Editorial

G K Ananthasuresh, Associate Editor

Email:
suresh@mecheng.iisc.ernet.in

Progress in science and technology is marked by new insights, inventions, and discoveries. This changes the way we live and, more importantly, the way we teach and learn science. I vividly remember my parents looking at my school science textbooks and exclaiming that they did not have all that when they studied. I had my share of surprise at that time: Can science change so much in three decades that primary school textbooks have new information that parents had not studied? Well, now as a parent I can see that some things have indeed changed. Right from the primary school level, children today are taught about the importance of energy, environment, and sustainability – things unheard of when I was in school. Any school science fair is replete with projects that deal with these topics. The topic for every other painting or essay writing competition is about renewable energy sources. Even skits performed in annual school-day functions are about energy or environment.

The heightened sense of responsibility towards environment that has crept into primary science education is likely to bring about a change in the attitude of the next generation even as we are becoming increasingly dependent on energy. Glancing through the school texts reveals that presently it is more about making children aware of the energy and environment issues than teaching them something fundamental. This raises the question of what exactly can be taught at the school level that motivates children to start thinking about ways of solving the world's impending energy and water crises. Interested readers may want to look at well-written science textbooks such as the ones published by National Council of Educational Research and Training (NCERT). There is definitely something new there for adults to learn.

The heightened sense of responsibility towards environment is likely to bring about a change in the attitude of the next generation.

Hands-on experimentation of science and a good blend of science and engineering can probably alleviate the current gaps in primary and secondary education.

Another facet of science education that can be improved is to facilitate and encourage children to build things and experiment. After a visit to a school science fair – many environmentally conscious science projects notwithstanding – we come out a tad disappointed because most 'projects' are colourful posters with information gleaned from the Internet and 'craft projects' that are not intended to be working models. What can children learn if a piece of aluminium foil is used as a mock-up substitute for a solar cell, and the water-turbine makes a bulb glow not because flowing water makes it glow but because there is a little battery hidden inside? Hands-on experimentation of science and a good blend of science and engineering can probably alleviate the current gaps in primary and secondary education.

Energy is brought into focus in this issue because of the engineering scientist featured here, Rudolf Diesel. In his short life, he brought about a revolution in engine and fuel research. It is not often that a daily commodity is named after an engineer or a scientist. In Diesel's case, it is more than that: a prefix added to his name – biodiesel – too is assuming increasing significance in today's society. As I read in a book recently, *engineer is a scientist whose theories must work in practice*. Diesel's theories certainly work. The two articles about him and his inventions as well as a 'Classics' article based on Diesel's own lecture remind us of his lasting contributions to technology. Fuel does grow on trees and out of plants!