Nanotechnology (NT) – Why Sri Lanka should pay attention on NT?

The developed world is shifting now from Information Communication Technology (ICT)–Biotechnology Era to the "Nanotechnology" Era. We in Sri Lanka should be aware of current developments in the world, and prepared to face them, because we cannot keep away from the influences of globalization and so-called global open market system.

As we know, "Nano" refers to one billionth, and in the case of measuring scale, 10^{-9} of a meter. However, in nanotechnology, molecular particles up to the range of 100 nm are considered, and are called "Nanoparticles". There are complex molecules of this range, which are amenable to manipulation, and their images can be seen through the Scanning Probe Microscope (SPM).

Physicist Richard Feynman was the first to hypothesize in 1960, that atoms and molecular systems could be potentially manipulated into useful structures and devises. Later in 1986, Eric Drexler in his book "*Engines of Creation: The Coming Era of Nanotechnology*", has given an appropriate definition for this term. Accordingly, the Nanotechnology (NT) is "*the design, characterization, production and application of structures, devises and systems at the scale of atoms and molecules, by controlling the shape and arrangements of nano-scale configurations dependant upon their technological utility*".

In this issue of Vidurava, you will be exposed to more of this new field and its applications in biology, physical sciences, health sciences and engineering. NT has become a force that removes the gap between Biology/ Medical Sciences and Engineering/ Physical Sciences.

Developed countries are spending billions of US Dollars on nanotechnology related Research, Development & Marketing activities. USA has allocated 3.7 billion Dollars for the period of 2005-2008, and within Europe, about 1.25 billion US Dollars are spent in R&D of NT per year. Japan has recently doubled its funding for NT related activities. This is the indication of future potential, and developing countries like Sri Lanka have a bigger chance of getting involved in a wise and intelligent manner to benefit from modern developments. The most important natural resource we have for this purpose is our local Human Resource.

Our Human Resource needs to be advanced urgently on modern technological developments to face the challenging globalized Knowledge-based Economies. Lifelong education is now well accepted and workforce has become "Knowledge Workers". Knowledge workers need "technology compatible management" system as well as "technology compatible infrastructure" to make the new technology a viable process.

Accordingly, the knowledge is only 1/3 of the technology, and the trained Human Resource will leave the country for working in developed countries where compatible conditions are available. We need to understand that modern technologies are initiated and utilized in developed countries where compatible management systems are available. Command, Force and Control based out-dated management system existing in our country cannot sustain modern technologies.

Above all, we have to understand that the "Research and Development" concept is changing into "Research & Marketing" in developed countries. If we know that technology is defined as "systematic application of knowledge in Industry", and Industry is simply defined as "Production and Marketing", it is not difficult to understand the relationship.

If we are not familiar with "Marketing and Management", can we use Nanotechnology and modern technologies for the benefit of our country although the country is rich in Human Resource together with other natural resources?

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