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**EXECUTIVE SUMMARY**

Inspired by the legacy of the UAE’s founding father, the late Sheikh Zayed bin Sultan Al Nahyan, the 20by2020 initiative champions his sustainability and humanitarian values. The initiative oversees the donation of innovative solutions and technologies of previous Prize winners and finalists to vulnerable communities in 20 countries.

Since its launch on 18th December 2019, the initiative has deployed technologies in eight countries – Nepal, Uganda, Tanzania, Jordan, Egypt, Cambodia, Madagascar and Indonesia.
INTRODUCTION

Led by the Zayed Sustainability Prize in partnership with Abu Dhabi Global Market, Abu Dhabi Fund for Development, Mubadala Petroleum, the UAE Ministry of Tolerance and Coexistence, Masdar, Majid Al Futtaim and BNP Paribas, the initiative deploys technologies of previous Prize winners and finalists, and seeks to foster an environment of stability and empowerment within all communities where donation activities occur.

20by2020 is a natural extension of the Zayed Sustainability Prize’s ongoing commitment to work with its winners and finalists, by continuing to support their goals and allowing their solutions to reach a much wider number of people, around the globe.
LAUNCH OF THE INITIATIVE

Following the official launch of the 20by2020 initiative during a press conference on 18th December 2019, the announcement received a large degree of media attention, with widespread coverage from local, regional and international media outlets. It generated a total of 105 clippings in online, print and broadcast media.

The coverage received a total AVE of $353,090 and generated a potential reach of 1.6 billion visitors/readers*.

*A clipping report is provided in the appendix.
“The ‘20by2020’ initiative is a creative way to leverage the outcomes of the Zayed Sustainability Prize for greater impact around the world. By drawing on the innovative solutions created by Prize finalists and winners, many more people will benefit and the legacy of our founding father, who was a committed humanitarian and advocate for sustainable development, will be honoured.”

“Abu Dhabi has been at the forefront of global innovation and transformational developments that underpin the UAE’s strengths as a global business hub and sustainable economy. The ‘20by2020’ initiative is another excellent humanitarian and sustainable development programme that leverages innovation to meet the urgent needs and growth of the region.”

“We commend the ‘20 by 2020’ initiative for its inspiring and intelligent approach to tackling global development challenges, and we have every confidence that in partnering with the Zayed Sustainability Prize, ADFD will amplify the transformative impact of the Prize, and bring its 48-year track record to bolster economic self-reliance and prosperity in communities worldwide.”

“As Abu Dhabi’s international upstream oil and gas company, we have always been committed to contributing to the long-term, sustainable development of communities where we operate – which is reflected in our well-established, impactful and recognized community investment initiatives. We are very pleased to be partnering with the Zayed Sustainability Prize for the ‘20by2020’ humanitarian initiative, to reach other vulnerable communities and bring real change to their lives.”

H.E. Dr. Sultan Al Jaber
UAE Minister of Industry and Advanced Technology and Director General of the Zayed Sustainability Prize

H.E. Ahmed Al Sayegh
UAE Minister of State and Chairman of Abu Dhabi Global Market

H.E Mohammed Saif Al Suwaidi
Director General of Abu Dhabi Fund for Development

Dr Bakheet Saeed Al Katheeri
CEO of Mubadala Petroleum
DEPLOYMENT REPORTS
7 COUNTRIES
TANZANIA DEPLOYMENT

Installation of flour dosifiers in Dar es Salam by Sanku

Date of deployment: 16th Dec 2019
Solution: Flour dosifier
Quantity: 10
Solution provider: Sanku, 2019 Zayed Sustainability Prize winner in the Food category
Location: Dar es Salam, Tanzania
Impact: 50,000 people have access to nutritious food everyday

Background

Tanzania has a population of approximately 55.6 million—out of which 9.7 million are children under the age of five. 34% and 16% of these children suffer from stunting and are underweight respectively (USAID).

Tanzania’s most populous city is Dar es Salaam and it is projected to be home to approximately 1 million people by 2030 (World Population Review, 2020).

Three-quarters of the congested city’s residents live in informal settlements with inadequate sanitation facilities leading to frequent outbreaks of diarrhoea and cholera in communities. Malnutrition within local communities lowers immunity amongst its members and makes them regularly susceptible to various infections.
The Challenge

In addition to the high rates of children who suffer from growth stunting in Tanzania, there is an overlap with other nutritional challenges, including anaemia in women who are of the reproductive age and children. There is also increasing level of individuals who are overweight and obese [World Food Programme, 2019].

There are huge variations in the nutritional status of children under 5 years of age. Ten regions account for 58% of all stunted children and five regions account for half of the children suffering from severe acute malnutrition in Tanzania. Dar es Salaam is one of the regions with higher numbers of stunted children and prevalence of chronic malnutrition. UNICEF has put this region in the priority list for nutrition interventions (Tanzania National Nutrition Survey, Final Report, June 2019, UNICEF).

The Solution

Sanku installed a dosifier onto the small African flour mills in Dar es Salaam that produce and sell the staple food that families eat every day.

Flour dosifier adds precise amounts of essential nutrients into flour during the milling process, with the potential to end micronutrient malnutrition through inclusive fortification. Maize flour fortified with Zinc, Folic Acid, Iron, and B12 has proven to have most critical long-term impact on health – reducing infant mortality, preventing stunting, improving educational outcomes, and boosting productivity.

Sanku offsets the cost of the miller’s nutrients by bulk buying empty pink flour bags, which are then sold to the millers to pack their flour. The savings from each flour bag are enough to cover the entire price of the miller’s nutrients.

To ensure the long-term sustainability of the project, Sanku monitors the miller’s use of the dosifier remotely through a cellular link, and visits the mill if the dosifier is not in use or needs repair, as well restocking their nutrients.

The Impact

Through the initiative, 10 dosifiers were installed at various mills allowing millers to collectively feed fortified flour to more than 50,000 people each day.

The addition of essential nutrients in the flour will help:
- Increase resistance to infectious illnesses and thereby decrease morbidity.
- Accelerate the physical growth and mental development of children and improve their academic performance and learning abilities.
- Prevent anaemia in mothers which improves their health and pregnancy outcome.

• Improve the general health and wellbeing of children.
Case Study

Khalima Juma, a 33-year-old mother, owns a food stall selling food in a poor area of Dar es Salaam in Tanzania. She was raised by her grandmother, along with her six siblings, having access to only one meal a day.

“While growing up, I lost my friends to malnutrition. It was very common to hear of children being born with stunting and retardation because of lack of nutritious food.” Having witnessed such pain and death early on in life led to an apprehensive first pregnancy for her. She shares, “I was so fearful that my child might be born with nutritional problems, I started attending sessions at a health center to learn about food and nutrition.” This education then inspired her to open a food stall and directly impact her community.

She now sells ugali, a traditional dish made of maize flour, using fortified flour. The food stall not only provides her with a regular income but also enables her to fulfil her dream of serving her community.

Running the stall for two years now, she says, “I am so happy that I got the opportunity to source fortified flour from a miller supported by Sanku. It gives me immense satisfaction to know I am able to give my people healthy food.”

The owner of the mill calls Khalima the ‘community’s hero’. He says, “We have a small number of women with knowledge on the importance of nutrients and she is among those few. Buying about 25 kilos of fortified flour, she is one of my regular customers. All of us eat the nutritious ugali from her.” She adds, “My profits from the food stall are steadily increasing and I hope malnutrition within my community is steadily decreasing.”

About Sanku

Sanku reaches out to communities who are vulnerable to malnutrition by equipping and incentivising small-scale, local millers to fortify their flour with innovative technology, adding micronutrients that are scientifically proven to improve health and vitality in the food Africans eat the most. 150 of their fortification machines are currently installed in flour mills, across five East African countries.

Sanku won the Zayed Sustainability Prize in 2019 in the Food category.

https://youtu.be/vzi8k_I6oDY
Scan QR code or click the link to watch the deployment video
NEPAL DEPLOYMENT

Installation of solar suitcases in health clinics

Date of deployment: 28th Nov 2019
Solution: Solar Suitcase
Quantity: 10
Solution provider: We Care Solar, 2019 winner in the Health category
Location: Bhojpur, Ilam, and Shankhuwasabha
Impact: 6,000 mothers and new-borns will gain access to better healthcare in 5 years

Background

Nepal has a population of approximately 28 million and suffers from a severe electricity supply crisis. Electricity is only available in urban areas and thereby, most rural areas suffer from various challenges due to power shortages. Long power outages affect the health sector adversely throughout the country, leaving people in critical situations.

The objective of this deployment was to improve the maternal and child health in remote areas of Nepal that lacked proper health care due to lack of electricity.
The Challenge
Nepal has made significant progress in reducing child mortality and improving maternal health. From 2000 to 2017, the maternal mortality rate decreased from 548 to 186 per 100,000 live births (World Bank). However, maternal and neonatal mortality remains one of the biggest public health problems in the country, mostly due to lack of skilled birth attendants and the absence of emergency services and equipment in rural health centers. Obstetric emergencies require prompt, appropriate and reliable care. Unreliable power and communication in health facilities results in life-threatening delays in care, inadequate lighting for obstetric and surgical procedures, and under utilisation of health facilities.

The Solution
Solar suitcases were installed in 10 health facilities in Bhojpur, Ilam, and Shankhuwasabha.

Solar suitcase by ‘We care Solar’ is a robust, easy-to-use solar electric system that provides last-mile health facilities with highly-efficient medical lighting and power for mobile communication and small medical devices. It is specifically designed to assist midwives and medical professionals in fetal monitoring while acting as a communication device.

Without electric lights, health workers cannot safely provide essential healthcare and infection control. They are compromised in their ability to properly examine, diagnose, treat, conduct essential medical procedures, and life-saving obstetric care. Health clinics, maternity wards, surgery blocks, medical warehouses and laboratories rely on electricity to refrigerate medicines, power lights, sterilise equipment and operate life-saving medical devices. Intermittent or unreliable power sources put lives at risk.

The Impact
With the installation of 10 solar suitcases, the project created jobs and helped reduce 6,000 mothers and new-borns will gain access to better maternal healthcare in 5 years.
Case Study

Many of the remote villages in Nepal either lack total access to electricity or suffer from extreme power outages several times a day—putting pregnant mothers and babies at risk. Midwives working at these birthing centres depend upon combinations of candles, flashlights, flashlights on their mobile phones and oil lamps as their source of light while conducting the childbirths, a rather simple and traditional solution which is largely ineffective and unhygienic.

Solar Suitcases are powerful enough to light typical birthing centres, comprised of mostly four-room single-storied building. Four LED lights provide a combination of fixed and mobile medical procedure light. LED headlamps provide additional focused light for suturing or moving outside of the facility. Phone charger ensure that midwives can call for help when needed. And the fetal Doppler provides mothers and midwives with an accurate way to assess the fetal heartbeat. Amrit Wanim is an auxiliary nurse midwife who works at the Walankha Health Post, far from any cities. “The Solar Suitcase has been an absolute game-changer for us,” says Amrit Wanim, one of the ANMs, who has been working at this health post for the last 13 years. “The number of women seeking ANC and delivery services is increasing day by day and Solar Suitcases are one of the contributing factors.” Along with the Solar Suitcase, the 20by2020 initiative supported the renovation of the birth centre and provided equipment and training. “We are in a much better position to provide effective services to the community.”

“The solar suitcase has been an absolute game-changer for us. I have been working at this health facility for the last 13 years. The number of women seeking ANC and delivery services is increasing day by day and solar suitcases are one of the contributing factors. Along with 20by2020 initiative supported birthing centre renovation, equipment support, and training programs, we are in a much better position to provide effective services to the community.”

Testimonials

Rita Khatrai, has been working as an ANM at the Fedigut health post for the last three years. This health post was upgraded to a birthing centre last year and has no grid connection, making solar energy the only means of alternative power. The existing solar back-up was used for the whole health post with no dedicated power for the delivery room.

Rita says, “Now we have a solar suitcase in the delivery and post-delivery rooms. Earlier, we could only depend on mobile phones. The solar suitcase, provided to us, has made delivery in the night time very easy and comfortable. With headlamps and other equipment, we are able to attend to complicated deliveries as well.”

Auxiliary Nurse Midwife (ANM) from Fedigut Health Post, Okhaldhunga

“My husband brought me to the Dorpa Chuiri Dada health post in the evening. The Auxiliary Nurse Midwife examined me with a solar doppler and headlamp and told us about the new solar suitcases. They convinced me that night deliveries have become very safe with these suitcases. It made me very comfortable and filled me with joy when I delivered a healthy baby just before midnight. I can tell you, it was the best feeling ever when I saw my new-born under the solar light!”

Pregnant woman, Dorpa Chuiri Dada Health Post, Khotang
About We Care Solar

We Care Solar promotes safe motherhood and reduces maternal mortality in developing regions by providing health workers with reliable lighting, mobile communication, and medical devices using solar electricity.

We Care Solar won the Zayed Sustainability Prize in 2019 in the Health category.

Since 2011, We Care Solar has been conducting Solar Suitcase installation programmes with dozens of partners around the world.

https://youtu.be/PE8rNLPGk

Scan QR code or click the link to watch the deployment video
UGANDA DEPLOYMENT

Installation of solar suitcases in health clinics

Date of deployment: 28th Nov 2019
Solution: Solar Suitcase
Quantity: 10
Solution provider: We Care Solar, 2019 Zayed Sustainability Prize winner in the Health category
Location: Minister’s Village of Ntinda, Kampala
Impact: 12,000 mothers and new-borns will gain access to better healthcare in 5 years

Background

Uganda’s electricity access stands at 45% at the national level with only 8% of the rural population having access to electricity. Despite an increase in grid electricity access over the last couple of years, a large number of the relatively widely dispersed rural population is unlikely to be able to access the national grid in the near term. The objective of this deployment was to improve maternal and child health in remote areas of Uganda that lacked proper health care due to lack of electricity.
**The Challenge**

Every day, approximately 830 women die from preventable causes related to pregnancy and childbirth, according to the World Health Organization. Uganda has one of the highest maternal mortality rates at 343 per 100,000 live births.

In many parts of sub-Saharan Africa including Uganda, fewer than one-third of health facilities have reliable access to electricity. Without power, midwives and doctors must treat patients through the darkness of the night. This makes deliveries and treatment more difficult and dangerous for mothers and children. Lack of sufficient lighting increases the risk of infection and birthing complications. In clinics and hospitals without electricity, such difficult working conditions means turnover rates among midwives, doctors, and nurses can be high, disrupting the availability of healthcare providers for patients in need.

**The Solution**

Solar suitcases were installed in 10 health facilities in Minister’s Village of Ntinda, Kampala, Uganda.

Solar suitcase by ‘We care Solar’ is a robust, easy-to-use solar electric system that provides last-mile health facilities with highly efficient medical lighting and power for mobile communication and small medical devices. It is specifically designed to assist midwives and medical professionals in fetal monitoring while acting as a communication device.

The system includes a 12V, 20Ah lithium ferrous phosphate battery, four high-efficiency LED lights for medical task lighting, two 12V DC accessory (lighter) sockets, two USB ports, and two expansion ports to allow for optional accessories or additional lights.

**The Impact**

With the installation of 5 solar suitcases, 12,000 mothers and new-borns will gain access to better maternal healthcare in 5 years. The project also created jobs and helped reduce carbon emissions by 40 tons per year.

**Case Study**

Eve Nabuwanuka, a 31-year-old registered midwife, works in Minister’s Village of Ntinda, Kampala Uganda. “I love working with new mothers and babies”, says Eve. It was her love for postnatal care that inspired her to study midwifery at a nearby school in Jinja.

Her struggles started when she was appointed as a midwife at Buikwe Health Centre in 2016. Poor infrastructure, limited supply of medications, insufficient delivery instruments and no grid electricity made her work difficult.

Relying on the only source of light, paraffin candles—a small oil-based lantern comprised of a can, oil and a wick, night-time deliveries were particularly challenging. Having to hold her cell phone in her mouth for light, in the absence of an assistant to hold the candle, conducting a delivery became frustrating and disappointing. She shares, “You cannot meet your own expectations. You are forced to refer a patient to another facility just because of lack of light. You end up feeling that you are not able to deliver the care you want because of the absence of light.”
Recalling a night where the paraffin candle ran out in the middle of a delivery, she says “The delivery was successful but it caused a severe injury that could not be attended to in the darkness. We had to wait until morning to repair the laceration”.

The Solar Suitcase has revived the center at night. Recounting a recent delivery of a mother with pre-eclampsia, she shares that the solar lights allowed her to immediately treat the woman and deliver a healthy baby.

The health workers no longer refer routine cases to other facilities and the volume of deliveries have increased from 10 to 30 per month!

Eve at work, speaks gently to her patients and always wears a kind smile, despite the limitations at the health centre. She says, “The community are good people. When you are good to them, they are good to you.”

About We Care Solar

We Care Solar promotes safe motherhood and reduces maternal mortality in developing regions by providing health workers with reliable lighting, mobile communication, and medical devices using solar electricity.

Since 2011, We Care Solar has been conducting Solar Suitcase installation programmes with dozens of partners around the world.

We Care Solar won the Zayed Sustainability Prize in 2019 in the Health category.

https://youtu.be/PsO3jHY8nVU

Scan QR code or click the link to watch the deployment video
## JORDAN DEPLOYMENT

Installation of solar streetlights at a hospital in Amman, Jordan

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<tr>
<th>Date of deployment:</th>
<th>18th May 2020</th>
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<tr>
<td>Solution:</td>
<td>Solar streetlights</td>
</tr>
<tr>
<td>Quantity:</td>
<td>51</td>
</tr>
<tr>
<td>Solution provider:</td>
<td>Sunna Design, 2018 Zayed Sustainability Prize winner in the Energy category</td>
</tr>
<tr>
<td>Location:</td>
<td>Prince Hamzah Hospital, Amman</td>
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<tr>
<td>Impact:</td>
<td>More than 3,000 people have access to reliable energy every day</td>
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### Background

Hospital lighting is a critical part of hospital construction and management. It plays an important role in the realisation of health care and treatment, rehabilitation of patients and relationships between doctors and patients. Hospitals’ outdoor lighting including entrances, gardens, roads, parking and building exterior lighting does not only create a sense of security for patients who come to the hospital during the night, but also for the medical staff. Ideal illumination of the parking areas is particularly important because patients may suffer from limited movement or vision due to illness. Pedestrians and visitors are also often in a hurry.

3,000+ people have access to reliable energy every day
The Challenge

Prince Hamzah Hospital, established in 2006, is one of the largest government hospitals in Amman, Jordan. The hospital is a key pillar in Jordan’s public healthcare sector and is playing an important role in treating the largest number of COVID-19 patients in the country. Prince Hamzah Hospital is also administering the vaccine trials for COVID-19 under the supervision of the Ministry of Health.

The Solution

The iSSL+ solar streetlight from Sunna Design is a reliable and robust stand-alone solar lighting solution, particularly suitable for pedestrian, cycle and parking lanes. This innovative product offers a very simple and fast installation with unmatched performance and connected services such as SunnAPP.

INNOVATIVE NiMH BATTERY
The battery stores the electricity produced during the day and powers the LED module at night.

SMART LIGHTING PROGRAM
The lighting program is fully user-configurable via the SunnAPP.

SMART IN-BUILT ELECTRONIC WITH SUNNACORE
Smart energy management systems use patented algorithms to enhance a battery’s life cycle. This system also includes Bluetooth as a feature.

HIGH POWERED LED MODULE
Sunna Design LED modules are particularly powerful and with the best lumen/Watt performance on the market.

FRAMELESS SOLAR PANELS
They convert solar energy into electricity and do not accumulate dust.

The Impact

With the installation at Prince Hamzah Hospital, the high-performance, energy-efficient LED solar lights are providing sustainable lighting and enhancing the safety of the area for more than 3,000 people and more than 100 medical staff, on a daily basis.

Case Study

Sunna Design installed 51 solar lights at Prince Hamzah hospital in May 2020, which coincided with the holy month of Ramadan. The installation came at a time when medical staff at Prince Hamzah Hospital took on a critical role in combatting COVID-19. At the time of installation, the hospital was tasked with handling the largest number of coronavirus cases in the country, adding pressure to its operations and staff body and requiring the rapid optimisation of essential services and utilities such as lighting.
Suad Nayef, a senior Engineer and Director of Services at Prince Hamzah Hospital and one of the initiative’s direct beneficiaries, highlighted the various benefits of the deployment to the facility and its staff, and the positive change it has incurred since its installation at the end of Ramadan 2020.

Eng. Nayef said: “The solar lighting solutions are distributed across a number of key outdoor facilities of our hospital including entrances, walkways and courtyards. This tackled the challenge of having several dark areas in the vicinity which inconvenienced our medical staff and visitors.”

Eng. Nayef continued, “The 20by2020 solutions were presented to the hospital shortly after we began dealing with the pandemic and because we are located in a strategic area of Jordan, we were in charge of receiving and treating coronavirus patients from central and southern regions of the country.”

Dr. Abdul Razaq Al Khashman, General Manager of Prince Hamzah Hospital said: “We are confident that the solar streetlights by the 20by2020 initiative will complement and further optimise the efficiencies of Prince Hamza Hospital’s advanced capabilities, by providing enhanced lighting to many of our valued staff body to support their daily work and commute to and from their residences.”

As a result of the deployment, more than 100 medical staff, and more than 3,000 people who visit the hospital every day are benefiting from effective street lighting in the area.

About Sunna Design

Sunna Design manufactures and deploys smart solar solutions, fully connected and powered by renewable energy, to build tomorrow’s cities, territories and rural environments sustainably.

To date, Sunna Design has filed 14 patents for breakthrough innovations, and have thus taken a compelling leading position in this sector.

The company’s unique know-how revolves around the complete mastery of technologies for solar energy generation, storage and management; of digital, and most importantly of their effective integration within high quality ‘Plug and Play’ industrial applications.

All their solutions are fully connected and digital, allowing innovative services to be developed and IoT (Internet of Things) applications to be designed on demand and integrated into custom devices. Sunna Design won the Zayed Sustainability Prize in 2018 in the Energy category.

https://youtu.be/1fqjSAOqoIA

Scan QR code or click the link to watch the deployment video
EGYPT DEPLOYMENT

Installation of solar streetlights at a village in Egypt

Date of deployment: 28th June 2020
Solution: Solar streetlights
Quantity: 55
Solution provider: Sunna Design, 2018 winner in the Energy category
Location: Habisha Village, Asyut Governorate, Egypt
Impact: More than 3,500 people have access to reliable energy every day

Background

Egypt is the most populous country in North Africa and the Arab region and home to one of the fastest-growing populations globally. The rapidly growing number of inhabitants has led to an accelerated increase in energy demand, putting a strain on the country’s domestic energy resources (IRENA).

Providing access to affordable, reliable, sustainable, and modern energy is the seventh Sustainable Development Goal. The New Urban Agenda also commits to the provision of inclusive and safe streets that are free from crime and violence, including gender-based violence. Solar-powered streetlights can contribute to these goals by increasing the electricity supply, improving safety both in urban and rural areas and protecting the environment.
The Challenge

In developing countries, poverty and rapid urbanisation are putting pressure on municipal authorities to improve basic public service provision for urban populations, especially in informal settlements. One area of public service provision where there is a clear need, and potential for improvement is street lighting. Street lighting plays a crucial role in public safety, especially for women, and the promotion of inclusive social and economic development.

At present, basic public services such as street lighting are lacking in rural areas of Egypt. A small improvement in street lighting can lead to big gains in terms of reducing accidents and crime rates, alongside increasing economic activity on the streets. The potential co-benefits for social cohesion and community empowerment are also considerable.

Habisha village in Asyut Governorate of Egypt lacked streetlights that affected the livelihoods of local residents and their businesses.

The Solution

The iSSL+ solar streetlight from Sunna Design is a reliable and robust stand-alone solar lighting solution, particularly suitable for pedestrian, cycle, and parking lanes. This innovative product offers a very simple and fast installation with unmatched performance and connected services such as SunnAPP.

The Impact

With the aim to improve standards of living and create a host of new prospects for residents of the community, more than 50 high-performance energy-efficient LED lights were installed in the Habisha village, Asyut Governorate. The lights are benefiting over 3,500 people every day.

Improved street safety will support a wide range of social and economic activities. Since the lighting is installed on the main road of the Habisha village, accidents at night will be reduced which helps address congestion and air pollution. Better lighting will enable street traders to work for longer. Better street lighting at night will also help reduce crime rates, thereby making the community more appealing and helping to make pedestrians feel safe. This is especially important for women, whose safety and wellbeing have been directly linked to the level of lighting on the streets. Female street vendors in particular benefit because they depend on the use of otherwise unsafe public spaces for their livelihoods.

INNOVATIVE NiMH BATTERY
The battery stores the electricity produced during the day and powers the LED module at night.

SMART LIGHTING PROGRAM
The lighting program is fully user-configurable via the SunnAPP.

SMART IN-BUILT ELECTRONIC WITH SUNNACORE
Smart energy management systems use patented algorithms to enhance a battery’s life cycle. This system also includes Bluetooth as a feature.

HIGH POWERED LED MODULE
Sunna Design LED modules are particularly powerful and with the best lumen/Watt performance on the market.

FRAMELESS SOLAR PANELS
They convert solar energy into electricity and do not accumulate dust.
Case Study

Solar streetlights were installed on the main street in the heart of the village, which has houses on both sides, and serves as the only entry and exit route for the whole community. Essential shops in the area, such as the local supermarket, have already begun reaping the commercial benefits of greater illumination. The new lights allow longer opening hours with customers now able to enjoy greater personal security after dark. Furthermore, children now can feel safe when travelling home in the evenings, allowing the youth to use the time to study later, leading to longer term educational benefits.

Similarly, with no playground in the village, the children can now entertain themselves and each other in the street, which is significantly less dangerous thanks to the sustainable lighting. The social benefits are also true of adults in the village with more time for community interactions, made possible by the lights.

Nashaat Nady, a mechanic and oil shop owner, was able to extend his operating hours, and has since seen an uptake in his business as he is now able to open his shop to 11pm instead of 6pm, which was the norm before the streetlight installation.

Nermine Ratib, a nurse at Habisha’s local medical clinic expressed her joy at the fact that she can now easily go out at night to treat patients, save lives and support her community while feeling much safer as a woman at late hours of the day.

Testimonials

Mariem Ibrahim was excited by the fact that she can now study in front of her house, under the lighting from the poles, as they provide sufficient illumination 24-hours a day, allowing her to better structure her day and dedicate more time to studying at her convenience.

“Studying under proper lighting has been a wonderful experience, as I had to rely on using candles in the past, which was both inconvenient and inefficient, however the 20by2020 initiative has truly made a change to our daily lives.”

Mariem Ibrahim,
Student from Habisha village

“The new lighting by the 20by2020 initiative motivated me and my staff to work harder and keep the store open for longer hours, creating better options for the local community for their daily necessities, at various times of the day.”

Fawzy Gerges,
Owner of a grocery store in Habisha village
**About Sunna Design**

Sunna Design manufactures and deploys smart solar solutions, fully connected and powered by renewable energy, to build tomorrow’s cities, territories and rural environments sustainably.

To date, Sunna Design has filed 14 patents for breakthrough innovations, and have thus taken a compelling leading position in this sector.

The company’s unique know-how revolves around the complete mastery of technologies for solar energy generation, storage and management; of digital, and most importantly of their effective integration within high quality ‘Plug and Play’ industrial applications.

All their solutions are fully connected and digital, allowing innovative services to be developed and IoT (Internet of Things) applications to be designed on demand and integrated into custom devices.

Sunna Design won the Zayed Sustainability in 2018 in the Energy category.

[Scan QR code or click the link to watch the deployment video](https://youtu.be/SGSsb8MC3Vw)
CAMBODIA DEPLOYMENT

Installation of water fountains for communities at the Tonle Sap River

Date of deployment: 13th Sep 2020
Solution: Water fountains
Quantity: 5
Solution provider: Agir Ensemble Association, 2019 Prize finalist in the Water category
Location: Chhnok Trou, Kampong Phrah and Ses Salab villages
Impact: 4,400 people have access to clean drinking water every day

Background

More than 3 million people in Cambodia lack access to safe water, and 6 million lack access to improved sanitation. With approximately 77% of Cambodians living in rural areas, poor access to safe water and sanitation disproportionately affects its rural communities (water.org).

There is growing evidence that inadequate sanitation, water and hand washing facilities are a barrier to children attending school and performing well, especially girls. Children with disabilities find it particularly difficult to go to school if there are no accessible bathrooms, or if they are otherwise inadequate (UNICEF Country Program Report 2019 - 2023, Cambodia).
The Challenge

People living at the Tonle Sap Lake primarily obtain their water supply from the lake, which is contaminated from municipal waste and public defecation, for laundry, dishes, bathing and even cooking. This results in waterborne diseases and other health issues such as diarrhea and cholera.

Similarly, Cambodian health care facilities are often reported as having insufficient water, sanitation, and hygiene amenities, with only 50% continually having sufficient water for their needs, according to reports by the National Institute of Public Health.

The Solution

The initiative installed five water fountains at a village, along with the Chhnok Trou School and clinic, benefiting the residents of the Chhnok Trou, Kampong Phrah and Ses Salab villages.

The ‘Safe Water Cube’ is a water purification fountain system that utilises water filtration technologies to provide immediate access to cleaner and safer drinking water to people located in remote villages of developing countries.

The 1.2m3 stainless steel container has five different filters including sand and carbon. It makes all surface water, even muddy, drinkable and destroys “all the viruses and bacteria responsible for diarrhea, dysentry, cholera and hepatitis, without destroying the minerals in the water”. The container also purifies up to 1,000 liters per hour, without electrical energy.
The Impact

With the installation of 5 Safe Water Cubes, a total of 4,400 people will have access to clean drinking water every day.

Not only does this installation help residents avoid many of the waterborne diseases and other health issues stemming from dirty water, it offers new opportunities for better sanitation and hygiene, an essential requirement given the importance of handwashing in preventing the spread of coronavirus.

Over time it is intended that this access will improve the outlooks for residents through better hydration and the prevention of illness, which has been statistically proven to have significant, positive effects on the overall health and wellbeing of communities alongside individual growth and development.

Case Study

San Sophy is a young 23-year-old mother and is three months pregnant with another child.

She and her husband were both born on the Tonle Sap Lake in the floating dispensary of Doun Sdaeng. They have known no other life than on the water. One of the challenges that they have faced for years is the lack of clean drinking water. Sophy says, “My husband is a fisherman and I move around in the boat that we own to conduct daily household chores.”

The ongoing pandemic has adversely affected Sophy and many families like her. Unlike before, there are no tourists visiting the floating villages anymore. Selling indigenous handicrafts earned the family enough money to buy everyday essentials, including filtered water. With that source of livelihood gone, the family experienced and lived through financial difficulties, surviving only on her husband’s earnings.

“We did not even have enough money to buy 20-liter bottles of filtered water at 5,000 riels (equivalent to $1.25)”, explains Sophy.

“The only option we had in the last few months was to boil water from the lake or heat the container under sunlight to kill any bacteria. But these practices are not enough to purify water. The water still remained contaminated.”

Since the installation of the fountain at the local health clinic, Sophy now goes there frequently to get herself examined and to get drinking water for her entire family and neighbours.

She says delightedly, “I am so thankful to have access to this fountain as I was very worried about my health from drinking lake water. Today, I don’t get sick anymore and my stomach cramps have stopped”.

About Agir Ensemble Association

Agir Ensemble Association is a leading France-based non-profit organisation with a purpose to promote access to drinking water, health and the social link of the regions of the world with little or no drinking water.

Primarily focused on schools and villages, the key objectives of the association is to set up Safe Water Cube fountains and train people to use them, manage logistics, train volunteers, and raise awareness on the importance of drinking water.

By the end of 2018, 180 Safe Water Cube fountains had been installed in 12 countries (India, Sri Lanka, Benin, Madagascar, Cameroon, Senegal, Haiti, Morocco, Mexico, Cambodia, Togo and the Ivory Coast), providing 180,000 people with access to clean drinking water.

Agir Ensemble Association is the 2019 Zayed Sustainability Prize finalist under the ‘Water’ category.

https://youtu.be/SGSsb8MC3Vw

Scan QR code or click the link to watch the deployment video
MADAGASCAR DEPLOYMENT

Installation of water filtration solutions across five rural areas of Madagascar

Date of deployment: 30th Nov 2020
Solution: Safe Water Cube Fountains
Quantity: 5
Solution provider: Agir Ensemble Association, 2019 Prize finalist in the Water category
Location: Antsirabe, Vohitrarivo, Ambohijafy and Ambohijafy Talata Andraikiba
Impact: 8,500 people have access to clean water for drinking, sanitation, and household use, everyday

Background

According to the United Nations Children’s Fund (UNICEF), various parts of Madagascar including its southern regions in particular, have the country’s lowest water supply coverage and are highly vulnerable to drought. Access to potable drinking water is a major challenge for the local population.

Chronic droughts lead to annual emergency appeals to save the lives of malnourished adults and children. Yet the root cause of this situation is the availability and access to safe water. Families often resort to negative coping strategies to the detriment of their children - such as having to discontinue their children’s education to be able to buy water at exorbitant prices, which at peak times can reach up to $0.66 US cents for a 20 liters jerry can of water.
The Challenge

Around the world, there are more than two billion people who do not have access to drinking water and more than 2.6 million people die because of the water they drink, according to the World Health Organisation. In schools, 80% of children’s illnesses are caused by the water they drink.

Without clean drinking water, the living conditions of the people in the villages are very complicated. Unhealthy water causes diseases that prevent children from going to school and adults from going to work. People must walk for miles to collect drinking water. These people earn less than four dollars a day. Every year, millions of people migrate to the cities to try to find a better life.

In Madagascar alone, more than 58% of people lack access to safe drinking water and nearly half of all households live without sanitation facilities, according to international estimates.

UNICEF reports, that in rural areas, only 36% of households utilise improved water facilities, like using borehole drilling (a deep, narrow hole made in the ground, especially to locate water); however, this method has a very low success rate due to the scarcity of groundwater and the high level of salinity.

The Solution

The Safe Water Cube fountain by the Agir Ensemble Association, the 2019 Zayed Sustainability Prize finalist under the ‘Water’ category is a technological innovation that provides immediate access to drinking water through a fountain and its system by ultrafiltration - non-chemical – of surface water and wells, removing all viruses and bacteria.

They installed fountains in isolated villages in developing countries, with solutions rolled out in 20 countries around the world.

In Madagascar, four fountains have been installed in schools including St. Joseph School in Antsirabe and schools in Vohitrarivo, Ambohijafy and Ambobijafy Talata Andraikiba that are also accessible to local village residents. In addition, a fountain has been setup for the patients and healthcare workers at a hospital in Andraikiba.

When a Safe Water Cube fountain is installed in a village, the entire population has access to drinking water. Thanks to it, illnesses decrease considerably, and children can go back to school. The installation of a Safe Water Cube fountain at school reduces children absenteeism in schools by 85% and increases the number of children attending school by 25%. For each installed fountain in the villages, two or three people are trained (at least one man and one woman) to be responsible for the use and maintenance of the fountain with one designated fountain technical manager for the entire country.

The Safe Water Cube fountain is compact [Diameter: 70cm; Height: 120cm; Weight: 56kg], robust, mobile and allows all surface and well water to be made potable thanks to its five steps of mechanical filtration. Its 0.02micron ceramic filtration prevents bacteria and viruses from passing through. It makes all surface water (river water, ponds, wells, brackish water) potable and makes 1,000 liters of water per hour potable, which corresponds to the needs of approximately 1,000 people.
These aspects are essential and constitute - together with the solidity of the structure - the originality of the Safe Water Cube fountain compared to other existing stand-alone water purification systems.

Filtration is performed according to the following sequence:
- Screening at 500 microns at the tank inlet and 100 microns on the pumping strainer.
- 60micron filtration by plastic filter.
- 25micron filtration by textile filter.
- 5micron filtration by textile filter (only consumable of the device);
- Ultrafiltration to 0.02 micron by a ceramic filter.

The performance indicators are:
- The volume of water [in liters] filtered in relation to the quantity of population
- The number of cleanings performed in relation to the type of water and volume of water filtered
- Absenteeism of children in schools
- The number of people coming to the clinics for water-related illnesses.

**The Impact**

8,500 village residents, hospital patients and medical workers in Madagascar’s Vakinankaratra central region can now:

- Avoid many of the waterborne diseases and other health issues stemming from dirty water
- Have new opportunities for better hygiene, an essential requirement given the importance of handwashing in preventing the spread of COVID-19.
- Support children to attend continuous schooling with 5 Safe Water Cube fountains installed in 5 schools and the impact includes:

Additional benefits include:
- Enhanced options for income generating activities for adults with women relieved of the chore of fetching water, free up their time and reducing associated risks.
- Reduction in resource depletion through the water fountain’s ability to make any type of water present in the villages’ potable.
- The fountain works without electricity and without chemical products. It does not emit any greenhouse gases and does not pollute the environment.

**Case Study**

Voahanginirina Raivomanana is a 42-year-old mother.

She accompanied her pregnant daughter to a local clinic as her son-in-law cannot afford a day off with his low wage salary.

It is the same story for all mothers-to-be in the rural municipality of Andraikiba - you must give birth either at a clinic or at home with a traditional midwife.

A relative of Voahanginirina says: “We chose to go to St Claire D’Assise clinic in case of any complications since it is her first child. I did not want her to give birth at home.”

“It is already hard enough for them to find a safe place to give birth, but wherever they would like to go, there is no reliable source of clean water.”

Voahanginirina had to bring boiled water from her own home to the clinic, not only for her family, but also for the healthcare personnel to use.

Since the installation of the water fountain by the 20by2020 initiative, anyone going to the clinic would now have access to clean water. Voahanginirina says: “I was so relieved that we now have a fountain in the clinic. I was afraid the water I brought was not enough and I would have to buy bottled water which is too expensive for me.”
About Agir Ensemble Association

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Agir Ensemble Association is the 2019 Zayed Sustainability Prize finalist under the ‘Water’ category.

https://youtu.be/ObtCFxOCviY

Scan QR code or click the link to watch the deployment video
INDONESIA DEPLOYMENT

The objective of this deployment is to provide more than 20,700 people from a large fishermen community with improved energy access through off-grid solar lighting.

Date of deployment: 28th Dec 2020
Solution: Distribution of solar lanterns and mobile-charging solar lanterns to fishermen communities living without access to electricity
Quantity: 3,600 solar lanterns and 1,000 mobile-charging solar lanterns
Solution provider: a collaboration between two Zayed Sustainability Prize winners; d.light, 2013 Zayed Sustainability Prize winner under the ‘Energy’ category and Kopernik, 2016 Zayed Sustainability Prize winner under the ‘Energy’ category
Location: Pulau Laut Selatan in South Kalimantan, Indonesia
Impact: More than 20,700 people from a large fishermen community have improved energy access, everyday

Background

Kotabaru Regency is one of the most remote and disconnected areas in the province of South Kalimantan, Indonesia. According to the country’s Central Bureau of Statistics, more than 48,000 people (or 23% of the population), lack access to electricity out of a total population of 336,000 people, making it the regency with the highest rate of households without electricity in the province.

The villages without access to electricity are mainly located in remote coastal areas, which poses geographical challenges in terms of grid installation. As a result, local communities experience various socio-economic hardships and daily risks.

The vast majority of these coastal communities across the Kotabaru Regency work as fishermen and rely heavily on the sea for their income and livelihoods.
The Challenge

Due to widespread electricity shortages, residents, who rely on agriculture, fishing, and operating small businesses for their livelihoods, cannot perform their jobs at night. Health centres cannot sufficiently accommodate patients in the evening and children cannot study at night, nor can people perform cleaning, cooking and other key daily domestic activities.

Residents typically spend money on hazardous kerosene lights, lead-acid batteries, and diesel generators to provide adequate lighting for nighttime activities. Kerosene lights release toxic smoke and black carbon as the byproducts of incomplete combustion while lead acid batteries can contaminate solid and groundwater if improperly used. In addition, diesel generators contain more than 40 toxic contaminants, which pose health and environmental risks.

Local fishermen used either flashlights or mini generators to work at night which are costly and difficult to use. Common issues include running out of batteries or gasoline in the middle of the sea and broken lamps which can be dangerous. These issues were also experienced by klotok drivers, local boats that are used as a mode of transportation for the community, particularly for crossing islands.

Moreover, there is a pressing need to further develop the coastal economy by creating a fair and transparent fisheries trade through technology innovation.

The Solution

d.light’s S30 lantern and T200 torch are portable solar-powered lighting solutions that are suitable for areas where there is a lack of access to electricity.

The distribution aims to allow the communities at Kotabaru study, read, cook, and work at night. With the introduction of these clean lighting solutions, 20by2020 aims to empower the communities to be more resilient, especially during the COVID-19 pandemic.

The 20by2020 deployment is improving the communities’ social and physical wellbeing by lighting up households and public facilities. This is enabling local beneficiaries to conduct various activities at home such as cooking and showering, in addition to community-based activities at night, while also following COVID-19 protocols at village gatherings, and village sporting events.

Moreover, the clean energy solutions are improving the communities’ overall quality of life by enabling greater activities in the evening, and at least 3,300 children from various households can now study at night by using the solar lanterns.

To help stimulate the technology-led fisheries sector for the targeted communities and ensure that their needs were met, 20by2020 worked closely with Aruna, a prominent Indonesian fisheries’ e-commerce platform that they collaborated with to conduct comprehensive village assessments prior to distributing the solar lanterns and torches to the communities.
d.light S30
The d.light S30 solar lantern is an affordable, portable lighting solution that was built for the whole family to enjoy together. When used at home, the S30’s unique conical shape reflects light into every corner of a room, while its easy-to-carry design also provides safety when walking alone at night.

S30 Specs
• Smart LED indicator for solar charge intensity
• Multiple-setting handle allows flexible usage.
• 3 brightness settings (Standard and High)
• High efficiency integrated solar panel
• Glow-in-the-dark button
• Weather resistant to sun and rain
• 60,000-hour life LED
• Lifetime well over 5 years (inclusive of battery)
• Maintenance-free
• Country certifications for East & West Africa (SONCAP, PVoC)
• Meets Lighting Global quality standards

The Impact
• Approximately 20,700 people have access to lighting in communities across the Kotabaru Regency, South Kalimantan, as follows:
  • 230 solar lanterns for public facilities, including healthcare clinics, covering 6,900 people.
  • 3,312 solar lanterns to households, benefiting 13,248 people, including children and students.
  • 984 solar torches distributed directly to fishermen in the field, with the vast majority reporting a notable increase in night-time productivity.
Case Study

The 20by2020 deployment has had a significant impact on more than 20,700 beneficiaries in 17 villages in the Ketalbaru District, empowering village leaders, sub-district governments, and other local authorities to ensure a smooth, effective, and safe installation and usage.

Sarmadian, a fisherman and direct beneficiary from the Sebanti village, who said: “I am a small fisherman who used to use flashlights to earn my wages. I could spend IDR 50,000 (USD 3) per month only to buy batteries. When the battery suddenly ran out, I had to survive in the middle of the dark sea. Moreover, my boat usually runs aground because the beach is not visible, especially in the rainy season or bad weather. For household activities, I was previously using candles every day.”

Mrs. Damri, head of the Kerasian village said: “As the village government, we are grateful for this assistance through 20by2020. Previously, our people, especially those who made a living at the sea such as fishermen and klotok drivers could only use flashlights that were easily damaged. Now they can work comfortably and safely. We are also happy that our local mosque has good lighting for praying at night.”

Bobi, a local boat service driver from the Kerasian Village, said: “I work as a klotok driver, or ‘sea taxi’, to pick up guests and residents who want to cross between islands. Prior to the solar-powered lights, we used small flashlights that run on batteries. At most, the battery would last up to four days and the monthly cost was very high for me.”

Since the start of the 20by2020 deployment, there has been a significant impact on students in fishermen families, with a remote learning policy in place due to the pandemic. There are more assignments when studying from home than the usual in-person classrooms, with inadequate lighting making things harder for students and parents alike.

Today, students from beneficiary villages can study at night with the aid of solar technologies. Based on conducted surveys, 69% of respondents stated that they are witnessing notable improvements in their children’s learning. In addition, the use of solar-powered lamps also significantly reduces the children’s risk of respiratory diseases since families previously used kerosene lamps that produced toxic gas to provide lighting for studying.

Andini, a 6th-grade elementary school student from the Kerasian Island, said: “I found it hard to study at night because of the weak lighting in our house. We also used kerosene lamps that produce black gas, and it smells bad. Now, my brother and I can study comfortably because the lights are bright and that motivates us and keeps us excited. After studying, I can use the solar light to help my mother fold clothes, cook, and wash the dishes in the evening.”

On her part, Marda, a shop owner, and headmaster of the local kindergarten in the Kerasian Island said: “I am a housewife who owns a shop at home and I also work as the principal at the Kerasian kindergarten. The solar-powered lantern makes it easier for me to do many activities. In the past, our shop used ordinary flashlights that hung on the wall; however, I can now sell goods easily because my shop has sufficient lighting. I also often need to go to school to collect documents at night and this lantern is very useful to light up my way when I leave my house.”
About d.light and Kopernik

**d.light**

As a for-profit social enterprise, d.light manufactures and distributes solar lighting and power products targeting the 2.6 billion people globally without access to reliable electricity. Through 10 field offices and four distribution hubs in Africa, China, South Asia and the United States, d.light has sold more than 1.5 million solar lanterns, improving over 7.5 million lives.

d.light has leveraged its leadership in portable solar lanterns to introduce modular, upgradeable solar systems for homes and small business, which combined with an affordable payment system, have the potential to revolutionise the adoption of solar power in the developing world.

d.light is the 2013 Zayed Sustainability Prize winner under the 'Energy' category.

**Kopernik**

Kopernik delivers sustainable energy technologies to last mile communities to reduce poverty. Kopernik has distributed more than 60,000 units of clean energy technologies including solar lights, solar home systems, water filters, and clean cookstoves, reaching more than 300,000 people.

In Indonesia, Kopernik is also scaling up its award winning 'Wonder Women' initiative, empowering women to become micro-social entrepreneurs by selling clean energy products in their communities. Apart from connecting remote communities with renewable energy solutions, Kopernik also incubates innovation by helping manufacturers develop affordable energy solutions for the poor.

Kopernik is the 2016 Zayed Sustainability Prize winner under the 'Energy' category.

Scan QR code or click the link to watch the deployment video

https://youtu.be/I1kST0wYmBE