K A P
Kumari Arivial Peravai

&

DISTRICT FOREST OFFICE

NAGERCOIL

15.02.2014 & 16-02-2014

NATURE CAMP

BIODIVERSITY STUDY

For

YOUNG SCIENTISTS-2014

at

Zero point, Kodayar,
Vellachithodu,Alamcholai

G.Jeshwini
DAWNLYN LAL

G.Jeshwini,
Green team

"Look deep into nature and then you will understand everything better"

-Albert Einstein

So as stated above, as we look deeper and deeper into nature, we could understand things in a better and clearer way. So to know deeper about nature, we started

our biodiversity camp on 15-02-2014. We were asked to assemble at the Excel Central School, Thiruvattar. By 8:00 am, as I reached the campus, I could see many birds and animals which were grown inside the campus itself. It proved the saying by Jim Fowler that **the continued existence of birds and animals is important to the quality of life of humans.** We assembled at the auditorium and sharply by 8:20 am, the program started with an invocation to Goddess Tamil. Steffy was the one who compeered the meeting and she called upon Mr.Gopalan, the Administrative officer of Excel Central School to give the welcome address. First of all, he gave a short note on that day's program. He said that we were going to see the hydroelectric project in Kodhayar. That place was a very high range area. We would be also visiting the 0 point (Pechiparai). The Kodhayar is situated at a mountain which was once a thick forest area. But now it is reduced to a small town. Kodhayar is divided into two, namely, Upper Kodhayar and Lower Kodhayar. When water flows down the mountain, electricity is produced. The tourist who visit Kodhayar, just see it and go; but we young scientists go to Kodhayar for the purpose of knowing how it works and to learn about the scientific details of Kodhayar. After that, he started to welcome the following dignitaries on the dais:

- Mr.Joeprakash – HM, Nalloor school and also the Head of Green Core Movement
- Mrs.Brindha Sreekumar – Principal, Excel Central School
- Mr.Velaian – the organizer of KAP
- Mr.James Wilson – Chairman of MACET and SIGMA College of Architecture
- Mr.Samraj – Assistant Elementary Educational Officer
- Mr.Edwin Sam – Social scientist
- Mr.Balakrishnan
- Mr.Edwin Gladson

By welcoming all the gathering, he concluded his welcome address. Velaian sir was the one who gave the introductory address after that. He mentioned that Excel is a temple of learning and for years, KAP has been starting their biodiversity camp from Excel. He specified that we will be visiting a Space Observatory in Excel which was opened by a NASA scientist by video conferencing. After that, Velaian sir asked Steffy and Varsha to read the letter which was sent by the IMA Doctors from Namakkal. He informed us that the Kodhayar starts from Muthukuzhivayal and we will be doing a detailed study on the water flow, types of flora and fauna present there, etc. We will be accompanied by Mangavilai K Rajendran and

two foresters at the 0 point. We will also be visiting Vellachithodu, where the water is not at all polluted.

Mrs.Brindha Sreekumar, the Principal of Excel Institutions felicitated the gathering next. She mentioned that the young scientists are special because they have unique characters and are selected among many students. The KAP is not a simple thing but an extraordinary thing, so we should understand the real value of KAP and use it properly. She requested us to do all the work given to us properly and within the time given. She concluded by saying that let's all work hard to safeguard our school, home, society and nation. Mangavilai K Rajendran sir addressed us briefly by wishing us a happy journey.

Benzigar Rajan sir was the next to speak on the dais. He started his talk by saying the definition of biodiversity i.e. bio means life and diversity means variety. So biodiversity together means that it is a theory of interlinking of organisms. Nearly 1.4 billion species are named and 3-50 billion species of animals are unnamed in this world. Due to human activities, nearly 20,000 species are becoming extinct every year. He concluded by saying that the best solution to stop this is to stop global warming. Next, Mr. James Wilson, the Chairman of MACET and SIGMA college of Architecture gave his felicitation address. He informed that we young scientists have developed a lot and this could be proved by seeing our

reports. This biodiversity camp will be like a camp with combination of both pain and pleasure. He concluded by appreciating Excel school for their sponsors. After that, Achsah from green team gave a detailed feedback and vote of thanks.

When we went upstairs to see the Space Observatory, we met three former young scientists namely, Suraj, Abishek and Anandhu Krishnan. First, Suraj advised us that we should take everything as fun. By doing so, we could achieve great things in our life. Abishek introduced himself by saying that he belonged to yellow team the previous year and said that we were the luckiest students in the district because we were refined and were selected. Anandhu Krishnan explained that the same way in which a metal is extracted, then refined and then received as a pure metal, we too are extracted, refined and will be received as a pure metal at the end of this academic year. We must develop both subject and communication skills. The next important advice was that we should write from the bottom of our heart in the report. We should always write for our sake and never for others sake. If we write in such way, it will be easy for us to write our general essays in the examinations. By then, Gopalan sir informed us that due to this habit of writing in such a way, we can often see their names in newspapers.

The next event was visiting the Space Observatory and we were guided by Mrs.Rajashri there. She specified that the telescope present there was a manually operated telescope. The speciality of this type of telescope is that it can also show the black spots (they are so powerful that it can even burn a paper) present in the sun. Due to sun's rotation, the black spots keep changing everyday. Mrs.Rajashri asked us to draw what we saw through the telescope and as we drew, we could find that there were 8 black spots.

Then, we started our travel and by 11.00am , we reached the zero point (Pechiparai). We went to a medicinal plant garden where we were guided by Mr.Kumar, a Forest Officer. The plants which we saw and the uses of it are described below:

- Ihjpf;fha;
- fUth
- Rq;FFg;gp – used to extract oil
- TprKyp – used to cure poison attacks on skin
- fUePynehr;rp – used to cure rheumatism
- rpj;jpuj;ij – used to cure cold and head ache
- tprthio – if a thorn gets struck in our throat and when this plant is applied, the thorn just gets dissolved
- fhl;Lgpr;rp – used to cure muscular pain

- mNrhfk; - to get rid of dandruff
- rh;f;fiuf;nfhy;yp – if we consume a sweet and this plant together, it will give out a bitter taste
- Xu;gpuhz;il – to cure eye and intestinal diseases
- jpg;gpyp – to cure cold and cough
- fhl;Lj;Jsrp – to cure fever
- MNuhf;fpagr;ir – to cure body diseases
- fhl;Lcs;sp
- Njhrk;gr;rpiy
- rpd;dpgr;rpiy – to cure child diseases
- fhl;LngUk;rPufkuk; - to cure gastric trouble
- rpl;lhlhNjhlh – to cure head, leg pain
- Ntq;ifnfhb – used to extract oil
- fhl;LntSj;Js;spnfhb – used to cure rheumatism
- Mg;gpupf;fd; gpr;rp
- ehy;gr;rpiy – to cure eye and intestinal diseases
- kUs; - to cure ear pain
- ghk;Gfhshd;
- fz;zhbfs;sp – to cure skin disease
- kQ;rs;njw;wp - -to extract oil(for curing eye disease)
- fLf;fha; - to cure diabetes
- tpy;tk; - used to prepare antibiotic for curing diabetes
- ,Yg;ig – to cure diabetes

From this we can know that medicinal plants play an important role in curing diseases more than tablets and injections. This reminded me of the saying by Aristotle that **"If one way be better than another, that you may be sure is nature's way".**

Then we came to back side of Pechiparai dam and sat in a shady place. Though it was very sunny, the temperature under the trees seemed cool. Mr.Kumar, the Forest Officer, explained that the total height of the Pechiparai dam is 48 feet. But now since it is summer, the water level is low. He pointed out that if the water level was high, the place in which we were standing would be filled with water. In that area, sirunaval tree and naval tree were very high in number. Many unnamed plants were found there too. The fauna ranges from small animals like rabbits to big animals like elephant. If the water level is high, we could travel to a distance of about 1okm in boat. Benzigar Rajan sir stated that the Pechiparai dam work was started during the time of Marthanda Varma but was constructed by Er.Alexander Minchin. At the time of construction, it was built to a height of 43 feet but during the period of Kamaraj, it was reconstructed to a height of 48 feet. The Kodhayar river has many tributaries like the Kutty river and Mayilar river. Though Kanyakumari district is a small district of area 1680 km^2, there are 14 types of forests here. The forest in which we were sitting belongs

to the group of evergreen forests and was rich in humus. There are many plants like mayilai, konku, mottai, vengai and ayini (endemic). Not only plants, there are also many animals like mizha, kaatu panni, nilgiri tahr, anteater and lion tailed macaque(endemic).

Edwin Gladson sir informed us that the specialty of this forest is that there are nearly 13 types of bamboo here. From these trees, a substance called moongil uppu is obtained which is used in Ayurveda. Many plants like jaathikkaai, karumveerana, nilakkuzh, mara otti and kalthuzhi are found here. Next, Mr.Christopher, who is a native of that place explained us in detail about the Pechiparai dam. The maara malai, which could be seen from the place which we were sitting, was occupied by a tribe called Kaani. The specialty of that hill is that the water never goes dry over there. The forests are taken care by the Forest Department. The forests are mostly covered by sirunaval trees. The Kodhayar is very fertile, so it is called evergreen forest. Many useful medicinal plants were also present there. Nearby, a nursery and an agricultural college are also situated. In that nursery, spices like pepper and cloves are grown. Nearly 40 students were learning in that agricultural college. The interesting fact was that more than natives, students from other states learn there.

Velaian sir explained that the Kodhayar originates from Muthukuzhivayal and we were going to visit Vellachithodu and the Lower Kodhayar(hydroelectric project). In between, Christopher sir said the names of few nearby hills like maraa malai, thachcha malai, vizha malai etc. Balakrishnan sir said that the total catchment area of the Pechuparai dam is about 35 km and animals like kaattu panni, king cobra etc. are found over there. There were many hypes of snakes like saarai paambu, pachchai paambu, malai paambu etc. Next, Steffy gave a feedback in Tamil. As we got ready to go, Benzigar Rajan sir showed a tree and said that it was an oak tree. His point of view was that oak trees grow only 6000 feet above the sea level. So he was surprised to see an oak tree there because the place which we were standing was only approximately 1400 feet above the sea level. He nourished us by saying that 80% of the Himalayas are covered by oak trees. Oak trees adapt themselves to mostly all climatic conditions. During summer season, they look fresh but during winter season, they stand like a dry stick. He warned us not to stand under an oak tree during a lightning because it can cause great harm to us. In Kanyakumari, oak trees are found only in a place called Ingikadavu. When a question was raised that what is the use of oak trees, he answered it by saying that if a tree stands for 150 years itself it does a great benefit to us by providing pollution control of worth Rs.6.9

lakhs, soil erosion control worth of Rs.10 lakhs, providing oxygen worth of Rs.5.3 lakhs and fertilizers worth of Rs.7.5 lakhs. As we were about to enter the bus, Balakrishnan sir showed us a palm tree and said that it was useful to extract oil. He also mentioned that if oil was extracted only from the flesh of the fruit, the oil received will be of first quality. But if seed of the fruit is also crushed together, the oil received will be of second quality. He highlighted the point that palm oil is very famous in Malaysia. He also showed us an orchid called vanda.

By 1:40 pm, we reached the Lower Kodhayar Power House 1. We were divided into teams and each team was guided by a person. Our green team was guided by scientist Benzigar Rajan. He showed us a repaired turbine shaft and explained that, to produce electricity 2 things namely turbine and shaft are required. When water falls with a great force on the turbine, the turbine rotates and electricity is produced in the generator. The water from Upper Kodhayar is transported down through pipes and 60MW and 40MW are produced in the first and second power houses respectively. He informed us that the place in which we were standing i.e. the Power house 1 was 1874m above the sea level. We were showed a turbine which was of Vevev company from Switzerland and to rotate it needs 275 cusecs of water. The speed of the machine is about 87130 BHP. The generator which was shown was of Belfort

company from France. The speed of the machine is about 500rpm and the power generated is 66667KW. We were shown two maps, of which one depicts the water flow of Kodhayar. Then, a process called barring is done. The staffs from that power plant stressed the point that only fe w workersare required but if water is not there, electricity cannot be produced. Because of the engine, the water gets heated. So a cooler is used to cool the water and then it is let out. By then, all teams joined outside and Fathima Haashima gave a feedback what happened inside the power plant.

The next event was going to Vellachithodu. Though it was painful at one side, it was adventurous on the other side. At the starting, there were steps but as we went further away, there were no steps. The rustling of the trees and the singing of the birds delighted us but it was scary too. We were surprised to hear the sound of the bees which sounded like the flowing of a river. The trees were very tall as if touching the sky. It was breathtaking at the beginning, but as we breathed the cool air near Vellachithodu, we felt very refreshed. We all drank some water from the river, and it was the tastiest water I had ever tasted.

At that time, Mr.Kumar, the Forest Officer started his talk. He informed us that 10 km away from the place we were standing, the Project Tiger was there.

Vellachithodu was filled with abundant trees like kozhmavu maram, konku maram, marudham maram etc. Except lion, many other animals like mizhavu, tiger and elephant were found there. He said that kaduva tiger, which is famous in that forest has a distinct huge mouth. Elephants feed on plants and they specially like a plant called aazhathenai. We could mange without food for even a day if we consume arockiapachchilai plant. Then we started getting down the mountain, which was very much easier than climbing. After that, we started our journey to Alancholai.

During our travel, we stopped at the Chittar-1 dam to take a look on it. A board which showed the details about Chittar-1 dam is as follows:

Catchment area	: 8.50 sq. miles
Length of dam	: 2500 ft
Height of dam	: 73'-0"
Top width	: 20'-0"
Top of dam	: 279 ft
Water spread area	: 1.13 sq. miles
Live storage(above 251 ft)	: 393 M Cft
Dead storage	: 217.35 M Cft
No. & size of surplus vents	: 2 nos,40 ft * 15 ft
Sill of surplus vents	: 254 ft
Maximum discharge	: 14000 cusecs
Irrigation sluice	: 1 no sill + 251 ft
River sluice	: 1 no sill + 206 ft

Gross capacity : 610 M Cft
No. of vent : 1
Size of vent : 4*6 ft

We departed and by sharply 6.05 pm, we reached the St.Thomas Social Welfare Centre, Alancholai. Sr.Mariata greeted us in a grand manner there. After having a short nap, we assembled at the hall. We discussed about several things like research topic. Then, we had many cultural programs and we were also asked to write a poem on our journey. The program ended by 11.05 pm.

16.02.2014 (Sunday)

After having a deep sleep, we got up at 5.00 clock on the next day and we got ready faster. We were very delighted as it was said that we would be going to the Chittar-2 dam by walk. We walked through the gentle breeze as it flew towards us. We could really enjoy the nature's beauty to a great extent. A board which showed the details about Chittar-2 dam is as follows:

Catchment area : 10.10 sq. miles
Length of dam : 3300' + 1500'
Height of dam : 82'-0"
Top width : 20'-0"
Top of dam : 279 ft
Water spread area : 1.60 sq. miles
Live storage(above 251 ft) : 600 M Cft
Dead storage : 409 M Cft

No. & size of surplus vents : 6.20' – 0" * 4'-0"
Crest of surplus regulator : 265 ft
Flood discharge : 7000 + 7000 cusecs
River sluice : 1 no 4'-0'*6'-0' sill + 210 ft
Size of vent : 4'-0" 6'-0"
Discharge : 150 cusecs

Soon after returning from Chittar-2 dam, we rushed to take our bags and got seated in the bus. We departed from there and reached the campus of Excel Central School and the program came to an end.

Thanks to KAP, Excell School, St. Thomas Social Welfare Centre and Forest Officials, Kanyakumari District for their magnanimity and help in giving such an wonderful opportunity to us.

2.DAWNLYN LAL,
BLUE TEAM.

"The world is a book and those who do not travel read only one page."

— Augustine of Hippo

The day was fresh and enthusiastic and I was overjoyed as I was going to achieve something that day. The Biodiversity Camp was held on the 15th and 16th of February, 2014. The main aim of that camp was to visit few forest areas in Kanyakumari District.

The Inaugural meeting of our study tour was held at the Excel Central School in Thiruvattar which is one of the better schools in Kanyakumari District. The program began at 9.20 am with the Invocation to Goddess Tamil. V. Steffy of the Red Team was the comperer. Mr. P. Gopalan, Consultant of that program welcomed everyone warmly. He first mentioned the places that we were about to visit that day. He also spoke a few words about Upper and Lower Kodayar and the amount of electricity that they produced. He said, "You are lucky to study about the forest and its resources and it would be very useful". He continued by saying that that program was a rare opportunity provided to do research. Finally he concluded by welcoming everyone.

Mr. Mullanchery M. Velaiyan, the organizer of KAP gave the Introductory Address. He said, "This is a very important program because this program will be a turning point in your life". He told that we must learn to adapt to every situations. "For instance, if we are going to forest, we must be prepared to eat the food we get and also drink water from the river", he continued. Then Varsha read the letter of appreciation that the doctors of Indian Medical Association, Namakkal had send in response to our letters of gratitude.

Mr.Velaiyan continued his speech. He stated that we were not going for a picnic. Instead, we were going to

do a study on biodiversity. He said, "We should learn about different types of endangered animals and learn to conserve them". This camp will be very helpful and will enrich our knowledge", he added. According to him, "Money is not important for us to survive in this fast changing and fast moving world. The essential thing in our life is our inner spirit which has the ability to help others, guide others and motivate others. He finally concluded by saying, "Use the opportunities provided and that will be the key to success". His words were encouraging and inspiring to all of us.

Sometimes opportunities float right past your nose. Work hard, apply yourself, and be ready. When an opportunity comes you can grab it."

Following that Mrs. Brindha Sreekumar felicitated everyone. She firstly said, "You are working really hard and that is revealed by your efforts". Listening to her, we understood that she was very glad to read the reports of the young scientists. She happily continued, "Many great personalities are here to guide you and their activities cannot be paralleled by any other institution or schools". She advised us to follow the instructions provided by the experts to shine in our lives. She then insisted that we do our work on time. She concluded, "We should live for our society, people and our family". From her speech, I remembered the quote,

"Always listen to experts. They'll tell you what can't be done, and why. Then do it."

— Robert A. Heinlein, *Time Enough for Love*

Then it was time to hear the felicitation of Mr. J. Joe Prakash. He said that we were really fortunate to visit such a big educational institution called Excel which had achieved name and fame in many fields. Finally he concluded by wishing us all success. Then Mr. Mangavilai Rajendran addressed the gathering. Following him Mr. Sree Kumar, Chairman of the Excel Group of Institutions felicitated us. His words encouraged us a lot and it paved the way for our development.

Next Mr. Benzihar Rajan spoke a few words. He shared his views regarding bio diversity. He said; "Bio means life. Diversity means variety. Bio-diversity means varieties of species. In other words, bio diversity shows the interlinking of various organisms. He said quite sadly that the human beings were killing those species for various reasons. He continued that humans were the culprits who destroyed our mother earth. His speech made us think how greedy and selfish we were. He ended his speech by stressing on the point of conserving nature. His speech was very informative and from his speech we came to know more about bio- diversity.

Then the felicitation was provided by Dr. James Wilson, the Chairman of MACET College of Engineering. He said that he was observing drastic changes in us in the past few days. He continued that our observation skills had transformed us a lot. He advised us to be careful while trekking in the forest. He finally concluded by appreciating everyone.

"Whatever we receive, we should reciprocate it by thanking". Aksha of the Green Team provided feedback of the program and also gave the Vote of Thanks. Next we went to the Excel Space Observatory Lab. There Suraj, the Young Scientist of 2013 shared the benefits that he got from the Young Scientist Program. He said, "I learned to take everything easy through this program. The motivations given by Mr. Velaian had helped us a lot in our academic carrier. Next Abishek and Anandhu Krishnan, former young scientists also shared their experiences with us. Anandhu said that the young scientist program gave him more confidence and it also provided him lots of information. Mr. Gopalan insisted that we read newspapers daily. He said, "Reading newspapers will give us more knowledge of various topics as well as language skills. We can even contribute to newspapers if we have plenty of informative ideas.

Then we went inside the Space Observatory Lab. The top of the Lab was not completely closed. The opening

allowed us to view the sun. We saw the sun spots using a telescope because it cannot be viewed by our naked eye. I observed 8 black color spots in the sun. The work undertaken by the Excel Group of Institutions was truly excellent. Finally we departed from Excel School at around 10.20 am.

After 45 minutes of travel we reached Pechipparai 0 point at 11.00 am. There we visited a Medicinal plants farm. Mr. Kumar, a forester was with us to explain about the medicinal plants in that farm. We saw some plants like Sirambhu, Vishamuli, and Malaithangi. He explained about the medicinal values of many plants. They are as follows:

Plant Name	Medicinal value
1. Sitharathai	cures cough, cold and headache.
2. Parthapichai	cures muscle related problems.
3. Piper Lon gum	cures cough and cold.
4. Azhadiviracha Indica	recommended for diabetes.
5. Gymnema sylvestre	used for diabetes.

6. Oor Pirandai — for eye related problems.
7. Orthosiphon — cures digestion related problems and cold.
8. Arockiya Pachai — reduces hunger.
9. Asphragus Racemosus — cures cold for small children.
10. Chinapachilai — cures many problems for small babies.
11. Chitadathoda — cures hand pain and leg pain.
12. Vengaikodi — used in the preparation of Ayurvedic oil.
13. Veluthulikadi — used as oil for applying in hair.
14. Marul — cures ear related problems.
15. Pambhu kallan — good for skin related diseases.
16. Manjal Thedi — used indirectly for eye problems.
17. Terminalia Chebula — cures diabetes.
18. Daemia Extensa — good for vomiting, cough and eye problems.
19. Mimusops Elengi — tooth problems and also cures headache.

20. Bilbum recommended for diabetes.

Mr. Kumar explained about the above plants very ornately and clearly. I was amazed to see so many medicinal plants in Kanyakumari District. We then saw a channel which was diverted from the Pechipparai Dam.

Next we assembled at a place near that channel. As we gathered there, Mr. Mangavilai Rajendran started recording the speeches using a radio. First Mr. Kumar spoke about the Pechipparai forest and its surrounding. He said, "Pechipparai forest is the densest evergreen forest. We can see many medicinal plants and minerals in this place". "In the river nearby, animals like deer drink water", he added. He also stated that there were many employment opportunities in the area. An agricultural college was also located near that forest. On the whole he mentioned that there were many natural resources there. From his speech we came to know about Pechipparai's natural wealth.

Then Mr. Benzihar presented a speech on the Pechipparai Dam. He said, "Pechipparai dam was constructed by the European Engineer Minchin. The reservoir's full level is 48 feet. Kuttiyar, Kallar, Chittar and Kodayar rivers together form this dam". Based on his speech, there were 14 types of forests around that dam. He said that all those forests are *"Pasumai Maara Kadu"* .A

variety of bacteria called Kumus is present in that soil. He also mentioned the fauna present in that forest. Some of them were lions, wild pigs, the Nilgiri Taur, elephants, the Lion Tailed monkey and the Mila. He concluded by saying that we must contribute in conserving those natural resources.

Following that Dr. Edwin Gladson shared his views about the medicinal plants in that area. He said, "Nilavali, Karumaveeram and Eruvathchai are found in large numbers". I was astonished when he said that there were 13 varieties of bamboo trees in the Pechipparai forest. He concluded by saying that we should conserve the rare species of plants. Then Mr. Christoper spoke a few works about that forest. He mentioned the few mountains in and around that forest area. He said quite sadly that the water storage level in the Pechipparai dam had come down from 48 feet to 15 feet. "During rainy seasons, the forest is quite cool and is similar to that of the Ooty hill station", he added. He also mentioned few medicinal plants in that area. Then Mr. Velaian talked about the Kodayar river. Next, he said that we must take notes and we should learn to enrich our knowledge by the habit of asking questions.

Following that, a speech on the Pechipparai forest was given by Mr. Balakrishnan. He said, "The total area of the mountain near the dam is 35 square kilometers". He stated that we could find many deer and even king cobras

in that place. "During summer seasons, we can find many monkeys", he continued. His speech was very informative and from his speech, I got some idea about the Pechipparai forest. Finally Steffy talked about her experiences in that forest. She mentioned an important point that the water present there was not polluted. We then walked through that farm.

On the way we saw few Oak trees. Mr. Benzihar Rajan, Scientist explained to us about Oak trees. He said, "The oak trees are found in large number in the Himalayan forests. They can grow to a height of about 6000 meters. It is most commonly found in cooler regions". He also added that the stem of oak trees resembled sticks during winter seasons. He then talked about the benefits of a tree in general. He stated, "If a tree stands for 150 years, it can control soil erosion worth Rs.10 lakhs, avoid pollution worth Rs. 6.9 lakhs, give oxygen costing Rs.5.3 lakhs and above all it can produce fertilizers worth Rs. 7.5 lakhs. His talk was very educational. We also saw cycads and Palm oil trees at the entrance of the Medicinal farm.

Finally we departed Pechipparai at around 12.10 pm. During our travel, we could see an agricultural farm and few commonly found monkeys.

After a long journey, we reached the Kodayar at 1.00 pm. We had our lunch soon after our arrival. After a

delicious lunch, we continued our journey to the Kodayar Power House – I at around 1.40 pm.

The Kodayar Power House – I:-

Mr. Raju, a staff at that Power House showed us a map resembling the production of electricity in both Kodayar Power Houses I and II. The processes are as follows:-

- The upper Kodayar Dam is built across the Kodayar River.
- The water from the dam is send to a Valve House through an 8 km tunnel.
- After certain processes, the water then is forcibly send to the Power House I through a branch channel namely Branch I.
- In that Power House, 60 Mega watts of current is produced.
- After the production of electricity, the remaining water goes to the Kodayar Power House II for the production of 40 Mega watts electricity through Branch Channel II.
- After the completion of the processes, the water is send to the Pechipparai Dam through various diversion bears.
- Finally the water is sent for irrigation.

Mr. Raju said, "We use V.V. Switzerland Company machines which has the capability of producing 66667 kilo watts of electricity". He said that Hydro – electric power is produced from water which falls from a great altitude. "Water rotates over turbines and as a result the electricity is produced", he added. We saw a huge turbine. We also saw a Coupling Chamber which is also a gadget used for electricity production.

The measurements of the Coupling Chamber are as follows:

- Length - 8.55 m
- Width - 8.55 m
- Height - 3.04 m

After the processing of water, the waste water is stored in a tank and the fresh water is sent for further processes. All this information was provided by Mr. Raju. Then Fathima of the Green Team provided a feedback of what happened at the Kodayar Power House I. The study at the Kodayar Power House I was over by 2.30 pm.

Trekking over mountains:-

Mr. Velaiyan told us to take our water bottles in our hand. I thought that we were going to relax for a while. But after a moment I realized that we were not going to relax but were going to travel the riskiest journey that we were going to undertake in our lives. We climbed over mountains and travelled through the dense forests. The

path was very adventurous and I felt a delightful experience that I had ever experienced before. On the way, we could see some birds and animals. The humming of the bees and the chirping of the birds made our journey more enjoyable.

"A cold wind was blowing from the north, and it made the trees rustle like living things."
— George R.R. Martin, *A Game of Thrones*

Finally after a half an hour of travel we reached the Velachi Mountain at around 3.00 pm. It was the meeting place of Velachi and Kodayar. The place was filled with polished rocks. The water there was not polluted and a healthy person could even drink that water. The trees of that region were quite different from normal trees. The top of the trees were facing the clouds. The place was very beautiful due to the fact that man had not yet set foot there. If he started with his destructive processes over there, then the place would be completely destroyed.

Some of the trees present in that region are the Valavu, Kulamagu, Marutha and Kungu. Milavus, Udumpus, Tigers, Cheetahs and elephants are some of the animals in that region. Except lions, many species of wild animals live in that forest. Even King Cobras lived in that region. Mr. Benzihar Rajan talked about the Velachi Mountain and its surrounding. He said, "The river near the Velachi mountain originates from the Agasiya mountain. The Velachi

mountain stretches from Neyyar to Kodayar. The Kila mountain is found 1750 m above the Mean Sea Level and the Velachi mountain is quite higher i.e.it is found 1849 m high from the Mean Sea Level. Udumbu is a dominant variety of reptile in that forest region. He concluded by saying, "There are many natural resources which have to be protected. We should learn to conserve them". His speech was very informative. We departed from the Velachi mountain at 3.10 pm. We travelled through the same adventurous path and reached the bottom at around 3.40 pm. Many students provided feedback. I also provided my feedback. V. Steffy of the Red Team shared her experiences while travelling that adventurous path. She said, "The area was so cool and I did not experience any tiredness at all". Finally we departed from the Kodayar at 4.10 pm.

Then we reached the Chittar dam I at around 5.15 pm. The information regarding the **Chittar dam I** was depicted on the walls of the dam. The details of that dam are as follows:

1. Catchment area 8.50 miles.
2. Length of the dam 2500 feet.
3. Height of the dam 73 feet.
4. Top width of the dam 20 feet.
5. Full Reservoir Level 269 feet.
6. Maximum Water Level 265 feet.

7. Top of the dam 279 feet.
8. Water spread area 1.13 sq.miles.
9. Live Storage 393 m. c. ft.
10. Dead Storage 217.35 m.c. ft.
11. Sill of Surplus vents 254 feet.
12. Maximum Distance 14000 cusecs.
13. Irrigation sluice I No Sill + 251 feet.
14. River Sluice I No sill 206 feet.

We also took some snaps. Finally we departed from the **Chittar Dam I** at around 5.45 pm.

We arrived at the St. Thomas Social Welfare Centre, Alancholai by 6.00 pm. Sis. Mariata welcomed us. Then there was a Group Discussion. Mr. Velaian said that unless we finished all pending work, we cannot move to to the next seddion. So, the students who were not able attend the Ariviyal Tamil Program were given a chance to speak on their topics. Firstly, Ashwin Niranjan of the Maroon Team presented a speech on the conservation of soil. He told us that soil degradation was caused due to:

i. Soil Erosion
ii. Nuclear depletion
iii. Growing more rubber trees.

He added that we would experience the consequences only after 10 or 20 years. He also provided

some conservation methods to protect our soil resources. They were:

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

Then, Scottlin Joe of the Maroon Team talked about wet lands. He said that wetlands were based on the place where they occur. He also mentioned the different types of wetlands. According to him, "Wetlands protect us from sea waves and river floods". He stated, "Wetlands are polluted by artificial fertilizers". He concluded by saying, "Protect wetlands and thereby protect the environment".

Following him, a talk on "Kanyakumari district's forests which have been converted into stone quarries" was delivered by Blessy. She said that because of stone quarrying we are destroying the wealth of the mountain. She then provided some effective solutions to solve this evil phenomenon. Her speech was wonderful. Next, Adithya shared his views on Kanyakumari district's irrigation sources. He said, "Wastes from factories are being fed into the rivers and as a result the rivers are polluted". "We should harvest rainwater so that we can increase the level of the water table", he added. He finally concluded by saying, "Save water and secure our future". His presentation was good. But he deviated from his topic. He

did not understand the topic clearly. But it was still quite exemplary.

Next Mr. Velaian insisted that we send our reports on time. As that day was Nivethita's birthday, we wished her. Few students spoke about her nice character and her good attitude in helping others. Sis. Mariata blessed her so that the new year may be full of blessings. Then all the students read the report of that day's programs. The group discussion was over by 8.00 pm and we had our dinner outside the welfare center.

After dinner, we had a Team Disscussion for about 20 minutes. Each team prepared for a cultural program. The cultural programs began at 9.00 pm. Firstly, the Green Team members performed a skit on "Galatta Doctor". It was excellent. The Green Team's Coordinator, Dr. Gladson also participated in that skit. Then the Yellow Team members performed a skit resembling a debate on the topic whether science is good or bad". It was well performed. Rujan's acting was something extra- ordinary. Then we, the Blue team members performed a skit on "Personality Interview". Following us, the Maroon Team members performed a skit on "Intelligence". They also performed well. The Maroon Team girls sang a cine song. Then the Red Team did a mime demonstrating "Deforestation". Steffy and Etazh's acting were quite extra ordinary.

Apart from the team skits the boys performed a skit. They had done a skit on "A Cricket Match". It was a humorous skit. After that, many students shared their views on the skits performed by all of us. The coordinators also shared their ideas regarding our skits. Mr. Velaian said, "Everyone had done well. Each one of you has different abilities and talents. We should work hard to achieve our goal". He advised us to send letters of gratitude to the addresses that were provided.

Then we were asked to write our feelings about that biodiversity camp as a poem. Finally there was a prayer session to thank Almighty God for all of His blessings throughout that day's program. The program was over at 11.00 pm. We had a nice sleep under our blankets.

DAY 2:-

Early in the morning we woke up at 5.00 am and refreshed ourselves. We had a short interaction session at around 6.00 am. Aksha of the Green Team read the report of what happened at the Social Welfare Centre. Then there was a birthday celebration for Sajin of the Yellow Team. All the members of the Yellow Team spoke about his good qualities and wished him great success in his life. Finally Steffy of the Red Team thanked every member of the Social Welfare Centre for arranging all the facilities for us. Then Mr. Velaian proudly said that the Young Scientist program was started only with the help of Sis.

Mariata. "She had participated in many programs and rallies. She had a lot of concern for the society and this concern had made her initiate a Social Welfare Centre for the general public", he added. He continued, "We have learnt a lot from different experiences. It will be definitely useful to you".

The interactive session was over and we went to the Chittar Dam II at around 6.50 am. The information regarding the Chittar dam II was as follows:

- Catchment area 10.10 sq.miles.
  Length of the dam 3300'+1500'.
- Height of the dam 82 feet.
- Top width of the dam 20 feet.
- Full Reservoir Level 269 feet.
- Maximum Water Level 272 feet.
- Top of the dam 279 feet.
- Water spread area 1.60 sq.miles.
- Live Storage 600 m. c. ft.
- Dead Storage 409 m. c. ft.

We departed from the Chittar dam II at around 7.25 am and went back to the Social Centre to take our bags. The Biodiversity Camp was over by 7.30 am.

This biodiversity camp was quite memorable. The speeches given by various experts were inspiring. I had

opportunities to mingle with students from other schools. On the whole, it was a highly informative and interesting.

I thank God Almighty for His blessings throughout that camp. I also thank Mr.Mullanchery M. Velaian for arranging such a wonderful program. We were astonished to discover the interest shown by the forest officers. I record my heartfelt thanks to the members of St. Thomas Social Welfare Centre for arranging all the facilities within a short period.

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

"A lifetime can be spent in a voyage around the trunk of a single tree."

— E.O. Wilson

"Let's all join hands together with KAP to conserve our forests".

My heartfelt gratitude to Kumari Ariviyal Peravai……Let KAP continue its deeds to kids like us.