NEWS AND NOTES

Report on the Teacher Training Workshop in Earth Science Education, UGC-HRDC, Savitribai Phule University of Pune (SPPU), Pune, India – Raymond A. Duraiswami (*E::raymond.duraiswami@gmail.com*) and P. Krishnamurthy (*E:krisviji@gmail.com*); Geological Society of India, Western Chapter, SPPU, Pune

Earth science plays a pivotal role in our day-to-day lives in many diverse ways. Despite this, very little of Earth science is taught in our schools. Besides, teaching is done by those who do not have formal training in the teaching of Earth science. To fill this lacuna, the Geological Society of India, Western Chapter, Pune, envisaged to conduct a Teacher Training Workshop in Earth Sciences and requested Prof. Nitin Karmalkar, Vice-Chancellor, Savitribai Phule Pune University who readily agreed to host it. A two-day training workshop was held at UGC-HRDC's Faculty Development Centre, Savitribai Phule University of Pune between 28th and 29th February 2020. The workshop was organized jointly by the Department of Geology, SPPU and the Geological Society of India, Western Chapter, Pune. The aim of the workshop was to train 10+2 level and Junior College teachers in using hands-on activities rather than monotonous lecturing. It was envisaged that with this approach, teachers can promote thinking and analytical skills among school students and also kindle interest in Earth science. A total of 58 participants from across Maharashtra were carefully chosen and actively took part in the workshop.

Prof. R. Shankar, Past Chair, International Geoscience Education Organisation, whole heartedly supported and guided us in conducting

the workshop in Pune. He requested two acclaimed Earth science educationists of the world – Prof. Nir Orion (Israel) and Prof. Chris King (UK) – to mentor the workshop; and they consented to do the honours. Prof. Chris King, Emeritus Professor of Earth Science Education, Keele University, UK, is Chair of the International Union of Geological Sciences Commission on Geoscience Education (IUGS-COGE), Chair of the Education Committee of the European Geosciences Union (EGU) and a Senior Officer of the International Geoscience Education Organisation (IGEO). He trains geology teachers in initial teacher education and directs the Earth Science Education Unit which has so far provided teaching workshops to more than 40,000 science and geography teachers across the UK. Unfortunately, Prof. Chris King could not attend the workshop due to travel restrictions imposed due to the CoVID 19 pandemic.

The inauguration function was presided by Prof. Nitin Karmalkar, Hon. Vice Chancellor, SPPU and attended by Chief Guest Prof. Nir Orion, Guest of Honour Prof. R. Shankar and Prof. Makarand Kale Head, Department of Geology, SPPU. Mr. Abhijit Ghorpade, noted Marathi Journalist in Earth science welcomed the dignitaries on the dais and introduced the Chief Guest. Prof. Nir Orion, Department of

(a) Inaugural session of the Training Workshop. Left to right: Prof. R. Shankar. Hon. VC Prof. Nitin R. Karmalkar, Prof. Nir Orion, Prof. Makarand Kale. **(b)** Participants engrossed in the ensuing deliberations. **(c)** Prof Nir Orion demonstrating an experiment to the participants. **(d)** Teachers participation in the field session.

Science Teaching, Weizmann Institute of Science, Israel received his BSc from the Hebrew University of Jerusalem in geology and biology in 1980. He earned his MSc in 1984 and his PhD in 1990 from the Weizmann Institute's Department of Science Teaching. He established the Earth and Environmental Sciences Education Group in 1996 and is a Full Professor since 2013. Prof. Orion is a pioneer in Earth science education and his innovations range from the kindergarten to high school research projects. Altogether, he and his team have developed about 40 science programs. He has helped elevate Earth science education and the outdoors learning environment as an integral and legitimate part of the Israeli education system. In 2004, UNESCO adopted Prof. Orion's *Blue Planet* curriculum for junior high school students, translating it into five languages and distributing it worldwide. *Blue Planet*, like all his curriculum materials, promotes the development of environmental insight through understanding of the interrelationships of the earth systems, including the anthropogenic effects. His materials and methods are spreading worldwide through workshops for teachers in many countries such as Argentina, Brazil, Chile, China, Ethiopia, Germany, India, Peru, Portugal, Spain, Uruguay and USA. Since 1998, Prof. Orion has been Coordinator of Earth Science Education for the Israeli Ministry of Education. In 2001, he was awarded the Israeli Geological Society Medal for his contribution to society through Earth science education and in 2012 he received the prestigious IUGS Science Excellence Award on Geological Education.

The participants attending the workshop were divided into two batches for the sake of convenience. The first batch consisted of 26 participants from Geology faculties of various Universities and Senior Colleges of the Maharashtra state. The geology teachers from Junior College and Geography teachers from Secondary High School, Pune constituted the second batch. Prof. Nir Orion was the main resource person of the workshop, who shuffled between the two batches teaching and imparting the art and skill of easy, effective and student friendly experiments, demonstrations and props in Earth science in general and geology in particular. Prof. Nir Orion mainly carried activity based '*Earth Systems and the rock cycle of my environment*'. In the absence

of Prof. Chris King, the other noted resource persons chipped in to fill in the void. Prof. R. Shankar expressed his views on '*The Story of Oceans*' and also disseminated information about '*The Earth Science Olympiad*' programme. Prof. Nitin Karmalkar spoke about the fascinating topic on '*The Earth's Mantle*'. Dr. V. D. Borkar expressed his views about '*What fossils tell us*' illustrating his talk with examples from his own field experiences. Dr. Ajit Vartak explained '*How knowledge can be acquired through different hobbies*'. In his talk, he presented the use of postal stamps and coins as effective tools in Earth Science education. Dr. Raymond Duraiswami ventured to explain the wonders of '*Hot spring occurrences along the West Coast geothermal province*' and the possibilities of utilising their low-enthalpy energy in sustainable development. Prof. Nir Orion also took the participants to the University quarry and explained how to get students interested in making field observations and kindling their interest in noting important structural, textural and mineralogical aspects in the rock. Most of the participants, especially those from Secondary High School and Junior College appreciated the concept of teaching Earth science in the outdoors.

The two day workshop ended with a small valedictory function that was jointly presided by Prof. Nir Orion and Prof. R. Shankar. Few participants expressed their opinion on the proceedings of the workshop and expressed that such a workshop must be conducted regularly and followed by a rigorous refresher course. They also expressed that '*Training of Trainers*' should be the nationwide norm in Earth science education. Dr. Raymond Duraiswami, Secretary, Western Chapter of the Geological Society of India delivered the vote of thanks. On behalf of the Vice Chancellor, he invited Prof. Nir Orion, Prof. Chris King and Prof. R. Shankar to revisit SPPU and conduct similar workshops in the future. Prof. S.A. Sonawane, Director UGC-HRDC, Savitribai Phule University of Pune, Mr. Sachin Surve and his staff were also thanked for providing facilities to support the cause of Earth science education in the State. Special thanks to Dr. Ajit Vartak, Abhijit Ghorpade, Dr. Sudhakar Pandit, Dr. Durga Prasanna Mohanty, Nilesh Patil, Pratik Mahadam, and Abdul Attar for their help in organising the workshop.

DOI: 10.1007/s12594-020-1571-4