

Experts' Point of View

Developments in science and technology hold the key to better future for man. But unless science and technology are integrated together in the right direction even good science cannot lead to good technologies. As the nation celebrates science day, Lokmat Times interacted with eminent scientists and doctors to get their views on 'Integrated approach in Science and technology for a sustainable future'.

A sustainable future depends on how well we use our natural resources today so that their availability is not compromised for our children and their future generations. Our lives and our future are dependent on science and technologies. Science is the pursuit of truth; therefore, there is nothing like bad science. However, science is the mother of technologies; both good and bad. A technology can be either good or bad depending on the kind of footprint, positive or negative that it leaves on the earth. Good technologies should leave no carbon footprints. Bad technologies can destroy everything around us today or tomorrow. The earth needs responsible scientists and climate-positive technologies for better future.



- Keshav Kranthi
Chief Scientist, International Cotton Advisory Committee, Washington DC

The success of Organ donation of 'Brain dead' patients and transplantation is a giant leap in the medical sciences. More and more families are coming forward to donate organs of their loved ones. The success of Cadaver organ donation, is largely due to the involvement of the NGO MOHAN Foundation which has headquarters in Chennai. It's staff trained Nagpur volunteers and the first Deceased Organ Donation happened in just one month. City is now on the National grid of sending and receiving organs across the country.



- Sqn Ldr (Dr) Ravi Wankhede,
Director MOHAN Foundation, Nagpur. Founder member and secretary Zonal Transplant Coordination Centre, Nagpur

Sustainable future depends on long time availability of Natural resources and life supporting environment on earth. Unruly use of science and technology for selfish human motives would drain the natural resources and make irreversible damages to Environment. Integrated and judicious use of science and technology is the key for sustainable future.



- Dr Atul Vaidya,
Director National Environmental Engineering Research Institute

Connecting science and technology can bridge the gaps among developed and developing countries for achieving the Sustainable Development Goals and producing more flourishing, healthy, inclusive and sustainable societies. Science and technology offer the prospect of solutions and opportunities for sustainable development that are healthier, not expensive, quicker, scalable and easy to use. While the potential to increase the sustainability of development is evident in recent advances in AI, IT, biotechnology, nano technology, renewable energy etc, new technologies threaten to outpace the ability of societies and policymakers to adapt to the changes they create, giving rise to uncertainty and resentment to some technological advances.



- Dr Anupam Agnihotri,
JNARDDC director

Science, that integrated can only alleviate human suffering and make life better. Although basic and clinical research are absolutely necessary for discovery of new entities for patient management, integration of medical sciences with engineering, mechanics and automation and others, has also seen tremendous benefits in recent past, like robotics, enhanced MRI machines etc. With the very concept of Integrated approach, scientific community has been able to progress in right direction. Over the last decade, developments in Artificial intelligence (AI) have revolutionised a wide spectrum of fields such as engineering, education, e-commerce, and healthcare. In medical sciences, AI has generated tremendous promise in terms of patient care, diagnosis and treatment. The broad applications of AI in healthcare include drug development, management of medical data and personalized patient care and follow-up. Similarly, AI has been used for the development of classification models that has helped physicians' diagnosis of skin cancer, psoriasis et cetera. More recently, AI has found utility in contact tracing and prediction of global hotspots in the developing Covid-19 pandemic.



- Dr Sajal Mitra, former GMCH dean

Today the world faces globally the problems of depleted resources and pollution due to following reasons: Unplanned and unscientific human activities has damaged the green cover and the biodiversity. Depleted and polluted water resources, change in land cover, threatening food security, depleted fossil fuels, rapid increase in energy consumption, climate change inviting rise in temperature and high flood risk leading to threat of migration to population. Besides, there is risk to health due to noise as well uncontrolled emissions of pollutants. Hence for sustainable development technologies must aim at optimum use of resources. Environment being forerunner to economy all developmental activities must be subjected to carrying capacity studies. Science based, assessment of resources



air, water; land, forests, fossil fuel, major and minor minerals and its availability for sustainable consumption for development. This integration of science and technology also provides technological alternatives for prevention, control and remediation of pollution to protect and preserve the environmental components. Solar energy based developments, solar power; use of solar machinery, equipments and promote its utilization for food production through green cover and agriculture hold key to sustainable development. Technologies should optimize resource consumption and minimize residue and emissions

- Dr Satish Wate, former Neeri director

As the director of VNIT I closely witness the trajectory of future technology ranging from machine learning, artificial intelligence, robotics to data analytics. This will invariably and permanently change the human behavior, from individual to society. We live in a country where human resource is our primary factor of production and agriculture. Hence while we want to enhance the productivity & efficiency or reduce the manual fatigue, manpower should not be displaced nor removed from the world of work. We at VNIT are committed to research, provide and transfer technology for sustainable tomorrow using traditional technologies and also adopting non-conventional energy resources. VNIT generates its own one Megawatt solar energy and is role model for sustainable & green economy with usage of appropriate technology. Institut has received District Green Champion 2021-22 Award.



- Prof. Pramod M. Padole
VNIT Director

There is no doubt that science and technology had been the vehicle of progress for mankind and it is sure to remain so in future too. Improved quality of life, conquering diseases, exploring the galaxy in a way no one could imagine ever. We are a totally changed world today. But science is a double edged sword. It's has a potential for keeping the humanness and emotionality at bay and can be ruthless too! The need of the hour is keep a balance between the science and humanity. Advancements in science make it a better place and not a battlefield.



- Dr Lokendra Singh, Director CIIMS and senior neuro-surgeon.

Science and technology has tremendous potential to help us create disruptive innovations. What happened in last 200 years, more happened in last 10 years. S&T will help us to find different solutions, new approaches to the same problem. Technology and science makes it possible to quickly create models and test different scenarios and check sustainability aspects of solutions.



- Shashikant Chaudhary, serial entrepreneur

A sustainable future has many aspects - longevity, healthcare, communications, democracy and planetary conservation are some of the major goals of a sustainable future. Science creates research and research creates better science and technology. We need to grab this opportunity and ride it to its fullest for our future.



- Dr Vinay Nangia, senior ophthalmic surgeon

Being an agricultural scientist, I will restrict my comments to only agriculture. Achievements in Indian agriculture are attributed to two things; 1) Technology led growth in productivity improvement in nearly all the commodities, and 2) Investment in agri-science and technology. Technology on its own cannot be discharged without science, and investment cannot be just made in salaries alone.

Self-reliance is driven by investment. AS per DST's 2020 report from the allocated grants nearly, 62.4 percent goes to defense research and miniscule of 37 percent of the allotted grants are given to other research agencies like: ICAR, ICMR, CSIR, DBT, DST and only 0.9 percent is allocated to IT, Renewable energy. Of this



agriculture receives just one fourth. Economic Survey last year did flag off the issue of low investments in science but this year it is not even mentioned. The current level of agriculture investment is 0.4% which is lower than many low- and middle-income countries. As per SOSI majority said that science is the only hope for better future. There is no

scope for pseudoscience. So, country needs to invest more in R&D and simultaneously see the human resource is also created for better research as the number of universities and research institutes are increasing day by day.

- Dr CD Mayee
Ex-Chairman Agricultural Scientists Recruitment Board, New Delhi, President, South Asia Biotechnology Centre, Jodhpur-Delhi

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NATIONAL SCIENCE DAY LECTURE-2022

Feb. 26, 2022 at 12:00 Noon

Topic:
Science and Scientists in the New Millennium: A Brave New World

Chief Guest
Prof. Ashutosh Sharma
IISc, PhD, FRAS, FRAS
Institute Chair Professor, IIT Guwahati
Former Secretary, DST, Govt. of India
CSIR, New Delhi
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As closely interlinked processes of Nature more and more affect every aspect of human lives, studies of the Earth are essential for survival and well being. On this National Science Day, we pay homage to the planet which is our home and to the pioneers who have dedicated their efforts to discover its hidden treasures. In anticipation of a future of inclusive development it is also the time to deliberate on the science of tomorrow, its interactions with emerging technology, artificial intelligence and principles of ethics.

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