



**Sparks from the Spirit: from Science to Innovation, Development and Sustainability.** Yongyuth Yuthavong. Pan Stanford Publishing Pte. Ltd, Penthouse Level, Suntec Tower 3, 8 Temasek Boulevard, Singapore 038988. 2018. 285 pages. Price: US\$ 39.95.

Soon after the Second World War ended, about 80 nations came out of colonial bondage and became free. Of these, those that used science and technology for national growth and development have done better than others. This policy, for example, has helped India move from a 'ship-to-mouth' economy to a robust and flourishing one. How the adoption of science helps in national and social development and sustainability is the major theme of this lucid book by the well-known Thai scientist, Yongyuth Yuthavong.

*Sparks from the Spirit* is a well-argued book, which is aimed at the general audience and particularly for policy makers and educators. It argues that any long-lasting activity such as nation-building, improvement of the lives of the people, and the task of preserving and sustaining national resources must have a spirit. The most rational and time-tested way of nation-building and sustenance is the scientific spirit, or what the first Prime Minister of free India, Pandit Jawaharlal Nehru wrote as 'Scientific approach – the adventurous and yet critical temper of science'. Yuthavong points out that this scientific spirit arises from a 'fire' within. This fire is curiosity – which leads to wonder and to explore and experiment. The spirit that emerges from

this fire leads to new knowledge, new theories and rationale, technology and science. He also points out that such sparks from the spirit of science may start slowly and grow gradually. They may also occur independently in different parts of the world; hence the growth of independent, isolated civilizations which discovered farming, community and town-planning, that helped form towns, societies and states. Note too that these were technologies – empirical and heuristic – which later on gave rise to the science behind them.

The book has 11 chapters, starting from the spirit of science, the sparks that arise from the spirit, how to nurture the spirit and enhance the sparks, cultivating creativity, the role of science in problem-solving, generating new technologies, gaining wisdom (each individual and collective), challenges to science – both within and without. How to use science and technology to address and reach the unreached (the base of the pyramid), and methods to realize sustainable goals and for sustainable development are issues that have been addressed.

Sustainable development is vital for any nation, indeed the world to survive and do well. As we are aware, over the last thousands of years since humans organized themselves into communities, several civilizations and empires were born in various places across the globe. Each of them was magnificent in its own right (e.g. the Mayans, the Indus Valley, the Easter Islanders, the Khmers, the Chinese and so on), and developed impressive technologies. Yet each of them collapsed due to environmental damage, climate change, warfare with neighbours, overdependence on friendly traders, and their responses to its problems. History thus teaches us at least some do's and don'ts. Modern science and technology offers us some information on what may be sustainable and what is not. Wisdom chooses the former, while profit motives the latter.

In this connection, Yuthavong makes particular references to the 17 Sustainable Development Goals (SDGs) listed by the United Nations (UN) at the start of the current millennium, adopted by the members of UN, and how the methods of

science can be utilized towards achieving many SDGs. He reminds us of what Mahatma Gandhi said: 'the world has enough for everyone's needs but not everyone's greed', and of the 'Sufficiency Economy Philosophy' propagated by the late King Bhumibol Adulyadej of Thailand, and how this philosophy is applicable in working towards many of the 17 SDGs.

Besides his highly regarded contributions in the area of malaria research, Yuthavong has worked closely with the Government of Thailand as the President of the country's Science and Technology Development Agency, as its Minister of Science and Technology, and also as its Deputy Prime Minister. These have given him a ringside seat in understanding the problems faced by his and similar countries, and some ways to address them. In addition, he is a widely read scholar and engaging speaker. This is evident from the set of apt quotations he has used at the start of each of the 11 chapters of the book – ranging from Kipling, Hugo, Szent-Gyorgi, Koestler, Thomas Huxley, C. K. Prahalad, Jared Diamond, Franklin Roosevelt and others, each quotation capturing the essence of what the chapter says. And his narration throughout the book is elegant and highly readable.

In many universities and institutions of higher learning in India and several other countries, the syllabus these days involves a set of 'core courses' which cover aspects of humanities, social sciences and history of human thought, before the student opts for specialized subjects. This book will be an excellent material for such core courses. It would also be a good addition to trainees in 'staff colleges', where executive short-term courses are offered for professionals such as administrators and policy-planners.

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