

Best Practices

Anandaram Dhekial Phookan College, Nagaon, Assam

The college has adopted two best practices, promoting scientific temperament through creation of awareness of Foldscope and involving the students in social activities through NCC

Best Practice -1

1. Title of the Practice

Promoting scientific temperament through creation of awareness of Foldscope

2. Objectives of the Practice

- To perform research entitled "Microscopic characterization of Herbal medicines of North east India" using Foldscope
- To demonstrate foldscope assembly as a teaching tool
- To develop curiosity and excitement of scientific exploration among students and researchers using foldscope.
- To exchange ideas and views around the world using foldscope community
- Collaborative activities among the students.

3. The Context


A Foldscope, a low-cost science tool, is an optical microscope that can be assembled from simple components, including a sheet of paper and a lens. It was developed by Dr. Manu Prakash and designed to cost less than US\$1 to build. It is part of the "frugal science" movement which aims to make cheap and easy tools available for scientific use in the developing world.

The Department of Biotechnology (DBT), Government of India and the Prakash Lab at Stanford University, USA signed an agreement to bring the Foldscope to India to encourage curiosity in science. It is being used as a teaching tool for the students in biology, chemistry, physics and many other streams.

Dr. Mousmi Saikia, Dept. of Herbal Science & Technology, and Project Investigator of the Indo-US Foldscope project, has been received a research grant to work in the title "Microscopic characterization of Herbal medicines of North east India". Moreover the aim of this project is to facilitate the adoption of Foldscope as an educational and research tool by students, teachers, scholars, scientists and the general people.

4. The Practice

The main objective of the research project was microscopic characterization of some potential medicinal plants and crude formulations used in the north eastern region of India with the help Foldscope. Field survey and documentation of the medicinal plants with geo-referencing are done in the Nagaon and Dhemaji District of Assam. In this study, 60 potential medicinal plant species used in treatment of various diseases by the local tribes are collected and selected


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for morphological and anatomical (i.e., T.S., L.S., of leaf, stem, rhizome, root; structure of stomata, trichome, etc.) studies. The study also includes the intercellular and intracellular contents like structure of starch grain, calcium oxalates crystals, oleoresin compounds. The plant species are preserved in the form of herbarium in the Institution. The powder microscopy is under study.


DNA barcoding of six endangered medicinal plant has been done at NFB, G N Khalsa College, Mumbai (as the facilities are not available in our institution) and submitted to NCBI. The nucleotide sequences are available in the NCBI database.

As a part of the other objectives, we have conducted 18 hands-on-training and outreach programme and 5 workshops on assembly & research perspectives of the foldscope tool in the local schools and colleges addressing local problems.

As per the DBT guidelines we are twinned with 9 other regions of Indian institutions and organized workshops, outreach programs and 'Student Exchange Programs'.

Twinning partners from the (Other Regions of India) Institutions and activities undertaken:

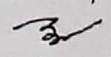
Sl.no.	Twining Partners	Activities Done
1.	Dr. Dinesh Khedkar, Associate Professor, Dept. of Botany, Shri Shivaji Science College, Amravati- 444603, Maharashtra	Students exchange programme, 9 th -10 th Oct 2018 at Shri Shivaji Science College Amravati, Maharashtra 27 th -28 th Nov 2018 at ADP college, Nagaon, Assam
2.	Dr. Mamta Bhat, Assistant Professor, Centre for Biodiversity Studies, School of Biosciences and Biotechnology, RGSB University, Rajouri-185234, Jammu and Kashmir	Workshop on "Foldscope – Twining programme for Outreach & Research Activity", 25th Feb 2019
3.	Dr. Arun Dev Sharma, Lyallpur Khalsa College, Jalandhar, Punjab	Workshop on "Foldscope – Twining programme for Outreach & Research Activity", 25th Feb 2019
4.	Dr. Shobha A. Waghmode, Associate Professor, Dept. of Chemistry, Abasaheb Garware College, Pune- 411004, Maharashtra	Workshop on Foldscope & Students exchange programme, 27 th Nov 2018 at ADP college, Nagaon, Assam
5.	Dr. Ramachandran Kotharambath, Assistant Professor, Dept. of Animal Science, Central University of Kerala-671316	Workshop on Foldscope & Students exchange programme, 27 th Nov 2018 at ADP college, Nagaon, Assam


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6.	Dr. Anupma Harshal W. Associate Professor, Dept. of Chemistry, Kishinchand Chellaram College, Mumbai, Maharashtra	3 days Workshop on "Foldscope and its Research Perspectives", 29-31st Oct 2018 , at Nowgong Girl's College, Ramanujan High School, St. Boniface High School & ADP College, Nagaon
7.	Dr. Anil Prakash, Professor, Department of Microbiology, Barkatullah University, Bhopal-462026, Madhya Pradesh	-
8.	Dr. Baby Divya, Assistant Professor, Dept. of Zoology, St. Xavier's College for Women, Aluva- 689101, Kerala	Workshop on "Foldscope – Twinning programme for Outreach & Research Activity", 25th Feb 2019
9.	Dr. PrateekShilpakar & Dr. Mayur Shah, Gujarat Vidyapith, Dist- Gandhinagar, Gujarat, Pin- 382320, E-mail- pshilpkar@yahoo.com	Workshop on "Foldscope – Twinning programme for Outreach & Research Activity", 25th Feb 2019

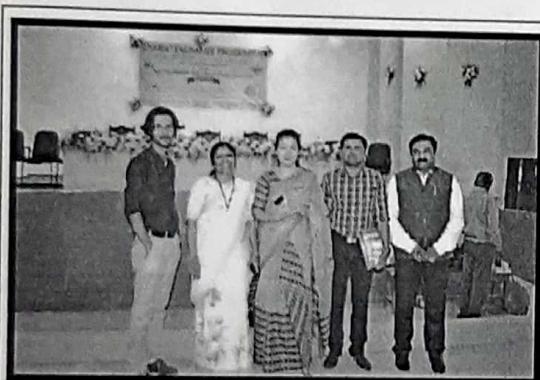
Extension and Outreach programmes:

Sl.no.	Date	School/College	Region	Class/Grade	Student Number
1	27 th & 28 th Nov 18	ADP College, Nagaon	At Nagaon, Assam Twinning with Shri Shivaji Science College, Amravati	Graduate & PG Students	90
2	31 th Oct 18	Nowgong Girls College,	Nagaon, Assam	Graduate Science Students B.Sc.	60
3	30 th Oct 18	Ramanujan High School		Grade IX	60
4	30 th Oct 18	St. Boniface High School		Grade IX & XI	60
5	29 th Oct 18			Graduate & PG Students	50
6	9 th & 10 th Oct 18	Shri Shivaji Science College, Shivaji Nagar, Amravati		At Amravati twinning with ADP College, Nagaon, Assam	Graduate & PG Students
7	9 th Oct 18	ADP College	Visit to National Facility for Biopharmaceuticals Twinning	Graduate & PG Students	16
8	1 st Oct 18	Nagaon Govt. Boys High School	Nagaon, Assam	School Students Grade VI to X	200

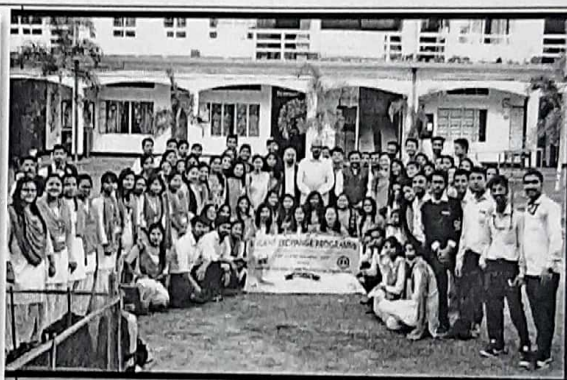

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9	25 th Sept 18	Dhing College	Dhing, Nagaon, Assam	Graduate B.Sc.	50
10	25 th Aug 18	NETES Institute of Pharmaceutical Science (NIPS), Mirza	Mirza, Guwahati	B. Pharm students	60
11	4 th Aug 18	Institutional Biotech Hub, Department of Biotechnology, Gauhati University	Gauhati University, Guwahati, Assam	Research Scholars, PG Students, Scientist	18
16	9 th July, 2018	Sripani Higher Secondary School, Sripani,	Dhemaji, Assam	Class IX & X	29
17	6 th July, 2018	Sankardev Bidyaniketan	Dhemaji, Assam	Class X	50
18	26 th June 18	ADP College	Nagaon, Assam	PG students	30


Workshop pictures:

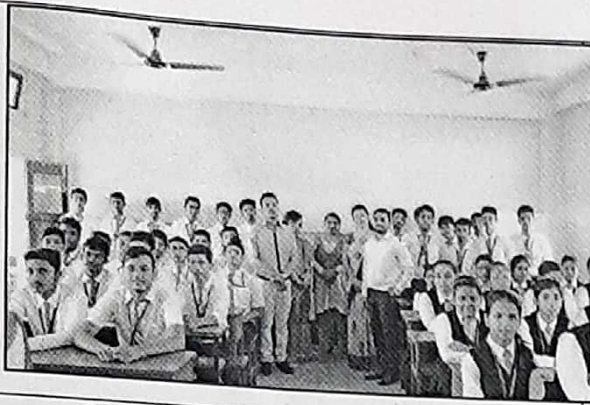


Twining Partners and PI's: Dr. Ramachandran Kotharambath, Dr. Shobha Waghmode, Dr. Mousmi Saikia, Dr. Krishnappa Rangappa & Dr. Dinesh Khedkar, at ADP College, Nagaon on 27th Nov 2018



Students and Faculty members of ADP College, Nagaon, Assam and Shri Shivaji Science College, Amravati, Maharashtra, at ADP College on 27th Nov 2018

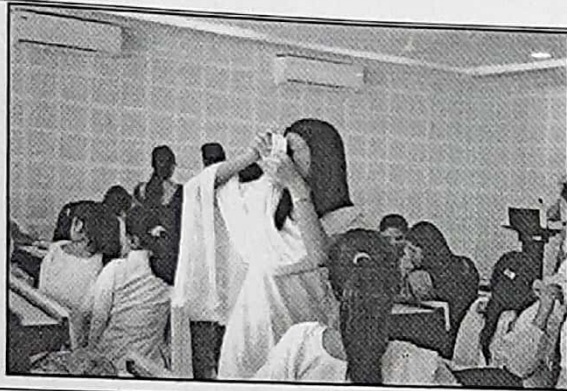

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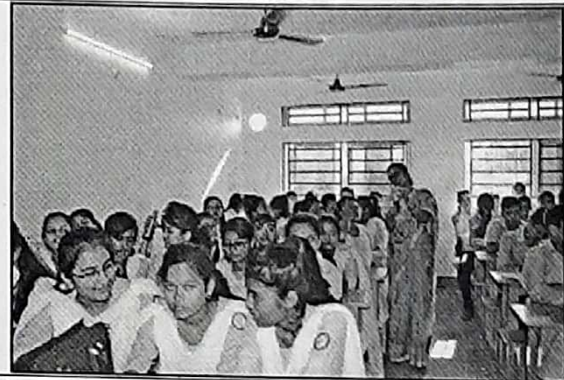
St. Boniface HS on 30th Oct 2018



Workshop at ADP College on 29th Oct 2018



Outreach at Nowgaong Girls College on 31st Oct 2018




Dr. Anupma Harshal at Ramanujan HS on 30th Oct 2018



'Student Exchange Program' at Amravati on 9th Oct 2018



Students and Faculty members of ADP College, Nagaon, Assam and Shri Shivaji Science College, Amravati, Maharashtra, at Amravati on 9th Oct 2018


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NFB, Khalsa College, Mumbai on 8th Oct 2018



Field survey at Northern Range, Salona, Reserve Forest on 18th Nov 2018



Bengali HS, at District Level Science Congress held at Nagaon Govt. Boys, 1st Oct 2018




Sandipani HS at District Level Science Congress held at Nagaon Govt. Boys, 1st Oct 2018

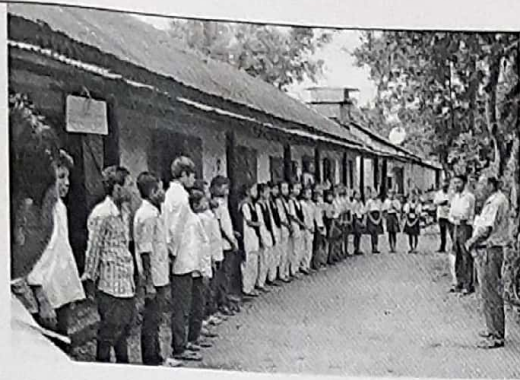


Outreach at Dhing College, Nagaon on 25th Sept 2018



Workshop at NIPS Mirza, Guwahati on 25th August 2018

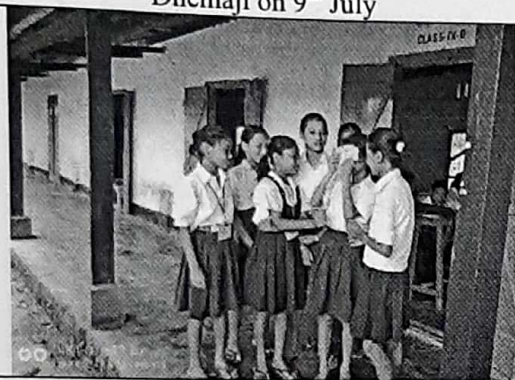

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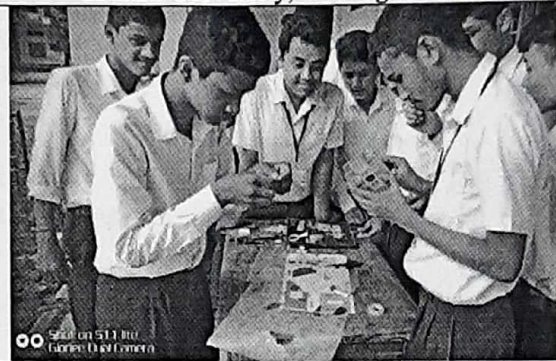
Sripani Higher Secondary School, Sripani,
Dhemaji on 9th July



IBT Hub, Department of Biotechnology,
Gauhati University, 4th August 2018



Sripani Higher Secondary School, Sripani,
Dhemaji on 9th July



Sankardev Bidyaniketan, Dhemaji on 6th July
2018

Pictures posted on <https://microcosmos.foldscope.com>: 9

Pictures urls:

<https://microcosmos.foldscope.com/?p=170309>

<https://microcosmos.foldscope.com/?p=170609>

<https://microcosmos.foldscope.com/?p=171692>

<https://microcosmos.foldscope.com/?p=171957>


<https://microcosmos.foldscope.com/?p=171973>

<https://microcosmos.foldscope.com/?p=44546>

<https://microcosmos.foldscope.com/?p=67519>

<https://microcosmos.foldscope.com/?p=67542>

<https://microcosmos.foldscope.com/?p=67530>


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5. Evidence of Success

Foldscope has led to the college emerging as a leader in creating science awareness in the district. Many camps and seminars have been organized to create awareness about Foldscope, which is a low cost scientific apparatus. The involvement of students from the neighboring schools and colleges has created a positive atmosphere in the entire district. Students from college and university outside Assam also have visited ADP College under Foldscope collaboration programme. The students of ADP College have visited those institutions in turn. This has widened the intellectual horizon of the students.

The practice has been going on successfully with the following achievements:

- Students of the locality were well aware of the foldscope and its usage.
- Some of the schools purchased foldscope for their regular practical work.
- 5 M.Sc. thesis were awarded by Gauhati University related to Foldscope project.
- 12 nucleotide sequences published in NCBI database.
- 3 papers published
- 1 book published
- 3 seminar presentations (1 oral & 2 poster)
- 18 extension program, 5 workshops and 1 International e-conference conducted.

6. Problems Encountered and Resources Required

The activities done were a part of the project funded by Department of Biotechnology (DBT) Govt. of India. So there was availability of fund and the works were done smoothly but further funding from the college is required for future progress.


Best Practice -2

1. Title of the Practice

Anandaram Dhekial Phookan (ADP) College NCC Unit and its cadets bringing laurels to both the Institution and the District

2. Objectives of the Practice

- To train the students of the college to become confident, committed and competent leaders in all walk of life.
- To enhance the awareness level of students being responsible citizens of the country.


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- To conduct different activities contributing towards society in terms of social and community development
- To provide an environment in the college and motivate the cadets to join the armed forces as a career.

3. The Context


In 1963 under Dr. Narayan Ch. Barman's guidance (then Vice Principal of our college) a company of NCC was formed with 200 students cadets under 8th Assam NCC. As the members increased and there was a need for a separate officer to head the company, the HoD of the Education Department Narendra Nath Saikia was given the same Pre-Commission Training and appointed as a Part-time NCC Officer of the College. Thereafter, the then HOD of the English Department Rabindra Bora took charge as the NCC officer for some time. After Mr. Bora's retirement the HoD of the Geography Department Mr. Khagendra Chamdra Mahela took Pre-Commission Training and continued as NCC officer of the college from 1981. He had Promoted to Vice-Principal in the year of 2013. In 2013 Ram Babu Rai was recruited as NCC office Assistant to accelerate the Cadets. In 2016 Dr. Ajit Bharali, Assistant Professor of the Assamese Department took over as the NCC Officer and had been successfully continued upto 2018.

In 2018, November, Principal Dr Surajit Kr Bhagawoti gave the responsibility to Dr. Jalin Prakash chetia, Assistant Professor of the Assamese Department. He took over as the NCC Officer in-Charge and has been successfully continuing as the same till date.

By now, quite a good number of cadets from our college have won laurels to the institution, through their participation in various competitions and camps, and a few have placed themselves at respectable positions, largely on account of their credentials in the NCC.

4. The Practice

Anandaram Dhekial Phookan (ADP) College NCC Unit has a glorious history having its cadets bringing laurels to both the Institution and the District. It is an active cadets Unit. The Cadets participate in CATC (Combined Annual Training Camp), ATC (Annual Training Camp), Army Attachment Camp, National Integration Camp (NIC), Sainik Camp, Republic Day Camp (RDC), TSC (Thal Sainik Camp), Rock Climbing Camp, etc quite regularly. During the tenure of Dr. Narayan Chandra Barman as NCC Officer, one NCC Cadet Krishna Sarma successfully participated and completed under the guidance of Tenzing Norgay, the first conquer of the


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
Mount Everest, under the aegis of Jawaharlal Nehru Mountaineering Institute and in 42-Basic Mountaineering Institute the basic training of mountain and snow climbing and had shown special skills in the same.

Cadet Krishna Sarma later joined the Indian Army as Commissioned Officer and went on to become and retired as a Major. There are numerous examples of our NCC Cadets acquiring NCC 'C' Certificate and joining the Army, the Police and other such Institutions.

At present 75 NCC Cadets allotted as per 8 Assam Bn NCC (rectified by NER Directorate) in the College. The college had introduced 33 percent reservation for the girls Cadets from 2012. Like the boys, the girl cadets too have shown excellence in different fields. Our cadets have been proving their mettle in different events like Annual Training Camp, Basic Leadership Camp, Social Service Camp, Republic Day Camp etc from time to time.

Job Placement (2015 to 2020)

SL. NO.	NAME	NAME OF THE JOB	BATCH YEAR
1	Pranjal Sharma	Indian Army	2015
2	Mrinmoy Borah	Indian Army	2015
3	Abhinash Borah	Indian Army	2015
4	Biswajit Das	Assam Police	2015
5	Tarun Jyoti Bora	Indian Air Force	2016
6	Rupam Jyoti Patar	Indian Army	2016
7	Karan Bordoloi	Assam Police (Sub-Inspector)	2016
8	Sankar Jyoti Saikia	Crpf	2016
9	Joy Das	Forest Guard (Special Force)	2016
10	Dulumoni Nath	Indian Army	2016
11	Pallab Jyoti Nath	Indian Navy	2017
12	Sourav Dewri	Indian Army	2017



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National Camp Attended by the Cadets of the College (2015 – 2020)

SL. NO.	NAME	RANK	REGIMENTAL NO.	NAME OF THE CAMP	BATCH YEAR
1.	Dhruba Jyoti Bora	SUO	AS18SDA/112263	EBSB I-2019 SECUNDERBAD	2018
2.	Harsha Bora	CDT	AS18SDA/112271	EBSB I-2019 SECUNDERBAD	2018
3.	Amir Hussain	CDT	AS18SDA/112264	EBSB II-2019 SILCHAR	2018
4.	Poli Kakati	SGT	AS18SWA/112288	EBSB II-2019 SILCHAR	2018
5.	Sourav Senapoti	UO	AS17SDA112210	EBSB I-2018 TEZPUR UNIVERSITY	2017
6.	Rocktim Borah	UO	AS16SDA112080	NIC	2016
7.	Hemanta Kr Saikia	SUO	AS16SDA112083	BLC	2016
8.	Dharitri Saikia	UO	AS16SWA112119	NIC	2016
9.	Mondira Das	SGT	AS16SDA112117	BLC	2016
10.	Azhar Uddin	UO	AS16SDA112094	BLC	2016
11.	Priyanshi Kakati	CDT	AS16SWA112105	BLC	2016
12.	Karan Baglary	CDT	AS16SDA112077	NIC	2016
13.	Kangkan Kalita	SGT	AS16SDA112087	ALC	2016

Special Camp attended by our Cadets (2015-2020)

SL. NO.	NAME	REGIMENTAL NO.	SPECIAL CAMP
1	Abhijit Kumar Saikia	ASD/13/62106	MOUNTAINING CAMP – 2015
2	Munidra Nath		THAL SAINIK CAMP – 2015


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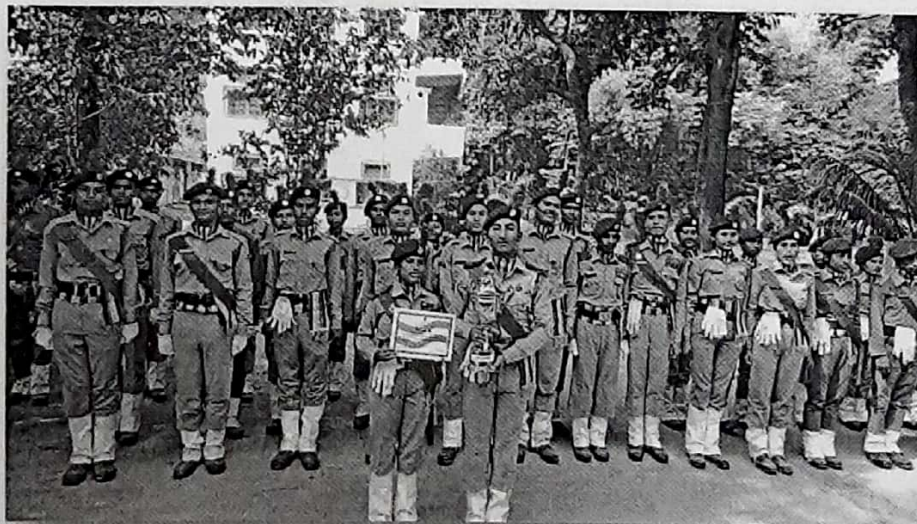
3	Debojit Mallik	ASD/14/62134	THAL SAIKIA CAMP – 2016
4	Majir Enjaipi	ASW/15/62124	THAL SAINIK CAMP – 2016
5	Paban Saikia	AS17SDA112221	MOUNTAINING CAMP – 2018
6	Bidyut Jyoti Nath	AS17SDA112206	RDC – 2019


5. Evidence of Success

The following programmes were organized by ADP College NCC unit every year:

Republic Day Celebration Programme at ADP College Campus, Republic Day Celebration Programme at Nurul Amin Stadium, Sadar, Nagaon, World No Tobacco Day, Tree Plantation Awareness Programme, Awareness Programme on Disaster Management, Swachh Bharat Abhijan, Health Care Programme, Yoga Workshop, NCC Plogging Day, ADP College NCC Unit Independence Day Celebration etc.

The following are the photographs showing some evidences of success





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1st Prize won in 2018 by ADP College NCC Unit, 8 Assam Bn at District March first in Nurul Amin Stadium, Organised by District Administration, Nagaon



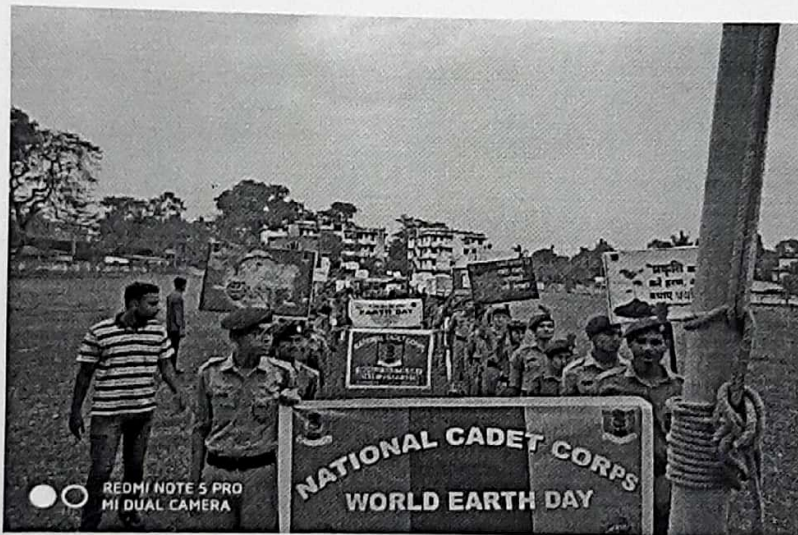
ADP College Cadet in NER (North-East Region) Directorate, Shillong, Meghalaya





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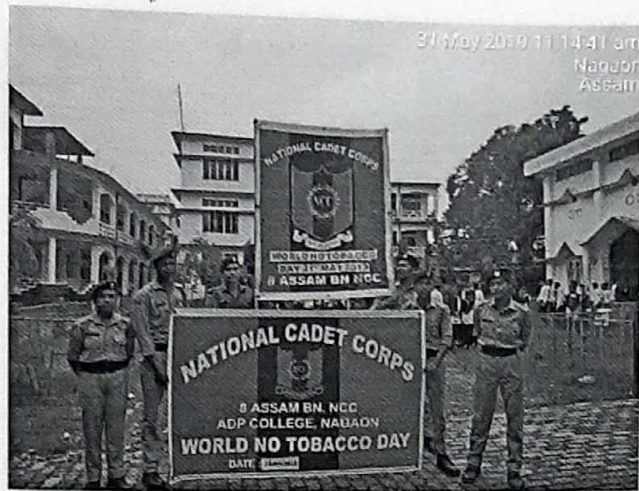


NCC Day Celebration on 1st December 2018, Flag Hoisting by ANO- Major Bhupal Kalita

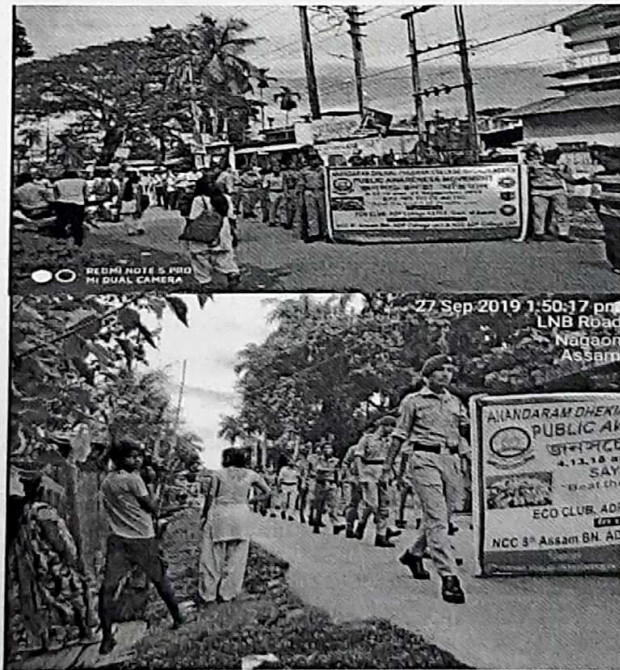


NCC, ADP College Unit Programme on WORLD EARTH DAY on 22 APR 2019, at Police Reserve Field, Nagaon Sadar, Organised by 8 Assam Bn NCC.



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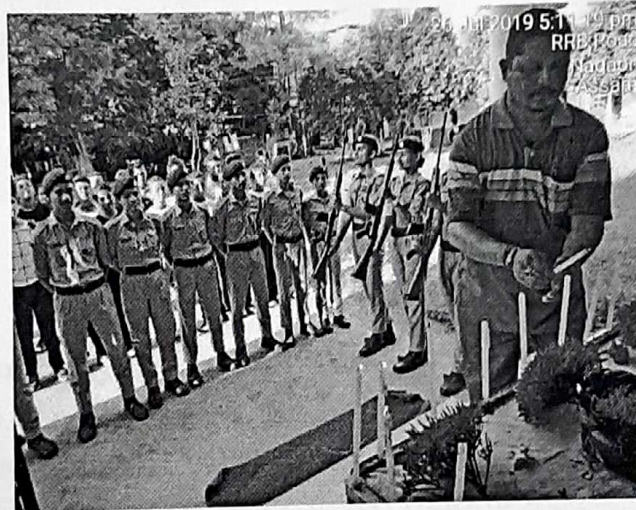


ADP College NCC Unit on WORLD NO TOBACCO DAY Programme, on 31st May 2019




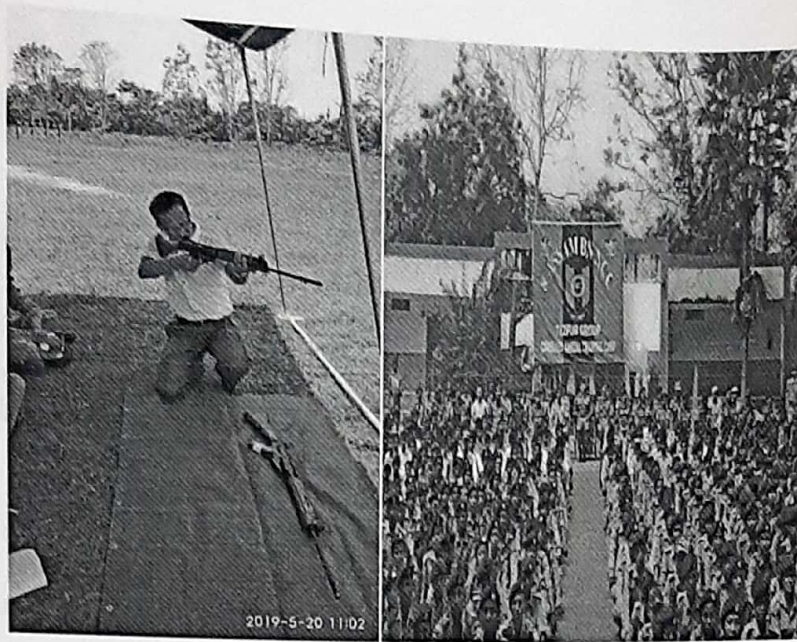
Public Awareness Programme, Say No To Plastic


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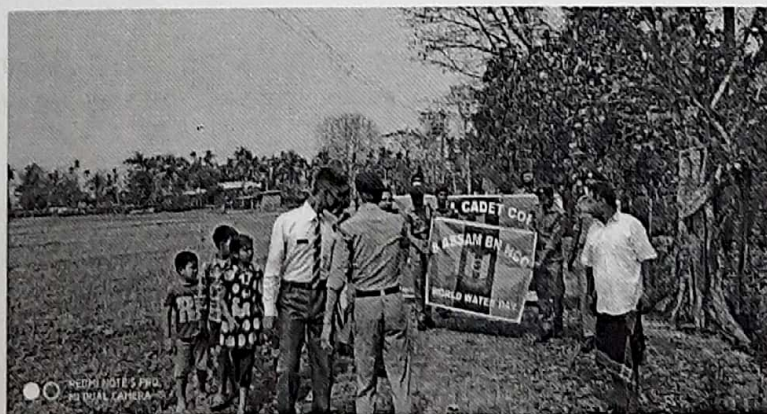
NCC, ADP College Unit **KARGIL VIJAY DIWAS** celebration on 26th July 2019



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ADP College NCC Cadets in **Combined Annual Training Camp from 13th to 23rd May 2019**. The Camp was Organized by 8 Assam Bn NCC. ADP College NCC Cadets took part in the 10 Days Programme and achieved 30 Medals. The aims and objective of the CATC Camp was to train the Cadets

COVID-19 Awareness Programme on 21st March, 2020, Organised by ADP College NCC Unit, 8 Assam Bn, In collaboration with IQAC, ADP College, at **Adopted Village Mahoriati Tribal Village**, Nagaon, Assam. The Major aims and Objectives of the Programme were to make the people aware about the COVID-19 Pandemic.





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6. Problems Encountered and Resources Required

The following are the problems encountered and resources required for the NCC unit.

- Lack of parade ground as the college premises is very small and there is no open field.
- The students are from economically challenged backgrounds and hence they cannot afford to procure requisite materials, which are not supplied by the administration. There is hesitation to travel outside.
- There is no fund allocated for NCC by the college.
- The classes and NCC programmes often clash, resulting in hesitation of the cadets to join the programmes.
- Awareness about the role and functioning of NCC is very little as Gauhati University has not yet implemented the suggestion of UGC to make NCC a compulsory subject in degree programmes.
- Teaching assignment of the in-charge comes on the way of NCC programmes as we do not have full-time NCC in-charge and we have to manage tight-rope walk.


Principal
Anandaram Dhekial Phookan College
Nagaon (Assam)