

**Study on
Industrial & Ecological Conditions
For
Young scientists 2013-2014**

KARUR, KULITHALAI & NAMAKKAL

17-01-2014 to 20-01-2014

REPORTS

- 1.S.VARSHA,
- 2.G.JESWINI,
- 3.DAWNLYN LAL,

1.S.VARSHA,
MAROON TEAM.

Different from all other camps it was the first one that made us assemble in the Thasiah auditorium by 4:00 in the evening 17-01-2014 , as we were to undergo a long trip which was to Karur for the industrial and ecological conditions program. This was a 2 day camp. The bus left by 4:15pm.



We were supposed to have an inaugural meet in the Rotary Community Club, Nagercoil. In the Rotary club myself Varsha from maroon team did the compering. The dignitaries were

Mr Velian, Mr Rajan, Mr Edwin Jose, Mr Vishnuram, Mrs Jesintha and Dr James Wilson. The meeting started with the rotary prayer read by Mr Edwin Jose, President of Rotary club of Aasramam. Mr Vishnuram welcomed the gathering. He said that students should have cleanliness and confidence. It will be more valuable and effective only if the parents support the pupil. He was proud that Kumari Arivial Peravai is rendering such a valuable service in giving the students a strong base about science and nature. At last he welcomed all the notables present there on the dais. Then the activities of Kumari Arivial Peravai were highlighted by



me. I specified that 57 students were selected out from a big group. The main aim of KAP is to give opportunities and nurture talents. As usual in that fine evening too Mr Velaian gave the introductory address. Sir gave a brief account of the selection process, coastal study tour and the industrial trip that we had undergone. Then Mr Rajan gave the presidential address which was followed by the young scientists who talked on their theme topic.

First it was the chance of V.Steffy of red team to specify her topic. She spoke on Industrial and the ecological conditions. The points discussed by her are:

- United Kingdom is the first country to be industrialised.
- The industries that flourished were cashew, rubber, bricks etc.

Then Rugen from yellow team gave a short and interesting talk on the topic 'Life style of the people in the coastal areas'. Some of important points discussed by him:

- In some coastal areas nearly 7 fishermen die per day.
- Diseases like cancer make them struggle a lot.

Achsah I.G of green team presented her talk on the topic 'Overview of Coastal Environment trip'. She included all the coastal villages that we visited in that two days camp.

Then Jeshwini from green team shared about 'Conditions of Palayar river. We could understand that,;

- It originates from Surulodu.
- This river covers an area of 397 sq.km.
- Water hyacinth which causes malaria is present.
- It is highly polluted.
- Wastes deposit causes jaundice and cholera.
- Government should take proper steps to rectify the sewage by keeping bins in all the corners of the roads.

We learned a lot about estuaries mainly found in Kanyakumari District from Anisha R.S of maroon team.

- Estuaries are rich source of fishes.
- Major estuary is the Thamirabarani estuary.

Annlin Tino of maroon team gave some factual truths behind the conversion of paddy fields into housing colonies. The information given by her are :

- Agriculture is declining day by day.
- Disintegration of joint family is the main reason contributing this conversion.

Meera of blue team discussed about the pioneer of organic farming Mr Namaalvar:

- He was born in the year 1938.
- He is graduated from Annamalai University.
- He went to Netherland to learn.

- He helped the Indonesian's who suffered a lot due to tsunami.
- He died in 30th December 2013.

Joshika briefed about the condition of bio diversity in KK district.

- Overpopulation is making people and the bio diversity to struggle.
- The presence of cell phone towers kill birds.
- The medicinal plants are destroyed.

Rtn. Mrs Jesintha Dharma felicitated the gathering. Mam greeted the young scientist and appraised that we looked like real scientist as the students who presented the talks were energetic, enthusiastic, worked hard and sacrificed pleasure. The manner of the matter was systemic. Finally mam wished us to taste success from this programme.

Lakshmi of yellow team was called to the stage to deliver her speech on the topic protection of coastal areas:

- The coastal areas are depleted and affected with toxic wastes.
- It is the duty of the government and the people to take care of the coastal area.

Ancy Jeneiba from yellow team went front to speak on the topic 'Multiple uses of Palm tree'. The points said are:

- The palm tree is usually grows up to 30m height.
- It is endemic in India.

Ashwin Niranjana gave a brief account about conservation of soil. He urged us in conserving soil, because there is no life without soil and no soil without life. And the plants also directly depend on the soil as a source of minerals. He specified a quote of Franklin D Roosevelt which stated that a nation that destroys soil destroys itself. It is found that 11% of the crops are degraded. The alternative ways are by using organic materials, minimizing the pollution of soil and encourage the farmers to prevent soil erosion.

At this juncture Dr. James Wilson felicitated the gathering. He encouraged us to use this unique opportunity.

Ethazl from red team defined the air we breathe as:

- It is the necessary requirement for every citizen which is available free of cost.
- She also briefed the use of doing yoga.
- The habit of smoking is dangerous.

Then some instructions were given by Velaian sir about the camp and he also praised the endless efforts put by Dr James Wilson for KAP.

Then Blessy from maroon team gave the vote of thanks. Then she stressed on the words "Gratitude should be the attitude of Humanity". Dinner was arranged by 6:50pm. And we left Nagercoil by 7:30 and reached Aryan, Karur by 3:30am.

We woke up by 6:30pm and we had our breakfast by 7:45am and assembled together in the midst of the greens by 8:10am. Praison of maroon team welcomed the dignitaries present there. They were Mr Velaian, Er Benzigarajan, Mr Edwin Sam, Mr Balakrishnan, Mr John Rabi Kumar, Dr Krishnaraj and Mr Edwin Gladson. It was the time to present the theme talks. First Bibisha gave a talk on the topic Wildlife of Kanyakumari district. Then Jeneiba stated the reasons for the decline of the growth of Cattles which is as follows:

- Increase in money
- Lack of time
- No temptation to grow due to internal stress.

Some steps suggested by her for the domestic animals:

- Keep the domestic animals clean
- We should take good care of the animals by regularly checking it to the doctor.

Krishnaveni stated the uses of Kitchen garden which is:

- It saves the income.
- We can get pure and fresh foods
- Lack of diseases.
- Lack of chemicals

Scotline Jo recorded about the wetlands that are to be saved. He said that:

- Swamps protects us from waves
- In Chennai the marshy areas were 5500hectores and now it is 1000hectores.
- In fresh waters there are more plants.

Blessy of maroon team gave a detail about the forest of Kanyakumari district that has changed into stone quaries. I got a good chance to give a detailed account about sacred groves and their importance in Indian culture especially the rural population.

- Plants are preserved in separate places called sacred groves.
- In Tamil Nadu there were 5000 sacred groves before 50 years
- In Meghalaya the sacred groves have more than 50, 000varieties of medicinal plants.
- Tree cutting is prevented in the sacred groves.
- Plant is the old creation of god.

Nitya of red team said about the water in Kodayar. She described that it starts from manimuttharu. It irrigates an area of 17.000hectores in Nellai district. Shanu from red team spoke on the topic AVM channel. She assumed that it starts from Mondaikadu and ends in Kochi. It gives fresh drinking water, transportation and bathing for the people. Jayavarshini from red team reported about the endangered birds. She defined endangered birds as the birds that are going to be extinct. Some of the endangered birds listed by her are the

spot billed pelican, Nilgiri poppet etc. Varsha from red team spoke about the tourist places in Kanyakumari district. She said about the beaches and the waterfalls in our district. The presence of various Minerals in Kanyakumari district and their importance in industries is well discussed by Bowshika . Dharshini of blue team stressed about the conservation of water. She included the words of some Tamil scholars. Dawnlynlal of blue team concentrated on the water resources and the water reservoirs in Kanyakumari district. Jini insisted the ways to clean the coastal areas. Amartyashalini said about the agriculture lands. She lamented that they are declining due to human activities. Nishika of yellow team explained about the disasters. She said that:

- They are naturally occurring.
- The coral reefs are vanishing in 93 countries.
- The mangrove forest and the sand dunes withstand huge waves.
- The public should be given awareness about the deadly disasters.

Then Livee, young scientist 2012-2013 was asked to give the suggestions. She advised us to search information about Kanyakumari and not globally. Then Achsah, Steffy, Jeshwini and Fathima gave some tips for making our speech even better. Then Mary Juliet mam told that this is a unique chance that we have got and she directed each and every young scientist to use this meets to create new ideas. Then Mr John Rabi Kumar and Dr Krishna Raj also gave some instructions. Benzigarajan sir recommended us to see the things practically, do not mug up, understand the concept well and cherish the things in mind and present what is understood. The systemic way of presentation:

- 1st give an introduction about the topic.
- Write the importance.
- Narrate the past and the present scenario.
- Present condition
- Steps to improve. Then Mr Edwin Sam instructed us to collect information from different sources, understand the theme and deliver it in our own words. Giving introduction is very important when delivering the speech.



Then we underwent a field visit in the Sabare Textile industry. First session was the process of weaving. We entered this building by 9:35am. Mr Senthil Nathan guided us. He took us to the warehouse. A warehouse is the place where the materials are stored. He gave lot of information about the weaving process. The output that is gained after this process is the fabric. The fabrics are of different styles. They are classified based

on the input raw material. The non-woven method of weaving is used for making masks used in hospitals and nets. Weaving is of four types. They are plain, drill, jacquard and dobby. Bed sheets are made through jacquard method. Fabric can be woven in different styles. The raw material that is used for weaving is yarn (cotton, polyester and poly cotton). Cotton is the main raw material that is often used. Sir showed a yarn which was of 74 count. It was easily broken with his hands itself. Yarns are usually measured in kgs. The count varies from 2-330. The count 2 is very hard and thick. The count decreases as the diameter increases. The most commonly used counts are 40, 60 and 80. The count 40 is used for making pants and the count 80 is used for making shirt. Yarns are purchased both horizontal and vertical. Babine is used for pulling the yarns with high pressure. Yarn is of two types 1) Weft and 2) Warp. Since the yarns are so weak, they can be easily broken so that to avoid this starch is applied to it. He showed a cloth which was different from the other one because there were some dots on it. He said that different programming is required. In the warehouse there are some racks in which threads are placed. These racks are numbered accordingly for easy identification. The conical yarn is placed in the bars in the warping machine. Then the yarn is brought to another machine for even distribution. In that machine the yarn moves from one beam to another and meanwhile the starch is added to it. The next process is sizing which is the process of adding starch to the yarn to improve the strength of the yarn. The next process is drawing. This process is based on the orders. We can put knot to join split yarn. The heild wire is 1mm, 2mm, and 3mm thickness. Then the length of it is 145mm. The machine stops if there are any errors. The auto loom requires less man power for maintaining. The dropper is used to stop the machine manually. In the Sabare Industry there are 64 weaving machines. They make use of two machines namely Leolardo Varmtex and Sulzer. The specification of the machine is RPM. RPM stands for Revolution per Minute. Here the Varmtex is of 360cm and 190cm. Sulzer is of two types one is small and the other is big. It is 360cm to 220cm. Varmtex-tape-carry weft from one place to another, to another to internalise the fabric with warp. This is the mechanism. Other machines are not available here and they are going to implement it in the future. They are Air jet and water jet. The yarn is carried by air in air jet and by water in water jet. Then the balance yarn is brought to the winding machine to twist and convert small to big. In 360cm there would be two beams and in 190cm there would be 1 beam. If the yarn is big then big beam is used and if the yarn is small then small beam is used. Then by 10:48am we entered the loom. The looms are so noisy that the workers are forced to wear ear plugs. At the second we entered the room where we found that the looms are kept in air conditioned rooms. The moisture is taken from outside and spread throughout the looms. We came to know that Mumbai is called as the

Manchester of India because of the cool climate. We got a chance to see the Varmtex and the Sulzer machines inside the looms. In the top of each machine there were some indicators. These indicators were composed of four different lights. They are green, red, white and orange. Green showed the weft. Red showed the warp. White blinks to report the problem and orange ensures that the machine is running and keeps on glowing fully. It is found that the automatic looms prevents wastage and produces more products of best quality. To clean these machines they use soap oil and white petrol. Reeds were present in the machines. When asked them about its use they described that reeds join the threads. The cost of each machine is 35lakhs. The next process is checking. Here the final product is checked. The total product is changed if there are stains or if it is wrongly weaved. The next process is folding. Here the fabrics are folded as per the requirements. The roofs were very different that it was made of aluminium because it acts as a heat resistant. These folded fabrics are tied together and are exported to countries like USA and Europe. Later these fabrics are stitched into desired ones. The owner of this industry is Mr Suyambu Nadar. Then we had feedback session by 11:30am. Feedbacks were given by me, Steffy, Achshah, Dawnlynal, Tino and Jeshwini.



By 12:00pm we entered the industry that manufactured cotton. Mr Senthil Raj guided us. This industry manufactured the sponge that is loaded inside the pillows, jenkins etc. The final product is polywadding. After the final product comes out it is given to the buyers according to the GSM. GSM stands for Gram per Metre. A minimum of 60gram to the maximum of 1600gram is made at a time. They buy the fibre, mix it, heat it and give it out as bonding sheets. Then the customer rolls it and stitches it with clothes. The raw material used here is polyester fibre and it is purchased from Reliance industry. 1kg of polyester is 110Rs. In the first process the raw material is put inside the machine. According to the product the ratio of the raw material changes. In order to free the fibres it is put inside the machines. The fibres melt in very normal temperature also. The fibre is segregated by dieneer. The fibre spreads as layers inside the machine. In the next step the fibre is put inside a machine called Pro peper. In this machine the fibres are manually separated and it is spread on this machine. This machine makes this fibre thin and opens everything. Next it is bought inside the mixer. The fibre is loaded inside the machine by conveyor belt and the fibres mixes equally. The fibres should be properly loaded according to the holes to send it to the next machine. If it is filled correctly then the sensor blinks. Then it is send to the next machine

called the beam roll. Here the fibre is completely opened. These machines consist of 2 big beams and 28 supporting beams. Over the beams there are teeth like structures. Then it is sent to the pre opener. This pre opener will make it thin. The next machine is cross lapper. It folds and adjusts according to the GSM. Through the conveyor it is taken for heating. The heat comes from the oil boiler which consists of 200-500l of oil. These fabrics start to melt in normal temperature itself. But the significance is that, the fabrics do not catch fire. It heats and grips the cotton. Windingara is used for rolling the fibre. They then keep it inside the packing paper to suck the air via vacuum. Then threads are placed inside the white papers and exported. Then we had our lunch break for about 1 hour.



Then we went to the stitching session by 2:00pm. There Mrs Priya guided us. She gave a detailed note of that particular session. The fabric is bought here. Then it is checked well. If there is any mistakes then it would be remade otherwise it will be sent to the next stage. They do not make any changes in the readymade fabrics rather they would make some designs and paste stickers. The fabrics

are opened and spread in a table and then it is cut into the desired shape using some cardboard. If it is square or rectangle then it is cut directly but if it is circle then some arcs are made in cardboards and using that they would cut easily. The products manufactured here are used in homes and ships usually for flooring. They also use some terms like LC which stands for Letter of Credit. The finished products are exported to countries like USA and China. If a particular product got delayed then the producers should give an approval for it. If the producers commit a minor mistake then it can be repaired easily but if it is major then the whole product should be cut and stitched again. In this industry they don't apply dyes. Embroidery is put after the stitching is completed or before stitching but it is based on the capacity of the production. Then it is ironed and according to the buyers requirements tags and stickers are added. All the machines here are automatic. We saw the lay machine. It cuts the long dress into the buyer's requirements. They also export the products as sets. For example if they export bed set then the set would contain 2 pillow covers, 1 bed sheet and 1 bed cover. And we met the quality controller Mrs Vanitha. There are QC's in all sessions. There are magnetic fields in all session. After a particular product is fully manufactured then it is passed through this field. If it contains any things made up of metal them a beam sound is heard. So this can protect the small children from getting hurt from

the pointed or sharp metals. If the beam sound is heard then it is checked and then exported.

Then we went to the banian factory. There we were guided by Mr Sethuraman. He is a Quality Manager of that factory. He said that Thirupur is famous for banian clothes. Banian clothes are manufactured here according to the buyer's requirements. The buyer gives them a sample. The producers develop the sample and sent it back to the buyer. Then the buyer accepts it if he likes it. If any mistakes are found within 0-3 inches then 1 point is lost by the producer. If any mistakes are made within 3.1-6 inch then 2 points are lost. If it is within 6.1- 9 inch then 3 points are lost. 4 points are lost if the mistakes are beyond 9 inch. If any holes are present in the finished product then the producer lost 5 points. Before cutting the banian cloth it has to be set free for 8 hours after dyeing. The layer must be 2 inches. They use some cardboard to cut it into pieces. Inspections are held by Quality checker. Then they tie it into bundles 50 pieces constitute 1 bundle. The size, colour, quantity and the cutters name will be recorded in the label in the shirt. The tailor will have an awareness programme to discuss about the defects about the stitching. Then it is ironed and packed. Then we assembled together for common assembly. There Mr Benzigarajan gave a talk. He interrogated us with a question. It was about the importance of this industrial visit. We answered that everything in industries are regarding the nature. The environment of the industry has some trees with the boards stating the person who has planted it. He gave detailed information about Karur district:

- 1) It is bounded by Dindugal and Erode.
- 2) Karur does not have any sea or desert.
- 3) Amaravathy passes in Karur town and mixes with Cauvery.
- 4) Karur is an industrial town.
- 5) It does not have much forest.
- 6) Mats are famous.
- 7) The land, water, building and transportation are given by civil engineering.
- 8) Mechanical engineering teaches about the machines present in the industry.
- 9) Electrical engineering teaches about the power house and the way electricity is generated for the electric supply.
- 10) To process various yarns chemical engineering is useful.
- 11) Since this is regarding textile then textile engineering is used.
- 12) Every building has fire extinguishers and exits are present. So the safety engineering is included.

13) The industry makes use of the computers to do programs. So computer engineering is used.

14) Controlling the functions is done by electronic engineer.

15) It is very important to know about the labours and keep their bio data. So administration is important.

In this industry the things are exported. The marketing department imports goods. This industry has manpower of 700. Long ago Manchester in UK was famous for dress but now Milan is famous. Mumbai is nick named as the Manchester of India. Erode is famous for lungi and blanket. Bangladesh is famous for textile industry. Shanghai is also famous for textile. Sir listed the disturbances of the industries. These include the waste management and pollution. Then Mr Edwin Gladson and Mr Senthilnathan gave a small feedback of our presentations. After this we had a break for 1 hour. Then again by 7:00pm we assembled together in the canteen. There we had an enjoyable session. All the team presented their skit on some general topics. Then we went to have a nap.

The next day we assembled together by 6:45am. We had a short meeting. Sir advised us some important habits. We were instructed to:

- Get early in the morning. Sir asked each and every one the timing they wake up in the morning.
- Avoid soft drinks. These may contain some harmful chemicals which causes health problems to our body.
- The habit of eating fresh fruits and vegetables should be inculcated within us. These fruits will have vitamins and minerals which protects us from diseases.
- Sleeping well is also very important because it can also keep us in good health.
- The most important practice that should be followed by us is the habit of adapting in all places.
- The habit of eating fish should be there within us because it contains more calcium.
- Being punctual is very necessary.

Then V. Steffy of red team gave the vote of thanks.

Our next destination was Panikampatty. The organic field in Kuzhithalai was the main place of visit. On the way to Panikampatty I saw sugarcane fields as well as tobacco field. They were large in scale. The thing that made me to think was the degradation of the Palmira plantations. The number became very less that it can be counted easily. When we arrived the air was so fresh and pleasant that made me free from the tensions. Then I came to know that it was because of the fresh greens of that farm. It was beautiful that I have never ever visited in my life. In the farm I saw sugarcane plantation, turmeric plantation

and some vegetables. Mr Edwin Gladson explained some the plants with medicinal capacity. The first one was Umathai. If this particular plant is planted along with the main crop it becomes a fertilizer but if we eat it leads to death because its seeds are highly poisonous. The next was Erumai Thumpai. If the buffaloes eat it then it bleeds. The next was Amman Pacharisi. It is a powerful fertilizer. The plant called Vellai Chaaranai is edible. The plant called Kuppai Venai acts as a medicine for cough and cold. For the disease called typhoid Poovankurunthal is used. In the traditional dish of India mudakkatan is used as



it gives energy. Keelanalli gives us a remedy for jaundice. Kuppai keerai is highly rich in calcium. Kinathu paasan can be applied to the skin to cure small cuts. Kal Uruthi is edible and is sweet in taste. Arukampul acts as a blood purifier. Sirukan peelai is used to cure kidney stones. Kaivelai is used to cure viral fever. Kattu vaada is a wild species. Kaana vaalai is a blue colour edible plant.

Manathakkali cures ulcer as it is rich in vitamin A. I also saw a plant called kootuthakkali. It blooms in bunches. Curry leaf helps in the growth of the hair as it is rich in calcium. Then I saw the vermin compost bin. In this place the earthworms are made to act upon to form fertilizer. After this we all assembled together for a meeting. In that meeting myself Varsha did the welcome address. Then Velaian sir explained the selection process. And also he told about the way he reached Panikampatty. Then Mr Gopalakrishnan, the owner of the farm was asked to give a talk. He introduced himself that he was uneducated. Then he said that he would be asking us 4 questions and he also mentioned about the gifts. The gifts were a dog, an owl, a snake and a fish. A rat can give birth to 7 lakhs rat in one year. It can reproduce 8-12 in 28days. An owl can eat 4-6 rats in a day. A small snake can eat 2-4 rats a day. These facts were said to us by him. Then sir took some earthworms and he sprinkled some salt over it. The next second itself the earthworm died. This proved the impact of chemical fertilizer to it. The chemical fertilizer such as the potash and urea has a lot of salt content in it. The same thing happens when these are sprinkled over it. Earthworms are very much important to the soil. So we must avoid chemical fertilizer. Instead we can use vermin compost which is cheap and easily available. Also Panchakaviyam, amithakarasal, lemon egg solution, fish solution, and natural fertilizer can also be added to the soil as fertilizer and insecticides. Then Mr Gopalakrishnan was presented with a book of last year named as Food and Agricultural challenges. Then we saw a place where earthworms are grown. The earthworm can eat everything except plastics, chemical, stones and mirror pieces. It is said that even cockroach is afraid of

hairs and runs away but this earthworm eats it. Moreover it is said that all the wastes of this farm is its food. Vermin compost is used to culture earthworms. We were made to stand over a heap.it was a large heap. The first layer of this heap is leaves the second layer is cow dung, the third layer is dal wastes and the lasts layer consists of Karuka, weeds and Sankayam. As it is under direct sunlight, water is sprinkled. The heap that we saw was enormous it can be done in small level also. Also it can be done away from the sunlight. Water content should be always there. We also have to mix it with machines or it takes 3 months for the earthworms to act on it. Then when it is ready it is taken inside a shed. In India there are more than 500 varieties of earthworm. Earthworms are of three types. They are top level and middle level and deep level. The top level earthworms don't go deep inside the soil. It can go only 6-9inch. Middle level earthworms can go deep inside the soil. It can go nearly 3ft. Mostly vermin compost top level earthworms are much preferred. The name of the earthworm is Eudrilus Eugenia. It is an African variety. The advantages are:

Middle level earthworm:

- If it is 1gram in weight then it will eat $\frac{1}{2}$ gram food and its excreta will be less.
- It also breeds well.

Top level earthworms:

- If it is 1 gram in weight then it will eat 5 gram food its excreta will be more.
- It also can breed and adapt well.

These earthworms will eat its food and its excreta will come through its tail. The owners will grow earthworms for their purpose as well as for commercial purpose. In order to make the top level earthworms to penetrate into the soil, the labours collect the layer of soil on the top. In 1992 Mr Rangarajan from Annamalai University gave some earthworms to Mr Gopalakrishnan. The significance of the Natupolu is that it won't glow even subjected under direct sun light. But the Eudrilus glow fully when bought in light. Earthworm has no bone. It is grown in following methods they are heap method, tank method, 4 tank system and house system. If water is present in it then the earthworms would die. Mulches are needed in great amount for the earthworms. Earthworm's excreta contain more enzymes and more microorganisms. Then sir also briefed the method of making some important things needed by the soil as well as plants. It is as below:

Amithakarasal:

Ingredients:

- Cow dung - 20kg
- Cow urine - 10l
- Plastic barrel

- Water - 180l
- Jaggery - $\frac{1}{2}$ - 1

Method:

Mix all the things in the plastic barrel. Always mix in clockwise direction. It must be mixed 3 times a day. It must be always kept in a shade. Mix solution in the water and irrigate the field. If so all the plants would be found green for ever.

Fish mixed solution:

Ingredients:

- Fish - 1kg
- Molasses - 1 kg

Method:

Cut the fish into pieces and add molasses in it. Cover it with jute gunny. Mix it every day. Its smell will be awful. But the smell stops when it reaches 20th day. Then sprinkle this solution in the plants in morning or evening. The nitrogen content would increase. It also acts as insecticides. This must not be added to the soil when the sunlight is more that is during noon time.

Lemon egg solution:

Ingredients:

- Lemon
- Egg
- Molasses
- Plastic container

Method

Squeeze all the lemons into the plastic container. And then put the egg into it without breaking. Then mix it with molasses. Then don't touch it for 10 days. After ten days the egg would be dissolved. Mix it uniformly. Again keep it for 10 days. And then add it to the soil. The eggs shell is rich in calcium. Egg is protein and molasses contains more microorganisms. Then Johnson sir interrogated him about the coming of ants in the flowering plants. Then sir replied that it is because of the asuni. Because asuni can attack plants. So it can be rectified by sprinkling neem oil.

Then Dr Ramesh, IMA, Kulithalai gave a small talk. He supposed that this the first time he has seen students taking steps to save nature. He wished us to use this chance usefully. He also told us to save nature and create awareness among the public. Then we had our lunch. And again after the lunch we had a short session as we had another personality with his family. He was none other than Dr Ramesh. He appraised that India would shine because of our efforts. Then we departed from there by 2 15pm.

We reached the sericulture farm by 2:35pm. It was owned by Mr Ramaswamy. He told that sericulture means rising of silkworms. Silks are the

threads that can withstand large pressure. This is the only field in which India has overtaken China. Nowadays this silk is used in the tyres of the vehicles. In the roof of this building I saw a small tube. When asked to Mr Ramaswamy he said answered that it is a sprinkler. It is used to keep the place cool and it also maintained the temperature. In this farm they switch it on by 7:00am. The capacity of this sprinkler is 2l. We know that air conditioner is bad for mother earth so instead this can be used. We also came to know about some the traditional paddy seeds such as Mappilai Chamba and Navarai. Navarai is known for Kanyakumari district. It is very important that we should include spinach in our daily meals as it is rich in vitamin C. There are people who take in vitamin via tablets but that is not good for health because it can't sustain in our body. The habit of keeping kitchen gardens should be followed. A seed called varaku is found in the top of the temples because it does not dry soon. BT brinjal is a genetically modified one which is prepared from the tissues taken from crocodile and frog. It is significant that 3 days once chemicals should be sprayed. It is notable that this kind of brinjal is allowed in Pakistan and Bangladesh. Sir also instructed us not to buy products made in China because they are not checked properly so that even when a small thunder or storm occurs it can cause damage. Like BT brinjal BT cottons are also present. To keep practice sericulture 2acres of mulberry farm is needed. Within 15 days these silkworms can intake 1 tonne of leaves. If we keep farms for 2 acres then 200 eggs can be kept. 1kg of silkworms coast Rs 540. Sericulture is very well developed in Tamil Nadu. The thread taken from one cocoon is of 3km in length. China is the first country to identify silk but it was not of the best quality. Hosur in Tamil Nadu is known as the headquarters of sericulture. By 4:45 we departed from sericulture farm and started to Nammakal.

Then by 5:35 we reached Nammakal. Our meeting was to be held in Nalas Hotel. There the meeting started by 6:00pm. The dignitaries in the stage were Dr Uma Maheshwari the secretary of the Indian Medical Association, Nammakal. Mr Mullanchery M Velaian, Dr Malliga Kulandaivel, the president Indian Medical Association, Nammakal and Dr Hemalatha, finance secretary Indian Medical Association, Nammakal. The IMA prayer was read and after that Dr Uma Maheshwari was asked to present the welcome address. She stated that children are the opening eyes of the elders. Next Mr Velaian gave the introductory address. He said that this meeting was arranged by Dr Vijayakumar. He mentioned that KK district had 35% of forest but now it is only 19%. The students of every year would write reports and these reports and all the other activities would be recorded in a book and it will be released in a well reputed university. Likewise last year it was released in Ghandigram University. Then the theme talks of the students were held. First myself Varsha from maroon team gave a talk on the topic Activities of KAP followed by

V. Steffy from red team on industrial and ecological conditions. While Achshah from green team presented a talk on the topic forest, Dawnlynal of blue team narrated some points about the water reservoirs in KK district. At last Ethazl from red team gave a talk on the topic air we breathe. Meanwhile John Rabi Kumar sir and Edwin Gladson sir also gave a talk on our natural reservoirs. Edwin Gladson sir narrated his fearful experience when he went to take survey in our KK forest. Dr Hemalatha mam felicitated the gathering. She said that it was a special day for her in the midst of school students. She praised us that we had good vocabulary and also confidence level. Mam instructed us to use fewer vehicles as it controls pollution and also to avoid plastic bags. In her hospital too they were dumping the waste in the water bodies and it made her concerned to the nature and now the dumping techniques are completely changed. In Nammakal there are heaps of wastes near the bus stands. Then Dr Malliga Kulandaivel was asked to come near the podium to present the presidential address. Mam said that we should enrol ourselves in some extra activities other than our syllabus. Then Dr Ravichandran sir came on the dais. He was surprised when he saw us because he has only met doctors in this reputed place. He stressed on the words that said WHAT ELSE TO BE DONE AS AN INDIVIDUAL MUST BE DONE. Dr Kulandaivel came forward to deliver his speech. He narrated the history behind the name of that hotel. And he advised us to think out of scope. It was the time for Dr Chandra Ponnu Swamy to come forward. She inculcated the spirit of Tamil in our entire mind. As it was the time for the curtains to adorn the stage Mr Johnson gave the vote of thanks.

I take this opportunity to thank Mr. Velaian, Dr. Vijayakumar, Dr. James Wilson, Mr. Rajan, Mr. Edwin Jose, Mr. Vishnuram, Mrs. Jesintha Dharma, Mr. Gopalakrishnan, Mr. Ramasamy, Dr. Ramesh, Dr. Ramesh & family, Dr Uma Maheshwari, Dr Malliga Kulandaivel, Dr Hemalatha, Dr Ravichandran, Dr Kulandaivel, Dr Chandra Ponnu Swamy, all our guide teachers, co-ordinator, scientists, doctors, consultants for spending their valuable time and money in moulding our character and career. While our parents are really worshiped for permitting us to be away from our house for two days I bow my head to all those who are directly and indirectly helped us to have such a wonderful opportunity at this tender age.

Above all I thank almighty God, for being with us during our travel and other activities and His blessings.

2.G.Jeshwini, Green team.

"A journey of a thousand miles must begin with a single step."

-Lao Tzu

The two day industrial and ecological study programme arranged for the young scientists had its grand and solemn inauguration at Rotary Community Hall Nagercoil on 17-01-2014 Friday evening at 5.00 o'clock. By the blessings of the almighty, I reached the destination (Rotary Association) by 5.00 pm and I could see Velaian sir standing outside. As I entered the hall I saw many of my friends already seated there. By 5.20 pm the program started and Varsha from Maroon team compered the meeting. She welcomed the following dignitaries:

- i) Mr.A.Rajan-President of Rotary of Yarn city
- ii) Mr.Edwin Jose- President of Rotary of Aasramam
- iii) Mr.Vishnu Ram- President of Rotary of Nagercoil town
- iv) Mrs.Jessintha Dharma-Assistant Governor of Rotary
- v) Mr.Brammanayakam-Secretary of Rotary of Aasramam
- vi) Mr.Chandra Babu- Secretary of Rotary of Yarn city
- vii) Mr.Chidambaram Pillai- Secretary of Rotary of Nagercoil town

The meeting started with the Rotary prayer conveyed by Mr.Edwin Jose. After that, Mr.Vishnu Ram welcomed everybody. His view was that if we keep our house clean, then the environment would be clean. KAP is giving high level of encouragement among students to become great scientists. For this reason, he congratulated KAP. Young Scientist Program is making a drastic change in the life of an eighth standard student. Next, Varsha gave a detailed account on the activities of KAP. The main aim of KAP is to create awareness, responsibility and to bring the hidden talents of students. The notable programs in KAP during this year are Coastal camp, Management Concept etc. After that, the brain of KAP Mr.Velaian came to speak. He said that this meeting is an accidental one. He also briefed about the activities of KAP. He mentioned everything from poster presentation to book publishing at University during the last week of May. He concluded by saying the schedule of the study tour to Karur. Next, Mr.Rajan, the President of Rotary of Yarn city wished everybody to become great scientists.

Steffy, leader of Red team was on stage to speak on the topic "Industrial and ecological conditions". Today, the world is fast moving. The first country to become industrialized is the United States during the Industrial Revolution (eighteenth century). The impacts of industrialization are air pollution and global warming. There are many factories like bricks factory,

cashew factory and hollow blocks factory. In the bricks factory, when the workers breathe in silicon di oxide, they get affected by a disease called asbestosis. In the cashew factory, the chemicals are flown directly into the rivers and cause pollution. For example, the chemicals from the cashew factory in Kanniyakumari are flown into the Tamirabarani river. The results are skin cancer to people who bath in this river. She also mentioned a quote of Mr.Roland. The sewage from industries can be treated and then let into the river. This can be done by using the treating methods like filtration, sedimentation, chlorination, chemical coagulation etc. The main view of the industries is the production of goods. The natural resources are depleted continuously. People think that if there are more industries, their lifestyle would be a comfortable one. When it comes to whether industries are good or bad, industries are neither good nor bad. The tool is in the people's hand. If they use it wisely, it will be good. But if they use it foolishly, it will be bad.

The next one to speak was Rujan from Yellow team on the topic "Lifestyle of coastal people". He highlighted that one of the most important natural resource is sea. Two third of the earth is covered with sea. He stressed the pint that the sea will never become extinct, but sea resources will get extinct. So people who are dependent on sea resources may also get extinct. The important job for the coastal people is fishing, which is one of the most risky job. I was amazed by the fact that nearly 70 fishermen die daily. Though the fishermen know this, they do fishing. Out of the total population, 15 million people are fishermen. 97% of the fishermen depend on manual boat while only 3% of fishermen depend on mechanized boat. He mentioned since fishermen are not respected in the society, they leave of this job. The daily income of a fisherman ranges from Rs.25 to Rs.400 when there is more fish. But when there is no fish, they will just have to starve. From this we could understand the difficulties of fishermen. During the 2004 tsunami, a large of fishermen died and 85% of their houses were damaged. Even though they did not leave their place or they did not leave their job. He concluded by saying that the coastal people are facing many difficulties.

Next, Achshah gave an review on the coastal camp. The inaugural meeting was held at SIGMA and P.P.K.Sindhu Kumar sir released the BIT notice. Then we had an interaction with the students and fishermen of Nerrodi. After that we went to the Vallavizhai Ice Plant and saw how the fishes are preserved for export. In Niththiravizhai, Robert Kumar sir gave a talk on the topic "Appreciate the guidance". After having our lunch, we went to Parthibasarithi temple, where we met poet Thangarasu. He explained us about the formation of that area. Then we visited the Thengapatnam estuary and Inayam Puththanthurai, where we were guided by scientist Benzigar Rajan. The Inayam Puththanthurai coast looked very nasty. We had our night stay in Analagam and

there we had a drama session. On the next day i.e. 29.12.2013, we went to Kodimunai school and had an interaction with Mr.Rajan about the difficulties of the fishermen. Achsah mentioned that the sight of many fishermen pulling the net, but no fish was available made her to understand the lifestyle of fishermen. After that, we went to Colachel where we met Mr.Suresh, the Colachel Municipality Officer who explained us about the usage of the plant Kena, which is used to treat sewage. She also mentioned about the other coasts which we had visited i.e. Rajakkamangalam, Choththaviozhai and Vattakottai.

It was really painful to hear about "Pollution in Pazhayar river" from Jeshwini of Green team. Anisha continued her with the topic "Estuaries". An estuary is a place where the sea and the river meet. In these places, the fishes are found more. She mentioned about the past condition of estuaries i.e. earlier they used natural manures so when the rain comes, it joins with the river. But now since the farmers use chemical manures, when the rain comes it joins with the river and the estuaries are polluted. She finished her words with the slogan "Save estuaries".

The next one to speak was Annlin Tino on the topic "Conversion of agriculture lands into housing lands". She mentioned that nearly 70% of the people are depending on agriculture directly or indirectly. Because of pollution, the monsoons are also not proper now. So the farmers seek the help of insecticides, pesticides because at least by using these they will get some gain. There is lack of awareness among farmers about the usage of machines and crop rotation. Earlier, the Nagercoil town limit was only till Derik mart. But now, it has extended till Chunkankadai. The agriculture lands are converted into buildings especially Engineering colleges. The decrease in joint families are also a cause for the conversion of agricultural lands into housing lands because when there is disintegration of joint family, each family will have to get a separate house. Many of them don't do farming because they think that if we become farmers, we won't be getting a good social status in the society. She advised everyone of us should try to stop pollution and create awareness among farmers. By the time she finished her talk, Mr.James Wilson, the Chairman of MACET joined us in the meeting.

After that, Meera Kadiresh from Blue team gave her talk on the topic "Nammazhvar's efforts in organic farming". Nammazhvar was born in the year 1938 at Tanjore. He completed his B.Sc Agri in the Annamalai University and by 1963, he started his career in an Governmental Organization at Kovilpatti. But since they did not accept his ideas there, he left that organization and went to Netherland to attend a training on organic farming. After that, together with Vinoba Bhave he released a magazine called "Kudumbam" in 1978. He also established an organization called LEISA. He has written many books on ecological farming and has been a messenger of

awareness creation all over the world about organic farming. But unfortunately, Nammazhvar passed away on 13.12.2013.

The next one on the stage was Joshika with the topic "Condition of biodiversity in Kanniyakumari". She specified some reasons for wildlife degradation in KK. They are:

- i)overpopulation
- ii)deforestation(due to this the medicinal plants are also destroyed)
- iii)cellphone radiation(birds like sparrow are killed)
- iv)industrial waste(affects sea and its resources)
- v)skin, meat, horn poaching(especially deer)

The impacts are entry of elephants into the village. The forests contains many food chains. Example: eagle-snake-frog-grasshopper-grain. But when the forests are destroyed, the food chains are also damaged. Earlier we could see snakes, crabs etc in the agricultural lands. But now the agricultural lands are converted into buildings and rubber trees. She cautioned us and concluded by saying that let's save wildlife from extinction.

After that, Mrs.Jessintha Dharma, the Assistant Governor of Rotary Club appreciated us for our reports and said that the KAP is doing a useful, schematic and planned work. She encouraged us to grow, grow and grow till we reach a great height i.e. to become great scientists. Lekshmi from Yellow team during her speech on the topic "Conservation of coastal resources" highlighted that India has a large coastline of nearly 7500 km. But now the coastline are being damaged by the tourists. She stressed the point that we must create awareness among tourists not to throw waste in the seas. She ended her talk by saying that let's preserve our seas. Next, Ancy Jeniba from Yellow team came to speak on the topic "Multiple uses of palm tree". The botanical name of palm tree is porasasu which grows to a height of 30 metres. In India, there were many palm treea. India received an income of Rs.200,00,00,000 every year by exporting palm products. A palm tree gives nearly 150 litres of a juice called "pathaneer" in its lifetime. But now, the palm trees are gradually vanishing.

Ashwin,the leader of Maroon team came to speak on the topic "Conservation of soil". All organisms need soil for their living. He mentiond a quote which was said by Charles i.e.

"No life without soil

No soil without life"

The soil is black or reddish in colour and plants depend on it directly. The soil is limited in supply because it takes hundreds of years to form one inch of soil. He highlighted a quote of Franklin D Roosevelt i.e.

"A country which destroys its soil destroys itself"

He briefed about the two main reasons for soil destruction. They are i)Nutrition depletion and ii)Soil erosion. He ended his speech by saying some

tips to conserve soil. Some of them are usage of organic materials and bio-pesticides by farmers. Mr. James Wilson encouraged us that ordinary people won't get this chance to visit an industry. Only industrial people get this chance but we have got this chance so he advised us to use it usefully.

Ethazl Sherin Joseph from Red team started her talk by saying the definition of air i.e. air is a mixture of gases. Without air we humans are nothing. The components of air are as follows:

i) Nitrogen-78%

ii) Oxygen-21%

iii) Argon-1%

iv) Other gases-1%

We humans inhale oxygen and exhale carbon-di-oxide through the respiratory system. The oxygen passes through the nose to the nasal cavity (where the oxygen is purified), then through the wind pipe or trachea it passes to the bronchi (which is like two tubes), bronchioles and at last to the alveoli where the diffusion process takes place. Nowadays, due to industrialization, we are not getting good air. The cigarette smokers get affected by a disease called emphysema. Cigarette contains more than 4000 chemicals. Out of this three chemicals are very important. They are:

i) Tar (causes lung cancer)

ii) Carbon monoxide

iii) Nicotine (increases blood pressure)

Physical activities like yoga can be done to make the breathing process sharper. Finally she completed her words with a quote i.e. **"Quit smoking or die trying"**. Next, Velaian sir gave a detailed account on the programs of the next day and Blessy said the vote of thanks. After having a nice meal, we started our journey to Karur by bus.

Day 2 : 18.01.2014 (Saturday)

By 3.15 am in the morning, we reached the Aryan Tex Trade and there we stayed at the Girls Hostel. We had a pleasant sleep and by 5.30 am, I woke up. We got ready and by 8.10 am we gathered near the Canteen. Praisan was asked to say the welcome address. Velaian sir introduced Dr. Krishnaraj (Medical Officer, ISRO) to us. Bibisha from Green team was said to talk on the topic "Wildlife in KK". She mentioned that wildlife is present in all ecosystems mostly. She specified that the trees in Kanniyakumari district are 75 million years old. The area of Government forest in KK is nearly 50,438 hectares. Out of 14 types of forests, forest like mangrove, evergreen etc. are found in KK.

Jeniba spoke on the topic "Decreasing domestic animals". She mentioned that there are three main reasons for the decrease in domestic animals. They are:

i) no time

ii) price rise

iii) no interest

The main food for cow is hay. Similar to humans, animals also get affected by diseases like fever. The reproduction period of a cow varies from 20-24 months while the reproduction period of a goat varies from 10-15 months. Krishnaveni from Blue team spoke on the topic "Kitchen Garden". She started with the definition of kitchen garden i.e. a kitchen garden is a place vegetables and fruits are grown. In a kitchen garden, vegetables like cauliflower, cabbage and curry leaf can be grown. She also said the uses of kitchen garden. Some of them are: i) the income can be saved because in most houses 50% of the income is spent for vegetables. The excess vegetables can also be sold ii) The vegetables from kitchen garden are good to health because we use only natural manure.

Scottlin Joe from Maroon team came to speak next. He mentioned that medicinal plants grow more on marshy lands. There are two types of marshy land namely salt marshy land and fresh water marshy land. The main use of marshy land is to control flooding. Since farmers are using artificial manure, pesticides the marshy land are getting damaged. 5,600 hectares of marshy land is reduced to nearly 1,000 hectares now. He concluded by saying that marshy lands are found in KK at Theroor and Manakudi. Blessy from Maroon team spoke on the topic "Conversion of KK into quarries".

Following Blessy, Varshe put forth her views on the topic "Sacred groves of KK". The place where the plants, trees are preserved are known as sacred groves. There are nearly 5,000 sacred groves in Tamil Nadu. In Mangaliam, 50 rare species of sacred groves are found. Kodagu, a district in Uttar Pradesh has an endemic sacred grove called Madhuka. Tree cutting is prohibited in Kodagu. If the plant fall too, it is taken away by the natives. She highlighted that since plant is the oldest creation of God, it must not be destroyed. The plants in temples are also considered as sacred. In Kanyakumari, sacred grooves are found in Agastheeswaram to an extent of 2.6 hectares. Creating awareness among the people about the usage of sacred grooves will be very much essential for protecting sacred groves.

Nithya gave a detailed account about "Kodayar and its irrigation system". The Kodayar originates from the Muthukuzhi vayal. The Kodayar flows through Manimuththaru falls. It also flows through Radhapuram where it irrigates 17,000 acres and is used as an major source for drinking. Next, Shanu came to speak. She mentioned that water is very important for our life. The Anandha Victoria Marthandavarma Canal (AVM Canal) originates from Mandaikadu and drains at Cochin. The main uses of AVM Canal are drinking, bathing and trade(transportation). The important reason for pollution in AVM Canal is

overpopulation and the dumping of waste into AVM Canal. Government is following some steps to clear the AVM Canal

Following her, Jeya Varshini from Red team gave a talk on the topic "Endangered species". Nearly 12% of the total species are likely to become extinct and 8% are near extinction. The main reason for this sorry state is agricultural improvement and overpopulation. Some of the endangered species are:

- i) Nilgiri pipit - which is vulnerable
- ii) Oriental white ibis - ibis family and a silent bird
- iii) Malabar trogon
- iv) Spot billed pelican
- v) Painted stork

The two easy ways which we can follow is to promote replanting and to make study of birds as our hobby so that we can learn more about birds and conserve them. Varsha from Red team spoke on "Tourist places in KK". She mentioned some tourist places namely,

- i) Kanyakumari
- ii) Vivekananda mandapam
- iii) Thirulalluvar statue
- iv) Thirparapu

Bowsica from Red team explained the "Minerals in KK". She said that minerals like garnet, ilunite and sircon are found in the coastal region. Dharshini was asked to speak on the topic "Praise water". She mentioned many quotations of Thiruvalluvar and Kambar.

After that, Dawnlyn Lal from Blue team put forth his ideas on the topic "Reservoirs and Water resources in KK". Water is an important natural resource for the living of all organisms. He specified that without food, we can live for 3 to 4 days but without water we can't even live for hours. The major source of water in Kanniyakumari is Tamirabarani which is popularly known as the Kuzhithurai aaru. It flows to a length of 56 km and has two tributaries namely Kodayar and Paralayar. The second main river i.e. the Pazhayar river originates from Surulacode and drains at Manakudi. This river runs to a length of 37 km. The Panni vaikal river which drains at Rajakamangalam runs to a length of 11 km. There are nearly 2049 tanks in our district of which Parakkai tank and Putheri tank are important. The main dams in Kanniyakumari are as follows:

Dam	Height	capacity	Built during(year)
Pechuparai	48 feet	-	1896 - 1897
Perunchani	77 feet	2.89 tmc	1948 - 1953
Chittar I	18 feet	.600 tmc	1964 - 1970
Chittar II	18 feet	.393 tmc	1964 - 1970

He finished his talk by saying that "Save water; Save your future". Then we were given some advices by scientist Benzigar Rajan sir that how to speak a speech more effectively.

After having our breakfast, we entered into the industry and could see Mr.Senthil, Mr.Ganesh and Ms.Bharathi standing there to welcome us. Mr.Senthil guided us. He explained that warehouse is a place where materials are stored. In the Sabare industry, they used to manufacture fabrics. Fabrics is the final output of yarn. Fabrics are classified based on their types, styles and the input(material) used. There are two types of fabrics namely woven fabric and non-woven fabric. The non-woven fabric is divided into four types. They are:

- i)plain weave
- ii)drill
- iii)jacquard
- iv)doby

Mr.Ganesh showed us different types of fabrics and specified a fabric which was designed with dots. He mentioned that special programmes are allotted for these designs. In order to make us easily understandable, Senthil sir said that in the spinning mills, the cotton is made into a yarn whereas in that industry yarn is made into textile. ***The raw material for a fabric is yarn.*** The industry used to purchase the yarn and change into textile and export them. Yarns are measured in kilograms and specification for yarn is counts. Counts are ranged from 2-330. The lower the count, the thicker is the yarn. He showed us a yarn of count 74. The yarns from the range of 70-80 are mostly used for shirts and are thinner. There are two types yarns namely horizontal and vertical. Both these yarns segregate to form a fabric. As in a sewing machine, bobbin+thread=weaving. There are two types of yarns. They are:

- i)warp(like bobbin in a sewing machine)-which can withstand high tension
- ii)weft

During his talk he also mentioned the definition of weaving i.e. weaving is the interlace of yarn for making a fabric. The yarn holder can be in the shape of two types. One is cone shape and the other is cylindrical shape(the holder is called cheese). In that warehouse(where raw materials are stored) rack number system was followed so that anyone who uses that warehouse can handle it easily. The first process involved in making a fabric is warping. This process is done by a warping machine which loads the thread in the beam evenly. The specification of a beam is ends(number of yarns)+count. After that since the yarn might break, starch is added to the yarn to make it stronger. This process is referred to as sizing. Drawing is the next process involved in weaving. In a weaving machine, an instrument called dropper is used. The use of a dropper is to stop manually if there is any problem in the mechanism, warp or

the weft. The maximum thickness of a dropper is 3 mm and the maximum length is 145-146 mm. In the Sabare industry not only cotton cloth is used, polyester is also used.

There were nearly 64 weaving machines in that industry, obtained from two companies namely wamatex and sulzer. The specification of a machine depends upon its rpm(revolution per minute) and size. A 360 inches beam machine can manufacture fabrics upto 133 inches, 190 cm beam upto 73 inches and 220 cm beam upto 80 inches. In the wamatex tex company, the 360 cm and 190 cm beams are available whereas in the sulzer company, the 360 cm and 220 cm beams are available. Regarding the height and mechanism difference, the Sulzer 360 beam is divided into two types namely Sulzer 7200(Big one) and Sulzer 7100(Small one). In the wamatex, a rapier tape is used to carry the weft to interlace with the weft. But in an Sulzer machine, a projectile is used to do this work whereas in airjet and waterjet machine, air and water are used respectively to carry the weft. Since the full stretch of a yarn cannot be woven, the remaining threads are twisted and made into a big yarn using the winding machine.

Then we had a tea break and after that we were divided into groups and my group was guided by Mr.Ganesh, the Purchase and Store incharge. Before entering the weaving room, he gave us some practical instructions. As we entered the room, he mentioned that this room is fully air conditioned because moisture reduces the ability of the yarn being cut. This system is done artificially by two air conditioning plants. Manchester, which is a place in Europe produces the largest amount of fabrics in the world. Similarly, **Mumbai** is called the **Manchester of India**. There were four lights in the machine to indicate if there is any problem. The lights blinks for the following situations:

Green light - Weft problem

Red light - Weft problem

White light - Mechanical problem

Orange light - Running condition

All the weaving machines in the Sabare industry are automatic loom. Some of the advantages of automatic loom are quick production, less damage and one person can control many machines at a time. Reed is what joins the thread to form a fabric. The type of reed used in Sulzer is projectile. He highlighted the fact that the cost of each weaving machine is around Rs.35 lakhs. After weaving, the cloth goes to the inspection table. Through light the woven cloth is seen and if there is any damage, it is either rectified or cut down. If there is any stain, it is cleaned by using soap oil or white petroleum. A metre box is also place on the table to know how much cloth is inspected. A special substance called aluminium coated heat assistance was coated on the roof to prevent heat entering into the weaving room. We also saw the folding

machine which clears all the shrinks and folds in a neat way. Mr.Ganesh informed that the main things exported are screen cover, bed spread and are exported to Europe and USA. He also mentioned that Dr.Suyambu Linga Nadar is the owner of this industry.

The next place which we went was the cotton manufacturing area. The production incharge Mr.Senthilraj guided us there. He explained us that we use sofas, bedsheets in our daily life. The sponge which is inside that is manufactured here. The fibre(cotton) is kept in a machine which heats it and is converted into a sheet. It is measured in GSM(grams per metre). The GSM can range from 60 GSM - 1600 GSM. For example, if there are three fibres namely A, B and C, all the fibres are mixed properly such that in each gram of the fibre, all the fibres will be present. But the mixing ratio will always be changing on depend of the buyers choice. Sabare industry gets the fibre from Reliance industry which costs them nearly Rs.110 for one kg of fibre. The first process is that the workers will manually loose the cotton freely. In all the final output, the low melt fibre is compulsory(10% - 30%). The specification of the fibre is denier. The fibres are put on the ground layer by layer alternatively and the low melt fibre melts and sticks the other fibres towards it which forms like a sheet like structure. This sheet is let into the pre-openner machine which levels the fibre which is not in a particular shape. The fibre then passes through the carding machine and beaming machine (28 beams were there-2 big beams and 26 small beams). It is then transferred to the oven where the heating process is done. The oven gets heat from the oil boiler(500 litres of oil) which is kept outside. The oil is transferred to the oven through pipes. The cotton is kept near the pipes which receives heat from it and the cotton melts and gives grip to the fibre. This is the last process in cotton manufacturing and it can produce fibres till 120 inches in width. At last, it is rolled using a roller and the vacuum is sucked in order to export it easily. After sucking the vacuum, it is packed in kitten cover and are exported. We also saw the oil boiler. I was shocked by the fact that it uses nearly 3500 kg fuelwood everyday. This is used in order to maintain the temperature above 230 degree celcius. If it comes less than 230 degree, the alarm gets on. He concluded by saying that the oil used is ordinary engine oil. Meera gave the feedback at last.

After having a hearty meal, we went to the Home Division where we were guided by Miss.Priya(Inventory Incharge). The processes done in that division are:

- i) Checking
- ii) Cutting
- iii) Stitching
- iv) Checking
- v) Packing

vi) Checking

After each process, checking is done in order to reduce damage. She showed us a mat which was hand woven. These materials they used to get directly from shop and do some embroidery in it and sell it. She specified that embroidery is done, but printing is not done. The clothes are mainly exported through the Lc(letter of credit). If there is any delay in exporting the clothes, they get approval from the buyers. Then they check the clothes if there is any mistake. If there is a mistake, a particular sticker is stuck so that it can be rectified. She highlighted that in the Home division, instead of the term yarn, thread is used. These clothes are mainly exported to China and USA. The main shipping centres (which are used to export clothes) in South India are Chennai, Cochin, Tuticorin. The next process is steam ironing after which the cloth is packed. Whether tag, sticker or hanger should be used to pack is the buyers choice. The number of pieces in one box also depends on the buyers choice. The industry starts preparing the cloth after signing the sale agreement with the buyers. Next, a fabric sample is sent to the buyers. When the fabric is accepted by the buyer, the industry starts preparing the cloth. When we went to the stitching section, we could see many types of sewing machines like 2 needle machine and 4 needle machine. We saw the preparation of bed shed which includes a bed cover, a bed spread and 2 pillow covers. Mrs.Vanitha, the Quality Incharge of Home division explained us about the process of an needle detector. She did practically and showed us. This machine can detect metals as small as 1.2 mm. This process is referred to as calibration. Embroidery machine was the next machine which we saw. This machine also works with the help of a dropper. The programs are entered into a floppy disc and when it is entered into the computer, the machine starts working automatically. She also mentioned that these are examples of non-woven fabric. After that Mr.Sethuraman, the Quality Manager of Sabare industry explained us about the processes involved in getting an order. First, photo sample is sent to the buyer. Next, pit sample, proto sample and at last the pps(pre-production sample). In the fabrics, the stinkage, length, width, spirality and colour prosles are checked. In the Sabare industry, the 4 points system is followed, i.e. if the mistake is within 0-3 inches it gets one point, 3.1-6 inches it gets two points, 6.1-9 inches it gets three points and above 9 inches gets four points(holes get 5 points). If the damage is below 3 points, it is repaired. Otherwise it is rejected. This process is called as the quality check-up. Then the clothes are laid in a table and 50 pieces are joined as one bundle. In each bundle, a label containing the bundle number, size range, colour, quantity and cutter name is stuck. After a trimming(removing the unwanted threads) and another checking, the ironing process is done. Then a pre-final test i.e. in 100 clothes nearly 20 clothes will be

checked and if 1 is damaged, it is ok. But if more than one is damaged, it will be re-checked.

After having a tea break, we assembled and scientist Benzigar Rajan started his talk on the topic "Industrial and Ecological conditions". He stated that Tamil Nadu has 30 districts and one of the districts is Karur. It is bounded by Namakkal and Erode. Karur has four taluks and it is an industrial town. To set up an industry the following things are required:

- Land
- Water
- Building
- Transportation
- Machinery

He mentioned that all these requirements are related to engineering. During the eighteenth century Manchester was very famous for textile industry. But today, places like Milan, Shanghai and Dhaka are famous for textiles worldwide. In India, places like Bombay, Banares, Kanchipuram, Erode and Karur are famous. He highlighted that after agriculture industry, textile industries are only found everywhere. He concluded by saying that the benefit of Sabare industry is that it converts plastic into fibre and the advantage is pollution control. A discussion on the whole day's program was held then. After having a short nap of 1 hour, we reassembled at the canteen for the drama session. All the teams performed well and Velaian sir gave the comments. We had our dinner and then we went to the hostel and had a good sleep.

Day 3 : 19.01.2014(Sunday)

"An early bird catches the worm"

I woke at nearly 5 am, got ready at nearly 6.30 am and were asked to go near the canteen at 7 am. There we were given some practical instructions like being punctual. After that, we had our breakfast and Steffy thanked everybody for providing such facilities. We started our travel to Panickampatti and by 9.30 am, we reached the destination. There Edwin Gladson sir guided us. Some of the plants which we saw are listed below:

- i) Parthenium (which bears white flower) - pollen grains causes asthma
- ii) Kuppameni (Poonai vananki) - cures fever
- iii) Turmeric
- iv) Lady's finger (Hibiscus esculantus)
- v) Oomaththampu (datura mentel) - poisonous
- vi) Erukku (calotrophus) - used to cure hemotoxic snake bites
- vii) Erumai thumbu

- viii) Amman pachcharisi
- ix) Vellicharanai (rare species) - edible
- x) Manalikkeerai
- xi) Poovankurunthai (Neychitti) - cures typhoid
- xii) Mudakkaruthan (ozhunai) - used to cure suzhuku
- xiii) Carry me seed - cures jaundice
- xiv) Kuppaikeerai - rich in calcium
- xv) Tridax - used for wounds
- xvi) Arugampul - blood purifier

By that time, the owner of that farm, Mr.Gopalakrishnan arrived there. He mentioned that his forefathers also did farming. He said that if we have to be special we should do some records, so that we will be famous. He narrated that fish, dog, owl, snake everything was created by God. But we are like fish and dog rather than owl and snake. If we see owl and snake, we try to killing them. If a couple of rats is let into a classroom and served with food(without letting it outside of the classroom), within one year it will reproduce to nearly 7,70,000 rats. If this happens, the world might be full of rats within years. So owl and snakes are also important because they control the rats. So we should never think of beating or killing an animal. According to the law, if we kill a snake we will be arrested. He showed us practically that when salt is put on earthworm, it dies immediately. So when pesticides(like urea, potassium which are salts) are used also earthworms will die. His view was that in forests too plants are there but no pesticides are used. Then why should we use them? Instead of using these harmful manures, organic inputs like vermicompost can be used. Some examples of organic inputs are panchakavviam, lemon & egg mixed solution, fish solution, weeds of the sea etc.

He taught us how to grow an earthworm. The first essential thing needed is food. Earthworm eats all kinds of wastes like plastics, chemicals and even hair. The process of preparing the food for earthworms are listed below:

- i)The agricultural waste can be put down on the ground and cow dung can be added.
- ii)Water must be sprinkled in that everyday till 45 days.
- iii)This mixture should be turned up and mixed up every 20 days till 60 days.

By this time, it would be partially decomposed. Shade and moisture are important for decomposition. The next place where we went was the place where the earthworms where grown. That particular place was very cool since the coconut shells were arranged on the mud floor with a length of 15 feet and a width of 3 feet. On the top this, the partially decomposed material was put in heaps upto a height of 2 feet. There are more than 3000 varieties of earthworm and nearly 564 varieties are found in India. The different types of earthworms are top level, middle level and bottom level which goes to a depth of

9 inches, 3 feet and till the soil layer respectively. Top level earthworms are used to prepare the vermicompost. The best top level earthworm is eudrilus eugeniae(African variety) because its breeding level is high. It also consumes more vermicompost and excretes more manure. The earthworm eats, digests and excretes the waste. The excretion is only referred to as manure.

He mentioned that in 1992, the HOD of Zoology department in Annamalai University was L.S.Ranganathan from whom he got only 10 earthworms but now it has increased to crores because the breeding of earthworm will be very faster. The egg of the earthworm will be brown in colour. The specification of the eudrilus eugeniae is that it will shine in violet colour when exposed to sun and the normal soil earthworm will have a green head. There are also many other methods like heap system and four tank system which are used to grow the earthworms. Except the horticulture lands, mostly in all the other lands earthworms can be grown. Another one benefit in vermicompost is that small amount of it is enough to give a greater yield because the nutrients and micro-organisms are high in vermicompost. He taught us some methods to prepare organic manures which are described below:

To prepare Amirthakaraisal(organic fertilizer):

Required materials: cow dung powder(20 kg), cow urine(10 l), a 200 litre holding container, 180 litres of water and 1 kg of jaggery or molasses.

- Pour 180 l water and 1 kg of jaggery in a 200 l container and mix it well using a stick and rotating for 50 clockwise rounds.
- Do this for three times per 8 hours and keep it in shade for 24 hours(for the micro-organisms to grow).
- Add a pinch of soil in it and rotate for three rounds.
- Put it in the irrigation water and no insects will affect your land.

Note: It should be used within three days or it will get destroyed. So when there is a rain, the amirthakaraisal can just be sprayed.

To prepare a fish mixed solution:

Required materials: good or decayed fish(1 kg), jaggery or molasses(1 kg) and an air tight bucket.

- Mix the fish and jaggery in an air tight container and close it with a sack.
- Keep it in a lonely place for 4 days.
- After 4 days, mix it well.
- After 20 days, filter the solution which is like a gum.

Note: The fish mixed solution should be sprayed only during shade. This solution is very nutritious because fish contains 8 - 10% of nitrogen. It also acts as a pesticide.

To prepare a lemon & egg mixed solution:

Required materials: 20 lemons, 10 eggs, 5 l holding plastic container and jaggery(1250 g).

- Add 250 g jaggery , squeeze the lemon and without breaking the shell of an egg keep it in a plastic container.
- Cover the opening tightly with a sack.
- After 10 days, open the container and smash the eggs and add another 1 kg of jaggery. Close it air tighted.
- After another 10 days, filter the lime seeds and use it for the crops.

Uses: Since the lemon contains citric acid, egg contains proteins, egg shell contains calcium it is very nutritious to the crop.

An insect called asuni secretes a gum like thing(honey) on the plant itself. In order to eat these honey, the ants come to the plants. This can be reduced by grinding neem leaves and adding garlic to it(100 g = 1 litre water) and spraying it on the plants. This helps to kill the insects in plants. The different types of plants can also be planted in an alternative way so as to confuse the insects. He also specified that yellow marigold flowers attracts good insects. He concluded by saying that he has met Dr.A.P.J.Abdul Kalam two times. Next, Achshah gave a detailed feedback on that day's program. Steffy introduced Dr.Ramesh, the Kuzhithalai IMA President and briefed about the activities of KAP. Dr.Ramesh wished everybody to become great scientists. Then, we were served with good and tasty food.

After that, we started our travel to a sericulture farm. As we reached the destination by 2.35 pm, we could see Mr.Ramaswamy, the Farm Incharge standing there. He mentioned the definition of sericulture i.e. sericulture is a place where silkworms are raised. Nowadays, silk threads are used in car tyres to withstand heavy pressure. He highlighted that sericulture is the only industry in India which has overcome China. Silkworm needs moisture to live. So sprinklers are used to create artificial cooling. It uses nearly 2-5 litres of water per hour. Though it is not cost effective, it is used to raise the silkworms in large numbers. As a farmer he cultivates traditional varieties like mappillai samba and navarai which are good for diabetes. We are asked to go in groups inside the sericulture room. Silkworm feeds on mulberry leaves and after 25 days, it builds a nest(cocoon) around itself. When it comes to a stage, we take the cocoon and dip it in hot water so that the worm dies and we can use the thread. The Vitamin C from greens sustain in our body but Vitamin C from tablets does not sustain in our body. He stressed the point that we must never eat meat because our body mechanism is not suitable for eating meat. Home gardens can be constructed and food items like thinai, varaku and samai can be cultivated. The bt brinjal, what we think is very good is a genetically modified brinjal prepared from a animal cell(frog or crocodile skin). Since we cannot take the seed from these brinjals, the next time for cultivating too we need to ask the foreign countries. These types of brinjal are allowed in Bangladesh, Sri Lanka and Pakistan but not in India. He requested us not to use Chinese phones

because they are not of good quality and it affects the eardrum very severely. Once in three days, pesticides are sprayed on bt brinjals to keep them fresh. So it might cause some health problems in us. He mentioned that bt products can be used but only to an extent. He specified that the variety of mulberry used there is V1. There are also many other varieties like G1, G2 and G4. It is very easy to grow silkworms because it gets 10,000 times bigger within 25 days and has 4 days of mould stock. The selling price of 1 kg cocoon is Rs.540. He highlighted that in this industry only a large income is brought in a short period of time. He mentioned that there are places called Jacky centre which sell eggs for nearly Rs.1000 per 100 eggs. If we extend a cocoon it nearly extends till 3 km. It is said that silk was first identified in China. He concluded by saying that the **Headquarters for sericulture in Tamil Nadu is Hosur.**

By 5.00 pm, we reached the Nalas restaurant. This program was arranged by the Women Doctors Association on behalf of IMA. The motto of this Women Doctors Association was "**Serving for the health of people with Safety, Dignity and Humanity**". Livee and Meera from Blue team compered the whole program. The dignitaries present in the dias were:

- i)Dr. Malliga Kuzhanthaivel, the President of IMA ,Namakkal
- ii)Dr.Hemalatha, the Finance Secretary of IMA, Namakkal
- iii)Dr.Uma Maheshwari, the Secretary of IMA, Namakkal
- iv)Mullanchery Velaian sir
- v)Mr.Edwin Gladson

The meeting started with the Rotary prayer conveyed by Dr.Hemalatha. Dr.Uma Maheshwari gave the welcome address. She mentioned that though doctors are most busiest person, they came here because children are the opening eyes of elders. The brain of KAP, Velaian sir specified that wherever we go, the IMA gives us a warm welcome. Last year too Dr.Subramaniyam and Dr.Raja received the KAP with joy. He also mentioned that IMA themselves volunteered for the afternoon meal. This reminded me of the saying "**Behind every successful person, there would be a strong support**". He gave a small account on the activities of KAP and highlighted that this KAP works only on the self interest of persons, not on funds. Varsha gave a detailed account on the activities of KAP after that. Steffy put forth her views "Industrial and Ecological conditions". Today, the world is fast moving. The first country to become industrialized is the United Nations during the Industrial Revolution(eighteenth century). The impacts of industrialization are air pollution and global warming. There are many factories like bricks factory, cashew factory and hollow blocks factory. In the bricks factory, when the workers breathe in silicon di oxide, they get affected by a disease called asbestosis. In the cashew factory, the chemicals are flown directly into the rivers and cause pollution. For example, the chemicals from the cashew factory

in Kanniyakumari are flown into the Tamirabarani river. The results are skin cancer to people who bath in this river. She also mentioned a quote of Mr. Roland. The sewage from industries can be treated and then let into the river. This can be done by using the treating methods like filtration, sedimentation, chlorination, chemical coagulation etc. The main view of the industries is the production of goods. The natural resources are depleted continuously. People think that if there are more industries, their lifestyle would be a comfortable one. When it comes to whether industries are good or bad, industries are neither good nor bad. The tool is in the people's hand. If they use it wisely, it will be good. But if they use it foolishly, it will be bad. She also mentioned that in the Sabare industry, the trees had a label of the planter name and date which impressed her so much. Achsah was the next one to speak on the topic "Love forest". Forests are like the cradle of man but now it has been destroyed. In a developed forest ecosystem different types of wildlife, mosses, microbes etc. are found. She highlighted that nearly 1500 tree species are used for fuel. 1.6 million people depend on forest for their living and tribes like pygmies use forest as their habitat for living. In nearly 1/3 of the total geographical area (forest), nearly 2/3 of the whole species live. Indian forest covers about 21% of the total geographical area and is one of the top 10 biggest forest. There are nearly 45,000 species of flora and 81,000 species of fauna found in the Indian forest of which Asiatic lion and Royal Bengal tiger are mentionable. 17.69% of the total geographical area of Tamilnadu is covered with forest. The forests in Kanniyakumari are as old as 75 million years. The forests in Kanniyakumari has decreased from 30% of the total geographical area to 19%. She also specified a journal i.e. in the Hindu paper on August 6 2006, a Forest Ranger reported that due to rubber plantation, forests are destroyed. So, awareness creation among people about rubber trees is very important. It is calculated that if this stage prevails, within the 21st century 50% of the forests would disappear and there might be a situation where there is no forests. So, let's stop deforestation and save our forests.

After that, Dawnlyn Lal from Blue team put forth his ideas on the topic "Reservoirs and Water resources in KK". Water is an important natural resource for the living of all organisms. He specified that without food, we can live for 3 to 4 days but without water we can't even live for hours. The major source of water in Kanniyakumari is Tamirabarani which is popularly known as the Kuzhithurai aaru. It flows to a length of 56 km and has two tributaries namely Kodayar and Paralayar. The second main river i.e. the Pazhayar river originates from Surulacode and drains at Manakudi. This river runs to a length of 37 km. The Panni vaikal river which drains at Rajakamangalam runs to a length of 11 km. There are nearly 2049 tanks in our district of which Parakkai

tank and Putheri tank are important. The main dams in Kanniyakumari are as follows:

Dam	Height	capacity	Built during(year)
Pechuparai	48 feet	-	1896 - 1897
Perunchani	77 feet	2.89 tmc	1948 - 1953
Chittar I	18 feet	.600 tmc	1964 - 1970
Chittar II	18 feet	.393 tmc	1964 - 1970

He also mentioned that the Upper Kodayar and Lower Kodayar has been built for electricity purposes by the TNEB. The Mukkadal dam, which was built by the Nagercoil municipality has a depth of 25 feet and is surrounded by mountains. He finished his talk by saying that "Save water; Save your future".

The next one on the rostrum was John Rabi kumar sir who mentioned that the districts of Tirupur, Karur and Erode mainly depend on textile industries. Industries are must for national development but it causes pollution and destroys the soil. **"Man has right to utilize the earth but not to destroy it"**. Earlier the Kanyakumari paddy was cultivated nearly 55,000 - 60,000 hectares but now due to pollution it has reduced to around 17,500 hectares. So, at least now we should understand and stop pollution. Ethazl Sherin from Red team spoke on the topic "Air" and Edwin Gladson on the topic "Present condition of Kanniyakumari". There are many endemic plants and animals in KK. In a pond ecosystem(KK), animals like poovankurunthai and panna are found which are endemic only to KK. He concluded by saying that KAP has given a golden opportunity, so use it properly. Many other doctors gave their talk and since everybody insisted in talking in Tamil, Steffy said the feedback in Tamil. We were served with tasty food and we started our journey back to home. We reached Nagercoil by 4.00 am in the morning and the study tour came to an end.

The doctors assembled there commended us for having such a wonderful talent at this age. Also they congratulated KAP and Mr. M. Velaian for this selfless service. I would like to thank Mr. Velaian and his team KAP for there selfless service. I have no words to express my gratitude to Dr. James Wilson, Chairman, MACET & SIGMA College of Architecture for showing extra interest on young scientist programme and providing transport services for our travel. Dr.Suyambu, Chairman, Sabare Industries, Dr. Sasikumar, Principal, Lord Jegannath College of Engineering and other staffs of Sabare industries are really to be remembered for their help and arranging accommodation and food. Mr. Gopalakrishnan , Organic Farmer, panickam patti, and Mr. Ramasamy, the Lawyer & software engineer who has turned to Agriulture are really role models for all of us. We got the hospitality of IMA women wing, Karur. The words spoken by Dr. Malliga Kuzhanthaivel, the President of IMA ,Namakkal,Dr.Hemalatha, the Finance Secretary of IMA, Namakkal)Dr.Uma

Maheshwari, the Secretary of IMA, Namakkal, Dr. Kulathaivel and Dr. Ravi Chandran reminded me the growth and development that has occurred with the young scientist during the short period. The tasty food they had arranged and their personal presence with us till we finishes our dinner reveals their real love and affection towards us. I was so pleased to hear about Dr. Vijayakumar, Past President, National IMA who was instrumental in providing necessary help for arranging the second day programme.

Let me conclude with the single golden word "THANKS" to Mr. M. Velaian and other co-ordinators, scientists, consultants, doctors, teachers who are showing so much love and concern on our development .

Thank You

**3.DAWNLYN LAL,
BLUE TEAM.**

With the blessings of God Almighty a study titled "Industrial & Ecological Conditions" was held on the 18th and 19th of January for all the young scientists who were chosen. The main aim of that program was to visit Sabare Industries which is located at Karur.

"You will never find time for anything. If you want time you must make it." This was a famous quote by Charles Buxton. The Kumari Ariviyal Peravai is one of the few organizations that strictly follows time management. It was proven Once again at the introductory meeting of our study tour which began at 5.00 pm sharp at the Rotary Community Centre Nagercoil in the evening on the 17th of January. Varsha of the Maroon team was the comperer. Mr. Edwin Jose, the President of the Rotary club of Ashramam said the Rotary prayer. Following him, Mr. Vishnu Ram, the President of the Rotary Club of Nagercoil welcomed the dignitaries warmly. He appreciated KAP for the wonderful job that it was doing with respect to creating awareness among the students of Kanyakumari district. After that, he welcomed everyone else.

Varsha presented a brief account about the activities of KAP. It included the selection process of the young scientist students. Mr. Mullanchery M. Velaian, the organizer of KAP gave the Introductory Address. He stated that the Rotary club had given them lots of opportunities and provided many facilities. He again recollected the activities of KAP. He said, "Mr. Suresh, a Rotarian of this club had done a lot of preparation for our program in a short duration. It was a rare opportunity to visit the experts of that club". He then provided all the information regarding that camp. He continued, "Many

organizations will support us in various sessions of the camp. With their support and guidance we can undergo research on various industries". Finally, he concluded by thanking all the members of the Rotary club for arranging such a fascinating program.

Then Mr. A. Rajan, the President of the Rotary Club of Yarnicity felicitated the gathering and his wish was that we achieve great things in our years ahead . He encouraged us to think better and do better.

Next, V. Steffy of the Red team presented a speech with respect to "Industrial and Economic Conditions". She first talked about the benefits of industries. She said, "carbon dioxide and carbon monoxide from factories pollute the air around us. Rubber plantations also cause pollution. Industrialization affects the water resources of a particular place. The water bodies may get polluted by the dumping of waste from industries into rivers. As a result it could cause skin diseases to these people who use this water". Although industries cause pollution and destroy water bodies, there are many ways to prevent it. Some of them are:

- Properly disposing industrial waste.
- Treating waste water in treatment plant before releasing it into water bodies.
- Purifying the air released from industries.

By doing so, we can reduce pollution to a certain extent. She finally concluded by advising, "Industries should be run properly and carefully, so that the effects caused by them might be reduced".

"Minimum the number of industries, , minimum the amount of pollution"

Next, Rujan of yellow team talked about the Life Styles of Coastal peoples. He said, "Fishing is a very risky profession. As coastal people's livelihood depends on fishing, they have to fight with the mighty waves of seas. Fishermen face a lot of hardships. They face lots of obstacles and challenges in their daily lives. Even though many people died due to the tsunami of 2004, the fishermen did not flinch. They still live along the seashore". He continued that fishermen earn between Rs. 25 to Rs. 500 per day. As a result they sometimes might end up hanging. He concluded "Think of the risky lifestyles of the coastal people for a minute. Think of the changes that you could bring about". His speech provide lots of information about people who lived along the coast.

Following him Aksha gave a short glimpse of the coastal study tour held on the 28th and the 29th of December. She mentioned the main highlights of that program.

Then Jeshwini of the Green team presented a detailed speech on the "Polluting Pazhayar River". First she talked about the history and formation of the Pazhayar River. She then listed out the causes for the pollution of the Pazhayar River. They were as follows:

- The dumping of garbage.
- The directing of sewage water into the river.
- The over usage of pesticides and insecticides.
- The dumping of waste along the road. During the rainy season, rain water along with this garbage flowed into the river.
- The indiscriminate use of chemicals.

As a result, it may cause malaria, cholera, typhoid etc to those who used this water currently, the Pazhayar river is also unfit for bathing. Every problem has its own remedies. In case of the Pazhayar river, the following remedies could be undertaken

- avoid the dumping of garbage along the road side as well as into the river.
- create awareness among people about the conditions of the pazhayar river.
- Treat the waste water in sewage treatment plant before releasing it into the Pazhayar river.

Her speech was highly informative and through her, I obtained a lot of information regarding the Pazhayar river.

Be a part of the solution to save water, not pollution!!!

Following this Anisha of the Maroon Team gave a talk on the estuaries in Kanyakumari district. An estuary is a place where there is a confluence between the river and the sea. Estuary is a place where the fishes breed in large numbers. She talked about the various kinds of pollution that affects these estuaries. She said, "Sewage wastes pollute the estuaries. Dumping of garbage also pollutes the wealth of an estuary". We should use natural manure so that it will not affect the river". She concluded by saying that we should not pollute the estuaries which would result in an increase in the fish population .

Then Annlin Tino of the Maroon Team talked about the conversion of paddy fields into residential plots. According to her 70% of the paddy fields have been converted into residential land. She reported, "Farmers depend upon nature which is the mother of the earth. The usage of a large quantity pesticides and insecticides cause land pollution. It also causes water pollution. The main cause for the conversion of Paddy lands into housing lands is the increase in population". She stated that the farmers were not fully aware about the consequences of converting paddy lands into housing lands. She finally concluded by saying, "Don't destroy crops because they are the important sources of food for human beings". Her speech was very wonderful. Even though she spoke in Tamil, she had a clean understanding of the topic.

After that, Meera of the Blue Team presented a speech on the efforts undertaken by Namazhvar with respect to organic farming. She first talked about his birth and his early childhood . She said, "Namazhvar had worked very hard for the growth of agriculture and organic farming". Then she also talked about his visit to Indonesia. She said that due to Namazhvar's efforts the

Indonesians lifestyles have been changed. She continued, "But unfortunately, he died on the 30th December, 2013". She concluded by saying, "Many citizens of foreign countries have adopted agricultural lifestyles because of his efforts. But we, Indians are still destroying our paddy fields and agricultural lands. So, it is our duty to conserve those paddy lands". As a result of her presentation, I had an opportunity to learn more about Namazhvar, "the real organic farming scientist".

"Let us praise this great personality 'Namazhvar' and continue his good deeds he had left for us to do".

Joshikaraj then talked about the conditions of bio - diversity in Kanyakumari district. She said, "Before, there were many forests in Kanyakumari district, but nowadays, there are only few forests as a result of the cutting down of trees. She continued, "Radiations from cell phone towers also kill many birds, as a result of which India's bird population has reduced". She also said, "The chemicals that we dump in our water bodies affect the fish and other living organisms. She also said about the hunting of elephants for tusks and ornaments. She concluded by saying "There were many animals, birds, paddy lands and farm lands in our district till a few years ago. But we've destroyed all of them in the name of modernization". So, she exhorted us not to destroy trees and other living beings living on this earth.

"If we cut one tree, we should plant two saplings instead of that".

Next, Mrs. Jesintha, the Asst. Governor of the Rotary club felicitated the gathering. She deeply appreciated all the great work that we had done which the other students had'nt. She continued that we had come well prepared for the team talk which was demonstrated by our presentations. She said, "Many students are watching T.V and playing games during the Pongal holidays. But, you have sacrificed your time to do research on industries". Once again she ended by appreciating our good efforts.

Then, A.S. Lekshmi of the Yellow team presented a speech on the "Conservation of Coastal resources". She stressed on the point regarding "Pollution in Coastal areas" which was a major hurdle in the development of coastal resources. She also gave us a lot of information about mangroves. She also provided some alternative ways to conserve coastal resources. Some of them were as follows:

- Don't dump garbage in coastal areas.
- Don't allow sewage water to directly mix with the sea.
- Avoid throwing plastic wastes such as ice-cream cups, carry bags etc, near the sea shore.
- Create awareness among tourists and locals so that they will not pollute the coastal environment. Awareness can be created by:-
 - Distributing pamphlets.

- Conducting seminars and meetings.
- Interacting with people living along the coast and telling them about the consequences of pollution in a coastal environment.

By doing so, we can reduce pollution along the coast and thus conserve our coastal resources. Her talk was very useful with respect to gaining a good understanding about coastal areas.

"The Sea as a Conservator of Wastes and a Reservoir of Food"

Then, Ancy Jeniba spoke a few words about the "Uses of Palm trees". She said, "Palm is a traditional tree grown mostly in India". According to the information provided by her, there are 10.2 crore of palm trees in India. Thuthukudi District has the highest number of palm trees when compared with the other districts of Tamil Nadu. She continued, "Palms are rich in Proteins. We obtain lots of food items from palm trees". She advised that we should encourage planting more palm trees. Her speech was highly informative.

Following her, Ashwin Niranjana of the Maroon Team presented a speech on the conservation of Soil. He first talked about the three layers of soil. He told that soil degradation causes:

- Soil Erosion
- Nuclear depletion etc.

He also provided some conservation methods to protect our soil resources. They are:

- Maximizing the use of organic materials.
- Encouraging farmers to use bio - pesticides.
- Growing more trees so that we can control soil erosion.

Next Dr. James Wilson, the Chairman of SIGMA and MACET felicitated the gathering. He first thanked the Rotary Club members for arranging a wonderful program. He then said that the speeches given by the young scientists were wonderful. He said, "Usually only grown-ups get opportunities to visit industries. But, you have got this rare opportunity at a very young age itself". He advised us to properly utilize the opportunities provided to us. He appreciated all of our endeavors and ended his speech.

Then Ethazh Sherin of the red Team gave a talk on the "Air we breathe". Firstly, she listed the organs that help in the process of respiration. She stated, "Cigarettes contain around 4000 chemical compounds". It pollutes the air. Another important cause of air pollution is vehicles which release a lot of smoke". Her presentation covered most of the air pollutants and its effects on the environment. She concluded by asking us not to pollute our valuable resource "Air".

"Love is in the air but the air is highly polluted"

— Amit

Abraham

Finally Mr. Velaian thanked all of the Rotarians of that club for providing all the required facilities and spending their valuable time with us. He also told us to include each and every part of that program in our reports. Blessy of the Maroon Team gave the Vote of Thanks and the program was over by 7.00 pm. We were then served a delicious dinner and we left for Nagercoil at around 7.45 pm in the MACET College Bus. The travelling was very comfortable. The cool air breeze made my travel more enjoyable.

DAY 1 :-

We reached Sabare Industries at around 3.30 am. We had a short sleep and we woke up at 6.00 am. The morning was very brisk and I thought that I was going to do something unusual that day. We refreshed ourselves and we had our breakfast at 7.30 am.

After that, we had an interactive session. Dr. Krishnaraj, the ISRO Medical Officer was also with us. The interactive session began at around 8.15 am. Prasion Lino of the Maroon Team welcomed everyone.

First Bibisha presented a speech with respect to "Wildlife in Kanyakumari District". She talked about the different types of forests, such as the Mangrove forest, Evergreen forest etc. She also mentioned how the forests were being destroyed. As result of her speech provided by her, we obtained information related to forests.

After that, Jeniba gave a talk regarding "Reducing Domestic Animals". She listed out the diseases which occur in animals. Then she talked about the types of food that we give to domestic animals. She concluded by saying, "We should live along with nature so that we can consume all the resources of nature".

Following her Krishnaveni presented her speech on the topic "Kitchen Garden". She said, "The place in our home where vegetables and fruits are grown is called a kitchen garden. Based on her speech, we can save our money that we spend for buying vegetables and as a result we reduce our expenses as a result of growing kitchen garden. We can get sufficient vegetables for cooking if we grow kitchen gardens. Her speech gave us a lot of information regarding kitchen gardens that everyone must have in their homes.

"When you increase the number of kitchen gardens, you increase the number of heavens too!"

— [Mehmet Murat ildan](#)

Then, Scottlin Joe of the Maroon Team talked about Wet lands. He said that wetlands are based on the place where they are found. According to his speech, "Wetlands protect us from sea waves and river floods". He concluded by saying, "Protect wetlands and thereby protect the environment". Next Varsha presented a speech regarding "Sacred groves". She said that there were more than 50,000 varieties of plants in sacred groves all over the world. The

major sacred grove of Kanyakumari district is located at Agasteeswaram. She concluded by saying, **"Protect sacred groves as it support biodiversity"**. Her speech was highly informative. Then Nidhya gave a talk on the "Kodayar Irrigation System".

Following her, a talk about the AVM Canal was delivered by Shalu. AVM Canal stands for the "Anantha Victoria Marthandavara" Canal. She stated "In the olden days, the water flowing in this canal was pure and people used to bathe in this canal. But nowadays people are dumping garbage in this river and as a result it has become unsuitable even for washing clothes. She stressed on the point that if we cleaned the AVM canal, then the water could be used for providing drinking water. As a result of her presentation, I learned a lot about the AVM canal and from that moment, I decided not to pollute water hereafter under any circumstance.

Next, Jayavarshini presented a speech on endangered birds. She said, "Endangered birds are those birds that are in danger of extinction. Some of the endangered birds are the Margery Pipit, the Spot Billed Pelican etc". She mentioned that the major reason for the declining of birds is the loss habitat. She concluded by saying, "We should study about birds and help to conserve them".

"Let us join hands together to conserve our winged friends".

Then Varsha gave a talk on "The Tourist Places of Kanyakumari District". She mentioned a few tourist spots but she was not able to continue further. Even though she was not able to provide a lot of information, I learned a lot about the many tourist spots of Kanyakumari District which I had not known earlier.

Following her, Koushika spoke about "Minerals in Kanyakumari District". She listed out few minerals of our district.

After Koushika, Dharshini spoke a few words on "Encourage water Resources". She provided many quotes of great personalities. Thiruvalluvar had said about water in his Thirukkural, **"Neerinthri Amayathu Uzhaqu"**. It means people of the world cannot survive without water. In the Silapathikaram, Ezhangavadigal eulogized water as, **"Mamazhai Pothruthum Mamazhai Pothruthum"**. Her speech was quite good. It would be better if it had been more research oriented. From her speech, I understood that, **"A drop of water is worth more than a sack of gold to a thirsty man"**. So, whenever you waste water if you remember this proverb, you will never repeat that mistake again.

Then I presented my speech on the topic, "Reservoirs and Water Resources of Kanyakumari District". I spoke about rivers, streams, tanks, and the reservoirs of K.K District. From my speech I would like to say, "There are many water resources and reservoirs in Kanyakumari district when compared to other districts of Tamil nadu. Since our ancestors had protected those water

resources, we have a lot of water. So, we should also conserve these water resources and reservoirs for our future generation". I believe I had done well. After that, Jini talked about the clean coastal conditions which had to be followed. She had also done quite well it could have been more research oriented.

Finally Nishika presented her speech on the topic, "Disaster Management in Coastal Areas". She said that we could not stop natural disasters but we could protect ourselves from it. When she spoke those words, I remembered a proverb:

"Prevention is better than cure".

Some of the sources that she had mentioned which could prevent us from natural disasters are:

- Mangrove forests
- Sand dunes
- Coral reefs

She also said that we should avoid dumping waste along the coast. She concluded by saying that we should create awareness among the coastal people about the consequences of polluting coastal areas.

All our theme talks were over. Livee, Students Coordinator of the Maroon Team gave comments regarding our talks. She said that we should concentrate more on Kanyakumari district so that people would be able to know a lot about our district. Then Steffy of the Red Team commented on everyone's presentations.

Following her Aksha told her views on our presentations. Some of them are:

- Using more actions while speaking.
- We should have a clear picture in our mind about the topic on which we are talking.
- We should not memorize.
- We should present it in a research oriented format.

Then, Jeshwini commented on our theme talks as follows.

- Speak slowly so that everyone can understand our points.
- Don't just memorize and produce in verbatim the given matter. Whatever we speak, we should first understand it and then speak it out.
- Our presentation must be research oriented. In order to do it, we must do a lot of research on that topic.

Next, Fathima Hashima talked about the changes we have make in order to become an effective speaker.

- We should understand and speak in our own words.
- We should speak clearly and without fear.
- We should have a lot of confidence in ourselves.

Ms. Mary Juliet, the Guide Teacher of the Blue Team also commented on our talks. Her comments were very useful to all of us.

Then Dr. Krishnaraj provided his views. He said that we were concentrating on a global level. He asked us to concentrate more on our district. Next, Mr. John Rabikumar, coordinator of the Maroon Team gave his comments regarding our presentations. He said :

- We should pay special attention to Kanyakumari district.
- We should not do anything beyond what we are capable of doing.
- We should not repeat the same words.
- We should speak in our own words.
- We should have a clear understanding of what we speak.

Following him, Mr. Bensikar Rajan provided some points in order to improve our presentations.

- Understand and speak in your own words.
- Concentrate on Kanyakumari District.
- Don't memorize.
- Improve your speaking skills.
- Work diligently.

Finally, Mr. Edwin Sam presented his views to us. It was quite different from the others. He said :

- Collect information from many sources.
- A good Introduction is very important.
- Provide some background information regarding the topic.
- Explain the current context related to the topic.
- Provide solutions regarding the topic.

All of their feedback was very useful for us in order to improve our speech making ability. Then we went for a field visit to the Sabare International Industry.

Mr. Senthil Nathan and Ms. Barathi were there to explain us about each and every process that takes place in that industry. First, we saw a bundle of yarn. Mr. Senthil Nathan showed different kinds of yarn. Any fabrics is the final product of spinning yarn. It is used in making bed sheets and bedcovers. For inserting designs and colors in the cloth they use certain machines. Fabrics are classified into:-

1. Weaving fabrics and
2. Non- Weaving fabrics.

Weaving fabrics are used in clothes that we wear. The Non - Weaving fabrics are usually used in hospital masks, hospital covers, sheets etc. He said that the raw material for fabrics is yarn.

YARN SECTION:-

Manufacturing Process:-

He said, "Yarn is the raw material. It is measured in Kilos. The measurement unit of yarn is called count". He showed us 74 count fabrics. It is used to make bed sheets.

Segregation:- After purchasing yarn, they segregate yarn into two types. They are warp and weft. Sometimes, they store yarn in the warehouse otherwise they send it for further processing.

Warping:- They fix the yarn onto a rack that is present in that machine. As soon as the machine is loaded, beams of that machine start rotating and the process starts. After warping it forms a material called cone.

Adding Starch:- Then they add starch and extra ingredients to the warped yarn to make them harder.

Drawing:- They use certain machines for adding designs and colors to the cloth. In that machine a cylindrical shaped structure for holding the material called chisel is present. The process of adding designs is called drawing. It is the initial process of designing. At the end of 4 counts, a design appears on that cloth. The machine used for that process is called drawing stand. _

If any mechanical problems occur in that machine, the machine stops automatically. To restart the machine, they use a gadget called dropper. To avoid these circumstances, they use an **automatically working Lume**. There are four lights to indicate certain problems. They are Green, Yellow, Orange and Red. The red light would always be blinking.

The Sabare industry has 64 weaving machines. They have 2 types of company manufactured machines. They are the Leornada Vamatex and the Sulzer. The specification of the machines is based on their rpm and size. The two types of machines found in that industry are:

- 360 cm machine
- 190 cm machine.

A machine can manufacture around 70 - 80 inches of fabrics per unit time. Sulzer 360 has two types. They are the 7100 machine type (smaller in height) and the 7200 machine type (larger in type).

WEAVING ROOM:-

Weaving:- We saw many weaving machines in action. On the top of those machines a red light was continuously blinking. The dust released from the machines would cause dust allergies and infection.

Checking:- After the weaving process they check it whether there was any strain or stitching problems in the cloth. After that, they pack it and send it for dyeing.

He also talked about the measurements of fabrics and specifications of fabrics. He said that linen was a type of yarn used in Kerala to make lungies.

These were the processes we saw in that block and we learnt a lot about weaving through Mr. Senthil Nathan.

Many of the students provided feedback about the processes that we saw in the weaving section. I also provided my feedback. V. Steffy of the Red Team thanked Mr. Senthil Nathan for providing us a lot of information.

Then we went to the Poly wadding block where they manufacture the sponges.

POLYWADDING SECTION:-

There Mr. Senthil Raj talked about the process that takes place there. He said, "The raw materials used there are sponge and fiber. If we process the bottles we get sponge fibers. We purchase them from Reliance. If we join two fibers, we get the output".

Manufacturing Process:-

Segregation:- They segregate the fibers using the Denier machine.

Pre - Opener:- The process of opening the fibers is called Pre-opening and the machine used in that process is called the Pre-opener. If the opening of the fiber is a single piece, then the final output will be even and no mistakes would occur.

Mixer:- After opening the fibers, they mix the fibers with one another. While loading the machine, the fibers rotate and mix with each other. If loaded properly, the fiber goes inside evenly and the process starts. There are 2 big beams and 28 supporting beams present in the mixer. One beam takes in the fiber and rotates them and then it passes it to the next beam and the process continues after that.

Grass Lapper:- After mixing, the fibers reach the Grass lapper machine. There, we have to set the gram we need for the fibers.

Checking:- After getting the final output, they cut a square shape from that and weigh it. By doing so they check whether the weight is correct or not. If not they rectify them and send it for further processing.

Packing:- After checking, they pack the fibers in the white sheets and send it to the next blocks for manufacturing them.

We left the Poly Wadding Division at around 12.45 pm and we went to the Boiler Division.

BOILER DIVISION:-

There, Mr. Senthil Raj was with us to explain the process. We saw a large Boiler machine. He stated, "If the boiler machine runs for 24 hrs. Then there will be maintenance works for the next 24 hrs. In that machine, they burn wood. We are able to maintain the temperature of the fibers up to a temperature of 230⁰ C. The oil used in the Boiler machine is ordinary oil that we usually use for running engines. The oil rotates inside the boiler. They change the oil only after 7 or 8 years. If the temperature increases, the boiler plant may burst. So there

is an outer covering made of Aluminum to protect it from explosion due to overheat”.

All this information was provided by Mr. Senthil Raj. Then Meera and Ethazh provided a feedback of what happened in the Polywadding division and the Boiler division. The field visit was over by 1.00 pm and we had our lunch at around 1.15 pm.

After lunch we continued our study at the Home Textiles Division.

HOME TEXTILES DIVISION:-

At the Home Hextiles division, Ms. Priya, the Inventory in charge explained to us the various stages of the process that takes place in that section. First she talked about the manufacturing processes that take place there. Then she showed a few pieces of cloth made by hand weaving. Those clothes were made of mat machines. The clothes that they manufacture there are used for use at home. If a client comes in and asks for a set of clothes, they first provide a sample piece. If the client okays it, then they calculate the cost involved and time required for manufacturing them. Finally they manufacture the clothes according to the requirement. In other words, only after the client’s approval, do they start the manufacturing process.

Manufacturing Process:-

Checking:- They once again check the fabric that they received from the Polywadding Division.

Cutting:- After checking, they cut the fabrics into the required sizes.

Stitching:- After the cutting process is over, they send the fabric for stitching. In the stitching section, normal size stitching machines are used. After stitching, they check for mistakes again and if there are any, they place stickers on the cloth and send it for further processing.

Ironing:- After checking, they send it to the ironing section. There they iron the clothes using steam.

Packing:- After ironing, they pack the commodities into a cover especially made for that.

Metal Detector:- . Ms. Vanitha showed and explained the working of the metal detector. After packing, they pass the products through a metal detector to check whether there are any metals like safety pins, rods etc. inside the cover. If any metal is present inside, then it produces a beeping sound. They open the packing and take the particular metal outside and then pack it. After that the clients check the materials and they ordered. Even if they are not satisfied with the product, they have to take it with them because they had given their approval earlier. Then they also export their products to countries like the USA and China. As those clothes are heavier , they export it only through ships.

BEDDING SECTION:-

Bedding includes bed covers, bed spreads, bed linen, blankets, pillow covers and pillows. We also saw some weaving machines there.

These were some of the things that we saw at the Home Textiles Section. They were clearly explained to us by Ms. Priya and Mr. Senthil Nathan. Then many students provided their feedback of what had taken place at the Home Textiles Division.

After that, we went to the Embroidery Section. The direction routes which we have to follow were very clearly given by Mr. Senthil Nathan. In the Embroidery Section, we saw some embroidery machines. He said that the machines would stop operating if any thread cuts off during work. All the embroidery works had to be done separately. We also saw some handmade embroidery works.

Following that, we went to the Garments Making Section. Mr. Sethu Raman was with us to explain us about the garments making process.

GARMENTS MAKING PROCESS:-

Manufacturing Process:-

Fabric Checking:- They check the fabrics to see whether the cloth shrinks after being washed. There is a 4 point system to check the mistakes. According to that system the points are calculated in the following manner. If the mistakes are between

- 0 to 3 inches = 1 point reduction.
- 3.1 to 6 inches = 2 points reduction.
- 6.1 to 9 inches = 3 points reduction.
- 9 & above = 4 points reduction.
- Holes = 5 points reduction.
- Strain dirt = Different formulae.

According to this system they identify the problems and rectify it to produce a good output.

Fabric Relaxation:- The fabric should be left without disturbance for 8 hours before cutting.

Cutting & Stitching:- After the relaxation of fabric, they cut the fabrics into the required sizes. They then stitch the fabric and produce the final output. Here the stitching machines are specially designed machines.

Ironing & Checking:- After stitching, they iron the clothes with steam. They then check whether there are any stains or stitching problems. If any, they correct it and finally send it to the **packing** section.

During packing, 1 bundle consists of 50 pieces. On the outside of the packing box there will be a paper resembling certain information about the cutter. If there is a mistake they contact the cutter. Finally they export it to various places.

These were the processes that we saw at the Garments Making Section. The data given by Mr. Sethu Raman was highly informative and we learnt a lot about the garments making process through him. We left that block at around 4.00 pm.

We assembled in an auditorium for an interactive session. We had our tea at around 4.10 pm. Then Mr. Bensikar Rajan gave a presentation about Industries. Firstly, he talked about the important features of Karur District. He stated, "Karur is famous for its industries. It has only a small amount of forest cover when compared to the other districts of Tamilnadu. It is bounded by Namakkal, Tiruchy and Erode". According to him an industry is based on many engineering courses such as:

- Civil Engineering - Water and Land Transport, Investment
- Mechanical Engineering - Machineries.
- Electrical Engineering - Power to run machineries.
- Chemical Engineering - Chemicals used in manufacturing.
- Textile Engineering - Industries need textile experts.
- Safety Engineering - Fire extinguishers.
- Computer Science Engineering - Industrialized computer, Computer experts.

"Administration monitors the work of the employees. Industries also need capital for providing salary to the employees. Another important thing that an industry requires is raw material which helps in the manufacturing process", said Mr. Bensikar.

He then talked about Manchester which is located in England. He said that it was a place well known for its textiles. But nowadays, its influence was reduced. He said that Karur was famous for its pants and shirts. Nowadays, Tamilnadu is famous for its textiles throughout India. He concluded by saying, "Industries are needed but as long as it does not pollute the environment, we can benefit a lot from that". Through his speech we obtained a lot of information regarding industries.

Then Dr. Gladson provided his views regarding our speeches that we had presented during the morning session. He said:

- We should not memorize.
- Whatever we speak we should have a clear understanding and speak only after that.
- We should make use of the ideas given to us by scientists and implement them to improve our lives.

His talk was very encouraging. Then Varsha of the Maroon Team spoke about the Manufacturing process that took place in the Garments Making Section of that industry. Following her, Etazh gave a talk on what happened at the Boiler Division. Next Rujan presented his views regarding the manufacturing process in

the Home Textiles Section. After that, Blessy talked about the Fiber manufacturing block. Fathima Hashima then talked about the Bedding section.

Finally Meera talked about the safety precautions present at the Sabare Industry. Some of the Safety precautions mentioned by her were as follows:

- Fire Extinguisher
- Emergency Exit
- Masks for preventing from infections
- First Aid for Immediate Medical help
- Yellow line - for telling us not to go near the machines
- Many doors and windows to protect ourselves from fire accidents
- Medical centre
- Direction boards

Finally Mr. Velaiyan provided his own ideas in order to become an effective speaker. The main point that he stressed on was that we should be bold and confident while speaking. He also mentioned a lot of other points.

The interactive session was over by at around 5.30 pm. As we travelled for long distances the previous night, most of us were feeling tired. So we took some rest for an hour in the rooms allotted for us. After that, we practiced for a skit to be performed at the cultural program.

We left our rooms at 6.45 pm and the cultural programs began at around 7.15 pm in the canteen. Firstly, the Yellow Team members performed a skit on "Ancestors". It was quite good, but it could be much better if they had practiced a little more. Rujan's acting was excellent. Then Red Team members performed a skit on the topic, "Happy Home". It was well performed. Steffy and Etazh's acting was something quite extra ordinary. Then we, the Blue team members performed a skit on "Quarrel Home". Following us, the Green Team members performed a skit on "School". They also performed well. The Maroon Team members also performed a skit on "Relations". They acted out the relationships at home, at school and in society.

Apart from the team skits we, the boys performed two skits. I took part in one of them. First we had done a skit on "Intelligence". Finally another group of boys performed a humorous skit. It was also very nice. Then we had our dinner at 8.00 pm. After that, many students shared their views on the skits performed by all of us. Finally there was a prayer session to thank Almighty God for all of his blessings throughout that day's program.

The program was over by 8.30 pm and we went back to our rooms to have a nice sleep.

DAY 2:-

Early in the morning we woke up at 5.00 am and refreshed ourselves. We left from our rooms at around 6.30. We had an interaction session near by the

canteen. Mr. Velaian, the organizer of KAP gave us a lot of tips to be healthy. Some of them were:-

- Avoid eating fast foods like noodles, bingo etc because they add certain chemicals to prevent the food from getting spoil.
- Eat healthy food that our parents give us.
- Eat lots of fruits and vegetables because they are rich in Vitamins.
- We should learn to adapt to the lifestyle and food habits of a particular place when we go for a camp or a tour.

His health related tips were very useful to all of us. It would be better if we follow it. He then said, "You should wake up before the sun wakes up so that you may get fresh clean air which is good for relaxing our mind". Next, we had our breakfast at the canteen around 7.15 am. After the breakfast, Steffy thanked the canteen members for providing good meals at regular interval. We departed from the Sabare Industry at 7.45 am. When we were about to leave, a beautiful butterfly pepped its head out from the grass and watched our movements. I had no wish to leave the place. I hope to surely visit that industry once again some other time.

We then travelled for about two hours and reached an organic farm situated in Panickampatty by 9.45 am. It was Mr. Gopalakrishnan's farm. There we saw lot of plants such as Umathai, Erumaitumbai, Ammanpacharichi, Aharani, Manalikeerai, Kuppaimeni (cures cough and cold), Poovankurunthai (cures typhoid), Sridevichengaluneer, Mudakarutham, Keezhanezhi (cures jaundice), Kuppaikeerai (rich in calcium) etc. We also saw some more plants like Kalotropus (removes poison caused by snake bite), Kuttuvadai and Kuttathakali (curing ulcer). Dr. Gladson, an environmentalist explained about these plants and its uses.

Then we went to visit a paddy field. On seeing the paddy field, Mr. Velaian mentioned these words:

"Adi Mannuku, Nadu Matuku, Nuni Veetuku"

It means, "Human beings eat the top most layer of a crop that is grains. The central part is eaten by cows. Then the bottom most part i.e. roots remain in the soil". Mr. Balakrishnan told the poetic lines of Avvaiyar as follows:

"Varapu uyara Neer Uyarum, Neer uyara Nel Uyarum, Nel uyara Kudi Uyarum, Kudi uyara Kone Uyarum"

Then Mr. Gopalakrishnan arrived and the program began. Varsha of the Maroon Team presented the welcome address. Then Mr. Velaian presented a brief account about the various activities of the Kumari Arivial Peravai. Mr. Gopalakrishnan talked about organic farming and he showed us his farm too.

Before getting into the topic, he gave a challenge. He said, "I will tell you the names of some animals. If anybody needs it you must lift up your hands".

We accepted that challenge. He said dog, fish, owl and snake. Four of us raised their hands for each animal.

But it was not a task; there was science behind that. He said that we were protecting dogs and fishes as they are useful to us. But at the same time we were not aware about the uses of owls and snakes and as a result of which we were killing them. He said, "We should not kill snakes unless it harms us because they kill rats which destroy crops". Snakes also support our ecosystem in another way. If we kill owls and snakes, the rat population increases and it creates lots of other problems.

He then talked about the lifestyle of earthworms. He poured some salt above few earthworms. As soon as he poured the salt, they stumbled and staggered and they died. He said, "In a similar manner, when we add Urea to the soil, we are killing the earthworms. Urea has a high content of salt and it destroys the fertility of the soil". Some of the natural solutions that can be used in farming are Panchakkaviyam, Amirthakarasal, Elumichaimttaikaraichal, Kaddalaipinnaku and Elu Pinnaku.

Then we went to visit his organic farm. He was producing natural manure using certain wastes. He explained about the process very clearly. He stated that in India there were more than 500 varieties of Earthworms. There are three types of earthworm based on their lifestyle under the soil. They are

- Top Level Earthworm - above the surface.
- Middle Level Earthworm - goes up to a depth of 3 feet.
- Bottom Level Earthworm - goes up to a depth of 6 - 9 feet.

They use the top level earthworm for making fertilizers. The major African variety earthworms are Eudrilus and Euginae. The Euginae's head is violet in color while the normal Earthworm's head are light green in color. It can adapt to the conditions of the soil. He said that earthworms could be grown anywhere.

I was very surprised when he said that he earned money only because of earthworms. He said, "In the year 1992, I bought 20 earthworms from a HOD of the Anamalai University. Now, I converted them into many earthworms and I am exporting them to countries like USA and Malaysia". I was greatly surprised
.....

Can Earthworms make us richer?

Then we assembled in one place. Mr. Gopalakrishnan continued sharing his mind that was full of interesting information. He then talked about Amarthakaraishal.

Required Materials for making Amarthakaraishal:-

- | | | |
|-----------|---|-----------------|
| Cow Dung | - | 20Kg approx. |
| Cow Urine | - | 1 liter approx. |

Water - 180litersapprox.
Jaggery - $\frac{1}{2}$ to 1 Kg.

Steps for making Amarthakaraishal:

- Pour all the given materials into a vessel and stir it clockwise 50 times (morning, afternoon and evening)
- After 24 hrs we should pour water on it.
- If we can't pour water we can spray water onto it.
- Then after 24 hrs, we can observe the formation of a brown colored substance and that was Amarthakaraishal.

After that he showed a poster that showed the method for making fish mixed Karaishal and explained about it. This is what he said:

Required Materials for making Fish Mixed Karaishal:-

Fish - 1 Kg, Molasses or Jaggery - 1 Kg.

Steps for making Fish Mixed karaishal:

- Cut the fish into pieces.
- Put it in a plastic Container.
- Add molasses or jaggery.
- Cover it with a jute gunny.
- On the 15th day squeeze it and filter it.
- Continue the same filtering process 2 times once in 15 days.
- Spray 1.5 % strength (for 100 liters of water 2 liters of strength).

Finally he talked about the Lime, Egg Mixed Solution.

Required Materials for making Lime, Egg Mixed Solution:-

Hen Eggs - 10
Lime - 20 - 25.
Molasses (or) Jaggery.
5 l Plastic Container.

Steps for making Lime, Egg Mixed Solution:-

Place the eggs in the container.
Squeeze the lime in it.
Add molasses or jaggery.
Cover the container.
Open it on the 10th day. The eggs will be decomposed.
Crush the solution well.
Cover the container.
Then on the 20th day the solution will be ready.
Spray 1.5 % of strength (150 ml in 10 liters of water).

Eggs are used in that solution because they are rich in Vitamins and calcium. He said, "If we spray poisonous liquids on plants, the insects living there will die and create a problem for the eco-system".

At last, he provided some tips to prevent insects from attacking the plants. He said, "In a garden, we should plant different types of plants. For example, if we plant 5 lady's finger plants, then adjacent to that we should plant 5 cucumber or brinjal plants. So that the insects will be confused and they will not do harm any to plants". He continued, "Yellow color attracts good insects. So they will come to that place and as a result there will be both good and bad insects in that place and they will fight with each other. They will not harm the plants". He finally concluded by saying, "**Hard work leads to success**".

Then Mr. Velaian honored Mr. Gopalakrishnan with a shawl. Dr. Ramesh also encouraged us to learn a lot about organic farming. The program was over and we were served with a delicious lunch at around 1.00 pm.

Soon after the lunch, we had a short meeting. It began at around 2.00 pm. Dr. Ramesh, the President of the Kuzhithalai Indian Medical Association was with us to encourage us. V. Steffy briefly talked about the activities of the Kumari Arivial Peravai. Finally, Mr. Velaian said that we established good relationships with many experts through our study tour. The meeting was over by 2.20 pm and we departed from Panickampatty at around 2.25 pm.

At 2.40 pm we reached the sericulture farm of Mr. Ramaswamy. He said that sericulture was the only occupation in India which had overtaken China. We saw some foggers and sprinklers at the entrance to his farm. They helped to maintain the temperature at around 22°C - 30°C . He advised us to avoid using air conditioners under any situation. He encouraged us a lot to eat our traditional rice i.e. jambha rice. He said:

"Terrorists don't attack us. Terrorists are within us. We, who destroy traditional habitats, are terrorists".

Following that we went inside a sericulture room where many silk worms were producing cocoons. We saw many silk worms and their cocoons. Then we gathered in a place to hear the magical words of Mr. Ramaswamy. He stated, "**Even a dog knows what to eat. But, we the human beings don't know what to eat and we are destroying our health**". He advised us to eat a lot of green leaves. According to him our only assets are farmers. He said that farmers were like gods. Then he talked about the Betty egg plant which was poisonous. He said:

"We don't need to invent new things .But we can use our own things properly".

He said, "In Malaysia, they keep China made products in separate buildings. He advised us not to buy China made products because they add certain

chemicals in those products. He then showed us a mulberry plant. Around 200 eggs can be kept in a mulberry plant. He said, "A silkworm can grow 10000 times bigger within its life span of 25 days. 1kg of cocoon costs Rs.540. As a result of this, in Tamil nadu sericulture farming is increasing day by day. When this occupation is under the control of the government the price can be kept under control". He continued, "Hosur is the head Quarters of sericulture in Tamil nadu. All this information was provided by Mr. Ramaswamy. Through him we learnt a lot about sericulture. Then we departed from that sericulture farm at 3.20 pm.

We travelled for $1\frac{1}{2}$ hours and reached the Nalla Hotels in Namakkal at around 4.50pm. The conference began at 5.30pm. Livee and Meera were the compeers. Dr.D.Uma Maheshwari, secretary of the Indian Medical Association, Namakkal welcomed everyone. She said, **"Children have a higher level of awareness when compared with their elders".**_

She encouraged us a lot. Then Mr. Velaian gave the introductory address. He said that the people that we were visiting that day were honored to have us. He continued, "Dr. Mallika had put in great efforts for arranging this program. Communication with various doctors has made this program a successful one". He said that men usually participate in many events but women were shining in every aspect of life. He mentioned an incident regarding an young scientist of the 2003 program. He said, "That particular young scientist was very interested in forests. So he is now doing a lot of social service among the tribal people. Likewise you should also utilize the opportunity provided by the Indian Medical Association and improve in your life". He stated that many schools were providing education based on the syllabus. But KAP teaches in a way that helps us to understand and learn everything. His words were encouraging for us to achieve great things in our life. Then Varsha gave a detailed account on KAP and its activities. Following her Steffy of the Red Team presented a speech about industrial and ecological conditions. ". She first talked about the benefits of industries. She said, "Water bodies may get polluted due to the dumping of waste from industries into rivers. As a result it caused skin diseases to those people who used this water". Although industries cause pollution and destroyed water bodies, there were many ways to prevent it. Some of them were:

1. Properly disposing industrial waste.
2. Treating waste water in treatment plant before releasing them into water bodies.
3. Purifying the air released from industries.

Next Aksha of the Green Team gave a talk on forests. She performed well. After that I presented my speech about the water resources and reservoirs of Kanyakumari district. I believe I did done well. Next, Mr. John Rabikumar spoke about industries. He said that we were destroying our mother

Earth in the name of industrialization. Some of the consequences of industrialization that he mentioned were:

- Agriculture is mainly affected by industrialization and as a result of this people are starving.
- Lands are becoming arid.
- Water bodies are filled up gradually by the construction industry.
- In the name of industrialization we have lost many plants, animals and water bodies.
- The fertility of soils is being destroyed.
- Water available for drinking purpose is also lost.

He also mentioned the solutions for reducing those consequences. He finally concluded by saying, "Act upon this information now itself. We should not delay. If we delay, we will lose the remaining natural resources". His speech was highly informative and we got a chance to know a lot about industries.

Then a presentation regarding air was given by Ethazh. She said that air is very important for our survival. She mentioned about the past and present conditions of air. She concluded by saying, "The government should take some steps or do something to avoid air pollution". Through the information provided by her, I understood how foolishly we were destroying our precious air.

After that Dr.Edwin Gladson talked about the forests of Kanyakumari district. He mentioned some of the endangered species of animals and birds. Some of them were the Bison, the Panna, the Wild fowl etc. Finally, he ended his speech by saying that we should learn more about forests and help to conserve them. Through his speech I understood that:

"Service to nature is service to God".

Dr. Hemalatha, the finance Secretary of IMA felicitated the gathering. She said, "Pollutions start in our homes. The important source of pollution is vehicles. So she advised us to avoid using private vehicles like cars, bikes and vans. Instead we could use public transport so that we could reduce air pollution to some extent. She also told us to avoid using plastic bags because they do not decompose. Finally she was proud of us and her wish was that we achieve great things in our years ahead.

Following her, Dr. Mallika Kulanthaivel, the President of IMA felicitated the gathering. She said about her experiences in the medical field. According to her, we have wide range of ideas and because of our deeds, India could become the greatest country in the world. She stated, "We have proven that Kanyakumari district is a special place for learning". Finally she ended her felicitation by encouraging us to continue our good works. Aksha of the Green Team provided the feedback of that session. Then Dr.Krishnaraj presented a book to Dr. Mallika Kulanthaivel. Following that, Mr. Edwin Sam, Mr. Balakrishnan and Dr. Mallika Kulanthaivel presented books to Dr. Hemalatha, Dr. Uma

Maheshwari and Sheka respectively. As Sheka's (Green Team) birthday was on that day, Dr. Mallika Kulanthaivel presented a book to her as a birthday gift.

After that Dr. Kulanthaivel provided the felicitation. He stated, "Students from our district (Namakkal) don't know anything that is out of their syllabus. But, students of Kanyakumari district are very concerned about nature". He then mentioned about an incident that took place between a son and his father. Through that incident, he illustrated an idea that:

"We can forget and forgive the wrongs done, but we can't change the problems that happened because of those mistakes".

He said, "Many countries were trying to overtake India in the field of education but they were not able to do so because of students like you". He also mentioned some ways to reduce pollution in roads. He said that our future is in our hands. He said, "Even if you speak in English, you should not forget our mother tongue Tamil". He told us not to forget Tamil. He said:

"One day, Rajaji's son said Gandhi that his father would converse only in English at home. So, Gandhi wrote a letter to Rajaji advising him to speak in his mother tongue i.e. Tamil". This incident shows that every person with Tamil as his mother tongue should have a tendency to speak in Tamil and that will help him to be uplifted. He finally concluded by saying, "Education is not the preparation for life but it is life". His speech increased our enthusiasm and zeal.

Finally Steffy provided feedback of that session in Tamil. **"Thanks is the golden word in the English dictionary"**. Mr. Johnson thanked each and everyone and the conference was over by 8.00 pm. We had our dinner and we departed from Namakkal at around 8.40 pm.

This camp was very memorable. The speeches provided by the experts were inspiring. I got a chance to mingle with the other school students. Before attending the program, I was not very familiar about industries. But I came to know a lot about industries through this camp. On the whole, it was a highly informative and interesting camp.

KAP Mould the young scientists in all fields to excel. One important area is establishing industries for development of our nation. At the same time we remember that the nature should not be destroyed but to be preserved for the future generation. Sustainable development of industries with concomitant safeguard of our nature should be followed. We, the young scientist are fortunate to have such a wonderful programme to know about the good and bad of industries. It will help us to plan, act, and work for the betterment of human society preserving our ecology at the same time helping the need of the growing population. We were astonished to know the interest shown by Dr, Suyambu, Chairman of Sabare Industries and Dr, Sasi Kumar, principal of Lord Jegannath College of engineering , Ranathichanputhur. Again I record my heartfelt thanks to the members of Namakkal IMA, women's wing Dr. Mallika Kulanthaivel , Dr.

Hemalatha, Dr. Uma Maheshwari and doctors Dr. Kulanthaivel, Dr, Ravichandran and Dr, Ramesh for treating us like royal guests and for their presence till we depart from that place. Really it's an magnificent event to have all these busy doctors with us in the dais. We bow our head for their noble deeds. Our beloved Dr. Vijaya Kumar, Past President, National IMA, and Member, Commonwealth Countries Doctors Forum is always remain with our mind in an esteemed place.

I thank Almighty God for his blessings throughout that camp. And I also thank Mr.Mullanchery M. Velaian for arranging such a wonderful program.

I strongly believe that it was very useful to all of us.

THANK YOU.

The Camp might be over.....

But our delightful memories and experiences.....are beyond the scope.....Unable to measure in words.....

My sincere gratitude to KAP.....

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