

## **The R&D Vision**

Global warming is a threat to human prosperity and has been intensively discussed world-wide. Regulations are needed to prevent problems, as well as drastic social change to create a low-carbon sustainable society that balances environmental protection with economic growth. Further technological innovation is essential for solving the issues and building a sustainable society. By analysing societal impacts, IICChE defined the following short and long-term R&D visions to be achieved by 2030:

The development of technologies for a low-carbon society

- 1) with sustainable growth – the creation of technologies for societal needs
- 2) revolution in product development

To counter the depletion of resources and global warming, new energies and environmental conservation systems are being developed. IICChE will help to build a low-carbon society through the technology innovation for environmental preservation, energy conservation and optimizing plant operation.

## **Focused R&D strategy**

To realize our R&D vision by 2030, IICChE defined core R&D domains for strategic technologies. The fusion of technological fields beyond borders and the strategic utilization of those fields are essential to create higher value-added products and solutions. We have selected the following fields:

- Nanotechnology
- Micro-reactor
- Bio-refinery
- CO<sub>2</sub> capture and sequestration
- Conversion of CO<sub>2</sub> to useful chemicals
- Artificial intelligence in chemical processes

Any other relevant/innovative field recommended by the R&D committee and approved by council.

**The Institute is recognized by the Department of Science and Technology, Government of India as a Scientific and Industrial Research Organization (SIRO). Some of the major R&D projects sponsored by the Institute in recent times include:**

- Supercritical fluid extraction of natural products from various plant residues.
- Studies in the Problems and Prospects of Indian Fertilizer Industry.
- Parametric optimization and control of semibatch reactor for sulfonation process.
- Hydrodynamics of tapered bubble column.
- Green route synthesis of cadmium sulfide quantum dots.
- Treatment of cokeoven waste water using hybrid technology.
- Removal of Toluene by isolated Microbes from Municipal Sewage Water using Nanoparticles Coated Membrane Reactor.
- Production of Biodiesel from Municipal Sewage Sludge By Transesterification Process.
- Modelling and Experimental Studies on Microwave and Ultrasound Assisted Extraction of Shikimic Acid from Arjuna Seeds.
- Microwave Assisted Polymerization of Lactic Acid and Poly Lactic Acid Nanocomposites.