

Protection of environment for its long-term sustainability is the need of the hour. Many anthropogenic activities that bring artificial comforts to life are the root cause of environmental deterioration and ecosystem imbalance. The first step against destruction of environment is to educate oneself about the menace of pollution and then to propagate the gained knowledge to others through awareness programs. The student community can play a vital role in promoting awareness as they are the strength of the nation. The prime requirement is to impart proper knowledge and training to these young students beyond the university prescribed course curriculum. Engaging the students in environmental related issues can help them assess the magnitude of the problem so that they can feel the upcoming threat to the human health/life. Thus if they become concerned about the environmental sustenance, a change will definitely come in the mindset of the common people as well.

The unique feature of our student-centric research programme is therefore based on a refreshing idea of imparting research training to the undergraduate students. The objectives of this programme are three-fold: (i) to motivate young minds towards scientific research of contemporary interest, (ii) to imbibe “responsible citizenship behaviour” in them so that each participating student becomes conscious and well-trained to take up environmental related issues and challenges for long-term sustainability of the ecosystem and (iii) to work for the promotion of role of "Women in Science" in India. The ultimate goal of such attempt is to build a trained team so that, in future, each skilled individual in the team is capable of developing her own environmentally-friendly project and execute it in a well-planned manner along with her own team members. This way it is possible to develop a huge pool of environmentally-conscious and self-motivated personnel in our country.

As a first step towards this direction, a team of young student individuals studying in the B. Sc. course with keen interest on environmental chemistry/geochemistry having either urban or rural background were handpicked during 2013 by the faculty members of the chemistry department. This team was named as “St. Pious UG Environment Research” group— acronym as SPUGER group. The SPUGER group was officially launched at a later date on August 22, 2014 during a workshop on environmental science organized jointly by the college and Science Academies of India (Fig. 1a). This initiative of teaching and working with young students on live projects was appreciated by all the dignitaries and individuals who participated in the workshop. To my knowledge, such student-centric research program is first of its kind taken up by a Degree & PG college of the Hyderabad city. Research activities of the SPUGER group picked up momentum in subsequent years and some fresh young students, who have joined the college recently, are now active members of the group.

Before the initiation of actual work of any environment-related project, the selected students are given adequate training so that they are thorough with the working principle of equipments, which are to be handled by them. They are also adequately guided on the adverse effect of hazardous chemicals so that they become aware about the precautions necessary to keep our environment clean and green. They are taught how one can design innovative methodology to use less amount of chemicals, which otherwise require large amount of chemicals in routine laboratory methods. They are trained in good laboratory practice as well.

During the next phase, the student researchers are taught how to find the gap in our knowledge pertaining to any environmental related issue through extensive literature survey. Based on the identified gaps and new ideas, various work elements are planned and their execution at different stages is carried out. It is highly satisfying that the participants of SPUGER group are involved at every stage of research activity such as (i) sample collection in the field (Fig. 1b-c), (ii) execution of experiment (Fig. 1d), (iii) door to door health survey to acquire health data (Fig. 1e-g), (iv) participation at national conference and symposium for presenting the research findings (Fig. 1h-i), (v) recipients of best presentation award at Nizam College, Hyderabad, 2014 (Fig. 1j) and St. Ann’s College, Hyderabad, 2016 (Fig. 1k), (vi) dissemination of research outcome to local residents through organization of community awareness programme titled ‘Bringing education and society together in protection of environment’ (Fig. 1l-m), and (vii) participation at a function organized by the Council for Green Revolution, Hyderabad during "World Water Day-2015" with an appeal to save the lakes of Hyderabad (Fig. 1n).



**Figure 1** Team members of SPUGER group in action (see text for details).

Finally, it is essential to highlight the fact that the originality of the student education research programme gave us a sense of satisfaction of at least partially fulfilling the societal need by way of grooming a few individual —'responsible citizen' of the country. The undergraduate students of SPUGER group availed/is availing a unique opportunity to gain hands-on experience in the fields of environmental research and education. It is an interdisciplinary field that uses the tools of applied and basic sciences to solve human health problems related to the environment. This program is expected to enable them to work on specific projects in future, where they will have ample opportunity to expand their knowledge and learn a variety of research techniques. The novelty of this program is that it provides a holistic education to the students and helps them become responsible citizens. Through this approach to education, we, the faculty members, could visualize that there is definite improvement in their critical thinking, self esteem, ability to work as a team, and personal and civic responsibility. The major goal now rests with those trained students, who can take the acquired knowledge back to their areas/regions/villages to teach others about the impact of environmental issues on human lives, and how to make our environment free from pollution.