## **Climate Action Centres**

This page explains Sri Lanka Sustainable Authority's (SLSEA's) new program initiated to establish 800 Climate Action Centres (CACs) covering all parts of Sri Lanka and the need for such climate action centres.



SLSEA believes that this program will provide an example for the whole South Asian and Sub Saharan African region about the benefits of operating such centres. Countries such as Bangladesh, Burma and Bhutan have already expressed interest to study this model and replicate this concept in their own countries.



Sri Lanka is an island nation of 65,610 km<sup>2</sup> land area with just over 21 million inhabitants. Although the country is benefitted with multiple abundant renewable energy sources such as solar, wind, hydro and tidal power, only 23% of country's electricity was generated using renewable energy sources while remaining 77% was produced using fossil fuels as of 2017. Based on latest census, only 35% of Sri Lanka's population have access to stable grid electricity which is due to weak or bad grid conditions. However, another significant population of Sri Lanka has no access to electricity and are concentrated within number of underprivileged rural clusters situated in outskirts of the major cities and districts. These off-grid communities often lack access not only to electricity but also to a comprehensive education and stable health care system. Also, these rural parts of Sri Lanka often batter from natural disasters due to extreme weather condition which exacerbated in recent years by global warming. Shown in Figure 1 (a) – (c) are some indicative images of challenging life conditions in rural Sri Lankan villages.



Figure 1: (a) A typical households located in a rural Sri Lankan villages with no access to electricity, (b) a child using kerosene oil lamp to study and (c) constant battle with natural disasters.

Therefore, the Sri Lanka Sustainable Energy Authority formed a consortium between SLSEA, leading telecom providers in Sri Lanka and StorTera Pvt Ltd (a high-tech battery manufacture) to establish "Climate Action Centres (CACs)" in the country's most deprived suburban and rural areas to promote access to the clean energy and sustainable development while creating a positive socio-economic impact. These centres will enable access to clean energy, support education, empower underrepresented women and children, and improve health and safety of the underprivileged communities. Climate Action Centres will be positioned in carefully selected locations within needful communities those suffered from years of negligence and has limited or zero access to electricity, education, stable health care system and internet. Some of the intended functions of the proposed Climate Action Centres are presented in Figure 2.



Figure 2: Key functions of the Climate Action Centres

Sri Lanka receives a significant amount of solar radiation across all geographical regions with an average Global Horizontal Irradiance (GHI) between 1,247 kWh/m<sup>2</sup> to 2,106 kWh/m<sup>2</sup>. As shown in

Figure 3, there is a huge potential in electricity generation using solar photovoltaic in the Southern, North Central, Uva, Eastern and Northern provinces averaging 4.4 kWh/kWp. These provinces also account majority of rural and underprivileged communities who are victims of climate change and identified by SLSEA to establish Climate Action Centres. Therefore, it is expected to power these Climate Action Centres exclusively using renewable energy generated by solar photovoltaic technology. Extra energy generated during the daytime will be stored in mobile (shared between telecom providers) and stationary Lithium iron phosphate (LFP) battery banks and be used during night-time. This will allow Climate Action Centres to operate sustainably without depending on fossil fuel based electricity or a connection to the country's main grid.



Figure 3: Photovoltaic Electricity Potential in Sri Lanka

These centres will support disaster relief efforts, provide backup power for elephant fences, empower women and children through education, operate as safehouses for vulnerable children, store and refrigerate critical medicines and educate farmers on sustainable farming. The SLSEA's 5-year CAC implementation strategy is threefold as shown in Figure 4 and expects to open 800 centres throughout the country. The development of 200 centres will be commenced in the initial phase from April 2021 – October 2021 to analyse the feasibility of proposed model. The success of this phase will be constantly monitored and measured against multiple key performance indicators to benchmark its socio-economic impact, effectiveness in addressing energy trilemma (cost, emissions and security of supply and energy access) and sustainable development. The phase 1 is expected to jointly be funded by SLSEA, international funding organisations, industrial partners and the government. If successful, this will lead to the development of further 300 Climate Action Centres in the next phase making a total of 500 centres in operation that will act as a proof of concept in the South Asian region. This phase is designed to further evaluate and finetune the CAC model. In addition, this will enable SLSEA

building wider national and international collaboration network to accelerate the widespread development of these centres not only in Sri Lanka but also regionwide including Bangladesh, Burma and Bhutan with communities that suffer from effect of global warming. The remaining 300 Climate Action Centres will be developed in the final stage. The SLSEA strongly believe that full scale implementation of this development will address all three aspects of the energy trilemma, encourage gender equality, empower children and women through education and IT literacy, and improve health, safety and wellbeing of underrepresented communities.

Phase 1	No. of CACs =200

- Dureation: 6 months
- Feasibility study
- Jointly funded by SLSEA, indsutry and government

Duration: 1.5 years

- •All 80 CACs will act as a regional proof of concpet
- Jointly funded by SLSEA and industry

## Pahse 3

## e 3 No. of CACs = 300

• Duration: Complet within 3 years

Nationawide implementaiton

• Funded by industry and international colloborations

## Figure 4: Threefold implementation strategy

It is expected to commence this project in conjunction with country's leading telecommunication providers and locate individual CAC nearer to an off-grid telecom mast where possible such that access to internet can be provided with a minimal cost and share capital or operational expenditure. At the moment, the telecom-base-stations in Sri Lanka's weak and bad grid areas has a regulatory requirement to have a backup mobile diesel generators as a supplementary power source. The cost of maintaining, transporting and operating a fleet of such mobile-diesel generators had proven to be very high and telecom providers are looking for alternatives. In addition, telecom providers can eradicate 24/7 use of diesel generators which are currently being used to power off-grid telecommunication masts and benefit from green energy generated by solar photovoltaic arrays mounted at CACs. Therefore, this hybrid model will benefit the local communities, environment and the telecommunication industry.

SLSEA invites all interested parties to come forward and engage in this world leading sustainable project to address energy trilemma, promote STEM and education among underprivileged communities and promote gender equality. SLSEA strongly believes that this project will create a significant socio-economic and environmental impact not only in Sri Lank but also within other developing South Asian nations.