

## MY EXPERIENCE AS DEVELOPING YOUNG SCIENTIST

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I am a student of class IX of Adarsh Vidya Kendra. On reading the message in the newspaper regarding the selection of young scientists by the Kumari Arivial Peravi, I had submitted a

single page report on the topic, "Global warming and its challenges to the environment". My joy knew no bounds when I was informed by the organiser of Kumari Arrival Peravi Mr. Velayan that my report was selected.

Then I underwent three stages in the process of selection. I was invited to present my paper on the topic, at Amala Convent, Thuckalay. I had successfully presented it in the presence of eminent scientist Mr. Ramaseshan from ISRO/LPSC. Then I prepared a poster related to global warming and presented it at Zero point, Pechiparai. I was evaluated by a team headed by Dr. Deva Sobana Raj, eminent scientist. Later I made a model on global warming and displayed and demonstrated it at the science exhibition conducted at women's (WCC) Christian college, Nagercoil.

We were divided into five groups on that day, which were named after 5 continents. I was a member of Africa team. We had our first team meeting at the St. Joseph's Matriculation school campus, NGL. Our guide teacher Miss. Merlin and other members of our team were present. The chief guest was Mr. Jones Rabindran, General Manager, ISRO/LPSC, Mahendragiri. I had also submitted some material which was related to Global warming in Africa. The chief guest guided us on this topic. Of course, our organiser Mr. Velayan was present from the beginning till the end of the session to give us constant encouragement.

Then I got an opportunity to attend a 2 day camp on environmental study of coastal areas of Kanyakumari district which was highly thought provoking for all the young scientists of Kumari Arrival Peravi, held on 29-12-07 and 30-12-07. Our 2 day camp started with a small gathering in the auditorium of Marthandam college of Engineering and Technology. I was shocked when, Mr.

Ingersol ISRO scientist in his key note address informed us that Africa was the continent which contributed very less for global warming but was very adversely affected by it. In Asia, India will be the most affected of all. He requested us to act quickly and do our best. He said that the rise in sea levels in Bangladesh, Maldives and even Chennai was alarming. It was even more alarming when he said there were satellites which give us a clear idea about global warming. Already there has been an increase of 0.750 rise in temperature. The period from 1998 – 2006 (11 years) were the warmest in 150 years. The water content of troposphere has increased.

Dr. Deva Sobanaraj explained that fishing was the chief occupation of the coastal people. In coastal areas 40% people live in 20% of the land. He requested us to look out for High Tide level (HTL) and Low Tide level (LTL) marked near the coast during our visit.

Dr. Jeyalal ,Professor and famous laparoscopic surgeon said that human activity was responsible for global warming and that we should immediately act to prevent irreparable losses. He requested us to go without any preconceived ideas and keep our eyes and ears open.

We reached Neerodi first. The AVM canal stretches from Poovaru to Mondaikadu and is used for fresh water transportation. At Eraiyumanthurai we were provided information about coastal belt.

At Thengapattinam we were spellbound to see the Tamiraparani River joining the sea. It was a wonderful sight. At Enayam we saw the "Thundil Valaivu".

At Colachel we interacted with a merchant who exports fish. We also interacted with a fisherman who lost his wife in Tsunami. We even visited the memorial of Tsunami victims. All through the way we distributed leaflets to the public. It contained the causes, impacts of global warming and measures to reduce it.

Mr. V. Sundarraju, district forest officer explained how our environment was polluted from the effluents of industries and tanneries. We could reduce global warming by planting trees on our birthdays. There are different types of pollution. Damage to the environment is mainly due to acidification, depletion of ozone layer by green house gases.

We visited Manavalakurichi, the seat of Indian Rare Earth Minerals limited. An officer explained about it.

At Kadiyapatnam we were able to visit the place where Valliyar meets the sea. The estuary is a big breeding ground for fish.

At Muttom we visited the light house. An officer explained us about its working. At Manakudy we could witness the broken bridge which was the impact of Tsunami. From the bridge we could see the mangrove forests which is called 'Kandal Kadugal'. We visited the uppalams where edible salt is prepared from sea water.

It was a glorious moment for us to witness the exhibition at Vivekananda Kendra, Kanyakumari. It was very informative. It was an eye opener to all the participants, and it induced an urge in our minds to do something to save our environment from hazards.

Next I got a golden opportunity to attend a training programme on computers at James College of Engineering, Navalkadu. There was a short meeting before the programme. Dr. Prem Kumar Chairperson of James Engineering College gave a valuable speech about the future generation of India. He told us that "you must chase perfection to gain excellence".

Dr. Ajith .C. Sekar, Chief Medical Officer (ISRO/LPSC) talked about his experience in Kashmir. He told us about conservation of resources for further use and we must not destroy it. Mr. Thiruvengadam, District Employment Officer(Rtd) talked about the human talents and every one should strive towards perfection. Mr. Alphonse Head Master(Rtd) talked about the value of education and the service of teaching. With all these memorable speeches in mind we were able to learn great lessons very quickly in the training programme. We were explained about Internet facilities like chatting , Microsoft Powerpoint and creating Email ID. We did our practical with enthusiasm.

During the training at St. Joseph's Matriculation School, I got an idea about alternate energy sources and renewable energy sources. Mr. Ingersol, senior scientist, ISRO/LPSC briefed about the fossil fuels and the need to use hydrogen as alternate fuel. In foreign countries vehicles are operated using hydrogen. We should find means to use hydrogen as source of energy.

Solar energy can be stored in cells and used. Solar cookers, heaters, street light are in use. We can harness wind energy, tidal energy to generate electricity. Natural fuels and fossil fuels will become extinct in about 40-50 years. They are also a cause of pollution. Comparing this, hydrogen is a clean and efficient fuel. Hydrogen fuelled buses are used in Iceland. Hydrogen fuel stations are there. Polymer Electrolyte Membrane Fuel Cell (PEMFC) and phosphoric acid fuel cell (PAFC) can be used. These are the basic cells used in generating electricity through hydrogen.

A fuel cell generates electric cell power by converting the chemical energy through electro chemical reaction. Hydrogen production from distillery waste and other renewable methods have also developed. Hydrogen storage in metal hydrides has been demonstrated. ISRO launch vehicles at Mahendragiri use liquid oxygen and hydrogen as fuel. Now the research is towards.

1. High Pressure storage of Hydrogen
2. Liquid Storage
3. Storage in nano structures
4. Development of safety codes

Next I attended training on Management at Revenue Officer building Nagercoil. Dr. Vijaya Kumar M.D, Past President, IMA who presided over the training enlightened about efficient management. He said that an efficient administration should possess the following qualities.

- i) Educational qualification
- ii) Decision making capacity
- iii) Moral and physical courage
- iv) Impartiality
- v) Human touch
- vi) Risk taking ability etc

Leaders should have the following qualities

- i) Team spirit
- ii) Self esteem
- iii) Positive thinking
- iv) Goal setting
- v) Failure setting etc.

Mr. Tiruvengadam, Dist. Employment Officer(Rtd) explained about crisis management. Mr. Ingersol ISRO scientist explained about time management. He told that a good individual should have

- i) Punctuality
- ii) Time management
- iii) Politeness
- iv) Respect for others

He informed that habit cultivation is necessary. During the end of the session I got a clear idea of management and leadership quality.

The one day camp organised by Kumari Arival Peravi in association with IMA, Marthandam was excellent, educative and informative. Dr. Vijaya Kumar M.D, explained about the latest developments in the field of medicine. He told that nowadays the treatment of diseases has become easier because of the usage of echo and other advanced equipments. He explained about latest methods like laproscopy, CT Scan, Nano CT Scan. Dr. Binu Lal talked about first aid and the precautions to be taken. Dr. Gnaagurvelan talked about public Health and Hygiene. He told that the department of public health has taken good effort to control spread of communicable diseases and polio immunisation program. We gained a lot of information and got enlightened in the process of developing young scientists.

During the banking training I got an idea about the recent banking methods. The banks save time and money for the people and also develop them. I got some idea about ATM Services, Internet system of banking and RTGS system. The system of mobile banking is to be introduced very soon.

Next I attended the Bio-diversity camp at Bio-diversity park at Puliyurkurichi. The forest officer gave a good introduction about forests.

“But for the trees  
    The insects would perish  
But for the insects  
    The birds would perish  
But for the birds  
    The trees would perish”

This shows how the whole ecosystem is interlinked.

I came to know about the different types of birds, butter flies and trees of our area. I also saw the biological pyramid erected there. We can estimate the age of trees by counting the annual rings. The subject is dendrochronology. I had a stroll around the bio-diversity park along with scientists and guide teachers. I saw the Vengai tree, Sarakonrai, Subabul tree and other types of Konrai.

The British general DeLenoy tomb is there. Beside it his wives' and sons' tomb is there. I had a nice view of the surrounding areas when I climbed atop the tree hut. Then I trekked along with others atop the hillock. It was a rich experience for me that I cannot forget.

I thank the organiser Mr. Velaiyan for the encouragement given throughout. If not for his efficient throughout, if not for his efficient management, I could never have got such an eye opener at this early stage of my life. I thank the Lord, for His blessings He has showered all throughout the session. I conclude now, hoping to take part in every camp organised by Kumari Arivial Peravi.