

A report on Educational Training on Clean Energy Technologies For School Students in Jaffna district

funded by Royal Norwegian Embassy in Colombo

Background

The projected energy demand and environmental issues have steered the global community to focus on strategic plans for clean energy technologies. In this regard, Western Norway University College of Applied Sciences (HVL) and University of Jaffna received a grant under the Project named '**Capacity Building and Establishment of a Research Consortium (CBERC) in Nanomaterials for Clean Energy Technologies**' from the Royal Norwegian Embassy for a three-year period (2017-2019) to carry out capacity building at University of Jaffna (UoJ) by providing technical assistance and to build sustainable partnership between Norwegian and Sri Lankan institutions and private sector by establishing a consortium on clean energy technologies.

On 29/06/2017, a discussion regarding possible collaboration to conduct outreach activities in the Northern Province under the above project was held at the office of Jaffna Science Association (JSA). Subsequently, a concept note on **Educational training on clean energy technologies for school students in the Jaffna District of Sri Lanka** was developed (Annex 1) and approved by the Executive Committee of Jaffna Science Association at its meeting held on 24/07/2017. The approval of the Provincial Department of Education, Northern Province for implementation of the said outreach activity under the above project was also obtained. The concept note was submitted to the Royal Norwegian Embassy in Colombo on 07/07/2017 by Professor V. Dhayalan (Coordinator/HVL) and Professor P. Ravirajan (Coordinator/UoJ) and accepted for financial assistance by the Royal Norwegian Embassy in Colombo.

On 25/09/2017, a collaboration agreement (Annex 2) was signed between Western Norway University College of Applied Sciences (HVL) and Jaffna Science Association (JSA).

On 15/11/2017, a sum of LKR 927,541.54 was credited to the Jaffna Science Association bank account (Annex 3).

The outreach activity was carried out in two phases:

- Phase I: Training of Trainers (TOT) on Clean Energy Technologies
- Phase II: Educational Training of school students on Clean Energy Technologies

Both programmes were covered by the media (Annex 4, Annex 5 & Annex 6)

Phase I: Training of Trainers (TOT) on Clean Energy Technologies

In September 2017, applications were invited from eligible school teachers, who teach Engineering Technology/Physics/Chemistry at 1AB schools in the Jaffna District and junior academics and final year undergraduates from the Departments of Physics, Chemistry, Electrical Engineering and Engineering Technology of University of Jaffna.

On 18/11/2017 & 19/11/2017, TOT programmes to Science and Technology streams teachers, junior academics and final year undergraduates for providing educational training on Clean Energy Technologies to school students in the Jaffna District. Thirty teachers including Zonal Assistant Directors of Education (Science) and In-Service Advisers (Science) and more than forty junior academics and final year undergraduates attended the TOT programme, conducted at the Department of Physics, University of Jaffna. Professors, Senior lecturers and postgraduates served as resource persons.

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The Vice-Chancellor of University of Jaffna, Assistant Director of Education (Science), Northern Province and President of Jaffna Science Association delivered Chief Guest and Guest of Honour addresses, respectively. Certificates were issued to all participants who completed the training their feedback were obtained (Annex 7).

Phase II: Educational Training on Clean Energy Technologies (CETs)

The programme was organized in collaboration with the Provincial Department of Education, Northern Province.

From 6-14 March 2018, an educational training on CETs for 2684 school students from 56 schools in the Jaffna District was conducted. A total of 10 sessions, each of 2.5 hours duration, were organized at 6 different schools. Two sessions were conducted at Vembadi Girls' High School (Jaffna), Victoria College (Chullipuram), Mahajana College (Tellippalai) and Methodist Girls' high School (Point Pedro), whereas one session was carried out at Chavakachcheri Hindu College and Velanai Central College (Figure 1 and Table 1).

Table 1: Number of Students participated in the Educational Training on CETs Programme at each Venue

Date	Venue of Programme	Educational Zone	No. of Schools Participated	No. of Participants
06.03.2018	Vembadi Girls High School	Jaffna and Valikamam	13	494
07.03.2018	Victoria College		07	487
09.03.2018	Mahajana College		08	532
12.03.2018	Methodist Girls High School	Vadamaradchi	10	605
13.03.2018	Chavakachcheri Hindu College	Thenmaradchi	06	295
14.03.2018	Velanai Central College	Islands	12	271
Total			56	2684

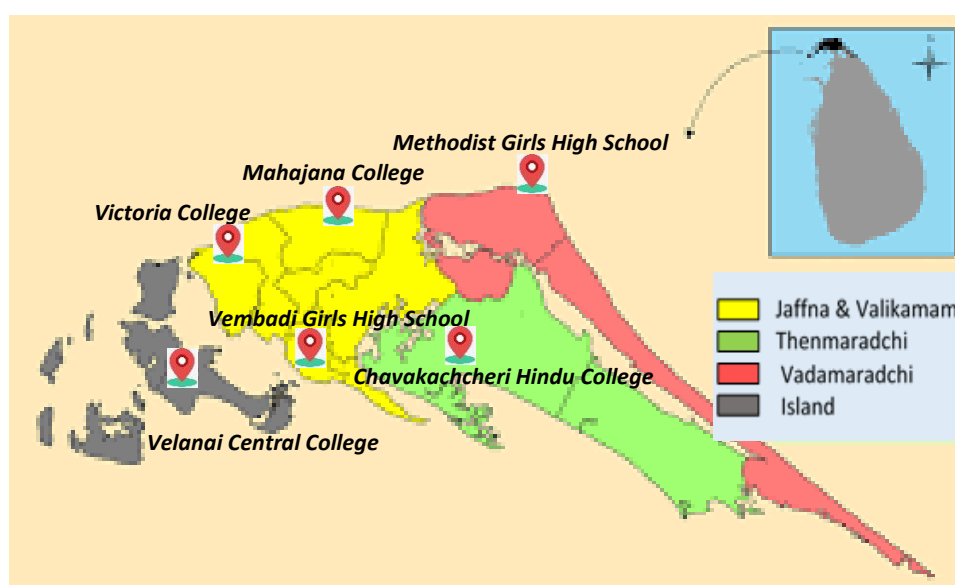


Figure 1: Places where Educational Training on CETs conducted

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Target group: Grades 8-11 and G.C.E (A/L) (2019 & 2020 batches of Science and Technology streams)

Main features of the programme:

- * Power point presentations about Clean Energy Technologies (wind energy, hydro energy, bio energy and solar energy)
- * Video presentations on Clean Energy Technologies
- * Guided the students to
- * Demonstration of working models such as solar fan cap, solar car, solar phone charger, solar garden night lamp (with sensor), Solar fan, solar table lamp, Solar controller
- * Hands on experience in building smaller size solar panels using solar cells
- * Written quiz examination on CETs
- * Feedback from the participants

65 students, who scored above 80 % in the written quiz examination on CETs, were selected for a one-day workshop and final round of quiz competition on CETs to be held in April 2018.

Resource persons:

- * Professors: P. Ravirajan, A. Atputharajah and Meena Senthilnathanan
- * Senior Lecturers: Dr. A. Anbruvél, Dr. B. Ketheesan, Dr. A. Thevakaran and Dr. R. Shivatharsiny
- * Lecturer: Ms. S.Vinothini
- * Postgraduate students and Technical officers of University of Jaffna
- * Science graduates trained at the Training of Trainer (TOT) programmes conducted in November 2017

The educational training programme at each venue is described below:

I. Educational Training on CETs Programme at Vembadi Girls' High School

- 1. Educational zone** : Jaffna
- 2. Venue** : Vembadi Girls' High School, Jaffna
- 3. Participated schools** : 13
J/Jaffna Central College, J/Vembadi Girls High School, J/St.Patricks College, J/St.Johns' College, J/Chundikuli Girls College, J/Vaydeswara College, J/Holy Family Convent, J/Jaffna Hindu Ladies College, J/Kokuvil Hindu College, J/Kopay Christian College, J/Kondavil Hindu College, J/Srisomaskanda College, J/Urumpirai Hindu College
- 4. No. of students participated** : 494
- 5. Date & Time** : 06.03.2018, from 08:30 to 13:30 (Two sessions)

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6. List of students and their schools selected for next round of evaluation based on written quiz examination on Clean Energy Technologies

No	Name	School	Grade
1.	S. Mikshan	J/ Central College	A/L 2019
2.	N. Vithushan	J/ Central College	A/L 2019
3.	V. Lishani	J/Vembadi Girls' High School	A/L 2020
4.	A. Mickalina	J/Chundikuli Girls' College	A/L 2020
5.	S. Arani	J/Vembadi Girls' High School	11
6.	R. Shankavi	J/Chundikuli Girls' College	A/L 2020
7.	M. Karthikan	J/ Puttur Sri Somaskantha College	A/L 2019
8.	M. T. Nithushaliny	J/Holy Family Convent	A/L 2019
9.	S. Vishnujan	J/Kokuvil Hindu College	10
10.	S. Lavanya	J/Kokuvil Hindu College	A/L 2019
11.	U. Sanathanan	J/Kokuvil Hindu College	11

7. A few photos taken on 06.03.2018 at Vembadi Girls' High School, Jaffna



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II. Educational Training on CETs Programme at Victoria College

- 1. Educational zone** : Valikamam
- 2. Venue** : Chullipuram Victoria College
- 3. Participated schools** : 07
J/Victoria College, Chulipuram, J/Pandatheruppu Girls' High School, J/Chankanai Sivapragasa Maha Vidyalayam, J/ Vaddu Hindu College, J/Jaffna College, Vaddukoddai, J/Manipay Hindu College, J/Manipay Ladies College
- 4. No. of students participated:** 487
- 5. Date & Time** : 07.03.2018, from 08:30 to 13:30 (Two sessions)

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6. List of students and their schools selected for next round of evaluation based on written quiz examination on Clean Energy Technologies

No	Name	School	Grade
1	S. Dilakshana	J/Pandatheruppu Girls' High School	8
2	S. Sivanujan	J/Victoria College, Chulipuram	10
3	S. Kajansika	J/Chankanai Sivapragasa Maha Vidyalayam	10
4	K. Mithunan	J/Victoria College, Chulipuram	10
5	R. Niththiyajiny	J/Victoria College, Chulipuram	A/L 2019
6	Y. Gobithas	J/Victoria College, Chulipuram	A/L 2019
7	S. Jasitha	J/Victoria College, Chulipuram	A/L
8	S. Lakshika	J/Victoria College, Chulipuram	10
9	S. Vithurshan	J/ Vaddu Hindu College	11
10	P. Sarusha	J/Victoria College, Chulipuram	09
11	J. Rajkumar	J/ Vaddu Hindu College	A/L
12	J. Vaishnavi	J/Chankanai Sivapragasa Maha Vidyalayam	11
13	S. Shangeethan	Jaffna College, Vaddukoddai	10
14	S. Thushiyanthi	Jaffna College, Vaddukoddai	9

7. A few photos taken on 07.03.2018 at Chullipuram Victoria College



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III. Educational Training on CETs Programme at Mahajana College

1. Educational zone : Valikamam
2. Venue : Mahajana College, Thellipalai
3. Participated schools : 08
J/ Mahajana College, J/Union College, J/Ilavala Convent M.V., J/St. Henry's College, J/Vayavilan Central College, J/Uduvil Girls' College, J/Ramanathan College, J/Skandarodaya College
4. No. of students participated: 532
5. Date & Time : 09.03.2018, from 08:30 to 13:30 (Two sessions)
6. List of students and their schools selected for next round of evaluation based on written quiz examination on Clean Energy Technologies

No	Name	School	Grade
1	J. Mathushalini	J/Uduvil Girls' College	A/L 2019
2	S. Mithun	J/Vayavilan Central college	A/L 2019
3	J. Gowthamy	J/Uduvil Girls' College	A/L 2019
4	A. Akimshan	J/Vayavilan Central college	A/L 2019
5	S. Sameeranan	J/ Mahajana College	10
6	S. Sarmilan	J/ Mahajana College	10
7	Y. Yogithan	J/ Mahajana College	10
8	S. Sivethan	J/ Mahajana College	10
9	S. Sajeepana	J/ Mahajana College	A/L 2018

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7. A few photos taken on 09.03.2018 at Mahajana College, Thellipalai



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IV. Educational Training on CETs Programme at Methodist Girls' High School

1. Educational zone : Vadamarachchi
2. Venue : J/ Methodist Girls' High School
3. Participated schools : 10
J/ Methodist Girls' High School, J/ Uduppiddy American Mission College, J/ Vadamarachy Central College, J/Vigneswara College, J/ Uduppiddy Girls' College, J/Hartley College, J/Nelliady Central College, J/ Vadamarachi Hindu Ladies' College, J/ Chithampara College, J/ Velautham Maha Vidyalayam
4. No. of students participated : 605
5. Date & Time : 09.03.2018, from 08:30 to 13:30 (Two sessions)
6. List of students and their schools selected for next round of evaluation based on written quiz examination on Clean Energy Technologies

No	Name	School	Grade
1	T. Kaliyugan	J/ Uduppiddy American Mission College	A/L 2020
2	S. Logasini	J/Vigneswara College	11
3	Y. Paviyalan	J/ Uduppiddy American Mission College	10
4	K. Karthikeyan	J/ Uduppiddy American Mission College	A/L 2019
5	P. Ushanthan	J/Nelliady Central College	A/L 2019
6	L. Sivakanth	J/Nelliady Central College	A/L 2019
7	K. Kathampari	J/Vigneswara College	11
8	S. Sarthusha	J/Vigneswara College	11
9	S. Sivakumar	J/ Uduppiddy American Mission College	A/L 2019
10	S. Jegatheesan	J/Nelliady Central College	A/L 2019
11	Y. Sambavi	J/ Methodist Girls' High School	A/L 2019
12	R. Reka	J/ Vadamarachi Hindu Ladies' College	11
13	K. Mathangi	J/ Methodist Girls' High School	A/L 2019

7. A few photos taken on 12.03.2018 at Methodist Girls' High School



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V. Educational Training on CETs Programme at Chavakachcheri Hindu College

1. Educational zone : Thenmarachchi
2. Venue : Chavakachcheri Hindu College
3. Participated schools : 06
J/Chavakachcheri Hindu College, J/Chavakachcheri Ladies College,
J/Meesalai Veerasingam Central College, J/Varany Central College,
J/Kodikamam Thirunavukkarasu Central College, J/Drieberg College
4. No. of students participated : 295
5. Date & Time : 13.03.2018, from 08:30 to 11:00 (One session)

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6. List of students and their schools selected for next round of evaluation based on written quiz examination on Clean Energy Technologies

No	Name	School	Grade
1	P. Banuka	J/ Chavakachcheri Hindu College	A/L 2019
2	S. Nirusha	J/ Chavakachcheri Hindu College	A/L 2019
3	T. Suntharavan	J/ Chavakachcheri Hindu College	A/L 2019
4	S. Sangavi	J/ Chavakachcheri Hindu College	A/L 2019
5	M. Shoumiya	J/ Chavakachcheri Hindu College	A/L 2019
6	A. Keerththanan	J/ Chavakachcheri Hindu College	A/L 2019
7	S. Danujan	J/ Chavakachcheri Hindu College	A/L 2019
8	M. Sanuka	J/ Chavakachcheri Hindu College	A/L 2019
9	M. Sabitha	J/ Meesalai Veerasingam Central College	A/L 2019
10	K. Thamilini	J/ Meesalai Veerasingam Central College	11
11	P. Mathushika	J/ Meesalai Veerasingam Central College	11
12	T. Thanujan	J/ Meesalai Veerasingam Central College	A/L 2019

7. A few photos taken on 13.03.2018 at Chavakachcheri Hindu College



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VI. Educational Training on CETs Programme at Velanai Central College

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|--|---|
| 1. Educational zone | : Islands |
| 2. Venue | : Velanai Central College |
| 3. Participated schools | : 12
J/Velanai Central College, J/Yarlton College, J/St. Antony's College,
J/Yarlton College, J/Mandaitivu Maha Vidyalayam, J/Kayts St.Mary's Girls'
Vidyalayam, J/Karampon Little Flower's Girls' M.V., J/Karainagar Hindu
College, J/ Pungudutive M.V., J/ Pungudutivu Sriganesha M.V., J/Velanai
Saraswathy Vidyalayam, J/Saravanai Nageswary M.V. |
| 4. No. of students participated : | 271 |
| 5. Date & Time : | 14.03.2018, from 08:30 to 11:00 (One session) |

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6. List of students and their schools selected for next round of evaluation based on written quiz examination on Clean Energy Technologies

No	Name	School	Grade
1	S. Sivagowry	J/Yarlton College	9
2	S. Sajeepan	J/St. Antony's College	9
3	Y. Thushyanthan	J/St. Antony's College	10
4	S. Thenujan	J/St. Antony's College	A/L 2018
5	S. Lakshikan	J/Yarlton College	9
6	S. Meenuja	J/Mandaitivu Maha Vidyalayam	9

7. A few photos taken on 14.03.2018 at Velanai Central College



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Competitions on CETs

- Poster presentation
- Documentary film
- Innovative working models

Deadline for submission: 15/04/2018 (Submissions will be evaluated by a panel of experts)

Proposed Future Activities

The following activities are proposed on receiving sufficient funds:

- Publishing a book on CETs for school students, in English and Tamil
- Extending the educational training on clean energy technologies for school students to Kilinochchi, Mullaithivu, Vavuniya and Mannar Districts of Sri Lanka