

DNA Club

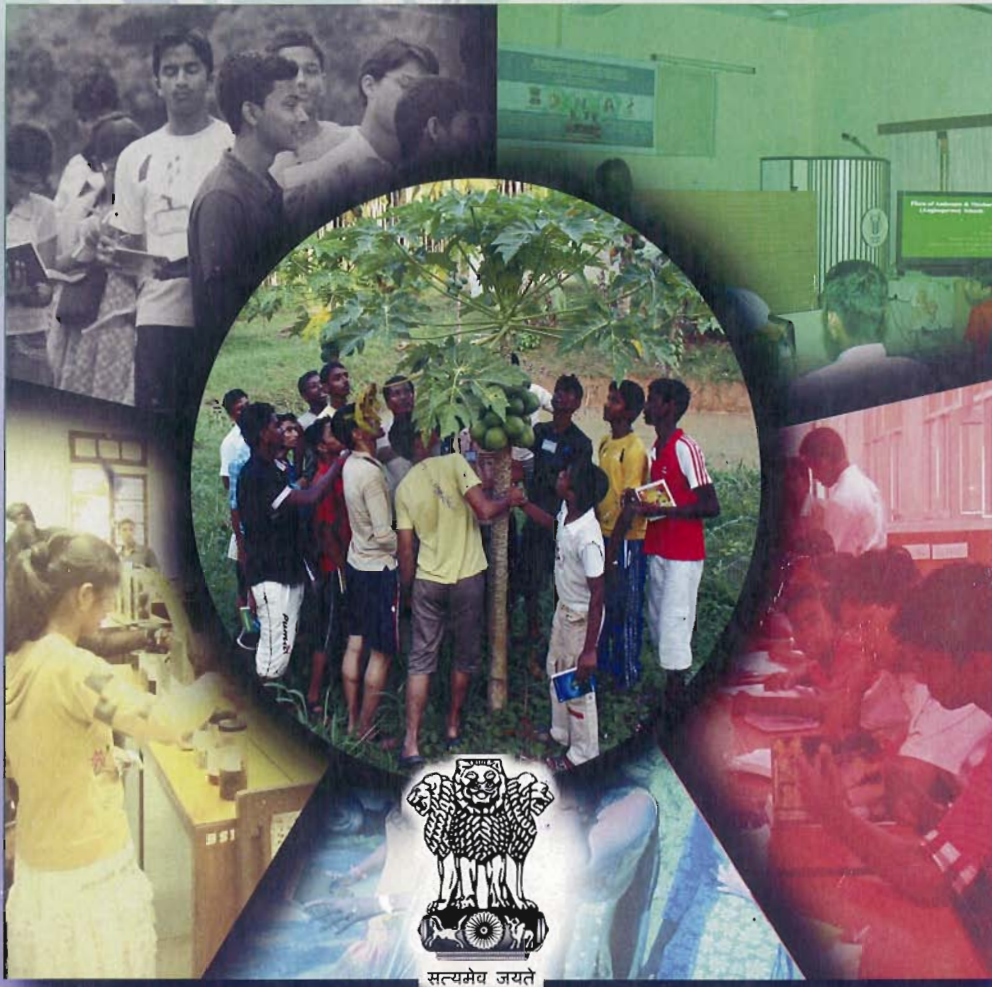
DBT's Natural Resource Awareness Club

Andaman & Nicobar Islands

2009 - 2013

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24/9/13



Sponsored by

**National Bioresource Development Board
Department of Biotechnology
Government of India**



Organized by

**Sálim Ali Centre for Ornithology and Natural History, Anaikatty,
Coimbatore, Tamil Nadu - 641 108**

PR118

DNA Club activities

Andaman and Nicobar Islands

2009-2013

A programme of

DEPARTMENT OF BIOTECHNOLOGY
PRESENTS



Report prepared by Dr. P. Pramod, P. Rajan & Suhirtha Muhil

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**Salim Ali Centre for Ornithology and
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Coimbatore – 641 108
INDIA

September 2013



TABLE OF CONTENTS

| | Page |
|--|------|
| I. INTRODUCTION..... | 1 |
| II. PROJECT AREA AND SCHOOL PROFILES | 3 |
| III. DNA CLUB ACTIVITIES (2009- 2013)..... | 9 |
| a) Invited Lectures | 13 |
| b) Field /Institutional Visits..... | 15 |
| c) Audio/Visual Programmes..... | 17 |
| d) Practical Works | 18 |
| e) Other Activities..... | 19 |
| IV. STATE LEVEL DNA CLUB FESTIVAL 2010-11..... | 20 |
| V. EXHIBITIONS..... | 22 |
| VI. PUBLIC RALLIES..... | 22 |
| VII. VACATION TRAINING PROGRAMMES..... | 23 |
| a) Introduction..... | 24 |
| b) Daily activities in VTP camp..... | 27 |
| c) VTP 2008..... | 30 |
| d) VTP 2010..... | 34 |
| e) VTP 2011..... | 54 |
| VIII. ANNEXURES..... | 69 |

INTRODUCTION

The Department of Biotechnology's Natural Resource Awareness (DNA) Clubs, a program launched by National Bioresource Development Board (NBDB) under Department of Biotechnology (DBT), was initiated to create awareness on issues concerning biodiversity and bio resources amongst school children. This initiative by DBT was to mainly engage school children in making them more aware of the importance of bio-resources and allow them to appreciate the natural wealth around them. To instil this thought from a very young age, school children were considered to be the primary target to be reached out, in the hope of making better citizens of tomorrow who appreciate the natural wealth around them and in conserving them.

The DNA Clubs have conducted many programmes along with the student's regular academic programme which has given them an open hand exposure to nature. The DNA clubs of Andaman is unique in many ways. The Andaman and Nicobar Islands is isolated from mainland India. Placed in a tropical rain forest, it is vastly rich in flora and fauna. This abundance in natural biodiversity is by itself a huge natural laboratory for school children. The DNA clubs of Andaman have conducted various guest lectures by scientists and experts from different fields, giving students direct field experiences, involving the students in hands-on experimental activities and also in projects relating to biology and natural resources. The activities have been able to impart enthusiasm amongst school children in keenly observing Nature. The DNA club has also conducted a yearly vacation training programme (VTP), where a selected group of 10th class children in their summer vacation had a camp for about 20 days. In the last five years since its inception on December, 2007 around thousand students have participated in the DNA Club activities from ten different schools in the Andaman Islands.

Objectives

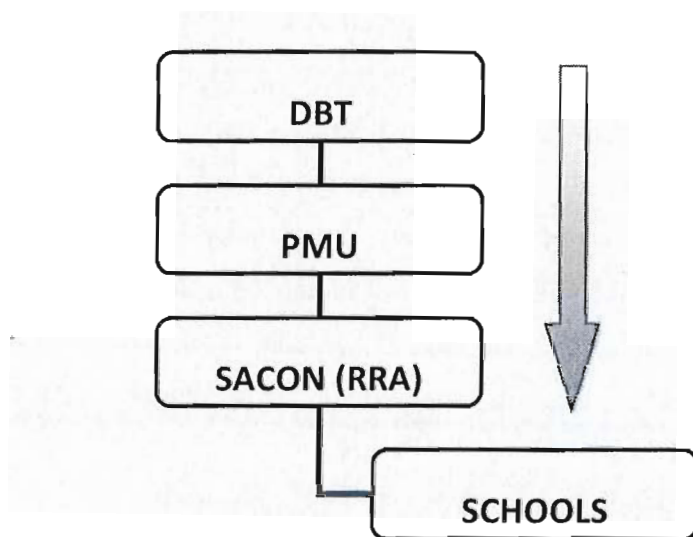
The prime objectives of the DNA clubs have been:

- To promote interest and knowledge about the natural resources and the environment among the emerging generation.

- To foster concern to protect the bioresources and natural heritage
- To increase awareness of the economic, cultural, scientific and aesthetic values of fauna and flora.
- To provide opportunities to acquire attitudes, values and skills needed to protect and improve the natural environment.
- To make aware the impact that emerging technologies (including biotechnology) have on maintenance and enhancement of Bioresources.

Working of the club

Each DNA club school consists of student members who are monitored by DNA club coordinators who are teachers from the same school, along with the Regional Resource Agency (RRA) representative. The overall project in the area is monitored by the Principle Investigator of the RRA. The RRA reports regularly to the Project monitoring Unit (PMU) which comes under the Department of Biotechnology (DBT) who funds the DNA clubs project throughout the country.



Organization of DNA Clubs of Andaman Islands

PROJECT AREA AND SCHOOL PROFILES

The Andaman and Nicobar Islands are by far one of the most richly diverse area in flora and fauna in the country with teeming wild life and striking landscapes. It is geographically isolated from mainland India and is situated at 6°45" to 13°42 North and between 92°12" and 93°57 East. It lies in the Bay of Bengal close to the Malay Peninsula and the Sumatra Islands of Indonesia. The Andaman Island is divided into mainly five groups: North Andaman, Middle Andaman, South Andaman, Little Andaman and Ritchie's Archipelago. The islands have been colonized by six indigenous communities such as Andamanese, Jarawas, Sentenalese, Onges, Nicobareese and Shompens, and by various settlers who came over there since the last one and a half century since the British period. DNA club schools were determined in the Andaman Islands on the basis demographic distribution. However, we could not establish DNA Club in Nicobar Islands because of logistic problem.

2.1. Selection of DNA club Schools

It was essential to take absolute care in identifying the first sets of Schools, who could be entrusted within the organization of "DNA clubs". The Schools selected were through "**Teachers Training and Orientation Programme**", which was conducted for two days. To participate in the "Teachers Training Programme" advertisements and letters to the principals of various schools were given, explaining the details of the course as well as the purpose of conducting the course. The schools were selected after an interaction among teachers and principals of schools and their interest to get involved in DNA club activities. This way, the DNA clubs activities were entrusted to enthusiastic teachers who were focal point in organizing and monitoring the programmes in their schools.

It should also be taken into account that a mix of schools is selected, representing different category of schools viz., Central schools, Government schools and private schools. Initially, five schools were selected and entrusted the responsibility of conducting "DNA clubs activities" followed by five more other schools later. The schools were carefully

selected and nominated so that they will be representatives for nature education activity in the future for other neighboring schools.

List and location of selected schools in Andaman & Nicobar Islands

1. Kendriya Vidyalaya No.2, Minnie Bay, Port Blair, SA
2. Vivekananda Kendra Vidyalaya, Lambaline, Port Blair, SA
3. Nirmala Sr. Sec. School, Haddo, Port Blair, SA
4. Kendriya Vidyalaya No.1, Aberdeen Bazaar, Port Blair, SA
5. Govt. Model. Sr. Sec. School, Aberdeen Bazaar, Port Blair, SA
6. Govt. Sr. Sec. School, Sabari Jn, Rangat, MA
7. ++Jawahar Navodaya Vidyalaya, Panchawati, Rangat, MA
8. Govt. Sr. Sec. School, Swadesh Nagar, MA
9. Govt. Model. Sr. Sec. School, Mayabunder, MA
10. Govt. Sr. Sec. School, Diglipur, NA

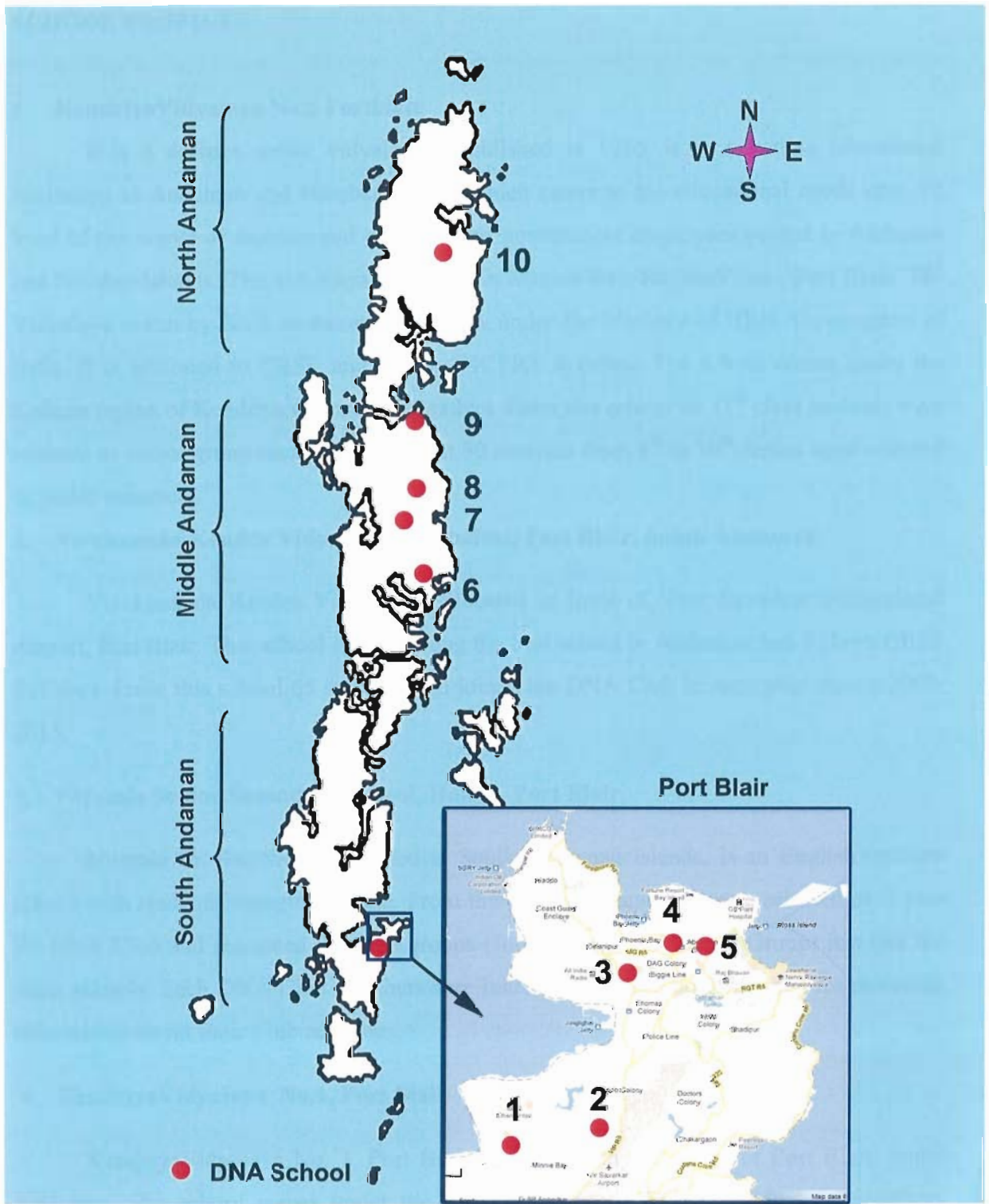


Fig1.Map showing the location of selected DNA Club schools in Andaman & Nicobar Islands

SCHOOL PROFILES

1. Kendriya Vidyalaya No.2 Port Blair

It is a defence sector vidyalaya, established in 1986, it is a leading educational institution in Andaman and Nicobar Islands which caters to the educational needs upto +2 level of the wards of defense and other central government employees posted in Andaman and Nicobar Islands. The vidyalaya is located in Minnie Bay, Raksha Vihar, Port Blair. The Vidyalaya is run by KVS an autonomous body under the Ministry of HRD, Government of India. It is affiliated to CBSE and follows NCERT syllabus. The school comes under the Kolkata region of Kendriya Vidyalaya Sangathan. From this school all 11th class students were selected as senior group members and about 30 students from 6th to 10th classes were selected as junior members.

2. Vivekananda Kendra Vidyalaya, Lambaline, Port Blair, South Andaman

Vivekananda Kendra Vidyalaya is located in front of Veer Savarkar International Airport, Port Blair. This school is one among the best school in Andaman and follows CBSE Syllabus. From this school 65 students had joined the DNA Club in each year during 2009-2013.

3. Nirmala Senior Secondary School, Haddo, Port Blair.

Nirmala Sr. Sec. School located at South Andaman Islands, is an English medium school with students strength of 1000. From this school 65 students were selected each year for DNA Club and separated into two groups (Junior group and Senior Group) just like the other schools. Each DNA Club members were issued with a note book and pen for recording information about their Club activities.

4. Kendriya Vidyalaya No.1, Port Blair

Kendriya Vidyalaya No. 1, Port Blair, is situated in the centre of Port Blair, South Andaman. The school comes under the Kolkata region of Kendriya Vidyalaya Sangathan, Ministry of Human Resource Development, and Government of India. DNA Club of Kendriya Vidyalaya No.1 has become a special non curricular club in the Vidyalaya under the guidance of DNA Club school coordinator M.T Raju (PGT) & Uma Sanker Yadav (TGT).

From this school 82 students have been a member in the club and they have shown great enthusiasm and eagerness to take part in all activities of the DNA Club. They have exhibited a positive difference in the way they observe, learn, investigate, analyse and think.

5. Government. Model Senior Secondary School, Port Blair

It is one of the big English medium schools in Andaman with high students' strength. Located at the centre of the Port Blair Town, South Andaman. From this school all 11th students were selected as senior group DNA Club members and junior group members were from 6th to 9th class.

6. Government Senior Secondary School, Sabari Junction, Rangat

Government Senior Secondary School, Sabari Junction, Rangat, is an English medium school, science stream located in South part of Middle Andaman, 3 km away from the Rangat Bazar. With students strength of around 500 in all, it starts from VI class and each class except XII class have two sections. This is one of the most prestigious school in the Middle Andaman zone. From this school total 75 students were selected for the DNA Club each year.

7. JawaharNavodayaVidyalaya, Panchawati, Rangat, Middle Andaman

JNV Andaman is situated in a scenic valley near the sea shore, about 17 km from Rangat in M. Andaman and about 200 km from port Blair. This school was founded in 1987 in Chouldari, near port Blair but later in 1990 it was shifted to the present venue. It is a residential school with about 500 students and 30 plus teachers. The school has classes from VI to XII.

8. Government Senior Secondary School, Swadesh Nagar

This school is located within 5 acres of calm and lush green campus. Rich in biodiversity of the Middle Andaman Islands. The medium of instructions in the school is in Hindi, English and Bengali and is also affiliated to CBSE. This one of the oldest schools with 709 students studying from 5th to 12th and around 40 teachers.

9. **Government Model Senior Secondary School, Mayabunder**

Govt. Model Senior Secondary School, Mayabunder located at Pokadera village of Middle Andaman. The school is situated on a hill top surrounded by trees. The school has strength of about 1000 students studying, it comprises of different types of medium such as English, Hindi, Tamil and Telugu. Students were selected for DNA Club activities and their school coordinators Mrs.Beena Daniel and Mr.Om.Prakash assist in student's scientific activities.

10. **Government Senior Secondary School, Diglipur.**

Govt. Senior Secondary School, Diglipur, is situated in the centre of Diglipur town in North Andaman, and 24 km away from the Saddle Peak National Park. Around 1200 students study in four medium such as English, Hindi, Tamil and Bangali. A total of 55 students were selected on the basis of their interest for the DNA Club. All senior and junior DNA Club members were enthusiastic and had keen interest to take part in all activities of the DNA Club.



Infrastructures provided by SACON for the DNA Club Activities



DNA CLUB ACTIVITIES IN ANDAMAN & NICOBAR ISLANDS

Since the inception of the project the DNA club has conducted various programmes and activities. The activities have inspired so many kids that many schools still continue to conduct them even after the completion of project. The activities conducted by the DNA club over the years are summarized below.

The students of the DNA club were divided into two categories; Group one comprised of junior students from classes six to eight and Group two comprised senior students in classes nine and 11. Every year there has been new batches of students who get to learn and involve themselves in DNA club activities. The DNA club student's activities were monitored by the DNA club school coordinator and the Regional resource agency (RRA) representative.

Every student of the DNA Club had been issued a note book and pen to record their every day experiences and information gained through the DNA Club activities, this was monitored by the DNA club school coordinator and RRA representative. Most of the activities were conducted in groups; there were other activities such as competitions and public rallies where non DNA club members participated as well. Each DNA Club partner school conducted activities depending on their school schedule and the programme being monitored by the School coordinating teacher. All the schools were given essential equipments necessary for the club activities. Equipments such as computer, printer, binocular, field guides, laboratory instruments such as hygrometer, haematometer, digital balance were given in the period (see Annexure II)

There have been numerous other activities apart from the scheduled DNA club programme like School level exhibition, continuous campus monitoring, daily whether monitoring, DNA Club garden preparation and maintenance, Compost pit preparation and maintenance, project works, Herbarium preparation, School level competition, etc. The highest number of programmes were conducted in the academic year 2010-2011 (240 programmes) followed by 2011-2012 (200 programmes) and 2009-2010 academic years (100 programmes) (see Fig.2 & Annexure I)

DNA Club programme in Andaman & Nicobar started at December 2007 with five schools and by December, 2009 the second session of the programme there were five more schools in the programme. In first academic year of the DNA Club (2009-2010) and last year (2012-2013) lowest number of activities was conducted in the DNA Club partner Schools. Some school like Vivekananda Kendra Vidyalaya, Nirmala Sr. Sec. School did not limit the number of activities to the mentioned numbers under lectures, Audio visual, Field/institutional visits and hands on activities. But they have been conducting long term continuous monitoring programme and other activities were they have integrated DNA club activities as means to expand their teachers and students interests. Number of programmes in the different schools could not maintain specific number of activities and it has fluctuated and differs from school to school.

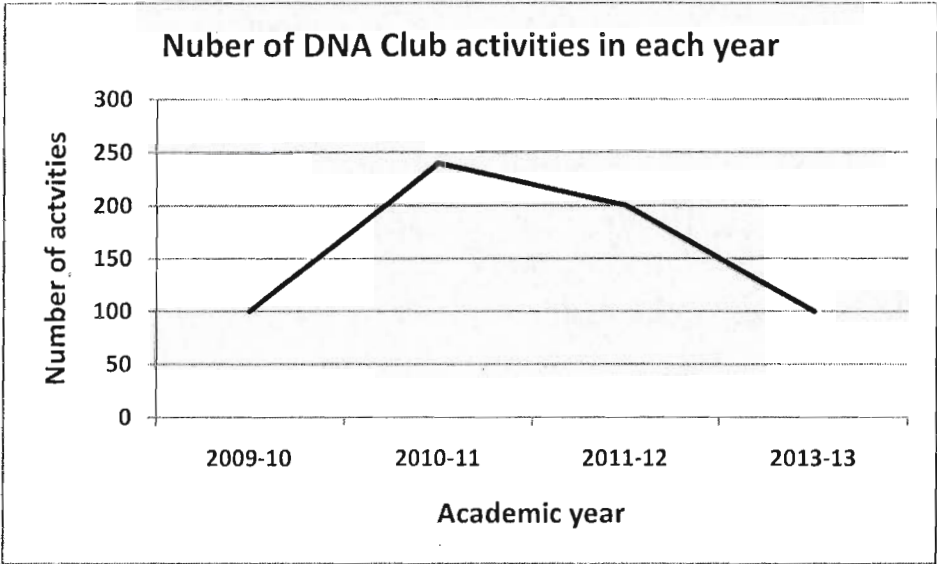


Fig 2. Number of DNA Club activities in each accademic year

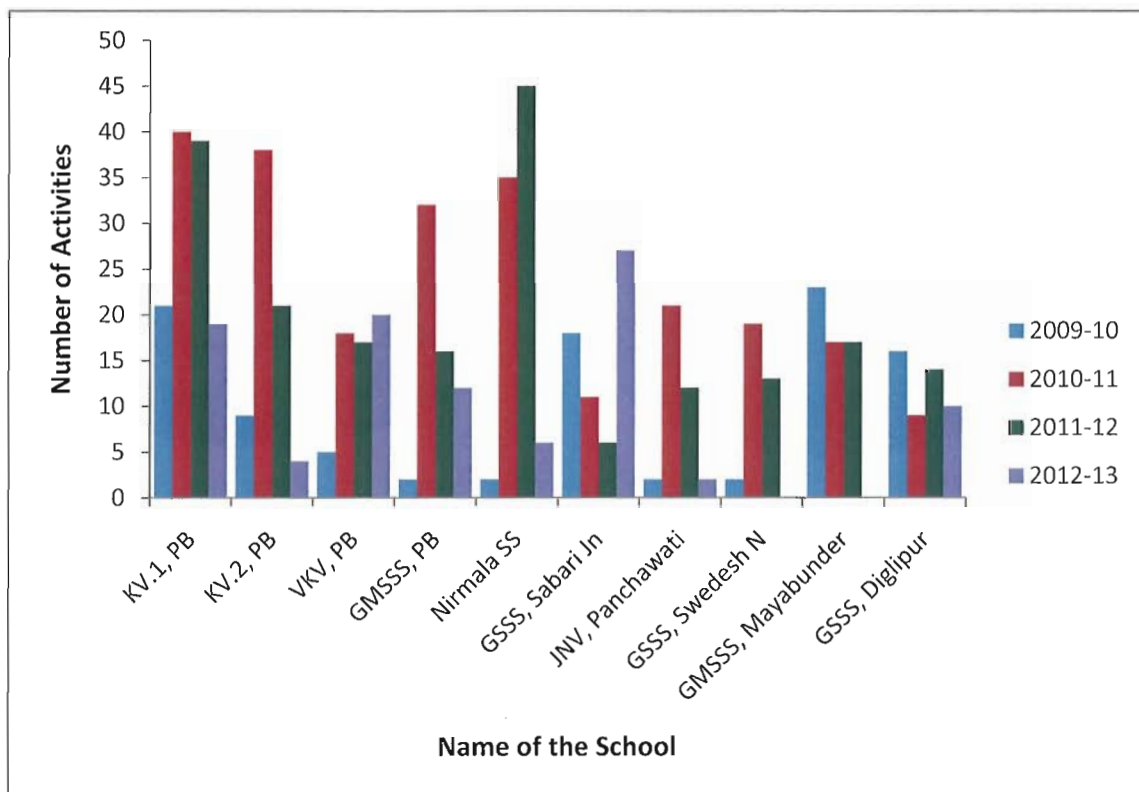
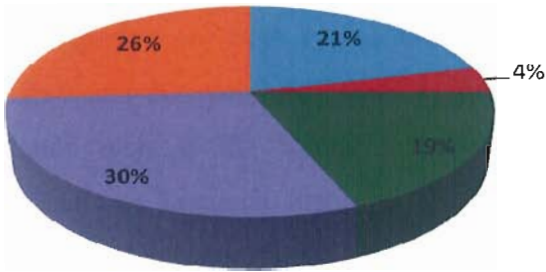


Fig 3. Showing the details of number of activities by each school in each academic year

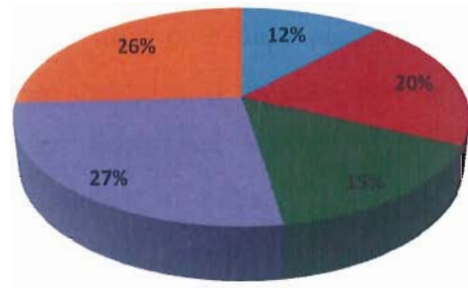
The DNA Club activities are classified and executed in the form of:

1. Invited lecture
2. Field /Institutional visits
3. Audio Visual Shows
4. Laboratory experiment
5. Other Programmes

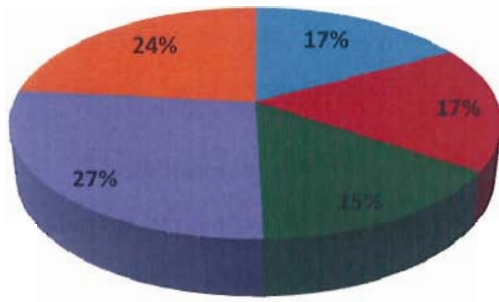
2009-10



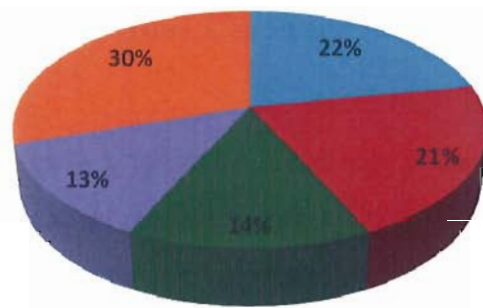
2010-2011



2011-2012



2012-2013



- Guest Lecture
- Field/Insti Visits
- AV Shows
- Lab Activities
- Other Activities

Fig 4. Showing the details of different accivities done from 2009-2013

1. INVITED LECTURES

Invited lectures were one of the main programme of DNA Club activities. Lectures were conducted in the school as well as in the field depending on the expert's availability. The experts were from varied disciplines and were from both the Andaman and Nicobar Islands and the mainland. Experts from different institutes of the Andaman and Nicobar Islands such as the Botanical Survey of India, Zoological Survey of India, Central Agricultural Research Institute, Anthropological Survey of India, Department of Health, Department of Forests and Wildlife, Indian Institute of Geomagnetism have shared their experiences to the students through these invited talks. Similarly from the mainland, experts from the institutes like Salim Ali Centre for Ornithology and Natural History (SACON) Coimbatore, University of Agricultural Sciences, Bangalore, Tamil Nadu Agricultural University, Coimbatore, Zoological Survey of India (Pune, Calicut and A&N Is), TOFARM Trichurapalli have given talks.

There have been 189 formal lectures (83 in VTP) delivered as part of the DNA Club activities in the Andaman islands by different invited resource persons. Of these, 106 lectures were delivered during school sessions and 83 lectures were delivered during Vocational Training Programme (VTP) (Fig.5). The lectures were on topics related to bioresources and biodiversity especially on the Andaman and Nicobar Biodiversity. These lectures were delivered with help of power point presentations. The sessions were for about an hour followed by discussions among the students and resource person. Maximum numbers of invited lectures were conducted during the academic year 2011-2012 with 34 numbers followed by followed by 29 in 2010-2011 academic year, 22 lectures in 2011-2012 academic year and 21 in 2011-2012 academic year (Fig.6). Some of the schools have been conducting more than the required number of lectures (more than seven) but few schools conducted below three lectures due to some technical difficulties in the school. (See Annexure IV, for the list of guest lectures)

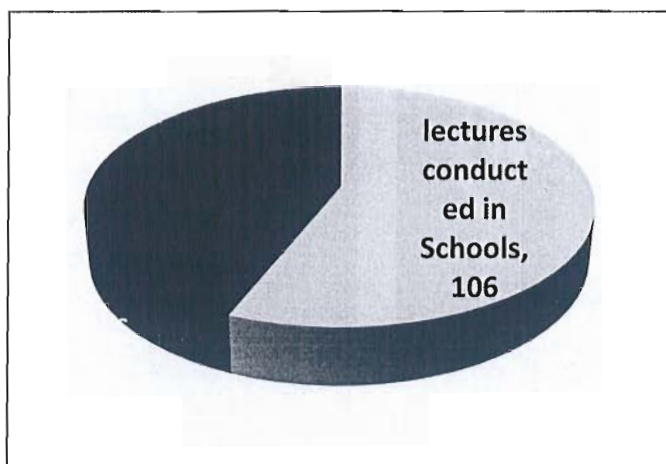


Fig. 5 Number of invited lectures conducted during the VTP anin the Schools

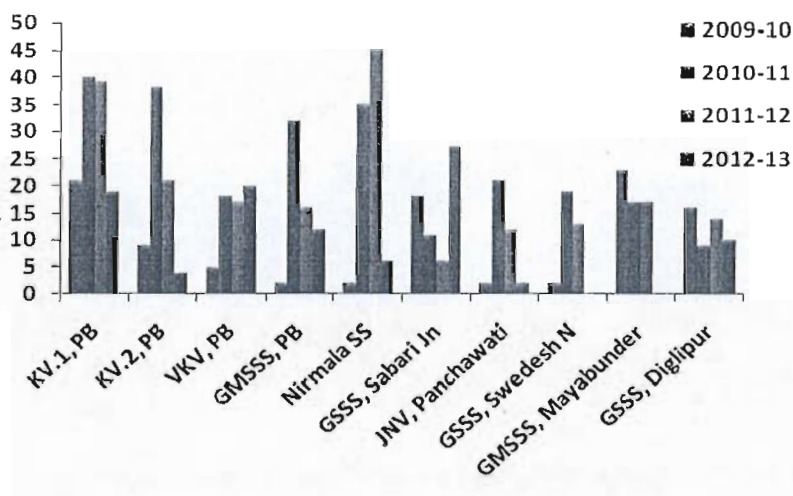


Fig 6. Details of number of invited lectures in each academic year of each school

Invited Lectures



Audio visual Shows



2. FIELD/INSTITUTIONAL VISITS

The field and institutional visits were the most sought out for and fascinating activity for the children. Schools of the DNA club, Andaman have conducted field trips for its members to nearby biodiversity rich areas, research institutes, museums and various other places, accompanied by scientists or RRA member as expert. Students these areas and institutions located nearby their schools. It has been one of the most interesting parts of the DNA Club activities and students become more keen and enthusiastic in observing their surroundings after the field trip. They gather information from the field with help of experts and they note down everything in their DNA Club notebook. Sometimes experts delivered lectures during field visits. The main activities performed during field visits were:

1. Bird Watching.
2. Butterfly watching.
3. Tree Identification.
4. Sea shore diversity study.
5. Identification of medicinal plants.
6. Identification of shells.
7. Interacting with local people regarding biodiversity information.

There are 128 field/Institutional visits (20 in VTP) conducted by the DNA Club schools. Of these, most of the visits were made to nearby biodiversity rich area such as such as national parks, biological parks, coastal areas, etc. Some of the areas visited by the schools are as

1. Biological park, Chidiyatapu
2. Mt. Harriet National Park,
3. Baratang Lime stone cave
4. Mud Volcano, Baratang
5. Central Agricultural Research Institute.

6. Zoological Survey of India
7. Botanical Survey of India
8. Anthropological survey of India
9. Science centre
10. Marine Museum
11. Kalpong, Hydro power plant, NA
12. Saddle Peak National park, NA
13. Multipurpose farm, Agricultural Department, Rangit, MA
14. Chitrakal farm, Agricultural department, Rangit, MA
15. Cutbert bay beach, MA

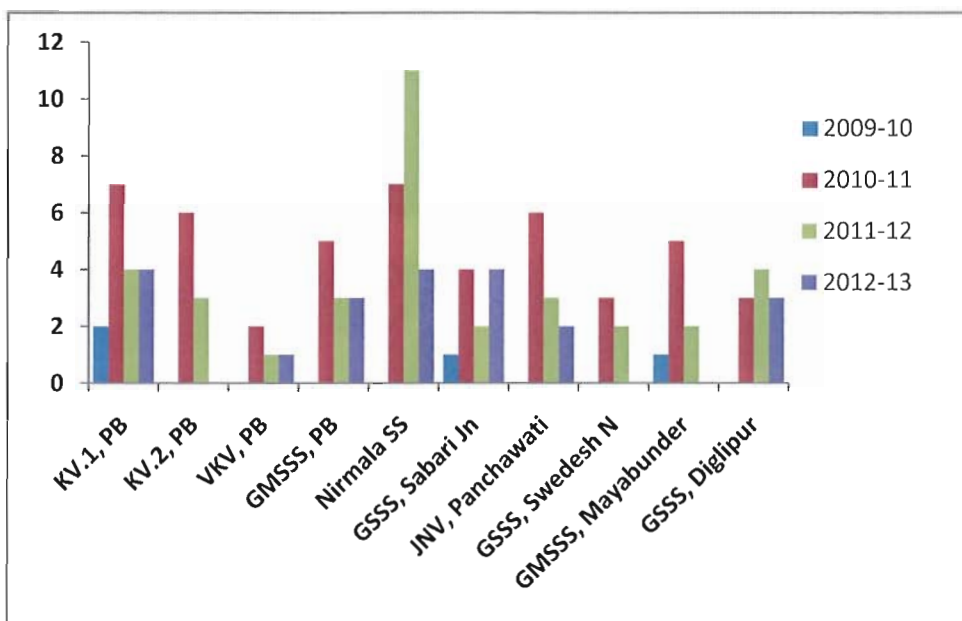


Fig 7. Details of the number of field trips conducted by each school in each academic year

Field/Institutional Visits



3. AUDIO VISUAL SHOWS

Documentary films were played in the Schools as well as in the Vacation Training Programmes (VTP) as part of DNA Club activities. The movies/documentaries were mainly related to the wildlife, biodiversity or environment. There are 150 audio visual screened (50 in VTP) during the DNA Club hours of the school. The audio visuals were showed after the invited talks or along the invited talks. The movies were played for a maximum of one hour, having in mind that it would improve their listening skills, observance and involvement of the students. The set of movies were shown to different class and different batches over the years. The following are the list of some movies screened during VTP camps and in Schools.

1. Home.
2. Ants.
3. Birds and their homes.
4. Lion Story.
5. King Cobra.
6. Cute bunny.
7. Life of Mammals-I.
8. Shadows.
9. Chasing Butterflies.
10. Life of Mammals-II.
11. Avtar.
12. Vanishing Vultures.
13. Brush with deaths.
14. Wild dog Dairies-1
15. Monsoon.
16. Point Calimere
17. Wild Asia
18. God pharmacy
19. Tribal of Andaman & Nicobar Islands

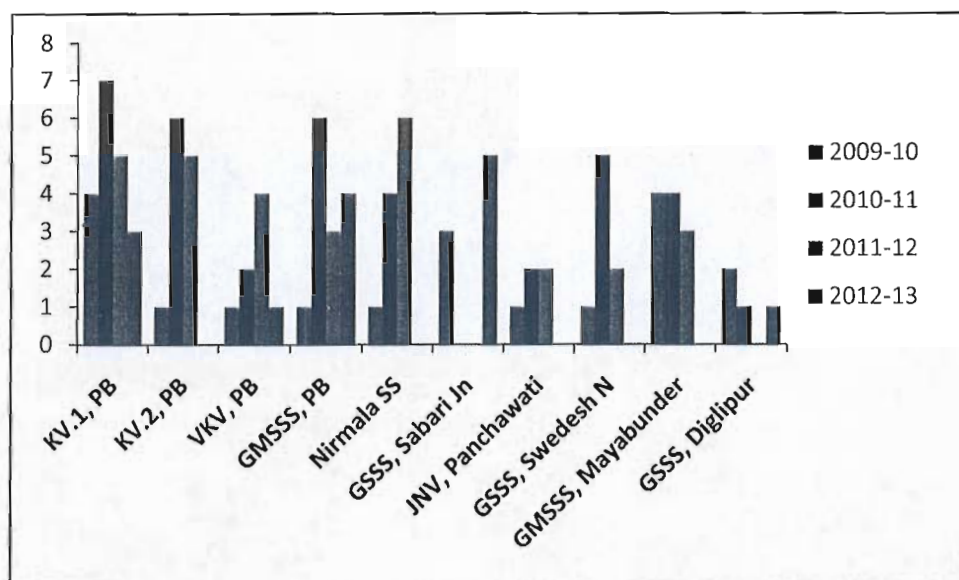


Fig8.Details of number of audio visual shows in each academic year of each school

4. PRACTICAL WORKS

Students have done very large number of simple experiments in the lab with the help of the equipments available in the lab. Some of the equipments were provided by SACON through this project such as Water testing kit, Haemetometer, Hygro-thermometer, Digital Weighing balance and Compound microscope. During the project nearly 206 hands on activities have been conducted in the schools (45 in VTP). Laboratory and practical work has given students hands on experience on some of the technologies and tools which can be used in observing and studying nature. Some of the practical work on which students worked have been given below. Many of the selected experiments were connected with local environmental issues.

1. Preparation and mounting of slides and histology of plant and animal cells
2. Studying osmosis
3. Monitoring weather
4. Salinity of soils, water holding capacity of soils, estimating pH of water and soil
5. Floral dissections, Herbarium preparation
6. Studying Sound and its reflections

Practical Works



Exhibitions



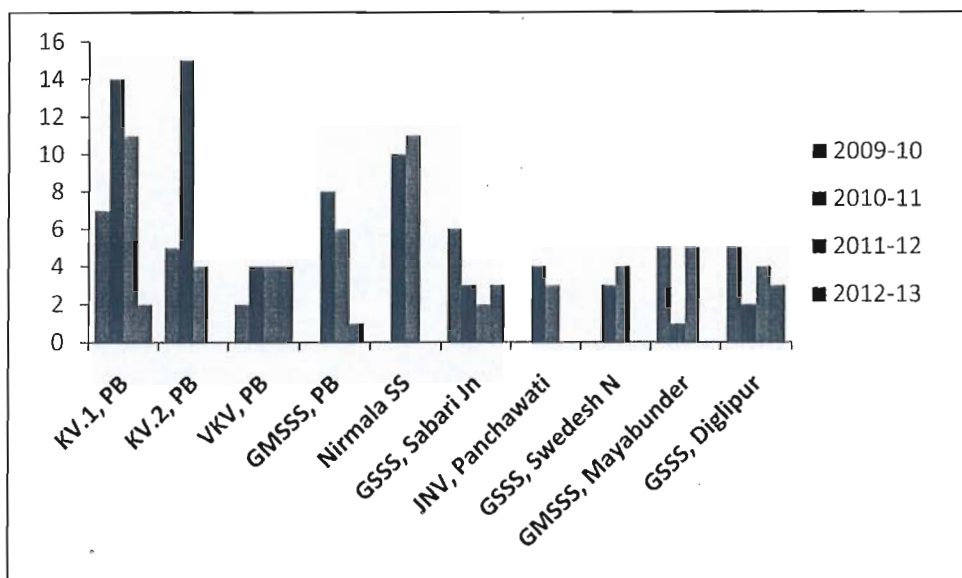


Fig 9.Details of number of practical works done in each academic year by each schools

5. OTHER ACTIVITIES

DNA club members have been involving themselves in numerous other activities like maintaining gardens, monitoring the weather, waste pit management, conducting exhibitions, participating in rallies and monthly DNA club meetings. Here is a description about the main different activities they have been conducting in their school premises and outside

5.1. DNA Garden

The DNA garden is maintained in such a way that the bushes were grown and pruned in the shape of the letters 'D N A'. This gives the students a sense of belongingness and collectiveness to work together and also to inspire their fellow school mates. The DNA garden was maintained separately from the School garden and was observed weekly to study the different organisms in the garden.

5.2. Campus Gardening

The DNA club members took the initiative of maintaining their school garden by planting, naming the trees, cleaning and watering the plants in their school in a weekly basis. The students also collected medicinal plants from outside the campus and planted it in the

school garden. The students monitored the garden and observed the butterflies and other insects in the garden and also the growth of the plants.

5.3. Weather monitoring

Each school was issued a hygro-thermometer. Students measured the temperature, rainfall and humidity in the air in a regular basis. This gave them the opportunity to handle tools which are used in monitoring meteorological observations and learn about climatic patterns.

5.4. Waste Pit Management

DNA club members collected waste from the school campus and segregate them into degradable and non-degradable waste. The biodegradable waste and non-biodegradable waste was dropped in different compost pits prepares by DNA club members. The compost from the biodegradable waste was later to be used as manure in the gardens of the schools.

5.5. Project works:

DNA Club members were divided into different groups on the basis of their class and selected a leader for each group. Each student group contained about five students and they selected their own projects. The coordinating teachers always assisted the students in work and guided them in their activities. Themes of the projects were mainly on biodiversity. The junior group of DNA Club members was engaged with some simple projects like individual bird observation, tree observation and they had selected basic data and noted in their DNA Club note book.

5.6 STATE LEVAL DNA CLUB FESTIVAL 2010-11

State Level DNA Club Festival of Andaman and Nicobar Islands was organized during 23rd to 24th November'2010 from 8.30am to 4.30pm in collaboration with Science and Technology, Andaman and Nicobar Administration. As part of the festival we had conducted nature competitions among the DNA Club members of Andaman Islands. Details of competitions are as given below,

1. **The Great Debate:** For this competition (Only Hindi/English) 2 entries per school were divided between “for” and “against” the motion, with at least one entry on each side. The topic of the debate was on “Impacts of Tourism on Andaman and Nicobar Islands”
 2. **Theme Based Scientific Model** (Dynamic/Static) Competition was on a prescribed theme. 2 entries per school were allowed, in which each entry represented by one student and a model.
 3. **Theme Based Poster Competition** 2 entries per school were allowed and each entry was represented by one student. Posters were to be home drawn (those prepared using computers were also fine). **Theme for poster competition had to be directly related to bioresources.** Based on this competition, the winners were selected for the national event, for which they were given the liberty to either prepare a new poster for the national event or submit what they prepared for the state level competition.”
 4. **Scientific Quiz Competition** With 2 entries per school. Each team comprised of two students. Quiz was conducted and designed by the experts. Theme for Quiz competition was directly related to bioresources of India and A&N Islands.
 5. **Painting competition** – 2 entries per school. Theme for the painting competition was Forests of Andaman
 6. **Elocution** (Only Hindi /English) 2 entries per school. Topic- Endemism in A&N Is
 7. **School level exhibition** – Each school had to exhibit collections and activities related to DNA Club in the school.
 8. Prizes were distributed for the winners during the valedictory function. The names of the winners and competition details are given in Annexure VI. In this state level competition about 100 students and 20 teachers from 10 schools from different Islands participated.
- The Best DNA Club Partner School on the basis of activities 2010 was awarded to **Govt. Model. Sr. Sec. School, Mayabunder, Middle Andaman**
 - The Best DNA Club school in Exhibition was awarded to **Nirmala Sr. Sec. School, Port Blair, South Andaman**

DNA Festival 23rd and 24th November' 2010, Port Blair, Andaman and Nicobar Islands



Inauguration by Dr. S. Senthil Kumar, IFS, Director, Dept: of Science & Tech, Andaman



Debate Preliminary round



Painting Competition



Guest Lecture By Dr. S. Senthil Kumar



Exhibition

DNA Festival 23rd and 24th November' 2010, Port Blair, Andaman and Nicobar Islands



Scientific Model Presentation



Valedictory session



Valedictory session



Valedictory session



Prize Distribution



Prize Distribution



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- The Best DNA Club school in overall performance in DNA Club festival 2010-11 was awarded to **Vivekananda Kendra Vidyalaya, Lambaline, Port Blair, South Andaman**

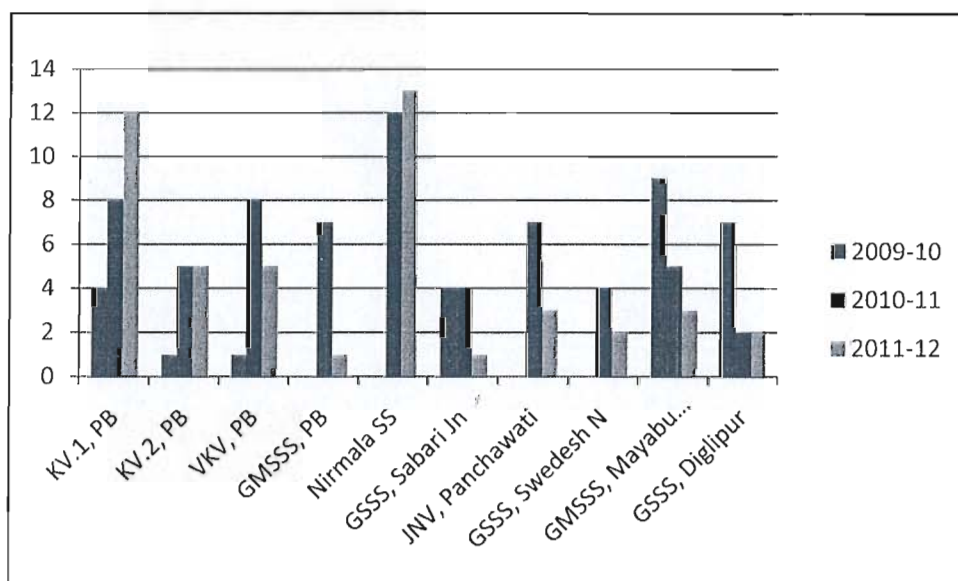


Fig 10. Details of number of other activities done in each academic year by each school

5.7.EXHIBITIONS

Students engaged themselves in making science models for school exhibitions. The models were made as part of the DNA club activities. Shell collections, Herbariums prepared, volcanic models, models made from waste materials, etc were displayed in the school level exhibition.

5.8.PUBLIC RALLIES

DNA club conducted Public rallies in collaboration with other environmental groups like CPREE on important days representing environmental awareness. These rallies were guided by school principals and coordinating teachers.

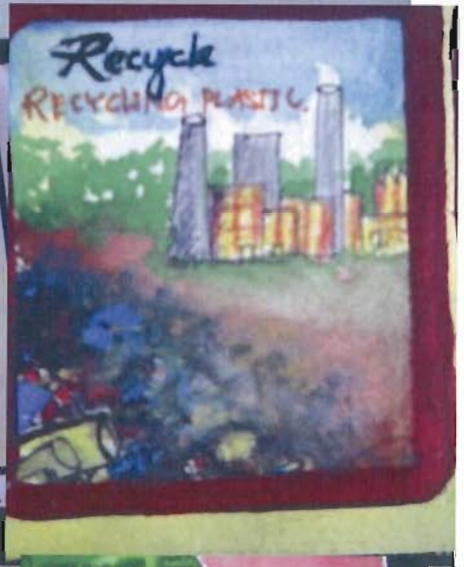
Campus activities



PRIZE DISTRIBUTIONS



Posters done by DNA Club members



VACATIONAL TRAINING PROGRAMMES

INTRODUCTION

In the years 2008, 2010 and 2011, SACON conducted Vacation Training Programme (VTP) for the selected students from the DNA Club partner schools in Andaman & Nicobar Islands. This Training Course was aimed at students of DNA club member schools who had appeared for their Class X examination and were waiting for their results. The residential programme was conducted at Krishi Vigyan Kendra (KVK), Sippighat, Port Blair. Duration of the VTP programme was about 25 days. During the VTP programmes the students were exposed to various activities such as bird watching and early morning nature walks, field trips to different national parks and sites of importance, talks by experts and projects. This indeed has given students on field experience and triggered great enthusiasm towards science and nature.

The prime objectives of the vacation training programme was

- To promote interest and knowledge about the natural resources and the environment among the emerging generation.
- To foster concern to protect the bioresources and natural heritage
- To increase awareness of the economic, cultural, scientific and aesthetic values of fauna and flora.
- To provide opportunities to acquire attitudes, values and skills needed to protect and improve the natural environment.
- To make aware the impact that emerging technologies (including biotechnology) have on maintenance and enhancement of Bioresources.

Selection of students

The Training course was aimed at students of DNA club partner schools who had appeared for their class ten examinations and were waiting for their results. We asked the school principals and DNA club co-ordinators to select a maximum of three students from each DNA Clubs partner schools in Andaman Islands through a rigorous process of selection. Though 30 students were selected from ten schools across the Andaman Islands due to many unavoidable and technical reasons only few students (22 in 2010 and 2011) could take part in the Vacation Training Programme (See Annexure V). During the stay, all participants stayed together in camp site along with the course director and other staff from RRA - SACON, Coimbatore.

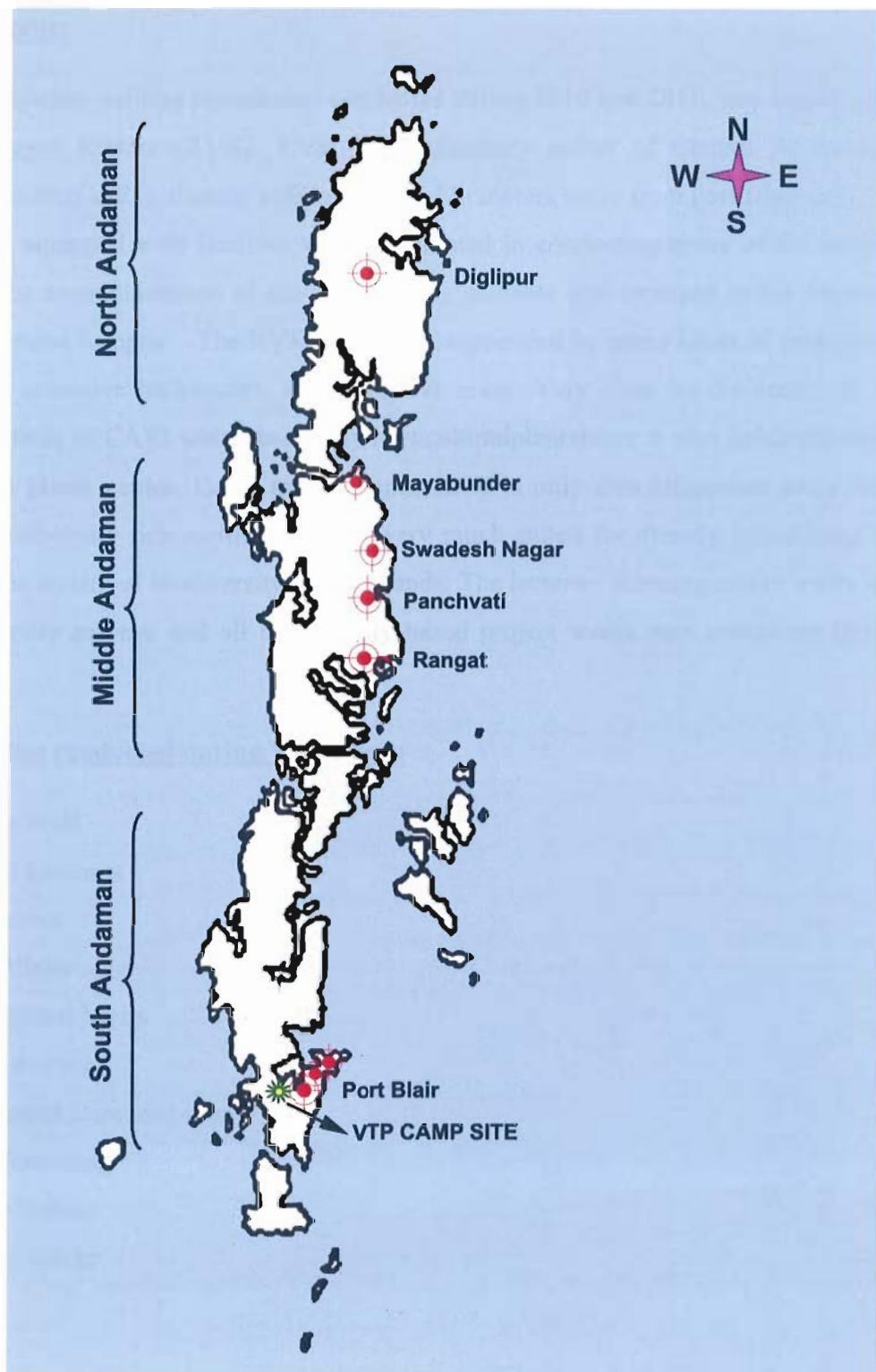


Fig 11. Map of Andaman Islands showing the VTP Camp site and Position of DNA Club partner schools

About the Venue:

The vacation training programme conducted during 2010 and 2011, was organised at the KrishiVigyan Kendra (KVK). KVK is a subsidiary centre of Central Agricultural Research Institute (CARI), situated at Sippighat, 13 kilometers away from Port Blair city. The centre is well equipped with facilities which facilitated in conducting many of the lectures and talks. The accommodation of the participating students was arranged in the Farmer's Hostel of the same campus. The KVK campus is surrounded by many kinds of ecosystems including the extensive backwaters, and mangrove areas. Very close by the centre, is the Horticultural farm of CARI which has many horticultural plantations; it also holds the world coconut germ plasm centre. CARI main campus itself is only five kilometres away from KVK. This biodiversity rich surrounding was very much suited for directly introducing the participants the wealth of biodiversity of the Islands. The lectures, morning nature walks and night biodiversity surveys and all biodiversity based project works was conducted in this area.

Major activities conducted during VTP Camp

1. Nature Walk
2. Invited Lectures
3. Interaction
4. Field Visits
5. Institutional Visits
6. Competitions
7. Equipment Demonstration
8. Film Screening
9. Group Debate
10. Project Works

DAILY ACTIVITIES IN VTP CAMP

1. NATURE WALK

The Nature walk was from 5.00am to 8.00am every day. In the early part of the VTP camp days, all students were guided to identify birds, butterflies, insects, trees and plants, with the help of a resource person. This activity, helped give outdoor exposure to the children on the environment outside. Binoculars, Bird and butterfly field guides were given to the students which they used for identification later on. During the early walk students observed different birds, butterflies, insects, morphology of the tree barks and flowers. The data was collected through direct observations. Most of data collected during the Nature walk was for the project works assigned to them. The data collected by the individuals for their personal projects were combined as per the major themes of the houses and a report was submitted as a team in the name of the house by the end of the camp.

2. INVITED LECTURES

The most informative part of the programme was the lectures given by the experts. The experts were from different institutes from both the Andaman Islands and the mainland. There were about 83 formal lectures during the camp and were delivered on different days of the vacation training by different resource persons invited. The lectures were on topics related to Bioresources and Biodiversity focusing on the Andaman and Nicobar Islands. These lectures were delivered with help of power point presentations. The sessions were for one hour followed by discussion on the relevant topics for another one hour. During the discussion the students clarified their doubts related to the subject of the presented lecture. The students were enriched with the lectures on different aspects of science.

3. INTERACTIONS WITH EXPERTS

Interaction was the interesting programme of the VTP camps. All camp members got chance to interact with many experts from different field. Students were asked about their ideas about biodiversity and cleared their questions. Many eminent researchers and scientists from different institutions such as Botanical Survey of India, Zoological survey of India, Agricultural research Institute, Science and Technology, Forest department, Salim Ali Centre

for Ornithology and Natural History, etc. Some of the scientists invited from mainland India and they have stayed in campsite itself.

4. FIELD VISITS

Fields visits were the most sought after and exciting activity for the children in this activity the children thoroughly enjoyed themselves and gave them a great opportunity to see and learn many things first hand. Experts accompanied the students during the visits by which they could respond to the children's queries and questions. Their personal and group Project data's were also collected during the visit. Each visit made to students learns a lot of new things and the involvement of the students in learning things directly from nature was remarkable.

20. COMPETITIONS

The competitions like poster making, quiz, treasure hunts and debate were held in different days during the programme. Debates on ecological issues such as the 'Andaman trunk road' and 'forest fires' were given to students for them to get a better understanding of the issue, similarly the quizzes and treasure hunts were most enjoyed by the students.

7. EQUIPMENT DEMONSTRATION

There were demonstrations of the use of many different types of scientific equipments such as GPS, Spotting Scope, Compass, Hygro-Thermometer, altimeter etc. After the demonstrations these equipments were given to students for their activities, all participants learned the procedure and uses of these of these equipments and also the do the following using them.

1. Root marking and positioning with help of GPS
2. Tree height measurement by the use of Compass
3. Behavioural observations of birds with help of spotting scope
4. Daily temperature and humidity reading by the use of digital hygro-therometre
5. Altitude measurement by the help of Altimeter
6. Butterfly spreading methods with help of spreading board and other materials
7. Insect observation with help of lens

8. FILM SCREENING

The Documentary films were played during the evening hours 7.00 PM-8.00 PM on all days. The movies were mainly related to the wildlife, biodiversity or environment. The movies were played for 45 min and the questions were asked to the students to enrich them with knowledge. This improved their listening skills, observance and the involvement of the students.

9. PROJECT WORKS

All participants were divided into four groups in the first day of their camp and the topics for their projects were also assigned to them. The experts assisted the students in collecting the data, the method and identification of the species. The report were presented by collecting the data from various areas of their visit in Andaman such . The major part of data collection was done during the morning nature walks and also during the evening hours.

VACATION TRAINING PROGRAMME 2008

The DNA Clubs of Andaman and Nicobar Islands conducted Vacation Training Programme between 24th may'08 and 12th June'08 at Krishi Vigyan Kendra (KVK), Sippighat, CARI, Port Blair. Selected 20 school students of Andaman Islands (who are waiting for 10th exam result) were attended. The division of Nature education of SACON organized this programme. One of the major objectives of the programme is to inculcate the awareness about nature and the natural resources to the students, it has given us an opportunity to work with a selected set of students in a comprehensive way. Fortunately, we have received the DBT grant and we could complete the programme with considerable success. This vacation training programme has planned as a complete residential camp from where the students will return home only after the completion. All of them stayed in KVK for 20 days along with the Principal Coordinator of the DNA Clubs, Andaman, scientists and RRA represents from SACON during the whole camp.

During these days participants have listened to nearly 45 lectures regarding different topics delivered by 27 resource persons especially scientist, they are coming from the various institute. The field visits were conducted to scientific museum in Port Blair, Scientific Institute and biodiversity rich areas in Andaman Islands to learn and experience the diversity of bioresources accompanied field taxonomists and ecologists. Late in the evenings, they have seen movies on Bioresources and ecology, had discussions with research scholars and scientists.

The Process of selection

Full details about the course were publicized through daily Telegram news paper and also announced through Radio channel of Andaman and Nicobar Islands By the cut off date, with this publicity we have received 52 applications. Along with the application, we have asked to submit write-ups by the student, regarding why the student is interested in this course. The received applications were evaluated short listed and finalized by the Principal Coordinator of the DNA Clubs Andaman and RRA represent of SACON. First priority was

given to the student's interest, (based on their write up about their interest), The medium of instruction of the student was not taken as a constraint for the selection.

Programme schedule

The programme started on evening of 24th May'08 with a simple inaugural session and started running through a tightly packed schedule in the 20 days time.

Inaugural session

The programme was inaugurated with simple function on 24th may evening at 2.00pm by Dr. R. C. Srivastava, Director of Central Agricultural Research Institute (CARI) as the Chief guest, and presided over by Shri. CVC. Pandian IFS, Director of Department of Science and Technology, Andaman and Nicobar Islands. Along with the some scientists from the Port Blair, Participating students and some parents also attended the function. Dr.Pramod, the Course Director gave the welcome address and he explained the broad objectives and the schedule of the programme. Shri. CVC. Pandian has given a thought provoking and interesting address, highlighting the importance of Biodiversity and Bioresources in the school students. Dr. R. C. Srivastava has enhanced students thought and importance of scientific observations in the students.

Prayer

The prayer was neither religious nor secular in the meaning these terms are used recently. At 5.00 a.m. all the participants and volunteers along with the course director sat in silence. The 15 minutes prayer/meditation was for the well being of all and trained the participants to absorb the serenity of the atmosphere, coolness of the morning air, depth and breadth of the sky and the compassion of the earth.

Daily Nature Watch

Immediately after the prayer and the morning tea, the daily morning nature walk with duration of one hour proceeded along with experts. In the nature walk, the birds, butterflies, the flowering plants, Mangroves, dragonflies and the specific insects etc., were identified to the species. They have seen the strategies of organisms those are living together in Nature. These all observations observed carefully and experts clarified their doubts.



Lectures

Thirty seven lectures were given by twenty seven scientists from different Institute in Port Blair and main land India regarding bioresource and ecology. Along with the Course director and RRA represents from SACON three Scientist and two researcher came and stayed along with them overnight during different time period to spend more time with them and also to lead them in the field demonstrations during the nature watch sessions in morning hours.

Interactive sessions

In the evening session, about an hour before the dinner, in most of the days kept aside for chat or otherwise called interactive sessions with course director and other RRA person and available scientists. This is the time students have brought their doubts on anything that troubling them on that day. Students would discuss about their activities and submit daily report. After interactive session movie has been documented.

Laboratory demonstration sessions

Biotechnology lab of CARI, Port Blair, Plant Breeding Nursery at*** (near BSI Garden) are the laboratories visited during the course. They had many discussions with the scientists' incharge of the labs regarding the laboratory procedures, demonstration of equipments and objectives of their studies in the lab. Last week of course, one "Blood Group Detection Camp" also conducted for students. Technician has demonstrated the procedure of Blood group detection and haemoglobin content determination.

World Environmental day Celebration.

During the Vacap5tion Training Programme, World Environmental day Celebrated in Association with Botanical survey of India, Port Blair. After Inaugurating the programme, Dr. C. Murugan, Scientist of BSI stressed the importance of the conservation of bioresources in the present age of high risk of environment degradation. Other experts who spoke on the occasion, included Dr. P. Pramod(VTP Course director), Dr. K. P. Rajesh of BSI and Dr. K. A. Subramanian (Scientists, ZSI, Pune). The students were then guided to the inner part of the Botanical Garden by the experts of BSI, which enable them to have a close look at the Plant wealth of the Islands conserved in a systematic way. Shri. CVC. Pandian, Director of

Science and Technology, Port Blair, Dr. P. Pramod(VTP Course director) and Dr. K. A. Subramanian (Scientists, ZSI, Pune) planted a seedling of Kona or Cowa a rare and endangered tree of Andaman Islands , in the presents of participants.

VACATIONAL TRAINING PROGRAMME 2010

Inaugural session

All the participants reached the KVK campus on evening of 19th May 2010. There was an ice breaking session in the evening with project director Dr.Pramod, and research scholars and project staff of SACON. For many of the participants from the north and middle Andaman., it was their first visit to Port Blair.

On 20th morning, Shri S.S. Choudhury, the Principal Chief Conservator of Forest, A&N Islands inaugurated the Vacation training programme on Bioresources for school Children 2010, Inaugural session was presided over by Dr. R.C. Srivastava, the Director of CARI and Dr. P.A Azzez, Director of SACON, gave the Keynote address. Mr.Senthil Kumar Director of Department of Science and Technology, A&N Administration felicitates the programme and the participants. Dr. P. Pramod (SACON), Course director of the programme welcomed the gathering and gave the brief introduction of the programme. Many scientists from organizational partners who helped Salim Ali Centre for Ornithology and Natural History (SACON), such as DST, CARI, BSI, ZSI etc., attended the inaugural session.

Daily activities of VTP Camp'2010

Every day the activities started with a five minute silent prayer followed by a nature walk with an expert from 5.00 to 7.30 am, which introduced the participants to the world of birds, butterflies, insects, plants and with a major emphasis on trees. In the trips, they collected the field level information through the systematic observation which helped for their personal project works. Next session would start from 9.00am to 1.00pm with a 15 minutes tea break. Again same activities will continue till the afternoon session starts from 2.00pm till 4.30pm. This session includes Guest lectures on various topics, interactive session with experts, hands on activities and Competitions.

Evening session would start from 6.30 pm with interactions with camp organizers, all participants were asked to prepare a note on their reflections or opinion on each of the lecture and field session, which they prepared and submitted on the same day. Moreover all participants were asked to maintain a diary, detailing all the events along with their opinion.

An award for the best diary writer was announced at the beginning, which made them enthusiastically maintain writing in their diaries. After the interaction wildlife movies were screened to the participants.

Activities conducted during VTP Camp'10

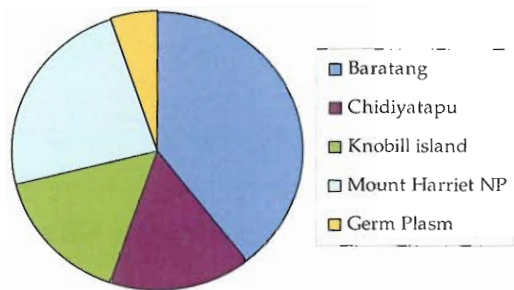
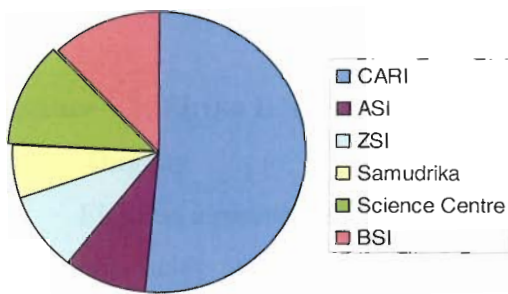
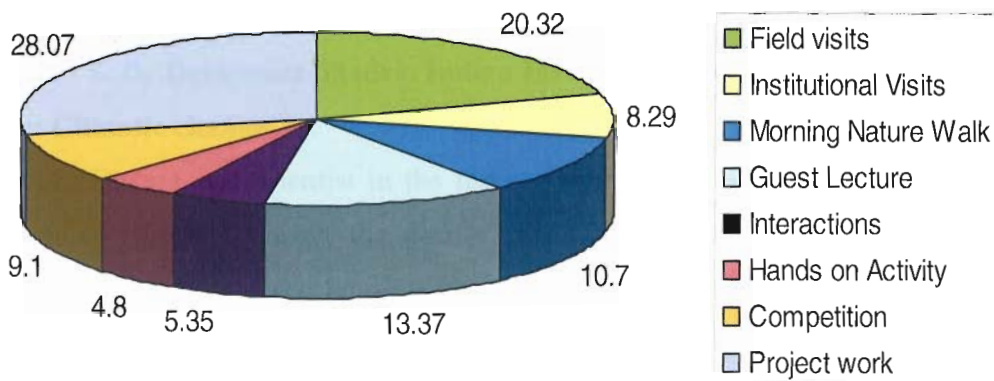
The team was divided into four houses and each was given a name, one of the four major basic elements of nature as Earth, Water, Air and Fire. This division and the naming were emerged naturally from the participants as part of and end of the first day's ice breaking session. Each house took different sub themes for their project to be conducted through out the programme.

Every day the activities started with a nature walk along with the experts from 5.00 to 8.00 a.m. which introduced the participants the world of birds, butterflies, other insects, plants with major emphasis on trees and so on. Each day, they learned many things with various experts during this early morning field sessions. In the trips they have collected the field level information through the systematic observation for their personal project works. This data they have pooled together in to four major subjects such as plants, birds, insects and agriculture.

Students were asked to meticulously record all the events on the diary with their opinion. The award for the best diary made them to maintain and keep track of their diaries enthusiastically

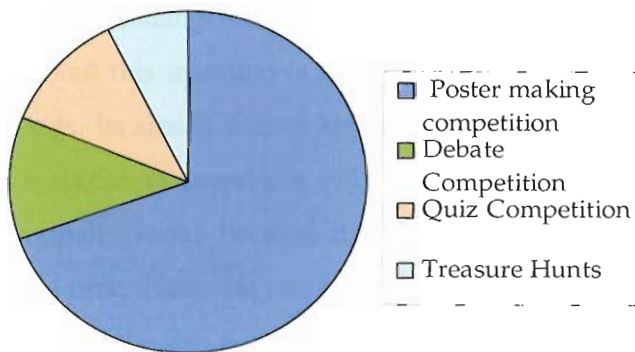
Following is the list of all the major activities conducted during VTP Camp.

1. Nature Walk
2. Invited Lectures
3. Interaction
4. Field Visits
5. Institutional Visits
6. Competitions
7. Equipment Demonstration
8. Film Screening
9. Project Works



Institutional visits

Competitions



Percentage of time spend for activities in Vacation Training Programme'2010,A&N Islands

Details about lectures (most of the write ups direct or modified versions taken from the diaries of the participants)

Lecture - 1: Dr.DebkumarBhadra, Indian Institute of Geomagnetism

Topic: Climatic change

Dr.Bhadra is a scientist in the Indian Institute of Geomagnetism. He explained the problem of climatic change, the details like solar radiation, earth tilt, continental drift, volcanic eruption and green house effect and many. He also narrated the health impacts of the climatic change, and other impacts such as effect of climatic change on water pollution, the movement of plants and animals towards the hills and cooler areas and so on. He concluded saying that planting trees is one of the best ways to regulate these changes and it is the individual responsibility to do so.

Lecture – 2: Elrika D’souza, NCF, Mysore

Topic: Dugong

Elrika is a research scholar working in the life and ecology of Dugong for many years and works with Nature Conservation Foundation, Mysore. Elrika gave her lecture on Dugong, its habitats, feeding habits and many other different factors necessary for Dugong. Dugong has now become the endangered species because of poaching. There are a lot of interesting information about this mammal is given to them such as, it is a mammal who always lives with their kids. Its size is almost 3m and weight about 400kg. It can live up to 70 years of age. It is vegetarian mammal eats only grasses. It pulls the grass along with the roots and eats only the small grasses because it is easy to eat and easily digested. It eats almost 30kgs of grass at a time. It can stay in 15m of deep water, etc. Children enjoyed the lecture and rated this as one of the first best ten lectures.

Lecture - 3: Vardhan Patankar, NCF, Mysore

Topic: Corals and Coral associated Organisms.

Mr.Vardhan also is a senior research scholar and is working in corals with Nature Conservation Foundation. Vardhan gave his lecture on the life of coral reef system. He showed various under water photographs on corals. The most interesting part of this lecture was the underwater photography on the coral reefs which gave a broad picture and feel of

the ecosystem to the students. He also showed cameras which are used to take underwater photographs and gave an explanation the tricks and techniques of scuba diving.

Lecture – 4: Dr. Jomy Augustine, St. Thomas College, Pala

Topic: Vegetation of Andaman

This is one of the realistic talks which thrilled the listener's hearts. It was not teaching, it was learning of nature, it is all about how the nature is and how it speaks with us. This was like a movie were it started off with various terms like "I" and "We" it went on with the beauty of nature especially forests, how the flower speaks, how the forests work as a system and so on. As his words came from his heart and it really gave a feel about vegetation of A&N Islands and made them admire. It also reminded students their role in protecting the nature particularly the forests. He introduced the students wonders of floral wealth of A & N Islands through his lecture.

Lecture – 5: L.B. Singh, KVK CARI

Topic: Common Medicinal Plants in our Surroundings

The Lecture started on with Horticultural crops such as fruits, vegetables, flowers, plantations spices, tuber crops, medicinal and aromatic crops. He explained the classification of the vegetables like Solanaceous, Cucurbitaceous, Cucifereous, and Leguminous, and flowers as loose flower like Marigold etc., and the Cut Flower like Orchids. Major part of the talk concentrated on the medicinal plants found in Andaman like black pepper, clove, nutmeg and cinnamon, plantation crops like coconut and rubber, tuber crops that is Elephant foot yam, sweet potato, Alscassia and tapioca.

Lecture – 6: Dr. T.V.R.S. Sharma, SANE

Topic: Flora and Fauna of Andaman Islands.

Dr. Sharma in his lecture touched many aspects of the ecology of A&N Islands. He spoke on the flora and fauna of the Islands, their usefulness, their conservation importance. He explained the students many details about A & N Islands. He told them about the 572 Islands present in the Andaman and Nicobar Islands. Almost 80% of these islands are covered with forests mostly tropical rain forests. He also explained about various plants species in these Islands which are very precious. He introduced to them the concept of

carrying capacity. He also told that there is very close relation between the plants, animals, birds and Insects and all the things in the ecosystem. His narration had a series of examples from the biodiversity of A&N islands. He told the children many associated stories from his observations, like when ants carry soil and keep it at the top of the leaves, then leaves releases some water like substances like juice that is used by ants for their survival. He also spoke about MangiferaGriffiti a wild rare variety of Mango in the Islands and he spoke about the Birds present in these Islands and so on.

Lecture – 7: Ajay Saxena, IFS, ANFD

Topic: Coral reefs of A&N Islands

This lecture was also covered many concepts and themes for children. He spoke on the geographical variation of the A&N Islands, the flora, fauna and the carrying capacity of the Islands etc. Each and every Island has its own beauty and own and restricted biota. For example Nicobar Island has Nicobar megapode. This will lay eggs in the nest and just go off when the young once is born it should take care of themselves. He narrated the case story of Narcondom Hornbill, in which females lays the eggs and the male closes the way opening, keeping only a small way to feed. He also mentioned about the geographical history of this island, the tribes, their locality, settlements and food habits.

Lecture – 8: Dr. JaferPalat,ZSI, Calicut

Topic: Butterflies of India with special reference to Andaman and Nicobar Islands

This was the interesting lecture about the colourful flying Insects, he explained about the life cycle of the butterfly and also the classification of butterflies. He also narrated the differences about the butterflies and the moths, how the scales are arranged and the different patterns in the feathers. From his talk the students got a picture on the world of butterflies, diversity and endemic species of Andaman. All students rated this as very informative talk in their assessment.

Lecture – 9: Dr. P. Pramod,SACON

Topic: Biodiversity: Nurture Nature for the Future.

This is the very enlightening talk on the biodiversity which made us look keenly into the morphological parts of the plants. Students were amazed by the diversity of the barks.

leaves, flowers branching patterns etc. and with the help of one of these parts the plant can be identified and studied. He shared his experience with the students in Coimbatore “The power of the students” how they can change the society, what they can achieve with some examples of the students work. This motivated all students and made them conceited. This elicited that they should do something for the conservation of bioresources.

Lecture – 10 :Mr. N.C. Choudhuri, KVK,CARI

Topic: Animal husbandry, poultry farming and cattle rearing

This lecture was more about 1. The Indian cattle breeds like the milch breeds, milch and draught breeds, draught breeds and 2. The exotic dairy breeds found mostly in the Punjab, Haryana, Himachal Pradesh, Madhya Pradesh. He also gave the detailed explanation of the milk production of these breeds. He explained about the indigenous breeds of the A&N Islands also.

Lecture – 11: Rajan. P, SACON

Topic: Avifauna of Andaman Islands.

Rajan started his lecture with the brief introduction of the DNA Club programme of Andaman Islands. Then he explained the bird diversity of the A & N Islands, the distribution of bird populations and then continued with the introduced species of birds in the A&N Islands and its significance. He also gave a brief account on how to write a project report, which is very essential for the students for their academic life. He clearly narrated how to identify a bird in general which is very helpful during bird watching.

Lecture – 12:Dr. C. Murugen, BSI

Topic: Plants of Andaman Islands.

His lecture was mainly on the endemic plants of the Andaman and Nicobar Islands. He told that there are 300 species of endemic flora in these islands and also showed the photographs of many plant species and explained it. He concluded by saying conservation of the plants are very essential, though we have lots of biological Park, Biosphere Reserve, National Park, Wildlife Sanctuaries etc, an individual should take interest of his own.

Lecture 13: Dr.RajkumarRajan, ZSI

Topic: Biology of Corals

He spoke mainly about Biology of the corals. The types of corals, the basis of its classification, the biology of corals, the structure in detail, how the tentacles helps in food capturing and swallowing of the food, the relationship of corals and algae, and also the reason for the coral extension like fisheries, the bleaching of the corals etc are dealt with in details. He also spoke about the role of mangroves in coral conservation and the ways to protect the corals and the use of corals also.

Lecture 14: Dr.Nagesh Ram, KVK,CARI

Topic: Mangrove Ecosystem

He presented in detail about the mangroves in the costal areas of A&N Islands and how the mangroves protect the costal areas from erosion. He also focused on the biodiversity of the mangrove forest and its importance to the human being, the different species of birds, animals, and fishes associated with the mangroves. He also added a brief note on the fisheries and its importance.

Lecture 15: TamalMandal, ZSI

Topic: Corals of A&N Islands

He narrated the importance of coral reef, how to preserve them, the anthropogenic effects on corals like pollution, sedimentation, destructive fishing practice, global warming and coral bleaching. He also described about the distribution of the coral in the Andaman and Nicobar Islands. He also gave short notes on the earth quakes and volcanic activity and the effects of earthquakes like land slides, tsunami, floods, shaking and ground rupture, fires and human impacts etc...

Lecture 15: P. Krishnan, CARI

Topic: Corals and Climatic Change

The lecture on corals has given a picture about life of coral reefs in the context of climate change. This is the most informative and interesting lecture about corals according to the student's assessment. He spoke on corals and its adaptations, the habitat, the reproduction of the corals etc. He also added the threat like storms, temperature and the coral disease;

it show it is important to the humans and Coral Bleaching. He also talked about the fisheries and how the corals are providing the habitat for the fishes and many other organisms.

Lecture 16: Senthil Kumar, IFS, Director, DST, ANI

Topic: Forest Ecosystem

This is one of the important lectures, which gave a general idea about the forests, habitats for the biodiversity conservation and the livelihood to humans, the role of these forests in the storage of the water and the importance of drinking water in the forest. He also told about the other important role of the forests to the environment and the living beings in the world. He discussed with students the issue of human wildlife conflict with a movie clipping of a recent incident of crocodile-human conflict in Andaman.

Lecture 17: Sachidanandha Swain, CARI

Topic: Post Harvest Management of Field Crops

He spoke mainly on the field crops its factors like mechanical injury and the parasitic diseases which cause the post harvest loss. He also narrated the improvement of the technologies and the processing of the post harvest crops for the better marketing. Some of the key issues related to the Post Harvest management were also discussed. He discussed the measures to assure better food safety.

Lecture 18: Dr.Arun, CARI

Topic: DNA and its structure

The basics such as discovery of the DNA, its structure and function, including the various components like Adenine, Guanine, Thymine, Cytosine, and its formation of the double bands all these were given in a very simple way to the children in his talk. He also explained the replication of DNA and its role in heredity.

Lecture – 19: Prof.Ganeshaiah, UAS Bangalore

Topic: Bio-resources Why Should We Conserve?

This is one of the important and the informative lecture on Bio resources. Children love stories, and stories are the best way to convey the real awareness to children. Understanding this Dr.Ganesaiah, gave the understanding and the spirit of

Bioresource conservation to children through three excellent true life stories. He narrated the story of “The lost man in Siberia” and “The Easter Island” which clearly explained how one should not do the basic mistake of overuse of resources and, human survival depends on minimizing the use of resources. He stated that the “Loss of Bio-resources could severely affect our Food base and thus our survival “. He gave a brief account of the fig Trees and its relationship with the fig wasps, exposing the children – another wonder of living world. . He concluded with the pledge which all the participating students and visitors in the audience has taken to conserve the bioresources for future and next generation.

Lecture – 20: Gopal, CPRCEE,

Topic: Biodiversity of A&N Islands

He narrated the beauty of this Island, its fauna, flora and the wealth of the Andaman's. The habitats of different tribes like Great Andamanese, Onges, Jaravas and many more were highlighted. Mangroves are made to protect the marine animals, and also protecting us from the natural disaster like tsunami and Cyclones, stop soil erosion. He also shown them how Andaman's beauty is decreasing due to the pollution.

Lecture – 21: Priya, Research Scholar, SACON

Topic: Genetic Engineering and genetic diversity

She gave a lecture on basics of human genetics including basics of human genes, how the vaccine are synthesized and the biotechnological procedures behind it. The production of the transgenic animals and the clones were also explained. She also explained briefly her study on the phylogenetic history of Andaman Day gecko using genetic mapping and the significance genetic study in the evolutionary ecology..

3. INTERACTIONS with Scientists

1. Dr. P.A Azzez, Director, SACON, Coimbatore

Participants had a long interactive session with Director of SACON.. Students asked many questions to him to which he responded with a lot of anecdotal case stories from his own research experience. The discussion covered many topics very much relevant to the vacation training programme such, limnology, pH, properties of water, planktons, role of C.

Botulinum, SO₂, and Pollution. He also gave a brief introduction on the process of Environmental Impact Assessment.

2. Dr. Ganesh Kumar, Professor of Agricultural Entomology, Tamil Nadu Agricultural University, Coimbatore

Professor Ganesh Kumar, in his lecture introduced the participants to the world of insects, diversity and the fascinating life history strategies. He led the participants into the world of insects by traveling with them to most of their field trips into forest and the nearby farmlands. In the leisure hours and in the night the students interacted with him in various insect study techniques and in identification of insects they have encountered. Through his interactions, the participants developed a special insight into the field techniques to study insects.

(Excerpts from the student diaries...)

Dr. Ganesh gave his lecture on Insects. First he asked us to write the name of the insects. I wrote some insects like grasshoppers, Damselfly, Dragonfly, beetles and many other insects. Then he explained about each insect. Then we went to the field in search of insects and I caught five insects, and identified them as grasshopper, Red Bug, Dragonfly, Damselfly and red beetle. It was very interesting. Then we studied the parts of some insects like grasshoppers it has forewings for protection, two hindlegs and one pair of forelegs, like that Cricket has its ears placed on the legs and its eardrum is called tympanum. Then we studied on the Damselfly, it has a black spot on the corner of the wings and legs come from one common point only and having a long tail compared to Dragonfly. Like that I came to know various insects and their parts, their habitats like those of Aphids, which is present in leaves and provide food for ants. I enjoyed a lot on finding insects, I enjoyed a lot while he explained the different parts of the insects especially that of the butterfly.

.....SunitaDungug

3. Mr.Rishikesh. DST

Title: On motivation the students for science.(Excerpts from the student diaries...)

Mr.Rishikesh Sir told us more about the importance and the use of the bioresources. First he asked what we expect from this programme, all shared their views like they will be nature friendly, will learn more about the birds and insects that we don't cared before this programme.

In this topic he asked what is the importance of bioresources and in what is the way we are going to use it. Then he asked us to tell some problem of this Island. Then Saurav told 'water Scarcity'. Then sir asked us to think why water has become Scarce in these Islands while there is about 3350cm of rainfall. Then we told like the storage buildings were short, most of the rainfall fall go to the sea and also many people do not have the idea of storing water. I told them people do not know how to use the water and they simply waste it. Sir also suggested some reasons and told us to use water in a proper manner. Then he came across the use of electricity he came across to the use of electricity he gave some examples like use of LED lights which takes less energy and gives more lights. Then he explained on the National Action Plan for climate change 2008 which was declared by Dr.Manmohan Singh, in this Plan, how to make house with which we can conserve electricity. The house should be constructed in such a way that natural lights and fresh air may enter the house so that we can save the electricity during the day time.

He asked us that if you do something then do it in a scientific manner. He gave many examples like the story of Carnal Ferrar, who stayed in this Islands in this childhood after collecting the data's of butterfly he became the scientist and wrote the book on the butterfly, which is kept in British National History in London..

.....**Priyanka**

4. Dr.SirishManchi

This is one of the important discussion because this talk was delivered during the field trip to Lime Stone Cave at Bartang. He gave an introduction to the limestone caves in the islands and about the Edible nest Swiftlet, a special bioresources in the cave which is

facing a significant conservation problem. Based on his experience in the research of this bird he gave a brief talk in most appropriate pace - in front of the its dwellings, the limestone cave.

5. Mr. A. P Zaibin

He discussed with students regarding science and its importance, also he shared his view of science and scientific knowledge. During his lecture most of the students asked many question and they tried to clear their own concept regarding nature. This was really friendly talk and most of the students expressed their own thought for answer.

6. Mr. P. Nehru

His interaction mostly concentrated on Flora of Nicobar Islands. He explained about Nicobar and its plant diversity. This was also a friendly chat with the students. He narrated some common methods to identify common plants and its distribution in Nicobar Islands. At last he cleared students doubt regarding their projects on plants.

4. FIELD VISITS

The field visits were the special activity the children enjoyed very much and learned maximum during the training. During the visits the students were taken with the experts. The experts responded and cleared the quires of the students. Their personal and group Project data's were also collected during the visit. Each visit made to students learns a lot of new things and the involvement of the students in learning things directly from nature was remarkable.

a) Visit to Worlds Coconut Germplasm Centre

The Scientists in the Germplasm Centre of CARI, gave a brief introduction about their work. They have witnessed the 39 varieties of coconuts brought from many countries. During the walk to the germplasmcenter the scientist explained about the fodder crops also like Guinea crops, importance of inter cropping, and the spice varieties like pepper, cinnamon, clove, etc. They were very much fascinated when they saw the dwarf and tall varieties of coconut and many hybrids varieties, etc.

b) Visit to Mount Harriet National Park

The trip started around 06.45 AM and reached Mount Harriet by 08.15AM, this is second highest mountain in the Andaman Islands. This is evergreen forest protected by the Govt. of India. First they saw a “Vernacular Mango” an endemic wild variety mango marked and displayed there. This national park is famous for large variety of butterflies and birds. Here students observed and recorded a large number of butterfly species such as common crow, yam fly and Andaman tree nymph etc and a number of bird species like Andaman Drongo, Bulbul, Golden oriole, Rocket tail drongo etc. They walked for long distances and amazed by seeing the Biodiversity of the forests. On the way all of them donated some blood to the leeches which also made them to look keenly on the ground. In the forests Dr.JomyAugustian explained the importance of the forests, and the need to conserve them. He narrated how the forests work as sponges which stores lots of water during rains and releases as streams and rivers. He also suggested drinking forest stream water is good even if it is turbid, as this is the biological water and causes no harm.. They took a lot of notes on all these information and observation from the forests and reached the sippighat around 3.30 PM.

c) Visit to BaratangIslands (Excerpts from the student diaries...)

When the clock showed 5 in the morning we all left from KVK to Baratang. We entered area of Andaman Island owned by the Jarawas. On the way there were many Jarawas were standing, I remembered the discussion we had regarding their life and some of us discussed that in trip. Reached Middle street and then went to see Mud Volcano. It was amazing and unbelievable. Then we went to the limestone cave, crossing the mangrove forest for more than one hour on the way.. The boat ride through the root systems in the mangrove creek was excellent. Crossing that we went though forest for some time. Here we saw birds like Andaman Crane, Golden Oriole, Glossy Starling and the butterflies like Psyche, Grass Yellow, Yam Fly etc. Before going to the cave Dr.Sirish, scientist from SACON, gave a brief introduction about the caves in that region. The Andaman Edible nest swiftlets which builds its nest using saliva inside the cave. We saw a swiftlet birds in the nest. Started from the Middle street by 3.20PM and reached KVK by 5.45PM

.....Saneesh

d) Visit to Biological Park, Chidiyatapu(Excerpts from the student diaries...)

In Chidiyatapu, first we went directly to the Mundapahad Beach. In nature walk in the forest near the beach we saw many birds, butterflies and plants which the experts explained to us. Andaman Drongo, Small Bulbul, Minivet, Common Myna, Brown coucal, parakeets, white breasted kingfishers were some of the birds which we have seen. Yam fly, Yellow Pancy, Common Albatross, Common Mormon were the butterflies which crossed us. During our visit to the Biological Park enclosures in Chidiyatapu, we saw Crocodiles, Monitor Lizard, Wild Pigs, Spotted Deer etc. Many plant species we have identified and recorded in this trip. Some of them are Garjan, Didu, Papita, Mangifera, Jungle jamun and Paduak which is the state tree of Andaman's and Nicobar Islands. This is one of the most interesting place where we spend a lot of time with our experts in learning more about birds, butterflies and plants.

.....Sushmoy Das

e) Visit to Knobill Island

The students visited the Knobill Plantation. This was an island of about 48 acres private plantation with full of different species of spices. Students traveled in boat around 20 minutes to reach this Island. They went around the plantation, collected lots of information regarding the spice crops of the island and also observed some birds, butterflies, etc. Ms. Tanaz, proprietor of this Island guided the students and described all about the varieties of the crops in their Island.

5. INSTITUTIONAL VISITS

During the training programme the students were taken to different institutions. The scientists, research scholars and the experts from those institutes were arranged brief lecture and demonstrations to enrich students with knowledge and also by clearing all their queries. The institutes visited by the students are CARI, Archeological Survey of India, Botanical Survey of India, and Zoological Survey of India. Naval Marine Museum, Science Centre

a) Central Agricultural Research Institute (CARI)

Central Agricultural Research Institute is the leading institute and the largest research centre of the Andaman and Nicobar Islands. Director, R.C Srivastav has kindly agreed the visit and directed the scientists to take the students around and explain all the facilities. Dr.Arun has taken them to the animal husbandry farm, and poultry farm where he explained the facilities in detail. Later he also gave the lecture on the topic "DNA and its structure". They have visited the laboratory and got introduced to the equipments like PCR, LAF, gel electrophoresis unit, documentation system etc. The students were astonished by looking at the amazing butterfly collection maintained by CARI and spend some time there to study that. At about 2.30pm they have visited the library and spend half of the day in collecting detailed references related to the project they to have complete by the end of the programme.

b) Anthropological Survey Of India (ASI)

They spend half day in ASI where anthropological history of A& N Islands are explained in great detail. They have gone through the exhibition materials with a lot of interest. The life of tribals they have learned from there came to many discussion later in the programme,. They got amused by the life that represented in the costumes, weapons, hut, baskets & their utensils used by the Tribes of the Andaman and Nicobar Islands..

c) Botanical Survey Of India (BSI)

They have seen and spend in the BSI herbarium and the Scientists here clearly narrated and explained them how to prepare a herbarium and they also explained more about the classification system of plants. The explanation of seed preservation techniques was also very useful and beneficial for the students.

d) Zoological Survey Of India (ZSI)

The Research fellows in the ZSI explained all the specimens like Corals, Echinoderms, Butterfly, Moths, Lizards, fishes exhibited in the renovated exhibition in the

centre. The students had a very informative session and the scholars cleared all the queries regarding the preserved specimens and exhibits in the museum.

e) **Samudrika- Naval Marine Museum**

It is one of the small but interesting museums in port Blair. Here they could observe lots of marine living organisms such as Sea star, Sea urchins, plenty of corals and some facts about Andaman and Nicobar tribes also displayed here.

f) **Science Centre**

This is a very informative centre where the science and Technology innovations were presented in a very creative manner. Many exhibits on force, gravity, life around us, Biodiversity of A&N Islands and Biotechnology were very informative. The participants watched a 3D film about the Magic and the Wild Life here.

21. COMPETITIONS

The competitions like poster making, quiz, treasure hunts and debate were held in different days during the programme. There were two poster competitions from each team. Each team came up with their own ideas. The earth house won the first prize. A Quiz competition on bioresources was conducted; Sanish, Sourav and Rohit got the First, Second, and third prize respectively. All the members actively participated in the treasure hunts, the earth and the water houses together shared the first prize. The Debate was held in two sessions. The members of the programme were split into two teams. The “Forest Fire” was the topic for the first session. The controversial ecological issue “Andaman Trunk Road” was the topic for the other session. Both the teams actively presented their views in both the sessions.

7. EQUIPMENT DEMONSTRATION

There were demonstrations of the use of many different types of scientific equipments such as GPS, Spotting Scope, Compass, Hygro-Thermometer, altimeter etc. After the demonstrations these equipments were given to students for their activities, all

participants learned the procedure and uses of these equipments and also the do the following using them.

- 1.Root marking and positioning with help of GPS
- 2.Tree height measurement by the use of Compass
- 3.Behavioural observations of birds with help of spotting scope
- 4.Daily temperature and humidity reading by the use of digital hygro-therometre
- 5.Altitude measurement by the help of Altimeter
- 6.Butterfly spreading methods with help of spreading board and other materials
7. Insect observation with help of lens

8. FILM SCREENING

The Documentary films are played in the evening 7.00 PM-8.00 PM on all days. The movies are mainly related to the wildlife, biodiversity or environment. The movies are played for the 45 min and the questions were asked to the students to enrich them with the knowledge. This will improve the listening skills, observance and the involvement of the students.

9. PROJECT WORKS

The 22 participants were divided into four groups in the first day itself and the topics for their projects were also assigned to them. The four groups were given topic as Farming, Insects, Plants and Birds. There were five to six students in each group. The experts assisted the students in collecting the data, the method and identification of the species. The report was presented by collecting the data from various areas of Andaman such as KVK Hostel, Sippighat, Chidiyatapu, Baratang, and Mount Harriet. The major part of data collection was done during the morning nature walks and also during the evening hours.

Report on the Study of the birds:

The individuals of this group have worked on six different species of birds namely Magpie robin, Glossy starling, Common Myna, Kingfisher, White breasted waterhen and Bulbul. The data collection was done during the field visits and nature walks. Also they have done a general bird survey wherever they have visited during the period. They sited 9491 birds among which 6763 birds in the Sippighat area, 493 birds in the Chidiyatapu area, 567 birds during the field visits and 968 birds in the Spice Island. Among the birds sited the most common birds they were seen is White Breasted Water Hen and the rarest bird seen is the Wood pecker and the Black-Naped monarch as per their report.

Report on the Study of the Plants:

This group worked on five distinct areas like Mangroves of the Andaman, Insect-plant relationship, medicinal plants, barks of trees and Flowers of the plant. About 10 different species of the mangrove plants were listed with regards to the diversity of the barks, leaves and flowers. The insect-plant relationship was studied, including the fig plant and the Fig wasp, the relationship of 12 plants and the related insects were reported. They also understood through the studies that the plants and the animals are essential for each other's life. They have learned that with the help of parts of the plants like the bark, leaves, flowers etc., the plants can be identified.

Report on the Study of the Insects:

The insects study has divided in to six the study of the Butterflies, flying insects, Aquatic insects, Tree insects, Insects on the Vegetation and Insects on the Ground. They have sited 5633 number of insects which included 16 different species of Butterflies, 15 different species of insects on vegetation, 12 species of flying insects, 16 different species of tree insects and 9 species of ground insects. Among the sighted insects the majority of them were the butterflies and the among the insects found on the trees majority were ants as per their report

Report on the Study of the Agriculture:

This report comprises the study of the food crops of Andaman, horticulture crops, Pisciculture in Andaman, Pests and Diseases and Animal Husbandry. During the course of

study, 23 food crops listed in relation to the soil, habitat, and climate, useful part of the plant, season and the areas grown were documented. 15 species of the pests on the vegetables were listed. The areas under Pisciculture were surveyed as 630 hectares in 13 areas of Andaman Islands. Details of the cattle Buffalo, Sheep, Goat and Pigs were also collected.

WRAP UP SESSION

On 5th June 2010 evening, all students presented their report and they shared their camp experience in front of all students and staffs. During this session some of the students felt very emotional. After valedictory session all students with staffs went to Wandoor beach as part of the wrap up session. In Wandoor beach they spent around three hours and enjoyed the last day of life together.

VALEDICTORY SESSION

The programme concluded on the 05th of June, on the day of World Environment Day, with the Valedictory session. Chief guest of the Valedictory session was Prof. K.N Ganesaiah, renowned scientist and Professor from University of Agricultural Sciences, Bangalore and he gave the Key note address on the occasion. Mr.Devdas, Principal State Institute of Education, A & N Islands presided over the function and gave the valedictory address. Dr. P. Pramod, Sr. Scientist, of SACON & Course coordinator, welcomed the gathering and gave a brief report of the programme. Dr.Nagesh Ram Programme coordinator and incharge of KVK, Sippighat and Mr.RishikeshSinha, Sr. Scientific Officer, Dept. of Science and Technology A & N Islands felicitated the programme and the participants. The four representatives of student participants shared their experience, and their views about the training programme.

VACATIONAL TRAINING PROGRAMME 2011

Vacation Training Programme'2011 on Bioresources for school Children in Andaman and Nicobar Islands has been conducted from 4th to 21st June' 2011. This camp was conducted for a period of 16 Days in Krishi Vigyan Kendra (KVK) Sippighat with various lectures, hands-on activities, project works and field trips. Twenty two selected students from the different schools across different Andaman Islands are participating in the programme.

INAUGURAL SESSION

On 20th morning, the inaugural function of Vacation training programme'2011 was inaugurated by Shri D.V. Negi, IFS the Principal Chief Conservator of forests, and Secretary, Science and Technology Department A&N Islands and presided over by Dr. R.C. Srivastava the Director of CARI. Dr. Sentil Kumar Director, Dept. of Science and Technology gave the key note address and Mr. Suresh Elamon renowned naturalist and film maker felicitated the programme. Dr. P. Pramod (SACON), Course director of the programme welcomed the gathering and gave the brief introduction of the programme. Many scientists from organizational partners who helped Salim Ali Centre for Ornithology and Natural History (SACON), such as DST, CARI, KVK, Media, etc., attended the inaugural session. . The inaugural session was concluded with vote of thanks by Mr. Rajan, SRF, SACON.

ACTIVITIES CONDUCTED DURING VTP CAMP'2011

INVITED LECTURES

1. Biodiversity by Mr. Deb Kumar Bhadra, Indian Institute of Geomagnetism

Mr. Dev Kumar Bhadra explained the basic concepts of the Biodiversity such as species diversity, genetic diversity and ecosystem diversity and especially Island ecology. He spoke on the flora and fauna of the Islands and their conservation importance. He explained the students many details about A & N Islands. He told them about the 572 Islands present in the Andaman and Nicobar Islands. Almost 80% of these islands are covered with forests mostly tropical rain forests. He also explained about various endemic bird species in these Islands which are very precious, effect of introduced species and concept of carrying

capacity. He also told that there is very close relation between the plants, animals, birds and Insects and all the things in the ecosystem to maintain ecological balance especially in island ecosystem.

2. Indian Heritage by Mr. Raghu

It was the different experience for the students because he introduced all historical and ecotourism places in India. He explained from his experiences and showed a lot of photos of places such as TajMahal, Kolkata State Library, stories and photos of Tipu Sultan and lots of other historical places in India. At last he narrated the experience of Sunderban Mangrove forest and boat journey through mangrove. He explained all these places with his own photographs. Another thing was he explained all history of these monuments.

3. Edible nest swiftlet and Cave biology by Dr. Sirish Manchi

This is one of the interesting lecture, because this talk was delivered regarding Lime Stone Caves of Andaman and Nicobar Islands. He gave an introduction to the limestone caves in the islands and about the Edible nest Swiftlet. This lecture was enjoyed by all students with lots of question and interaction. Based on his experience in the research of this Edible nest Swiftlet, he gave a brief talk in most appropriate place - in front of the its dwellings, the limestone cave. He shared his ideas regarding conservation of bioresources in these Islands and at last he gave home work to all students to write management plan regarding to protect Island biodiversity.

4. Birds of Andaman & Nicobar Is by Mr. Rajan. P

Rajan started his lecture with the brief introduction of the DNA Club programme of Andaman Islands. Then he explained the bird diversity of the A & N Islands, the distribution of bird populations and then continued with the introduced species of birds in the A&N Islands and its significance. He also gave a brief account on how to write a project report, which is very essential for the students for their academic life. He clearly narrated how to identify a bird in general which is very helpful during bird watching. At last he played the birds sounds and their picture.

5. Wildlife film by Mr. Suresh Elomen.

This is one of the realistic talks which thrilled the listener's hearts. Suresh Elomen is a wildlife film maker, he explained about film and wildlife. He narrated how we can observe our surroundings and how we can find interesting things from nature. After this interactive session he screened some of his own wildlife movies such as Birds at the Home, Ants, etc.

6. Campaign against plastics by Mr.Chanchal Singh.

It was really different session. He has conducted a campaign programme of Small Steps regarding "Campaign against throw away Plastics Bag Culture. He conducted some activities to test student's memory and discussed about plastics and its effect in our nature. At the end of session "Small Steps Cloth Bags" were distributed to all participants and staffs. This programme was concluded with submission of students write up regarding their views against use of plastics.

7. Science and our life by Mr.RishikeshSinha.

It was a long session with lots of interactions with students. Mr.Rishikesh narrated about the topic science and our life, he asked what the importances of bioresources are and in what is the way we are going to use it. He told us to think why water has become Scarce in these Islands while there is about 3350mm of rainfall. Then we told like the storage buildings were short, most of the rainfall fall go to the sea and also many people do not have the idea of storing water. Then he came across the use of electricity, he gave some examples like use of LED lights which takes less energy and gives more light.

8. Topic: Biodiversity: Nurture Nature for the Futureby Dr. P. Pramod.

This is the very enlightening talk on the biodiversity which made us look keenly into the morphological parts of the plants. Students were amazed by the diversity of the barks, leaves, flowers branching patterns etc. and with the help of one of this parts the plant can be identified and studied. He shared his experience with the students in Coimbatore "The power of the students" how they can change the society, what they can achieve with some examples of the students work. This motivated all students and made them conceited. This elicited that they should do something for the conservation of bioresources.

9. Flora of Andaman & Nicobar Islands by Dr. C. Murugan.

His lecture was mainly on the endemic plants of the Andaman and Nicobar Islands. He told that there are 300 species of endemic flora in these islands and also showed the photographs of many plants species and explained it. He introduced the wonders of floral wealth of A & N Islands through his lecture. He explained the students many details about A & N Islands. He told almost 80% of these islands are covered with forests mostly tropical rain forests. He also explained about various plants species in these Islands which are very precious.

10. Birds of India by Dr. P. Pramod.

It is the one of the interesting lectures in the camp. He gave the brief introduction about birds of the World and India; He explained what the importance of birds in the ecosystem is and how they are helping the ecosystem balancing. He narrated uses of birds with insectivorous birds and nocturnal birds as example.

11. Common Snakes and other reptiles by Mr.Rajan. P

This lecture was only one lecture related to reptiles especially snakes of Andaman and Nicobar Islands. He explained about poisonous snake and non-poisonous snakes with photos, He showed most of the endemic snake's photos and at last he narrated the reptiles of these islands and showed some common reptiles of Andaman and Nicobar Islands such as Green Day Gecko, Forest Lizard, Monitor Lizard, some endemic snake, etc.

12. Mammals of Andaman & Nicobar Islands by Mr. Deepak.

This was the interesting lecture about the Mammals, he explained about the classification of mammals and its special characters. He also gave the brief details of the different mammal species such as rodents, bats, humans, etc. From his talk the students got a picture on the world of mammals and its special characters, diversity and endemic species of Andaman. All students rated this as very informative talk in their assessment.

13. Corals of Andaman & Nicobar Islands by Mr.TamalMondal.

The lecture on corals has given a picture about life of coral reefs in the context of climate change. This is the most informative and interesting lecture about corals according to the student's assessment. He spoke on corals and its adaptations, the habitat. the reproduction

of the corals etc. He also added the threat like storms, temperature and the coral disease; it's how it is important to the humans and Coral Bleaching. At last he asked question to each students, then he screened one short movie regarding corals taken by his friends.

14. Diversity of fishes and Conservation: a challenge by Dr.Nagesh Ram.

This was one of the very informative lectures in this camp. He gave idea about different fresh water fishes and marine water fishes. He explained classification of fishes and also focused on its importance to the human being, the different species of birds, animals. He also added a brief note on the fisheries and economic values of fishes. At last he showed some of fish's photos and its details such as culture, economic values, marketing, etc.

15. Horticulture by Mr.Dr. L. B. Singh.

It was really interesting lecture especially as this class was taken in crop plantation with all sitting arrangements. This lecture started on with Horticultural crops such as fruits, vegetables, flowers, plantations, medicinal and aromatic crops. He explained the classification of the vegetables like Solanaceous, Cucurbitaceous, Cucifereous, and Leguminous, and flowers as loose flower like Marigold etc., and the Cut Flower like Orchids. Major part of the talk concentrated on the medicinal plants found in Andaman like black pepper, clove, nutmeg and cinnamon, plantation crops like coconut and rubber, tuber crops that is Elephant foot yam, sweet potato, Colocassia and tapioca. He showed most of these specimens. After class students were taken to the plantation and explained everything about horticultural plants and its reproduction.

16. Bioshield for coastal ecosystem by Mr.Pranay Kumar Singh.

This is one of the interesting lectures, which gave a general idea about the coastal bioshield and its important, the role of this vegetation in the protection of our coast. He also told about the bioshield plants species such as Ipomea, Spinifex, salrodora, mangrove species, etc He discussed with students about natural calamities like tsunami and role of these bioshield to protect our coast.

17. Climate Change by Mr.Gopal. A.

He explained the students many details about A & N Islands and its important. He told them about the 572 Islands present in the Andaman and Nicobar Islands. He also

explained about various animals and plants species in these Islands which are very precious. He explained about climatic change and what is the present problem because of climatic change, how it will affect our nature, etc. He also told that there is very close relation between the plants, animals, birds and Insects and all the things in the ecosystem. It was really interesting session because it was a discussion, most of the students asked question and shared their ideas.

18. Marine life by Dr.Grinson George.

He presented in detail about the mangroves in the coastal areas of A&N Islands and associated marine life, how the mangroves protect the coastal areas from erosion. He also focused on the biodiversity of the mangrove forest and its importance to the human being, the different species of birds, animals, and fishes associated with the mangroves. He also added a brief note on the fisheries and different methods of fish culture with demonstrations. This class was taken from museum after that he showed many preserved marine life to all students.

19. Biotechnology and its uses in our life by Dr. P. Arun.

He gave a lecture on basics of Biotechnology including DNA, RNA, human genes etc, and how the biotechnology uses for human and the biotechnological procedures behind it. The production of the transgenic animals and the clones were also explained. He also explained briefly about history of biotechnology, discovery of the DNA, its structure and function, including the various components like Adenine, Guanine, Thymine, Cytosine, and its formation of the double bands all these were given in a very simple way to the children in his talk. He also explained the replication of DNA and its role in heredity.

INTERACTIONS WITH SCIENTISTS

1. Dr. P. Pramod, SACON, Coimbatore

Participants had interactive session with Dr. P. Pramod during the leisure hours and they interacted with him in various topics. Students put forth many questions to which he responded with a lot of anecdotal case stories from his own research experience. He introduced the participants to the world of Bio-diversity and the fascinating life of birds,

butterflies, etc. Through his interactions, the participants developed a special insight into the world of science.

2. Mrs.Archana.

Mrs.Archana had interaction with participants in the evening and at free time. She stayed with the students for the first three days and discussed about Andaman aboriginal tribes and their life styles. She explained about different types of tribes in the Andaman and Nicobar Islands. She gave a brief explanation about six tribes such as Andamanese, Sentenalese, Jarawas, Onges, Nicobaries and Shompans. She also explained about the culture of the Great Andamanese tribes and their population reduction.

3. Mr.Rishikesh. DST

Mr.Rishikesh explained about the importance of bioresources and the appropriate way we need to use it. After this he talked about the importance of scientific projects among school students and how it could help to understand our surrounding. He talked about the use of electricity and gave some examples like the use of LED lights which consumes less energy and gives more light. He also emphasized that houses should be constructed in such a way that natural light and fresh air may enter the house so that we can save the electricity during the day time.

4. FIELD VISITS

The field visits were the one of the interesting activities in the camp. All students enjoyed direct observations from the field. During the trip, the students had to observe carefully and note in their books. The students cleared all their clarifications from the experts. It was quite remarkable to see that the students got really involved and deeply interested when they had the chance to learn directly from nature. In the evening session all students shared their experience in the field and discussed about their observations.

1. Mount Harriet National Park.
2. Chatam Saw Mill.
3. Zoological Survey of India
4. Botanical Survey of India.

5. Anthropological Survey of India.
6. Samudrika Marine Museum.
7. Science Centre.
8. Central Agricultural Research Institute.
9. Horticulture Farm, Dept: of Agriculture.
10. Baratang Island.
11. Field Survey in Wandoor and Majery Village.

a) Visit to Horticulture Farm, Dept. of Agriculture.

This visit was arranged during the morning walk. All participants observed the many varieties of orchids and other flower varieties. They were very much fascinated when they saw the different types hybrids varieties, etc.

b) Visit to Mount Harriet National Park

The trip started around 06.00 AM and ended at Mount Harriet by 08.15AM. It was a spectacular day because a dense mist had covered the forests due to heavy rain, which made the participants very excited. Mount Harriet is the second highest mountain in the Andaman Islands. The evergreen forest here is protected by the Government of India. On their trip, the participants first saw the “Vernacular Mango” an endemic wild mango tree variety. The national park is famous for an amazing variety of butterflies and birds. The students could not observe many birds and butterflies due to the heavy mist which had cloaked the area, nevertheless they were able to record a few number of butterfly species such as common crow, yam fly and Andaman tree nymph and a number of bird species like Andaman Drongo, Bulbul, Golden oriole, Rocket tail drongo etc. They walked for long distances amazed by the Biodiversity of the forest. On the way all of them got an experience from the blood sucking leeches which brought them to look keenly on the ground. In the forest, Mr.DevkumarBhadra (Dept. of Geomagnetism) explained the specialties of some trees and importance of the area. He said that, although he lives very close to the National Park, he had never seen a misty day like this. They took a lot of notes on all these information and observation from the forest and reached the Camp site around 1.00 PM.

c) Visit to Baratang Islands

The day started quite early at around 5 AM. We entered the area of Andaman Island owned by the Jarawas at around 7.30am. We could see a lot of Jarawas standing on the way. We Reached Nilambur Jetty in Baratang Island and then went to see the Lime Stone Cave. The boat ride through the mangrove creek was excellent, crossing the mangrove forest for more than one hour on the way. Here we saw birds like, Golden Oriole, Glossy Starling and the butterflies like Psyche, Grass Yellow, and Yam Fly etc. Before reaching the cave P. Rajan, Research Scholar from SACON, gave a brief introduction about the lime stone caves.

After Lime stone Cave, we visited the Mud Volcano. The mud volcano is a major site of attraction, located near Baratang jetty. A nature's wonder, the volcano doesn't look or depict like the volcanoes woofing hot Lava, a rather muddy area with occasional bubbles reaching the surfaces. We started back from the Baratang Jetty by 1.30PM and reached KVK by 5.00PM.

d) Field Survey in Mahatma Gandhi Marine National Park, Wandoor

This field survey was regarding "make a people status and their suggestion to improve Mahatma Gandhi Marine National Park through local villager's participation". Before we were going to field survey, all students were divided into three groups with one experts and student leader. Each group was taken 10 questionnaire forms which they have filled with help of villagers like fishermen, farmers, business people, etc. Each group was taken to different places such as Guptapara Village, South Wandoor and North Wandoor Village for their survey.

This was one of the most interesting trip for the participants as they got the chance to meet and interact with villagers around Mahatma Gandhi Marine National Park. After their survey they went to Wandoor beach and enjoyed themselves. About 6.30 pm we reached the camp site had a long discussion about the survey and to compile field questionnaire.

5. INSTITUTIONAL VISITS

During the training programme the students were taken to different institutions such as CARI, Archeological Survey of India, Botanical Survey of India, and Zoological Survey of India, Samudrika Naval Marine Museum, Science Centre and Chatam Saw mill. The scientists, research scholars and the experts from those institutes were arranged to give brief lectures and demonstrations to enrich students with knowledge and also by clearing all their queries.

a) Chatam Saw Mill

Participants started their institutional trip with Chatam Saw Mill. The history of Chatam began in the year 1789, when Lt. Archibald Blair landed here with the aim of establishing a naval base in the Andaman Islands. Here we can see old instruments and lots of procedures and techniques to make logs into smaller pieces. There is an exhibition hall with the history of Chatam Saw Mill and many craft materials made from different woods especially the endemic Pedok tree. Here we spent an hour to see them all.

b) Central Agrcultural Research Institute (CARI)

Central Agricultural Research Institute is a leading and the largest research centre of the Andaman and Nicobar Islands. Director, R.C Srivastav had kindly agreed the visit and directed the scientists to take the students around and explain all the facilities. Shri.Choudary and Mr. Nanda form KrishiVigyan Kendra took the VTP members to the animal husbandry and poultry farm where he explained the facilities in detail. Later participant visited the biotechnology lab and Dr.Arun, Scientist gave a lecture on the topic "Biotechnology". At about 2.30pm they visited the library and spent half of the day in collecting detailed references related to the project which they had to complete by the end of the programme.

b) Anthropological Survey of India (ASI)

The Anthropological Survey of India has a museum exhibiting the culture of the local people of Andaman especially the aboriginal tribes such as Jaraws, Sentinelese, Shompens, Nicobaries and Onges. Participants spent one and a half hour in ASI where history of A& N Islands are explained in great detail. The students went through the exhibits with great

interest. Later there in the programme there was a lot of discussion on the tribes they had learnt about. They were amazed by the costumes, weapons, huts, baskets and utensils used by the tribes of the Andaman and Nicobar Islands.

c) Botanical Survey of India (BSI)

Participants visited the museum and herbarium room of BSI, Here they could see more than 20 thousands herbarium collection of Andaman and Nicobar flora. Experts explained about how to prepare a herbarium and they also explained more about the classification of plants. They also explained about seed preservation techniques which was very useful and beneficial to the students.

d) Zoological Survey of India (ZSI)

Mr.TamalMondal, Research fellow, ZSI explained all the specimens which included Corals, Echinoderms, Butterflies, Moths, Lizards, fishes, etc, They were exhibited in the renovated exhibition hall in the centre. The students had a very informative session and the scholars cleared all the queries regarding the preserved specimens and exhibits in the museum.

e) Samudrika- Naval Marine Museum

It is an interesting museum in Port Blair. Here the participants could observe a lot of marine living organisms such as Sea star, Sea urchins, corals and some facts about Andaman and Nicobar tribes which was displayed there.

f) Science Centre

This is a very informative centre where the science and technology innovations were presented in a very creative manner. There were exhibits on force, gravity, life around us, Biodiversity of A&N Islands and Biotechnology were very informative. The participants watched a 3D film about the Magic of Wild Life here.

6. COMPETITIONS

The competitions like poster making, quiz, and debate were held in different days during the programme. All participants enjoyed the competitions. Most of the competitions were conducted group wise (Coral, Shells, Birds and Fishes). A leader was chosen and each member of the group contributed to the competitions. A quiz competition on bioresources was conducted for the students. There were three sessions in the quiz; first round was conducted by Mr.Rajan and Ms.Shereen (SACON). The second and third round was conducted by Dr. P. Pramod. In each round a few students were eliminated.

There were two poster competitions from each team. Each team came up with their own ideas. The earth house won the first prize. Debate was an interesting session, they debated on different topics such as tribes of Andaman & Nicobar Islands, Human and Animal conflict, Andaman Trunk Road, Biodiversity in Andaman and Nicobar Islands, etc. The Debate was held in two sessions. The members of the programme were split into two teams. Both the teams actively presented their views in both the sessions.

7. EQUIPMENT DEMONSTRATION

There was one session on demonstrations of the ecological research Equipments. Mr. P. Rajan demonstrated the equipments with help of power point presentation. It was really different session, because students got chance to use some of the materials such as Spotting scope, Range finder, Garmin GPS, SLR camera with macro and micro lenses, Compass, Hygro - thermo meter, Binocular, etc. After the demonstrations these equipments were given to students for their activities, all participants learned the procedure and uses of these equipments including SLR Camera photography with macro and 300mm zoom lens.

8. FILM SCREENING

The Documentary films were played in the evening 7.00 PM-8.00 PM on all days. The movies were mainly related to the wildlife, biodiversity or environment. The movies were played for a maximum of one hour, having in mind that it would improve their listening skills, observance and the involvement of the students. The following films were screened during camp.

1. Home.
2. Ants.
3. Birds and their homes.
4. Lion Story.
5. King Cobra.
6. Cute bunny.
7. Life of Mammals-I.
8. Shadows.
9. Chasing Butterflies.
10. Life of Mammals-II.
11. Avatar.
12. Baby's trip to the City.

9. REPORT WORKS

The 22 participants made 11 reports in the last week of the camp. Each report made by two students. These report were prepared about the activities of VTP camp such as Morning walk, Lectures, Field trip, Institutional trip, debate among students, interaction with experts, Film screening, Equipment demonstration, etc. All reports were submitted one day prior to valedictory session and these reports were exhibited in the valedictory hall. The following are the different report done by students during camp.

1. Morning Walk.
2. Lectures.
3. Interactions.
4. Debate.
5. Field visits,
6. Field Survey in Wandoor.
7. Visit to Central Agricultural Research Institute (CARI)
8. Institutional Visits
9. Wildlife Film Screening.
10. Hostel Life.
11. Equipment Demonstration.

10. WRAP UP SESSION

On 19th June 2010 evening, all students presented their report and they shared their camp experience in front of all students and staffs. It was really nice experience to all. They showed their wonderful abilities in singing and other cultural programmes. On the night of 20th there was a grand dinner, most of the participants became very emotional and somber that the VTP programme was about to end.

VALEDICTORY SESSION

The programme was concluded on the 20th of June'11, with the Valedictory session. Chief Guest of the Valedictory session was Dr.AlokSaxena, IFS. Additional PCCF, Andaman and Nicobar Administration who gave the valedictory address. Dr. S. Senthilkumar, Director, Dept. of Science and Technology A & N Islands gave the key note address on the occasion. Dr. P. Pramod, Sr. Scientist, of SACON & Course coordinator, welcomed the gathering and gave a brief report of the programme. Dr.Nagesh Ram Programme coordinator of KVK, Sippighat and Dr. P. R Arun, Principal Scientist, SACON felicitated the programme and the participants. The four representatives of student participants shared their experience, and their views about the training programme. The

valedictory session was concluded with vote of thanks by Mr.RishikeshSinha, Sr. Scientific Officer, Dept. of Science and Technology A & N Islands.

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DNA Clubs activities in news

Fete on bio-resource concludes



message of environment preservation among the masses. The chief guest also witnessed the natural resources exhibition put up by the students and appreciated some of the excellent models. Among others, the function was also addressed by the Director of Education, Dr. B. Dev Das, the Director of Science and Technology.

**Valediction of DNA
festival today**

Port Blair, Nov 23
The valedictory function
of DNA festival will be held
at 3 pm on Nov 24 at Tagore
Govt. College of Education
in which
Chauhan, ... SS

and DST has given a right platform through which the tremendous talent and potential can be utilise to make these islands more beautiful with harmony with

(Contd. on last page)

Legal liter

Legal literacy camp at JNRM

Port Blair, Nov 23

A legal literacy camp is being organised at JNRM auditorium, at 3 pm tomorrow (Nov 24). Justice KJ Sengupta, Judge, Calcutta High Court shall be the chief.

the chief guest and Justice Kanchan Prabhakar, Judge, Uttara High Court.

... Judge,
... High Court will be
... of honour on the
... The camp is
... organised by A&N
... Services Authority in
... with DASA

SACON Organises Trek to Mt. Harriet



students comprising 19 boys and 4 girls selected from different DNA clubs from 10 schools of Andamans enjoyed Tropical Rainforest in its grandeur. The students will now make a report based on their observations made during the field trip.

importance, threats and methods to conserve it. Childrens took keen interest in learning about the biological wealth of A&N Islands. More lecture, demonstration and field trips to sites of biological importance and to scientific stations will follow.

This is the 3rd edition of the VTP, being conducted in these islands. The program is being conducted by SACON, Coimbatore in collaboration with Department of Science and Technology, A&N.

Administration The Department of Biotechnology, Govt of India has funded the in-house residential training program.

Earlier the training program started with a power point presentation by Shri Deb Kumar Bhaudra Technical Officer, IIG on the topic "Biodiversity, with special reference to AdN Islands" on May 5th at KVK-CARI.

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Fete d

(Contd. from
Welcoming
occasion)

On the occasion, Sr. Scientist SACON informed that about 10-12 prize winning students in the state level will be able to take part in the National DNA festival expected to be conducted in Ahmadabad next year in the month of January. The function concluded with the vote of thanks proposed by Shri Rajan, Project Officer SACON.

Pedagogy ...

(Contd. from first page)

The main objective of the programme is to update the Post Graduate Teachers in content and pedagogy in identified and difficult areas. The programme coordinator is also assisted by Dr. L.K. Bhupia, Assistant Professor and Shri A.K. Sahi, Assistant Professor of RIE, Bhubaneswar. The programme came to an end with vote of thanks proposed by Dr. L.K. Bhupia, Assistant Professor, RIE, Bhubaneswar.

Free Momoco...

(Contd. from first page)

Ray inaugurated the programme at a simple function. Later, Dr MD John, Assistant Director Incharge and Dr Southa Lal, GDSMO examined and subvocal treatment to the patients. A

Workshop



ANNEXURES

Annexure I

Over all activities conducted in each DNA School during 2009 to 2013 academic years

| No: | School | 2009 - 10 | | | | | | 2010 - 11 | | | | | | 2011 - 12 | | | | | | 2012 - 13 | | | | | |
|-------|-----------------|-----------|---|----|----|----|-----|-----------|----|----|----|----|-----|-----------|----|----|----|----|-----|-----------|----|----|----|----|-----|
| | | L | F | AV | PR | O | Ttl | L | F | AV | PR | O | Ttl | L | F | AV | PR | O | Ttl | L | F | AV | PR | O | Ttl |
| 1 | KVI | 4 | 2 | 4 | 7 | 4 | 21 | 4 | 7 | 7 | 14 | 8 | 40 | 7 | 4 | 5 | 11 | 12 | 39 | 1 | 4 | 3 | 2 | 9 | 19 |
| 2 | KV2 | 2 | 0 | 1 | 5 | 1 | 9 | 6 | 6 | 6 | 15 | 5 | 38 | 4 | 3 | 5 | 4 | 5 | 21 | 0 | 0 | 0 | 0 | 4 | 4 |
| 3 | VKV | 1 | 0 | 1 | 2 | 1 | 5 | 2 | 2 | 2 | 4 | 8 | 18 | 3 | 1 | 4 | 4 | 5 | 17 | 8 | 1 | 1 | 4 | 6 | 20 |
| 4 | Model, PB | 1 | 0 | 1 | 0 | 0 | 2 | 6 | 5 | 6 | 8 | 7 | 32 | 3 | 3 | 3 | 6 | 1 | 16 | 3 | 3 | 4 | 1 | 1 | 12 |
| 5 | Nirmala | 1 | 0 | 1 | 0 | 0 | 2 | 2 | 7 | 4 | 10 | 12 | 35 | 4 | 11 | 6 | 11 | 13 | 45 | 2 | 4 | 0 | 0 | 0 | 6 |
| 6 | Ranagat, Sabari | 4 | 1 | 3 | 6 | 4 | 18 | 0 | 4 | 0 | 3 | 4 | 11 | 1 | 2 | 0 | 2 | 1 | 6 | 5 | 4 | 5 | 3 | 10 | 27 |
| 7 | JNV | 1 | 0 | 1 | 0 | 0 | 2 | 2 | 6 | 2 | 4 | 7 | 21 | 1 | 3 | 2 | 3 | 3 | 12 | 0 | 2 | 0 | 0 | 0 | 2 |
| 8 | Swadesh Nagar | 1 | 0 | 1 | 0 | 0 | 2 | 4 | 3 | 5 | 3 | 4 | 19 | 3 | 2 | 2 | 4 | 2 | 13 | 0 | 0 | 0 | 0 | 0 | 0 |
| 9 | Mayabunder | 4 | 1 | 4 | 5 | 9 | 23 | 2 | 5 | 4 | 1 | 5 | 17 | 4 | 2 | 3 | 5 | 3 | 17 | 0 | 0 | 0 | 0 | 0 | 0 |
| 10 | Diglipur | 2 | 0 | 2 | 5 | 7 | 16 | 1 | 3 | 1 | 2 | 2 | 9 | 4 | 4 | 0 | 4 | 2 | 14 | 3 | 3 | 1 | 3 | 0 | 10 |
| Total | | 21 | 4 | 19 | 30 | 26 | 100 | 29 | 48 | 37 | 64 | 62 | 240 | 34 | 35 | 30 | 54 | 47 | 200 | 22 | 21 | 14 | 13 | 30 | 100 |

L-Invited Lectures; F-Field/ Institutional Visits; AV- Audio Visual Shows; PR- Practical Works; O- Other Activities; Ttl- Total Programmes

Annexure II: Infrastructure supported to schools

| No | Name of Equipment | Numbers |
|----|---|-----------------------------------|
| 1 | Computer LG Flatron Monitor Mercury intel premium CPU LG super multi CD writer Logitech Digital speaker Logitech key board and Mouse | 10 |
| 2 | Canon Powershot Camera | 10 |
| 3 | Digital Weighing machine (Kern) | 10 |
| 4 | Binocular (Sakura) | 10 |
| 5 | Haemometer (Marienfeld) | 10 |
| 6 | Digital Hygro-thermometer (Eurolab) | 10 |
| 7 | Butterflies of India; by Thomas Gay, David Kehimkar&JagadishPunetha | 10 |
| 8 | Birds of Indian subcontinent ; by Richard Grimmett, Carol Inskipp& Tim Inskipp | 7 |
| 9 | The Book of Indian Butterflies; by IssacKehimkar | 4 |
| 10 | Sand in my Hands – An activity book on Sandy Beaches | 10 |
| 11 | Book of “Turtle Story”; by KarthikShanker | 10 |
| 12 | Water Sampling Kit | 5 |
| 13 | Ecolearning a Book -by Dr.Pramod | 10 |
| 14 | Note Books and pens for DNA Club members | 300 |
| 15 | Edusat Cardboard Model (Do it yourself) | 5 |
| 16 | *Garmin GPS 60 | 1 |
| 17 | *Cánon 450D SLR camera | 1 |
| 18 | *SONY LCD Projector | 1 |
| 19 | Demand Draft (DD) to conduct various nature Programmes in DNA Club partner school | 4x25,000 10x15,000 10x9,000 |
| 20 | *Permanent Slides biological specimens | 1 box |
| 21 | GARMIN GPS 72H | 10 |

* - For common use

Annexure III: List of Institutes involved in the DNA clubs project, Andaman and Nicobar Islands

| | |
|----|--|
| 1 | Anthropological Survey of India, Port Blair |
| 2 | Botanical Survey of India, Port Blair |
| 3 | Camp Organiser, Vanvasi |
| 4 | Central Agricultural Research Institute, A& N Islands Is |
| 5 | Department of Environment and Forests, A& N Islands |
| 6 | Department of Biotechnology, New Delhi |
| 7 | Department of Science and Technology, A& N Islands |
| 8 | Dept of Health, Andaman |
| 9 | Govt. Model. Sr. Sec. School, Mayabunder |
| 10 | Govt. Sr. Sec. School Diglipur |
| 11 | Govt. Sr. Sec. School Sabari Jn, Rangat |
| 12 | Govt. Sr. Sec. School Swadesh Nagar |
| 13 | Indian Institute of Geomagnetism, A& N Islands station |
| 14 | Kendra Vidyalaya.1, Port Blaire |
| 15 | Kendra Vidyalaya.2, Minnie Bay |
| 16 | Knobill Plantation, Port Blaire |
| 17 | KrishiVigyan Kendra (KVK), CARI, A&N Islands |
| 18 | Nature Conservation Foundation, Mysore |
| 19 | NCSC, A& N Islands |
| 20 | Nirmala. Sr. Sec. School. Port Blair |
| 21 | Salim Ali Centre for Ornithology & Natural History (SACON), Coimbatore |
| 22 | Science and Technology, Andaman and Nicobar Islands |
| 23 | Small Step Foundation, Andaman & Nicobar Islands |
| 24 | Tamil Nadu Agricultural University |
| 25 | TCI Clinic, Port Blaire |
| 26 | TOFARM, Tiruchurapalli, Tamil Nadu |
| 27 | University College, Trivandrum |
| 28 | University of AriculturalScinces, GKVK, Bangalore |
| 29 | Vivekananda Kendra Vidyalaya, Port Blair |
| 30 | Zoological Survey of India, Calicut |
| 31 | Zoological Survey of India, Port Blaire |
| 32 | Zoological Survey of India, Pune |

Annexure IV: List of guest lectures

| | Name of the Expert | Address | Topic |
|---|-----------------------|---|--|
| 1 | Dr. Ravishankaran | Sr. Scientist, Salim Ali Centre for Ornithology & Natural History, Coimbatore | Importance of Andaman and Nicobar Islands with reference to Narcondam Hornbill. |
| 2 | Dr. P.A. Azeez | Director, Salim Ali Centre for Ornithology & Natural History, Coimbatore | Interaction regarding Science |
| 3 | Mr. Ajay Saxena | Coservator of Forests, Andaman and Nicobar, Port Blair | Coral Reef ecosystem especially in Andaman Coastal |
| 4 | Dr. K. A. Subramanian | Scientist, WRS, ZSI, Pune | <ul style="list-style-type: none"> • Insects of the World. • Wetlands in India. • Biology of Dragonflies and Damselflies and their importance in the environment. • Aquatic insects. |
| 5 | Mr. E. Kunhikrishnan | Sr. Lecturer, University college, Trivandram | <ul style="list-style-type: none"> • Amazing nature, • Hot spots and Biodiversity of the World • Extinction. |

| | | | |
|----|-----------------------|---|---|
| | | | <ul style="list-style-type: none"> Himalayan Ecosystem. The Life of Butterflies and Moths. |
| 6 | Dr.RishikeshSinha | Sr. Scientific Officer, Science and Technology, Andaman Administration | Importance of Scientific observation in school children |
| 7 | Dr, T.V.R.S. Sharma | Principal Scientist and Head of Field crops Division, Central Agricultural Research Institute, Port Blair | Sanjeevani Medicine in relation with Ramayana |
| 8 | Dr.Grinson George | Scientist, Division of Fisheries, Central Agricultural Research Institute, Port Blair. | <ul style="list-style-type: none"> Satellite Oceanography relevance to islands Marine life |
| 9 | Dr. L. B. Singh | Scientist, KrishiVigyan Kendra, Sippighat, Central Agricultural Research Institute, Port Blair | <ul style="list-style-type: none"> Horticulture Weeds of Medicinal importance |
| 10 | Dr.Abhaya Kumar Singh | Scientist, KrishiVigyan Kendra, Sippighat Central Agricultural Research Institute, Port Blair | Nicobar Fawls and Domestic Cattle Management. |
| 11 | Dr.Kanakalatha | Scientist, KrishiVigyan Kendra, Sippighat, Central Agricultural Research Institute, Port Blair | Climbers and Shrubs of Andaman Islands |
| 12 | Mrs.Ravathi | M, Director TOFARM, Trichy, Tamin Nadu | <ul style="list-style-type: none"> Effect of Tsunami in Agricultural land of Nagapanam. Agriculture and their threats |
| 13 | Mr.Gopal | Project Officer, CPREEC, Central Agricultural Research Institute, Garacharna, Port Blair. | <ul style="list-style-type: none"> Marine Ecosystem of Andaman Islands Biodiversity of Andaman & Nicobar Islands |
| 14 | Mr. Alexander | Field expert, Luknow , Mayabunder, M.Andaman | Accompanied during field visits |
| 15 | Mr.ManchiSirish | Scientist, Salim Ali Centre for Ornithology & Natural History, Coimbatore | Bioresource conservation in India with reference to a case history of Edible nest Swiftlet in Andaman |

| | | | |
|----|--------------------|--|--|
| 16 | Dr.Sivaperumal | Scientist, Regional station , Zoological Survey of India, Port Blair | Wetlands and conservational importance of wetlands in India |
| 17 | Dr. P. T. Rajan | Sr. Scientist, Regional station Zoological Survey of India, Port Blair | Coral ecosystem. |
| 18 | Dr.Rajamaman | Senior Research fellow, Salim Ali Centre for Ornithology & Natural History, Coimbatore | <ul style="list-style-type: none"> • Avifauna of Andaman and Nicobar Islands. • Endemism in Andaman and Nicobar Islands. |
| 19 | Mr.DevakumarBhadra | Indian Institute of Geomagnetism, Andaman and Nicobar station | <ul style="list-style-type: none"> • Magnetic nature of Earth. • Biodiversity • Climate Change |
| 20 | Dr. S. P. Yadav | Scientist, Animal Biotechnology, Central Agricultural Research Institute,Port Blair | DNA and Basic component of DNA |
| 21 | Dr. C. Murugan | Scientist, Botanical Survey of India, Port Blair | Flora of Andaman Islands.1 |
| 22 | Dr. K.P. Rajesh | Scientist, Botanical Survey of India, Port Blair | Flora of Andaman Islands.2 |
| 23 | Mr. S. K. Sinha | Secretary, Andaman Nature Club and State Coordinator, NCSC, Andaman and Nicobar | Understanding Planet Earth. |
| 24 | Dr. V. Jayakumar | Scientist (Pathology), Division of Field Crops, Central Agricultural Research Institute, Port Blair | Integrated Farming System |
| 25 | Dr. P. Pramod | Sr. Scientist, Salim Ali Centre for Ornithology & Natural History, Coimbatore | <ul style="list-style-type: none"> • Birds • Students & Science |
| 26 | Mr. P. Rajan | Senior Research Fellow, Salim Ali Centre for | • Biodiversity of Andaman and Nicobar Islands. |

| | | | |
|----|----------------------|--|---|
| | | Ornithology & Natural History, Coimbatore. | <ul style="list-style-type: none"> • Avifauna of A&N Is • Butterflies of A&N Is |
| 27 | Dr.Ravishanker | Scientist, Division of NRM, Central Agricultural Research Institute, Port Blair | Natural Resource Management through integrated farming system |
| 28 | Dr.Mukul Bhatia | Medical officer, TCI Clinic, Port Blair, Andaman | Medical Check up |
| 29 | Mr. A.P. Zaibin | Senior Research Fellow, Salim Ali Centre for Ornithology & Natural History, Coimbatore. | Birds of Nicobar Islands |
| 30 | Mr. P. Nehru. | Senior Research Fellow, Salim Ali Centre for Ornithology & Natural History, Coimbatore. | Flora of Nicobar Islands |
| 31 | Mrs.Priya. K | Research Scholar, Salim Ali Centre for Ornithology & Natural History, Coimbatore. | Genetic Engineering and genetic diversity |
| 32 | Prof.Ganeshiah. K. N | School of Ecology and Conservation University of Agricultural Sciences GKVK campus,Bangalore | Bio-resources Why Should We Conserve? |
| 33 | Dr.Jomy Thomas | Head Of the Department Pala, St' Thomas College, Kottayam, Kerala | Vegetation of Andaman Islands and Its Importance. |
| 34 | Dr.JaferPalot | Zoological Survey of India, Western Ghat Field Station, Calicut, Kerala | Butterflies of India with special reference to Andaman and Nicobar Islands |
| 35 | Dr. N.C. Choudhuri | KrishiVigyan Kendra (KVK), Agricultural Research Institute, Sippighat, Port Blair | Animal husbandry, poultry farming and cattle rearing |
| 36 | Dr.RajkumarRajan | Scientist, Zoological Survey of India, Port Blair, Andaman and Nicobar Islands | Corals and Effect of Tsunami on Coral reefs |
| | Dr.Nagesh Ram | Scientist, KrishiVigyan Kendra (KVK), Central | <ul style="list-style-type: none"> • Mangrove Ecosystem |

| | | | |
|----|------------------------|---|---|
| 37 | | Agricultural Research Institute, Sippighat, Port Blair | • Diversity of fishes and Conservation: a challenge |
| 38 | Mr.TamalMandal | Research Scholar, Zoological Survey of India, Port Blair, Andaman and Nicobar Islands | Corals of A&N Islands |
| 39 | Dr.P.Krishnan | Scientist, Department of fisheries Central Agricultural Research Institute, Port Blair, A&N Islands | Corals, Climatic Change |
| 40 | Mr.Senthil Kumar, IFS | Director, department of Science and Technology, Andaman and Nicobar Administration. Haddo, Port Blair | Forest Ecosystem |
| 41 | Dr.SachidanandhaSwaine | Scientist, Central Agricultural Research Institute, Port Blair, A&N Islands | Post harvest management of field crops |
| 42 | Ms. Elrika D'souza | Research Scholar, Nature Conservation Foundation, Mysore | Dugong and its Character |
| 43 | Mr. Vardhan Patankar | Research Scholar, Nature Conservation Foundation, Mysore | Corals and Coral associated Organisms. |
| 44 | Mr.AbhishekSaha | GTT Bio, Vivekananda Kendra Vidyalaya, Port Blair, Andaman | Biodiversity |
| 45 | Mr.JohnsonBabu | Dept of Health, Andaman | Diseases |
| 46 | Ms.TanazKnobhil | Knobill Plantation. Haddo Port Blair, Andaman Islands | Different type of spices in Andaman and Nicobar islands |
| 47 | Dr. P. Arun | Scientist, dept: of Biotechnology Central Agricultural Research Institute, Port Blair, A&N Islands | Basics of Biotechnology |
| 48 | Mr.S.K.Chachurvedi | PGT Bio, kV.1, Port Blair, Andaman and Nicobar | Ecology |

| | | |
|----|--|------------------|
| | Islands. | |
| 49 | Prof. Ganesh Kumar Professor, Tamil Nadu Agricultural University, Coimbatore | Insect diversity |

| | | | |
|----|---------------------|---|--|
| 50 | Mr. Suresh Mazumdar | PGT Bio, Govt. Sr. Sec. School Diglipur, North Andaman | Our surrounding |
| 51 | Mr. Jacob John | PGT Bio, Govt. Sr. Sec. School Swadesh Nagar, Middle Andaman | Endemism in Andaman & Nicobar Islands |
| 52 | Mrs. Beena Daniel | PGT Bio, Govt. Model. Sr. Sec. School, Mayabunder, Middle Andaman | Biodiversity and Conservation |
| 53 | Mr. OmPrakash | PGT Phy, Govt. Model. Sr. Sec. School, Mayabunder, Middle Andaman | Science and it's importance |
| 54 | Mrs. Renu Mishra | PGT Bio, Nirmala. Sr. Sec. School. Port Blair, South Andaman | Cell division |
| 55 | Mr. K.K Barik | Anthropological Survey of India, Port Blair. Andaman and Nicobar Islands | Anthropology |
| 56 | Mr. Ramu. G | PGT Che, Nirmala. Sr. Sec. School. Port Blair, South Andaman | Biodiversity |
| 57 | Mrs. Manju Singh | PGT Bio, Vivekananda Kendra Vidyalaya, Port Blair | Changing climates of Andaman and Nicobar Islands |
| 58 | Dr.S.K.Mondal | PGT Chem, Govt. Sr. Sec. School Sabarijn, Rangat, M. Andaman | Medicinal Plants |
| 59 | Mrs. Kalaiselvi | PGT Bio, kV.2, Minnie Bay, Andaman and Nicobar Islands. | Biodiversity |

| | | | |
|----|--------------------------|--|---|
| 60 | Mr. M. P. Meena | PGT Bio, kV.2, Minnie Bay, Andaman and Nicobar Islands. | Biodiversity |
| 60 | Mr. U. S. Yadav | GTT Bio, kV.1, Port Blair, Andaman and Nicobar Islands. | Biodiversity |
| 62 | Mr. Raghu | Palakkad, Kerala | Indian Heritage |
| 63 | Mrs. Archana | Camp Organiser, Vanvasi | Tribals of Andaman |
| 64 | Mr. Suresh Elomen. | Wildlife Film Maker, Trivandram Kerala | Wildlife Films |
| 65 | Mr. Chanchal Singh. | Coordinator Small Step Foundation Andaman & Nicobar Islands | Campaign against Plastics |
| 66 | Mr. Deepak | Research Scholar Zoological Survey of India Andaman & Nicobar Islands. | Mammals of Andaman & Nicobar Islands |
| 67 | Mr. Pranay Kumar Singh. | Technical Officer, Krishi Vigyan Kendra (KVK), CARI, Sippighat, Port Blair | Biosheild for coastal ecosystem by |
| 68 | Dr. Arun Day | Scientist, dept: of Biotechnology Central Agricultural Research Institute, Port Blair, A&N Islands | Biotechnology and it's in our life |
| 69 | Mr. Johnson Babu | Department of Health Andaman and Nicobar Administration Port Blair | Spread and control of malaria |
| 70 | Mr. Sashok Bhattacharjee | Teacher, Govt. Sr. Sec. School Swadesh Nagar, Middle Andaman | Structure and function of our ecosystem |

Annexure V: List of Students Participated in VTP'2011

| SL. No: | Name of the Student | Name of the School | Residential Address |
|---------|------------------------|--|--------------------------------|
| 1 | Snehalayadarshini | Nirmala Sr. Sec. School, Haddo Post, Port Blair | Nikethan Colony School Line |
| 2 | SanjoyBala | Govt. Sr. Sec. School Swedesh Nagar | Billy Ground Middle andaman |
| 3 | SapnaBiswas | Govt. Sr. Sec. School Swedesh Nagar | Billy Ground Middle Andaman |
| 4 | AnamikaGuha | Govt. Sr. Sec. School Swedesh Nagar | Billy Ground Middle Andaman |
| 5 | Ashish Kumar Pillai | Vivekananda Kendra Vidyalaya, PB | Bargad Line, Port Blair |
| 6 | K. Mohammed Waseem | Vivekananda Kendra Vidyalaya, PB | Haddo Port Blair |
| 7 | B. Sarthik | Vivekananda Kendra Vidyalaya, PB | Shadipur Port blair |
| 8 | Om SaiMurugan | Govt. Model. Sr. Sec.School Mayabunder | Mayabunder Middle Andaman |
| 9 | Ravi Chandran | Govt. Model. Sr. Sec.School Mayabunder | Mayabunder Middle Andaman |
| 10 | Yogesh | Govt. Model. Sr. Sec.School Mayabunder | Mayabunder Middle Andaman |
| 11 | P. Naveen | Kendriya No.1, Aberdeen Bazar, Port Blair | Lyllypure Haddo |
| 12 | Yogendra Singh Panchal | Kendriya No.1, Aberdeen Bazar, Port Blair | Ranchi Basthy Lambaline |
| 13 | AshishParmar | Kendriya No.2, Minnie Bay, Port Blair | Minibay, Port Blair |
| 14 | ShubamNegi | Kendriya No.2, Minnie Bay, Port Blair | Minibay, Port Blair |
| 15 | Manish Indal | Kendriya No.2, Minnie Bay, Port Blair | Minibay, Port Blair |
| 16 | Sarath. | Govt. Sr. Sec. School SabariJn, Rangat, MA | Rangat Middle Andaman |
| 17 | Deepa Rani Mallick | JavaharNavodayaVidyalaya Panchawati, MA | Ograbrang Thushnabad |
| 18 | D. Naveen | Govt. Sr. Sec. School SabariJn, Rangat, MA | Rangat Middle Andaman |
| 19 | Pabitra Das | Govt. Sr. Sec. School Diglipur, NA | Madhupur Diglipur |
| 20 | M. Kathikayan | Govt. Sr. Sec. School Diglipur | R.K Gram Diglipur |
| 21 | K.R. Abhishek | Govt. Model. Sr. Sec.School Port Blair | Bird Line Port Blair |
| 22 | Parthipan. J | Govt. Model. Sr. Sec.School Port Blair | Shadipur Port Blair |

Annexure VI

Winners list of state level DNA club festival 2010-2011

Elocution Juniors-

| | | | |
|-----|----------------|---|------|
| I | V. Jenani | Vivekananda Kendra Vidyalaya, Lambaline | VI |
| II | L.K. Nidhi | KendriyaVidyalaya No.1 Port Blair | VII |
| III | PranjaliPandey | Nirmala Sr. Sec. School Port Blair | VIII |

Elocution seniors

| | | | |
|-----|---------------|---|----|
| I | AdityaJha | KendriyaVidyalaya No. 2 Mini Bay | IX |
| I | Shivani Singh | KendriyaVidyalaya No. 2 Mini Bay | IX |
| II | N. Ashwini | Vivekananda Kendra Vidyalaya, Lambaline | X |
| III | ReshmaMalo | Govt. Sr. Sec. School, Swadesh Nagar | XI |

Poster Making

| | | | |
|-----|---------------------|--|----|
| I | G. Naveen | KendriyaVidyalaya No.1 Port Blair | X |
| II | T. Mohan Babu | Govt. Model. Sr. Sec. School, Mayabunder | XI |
| III | Amit Kumar Mazumdar | J.N.V Panchawati, Rangat | XI |
| III | S. Kartik | J.N.V Panchawati, Rangat | XI |

Model Presentation

| | | | |
|----|----------------|--|----|
| I | Prerna. Dubey | Govt. Model. Sr. Sec. School, Port Blair | XI |
| I | SnehaDutta | Vivekananda Kendra Vidyalaya, Lambaline | XI |
| II | Rishabh Mishra | KendriyaVidyalaya No.1 Port Blair | X |

Quiz

| | | | |
|-----|---------------------|---|----|
| I | R. Sanish | Vivekananda Kendra Vidyalaya, Lambaline | XI |
| | Praveen Nair | Vivekananda Kendra Vidyalaya, Lambaline | XI |
| II | Aravind. S | KendriyaVidyalaya No-2 Mini Bay | XI |
| | NihalNayak | KendriyaVidyalaya No-2 Mini Bay | XI |
| III | N. Ganesh Rajan | J.N.V Panchawati | XI |
| | Amit Kumar Mazumdar | J.N.V Panchawati, Rangat | XI |

Paintings

| | | | |
|----|---------------|--|------|
| I | J. Venkatesh | Govt. Model. Sr. Sec. School, Port Blair | X |
| I | Nadeem Ahmed | Govt. Model. Sr. Sec. School, Port Blair | X |
| II | Erik Kerketta | Nirmala Sr. Sec. School Port Blair | VIII |

Debate

| | | | |
|-----|---------------------|--|----|
| I | Susmoy Das | KendriyaVidyalaya No.1 Port Blair | XI |
| | RaheelaYounus | Govt. Model. Sr. Sec. School, Port Blair | XI |
| II | Smrithi. M. Nair | Vivekananda Kendra Vidyalaya, Lambaline | XI |
| | PrincyPriya | Nirmala Sr. Sec. School Port Blair | X |
| III | Apoorva. G | KendriyaVidyalaya No.1 Port Blair | XI |
| | Amit Kumar Mazumdar | J.N.V Panchawati, Rangat | XI |

Annexure VII: List of resource persons who worked in DNA clubs project, Andaman

| | Name | Post | Period |
|---|--------------------|-------------------|-----------------------|
| 1 | Dr.Rajamamanan | Project Assistant | De 2007- June 2008 |
| 2 | Mr.P.Rajan | SRF | Apr 2008-March 2013 |
| 3 | Mr.Mahesh | Project Assistant | Sep 2009 – March 2010 |
| 4 | Ms.Rekha | Project Assistant | March 2010 – Sep 2010 |
| 5 | Mrs.Priya | Project Assistant | Sep 2010- Aug 2011 |
| 6 | Ms.SuhirthaMuhil M | Project Assistant | Aug 2011-March 2013 |