dr SubbaRow. Often I am tempted to say there is so much of biodiversity in Northeast but so far we have not been able to convert into livelihood opportunities.

Can we blame the education system and the kind of irrelevant research we do? There is diversity in our departments along with compartmentalisation without cross pollination. Are we also preserving or conserving departments? I remembering starting of Bioscience but compartmentalisation of Botany and Zoology remained with each arguing which is more important. Often we forget we are part of Biome and there is a new catchy word called System Biology. Today these boundaries will destroy us which we the elders are trying to preserve.

My own experience of starting Biotechnology in 1985 as a PG program and in 2002 at senior secondary levels under CBSE. Way back in 1980's we confused between science and technology. Does Biotechnology stand for fusion of two words-Biology and Technology? Could it also mean:

Biochemistry, Biophysics, Bioprocess Engineering, Biomaths, Microbiology along with Techno logy. It was so difficult to explain to a beginner that I gave a new definition.

**Biotechnologist is like an arithmetician who does addition, subtraction, multiplication, division of bio-molecules to produce products which benefit the mankind.** Let us look at the technology of making insulin by genetic engineering.

**Subtraction** ---- REMOVE THE INSULIN GENE

**Addition** ---- PUT INSULIN GENE ON A VEHICLE

**Multiplication** ---- MAKE MULTIPLE COPIES IN A LIVING CELL

**Division** ---- SORT OUT THE CELLS WHICH ARE MAKING INSULIN

Technology involves a diversity of sciences and engineering to develop a technology rather than being confined to a narrow range. We need to be broadband rather than narrowband. Science can be narrow band but we are seeing the popularity fading among youth. The felt need is science but real need is application of science for the welfare of mankind.

To make diversity research meaningful and relevant we as a University need to revolutionalise our outmoded 20<sup>th</sup> century ideas and come with a new approach. **Periods of recession is a reflection of lifestyles as a consequence of overexploitation of technologies. Industrial revolution(1740 AD-1940 AD) changed our lifestyles from Agricultural Age(6000BC-1740 AD). Information Communication Technology( 1940-1990) is changing our lifestyles from organised manual working culture to automation of routine work. Currently knowledge is driving society.**

To survive in the knowledge driven society compartmentalisation does not equip the youth for livelihood generation and un-employability and consequent problems associated with it. With ICT can we deliver education at the doorstep by the most competent teacher rather than keep creating new campuses. Can we prepare the young to take up courses which will enable him or her to realise their full potential rather than feel frustrated by compartmentalisation? In this seminar I wish to discuss some of my own attempts at Nagaland University in the last few years.