

## 2020 Annual Impact Report















🚰 BNP PARIBAS

### Introduction

Thanks to the generous support of our partners, we are pleased to share the 2020 Annual Impact Report of the 20by2020 initiative.

As leaders in sustainable development and humanitarian outreach, the Zayed Sustainability Prize and the 20by2020 initiative strive to build trust and transparency throughout their project deployments and impact reporting. This report seeks to communicate the positive changes created by 20by2020's first phase of project deployments in the course of 2019-2020.

In compiling the report, primary and secondary data were used to document the impact of each of the initiative's projects. After a desk review of shared literature on the projects and a thorough review of resources available online, each project's point of contact provided information in the form of a written questionnaire and further clarifying information.

The results of the data collection for each project include an overview of the project context, a description of how the stakeholders and beneficiaries were selected, a profile of the affected communities, and a description of the challenges they faced prior to receiving the project's support. The total number of beneficiaries reflects the number that the technology provider shared with the 20by2020 initiative.

Just as each project provided a unique solution tailored to the specific context, it also employed particular methods for engaging communities and gathering data. In general, projects worked with communities of interest, intended beneficiaries, government officials, and other stakeholders to first identify the projects' locations and sensitise the population to the intended activities, and then to collect data on the generated impact.

The project results described herein include direct and indirect generated impact, with qualitative and quantitative examples that span the social, economic, and environmental domains. Where information is available, the material impact and duration of the impact are also included.



### Contents

- **03** About 20by2020 and the Zayed Sustainability Prize
- 04 20by2020 initiative Strategic Framework
- **06** Global Impact
- **08** Food: Tanzania
- **10** Energy: Indonesia
- **12** Energy: Jordan
- **14** Energy: Egypt

- **16** Health: Nepal
- **18** Health: Uganda
- 20 Water: Cambodia
- 22 Water: Madagascar
- 24 Key Partners
- 26 Bibliography
- **28** List of Acronyms

# About 20by2020 and the Zayed Sustainability Prize

#### Σď

The Zayed Sustainability Prize was established in **2008** 

The Prize has awarded 86 winners

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**352 million** people worldwide have been impacted The 20by2020 initiative is inspired by the legacy of the late Sheikh Zayed bin Sultan Al Nahyan and champions the United Arab Emirates' (UAE) founding father's commitment to sustainability and humanitarian values.

20by2020 was established in 2019 to further the work and reach of the Zayed Sustainability Prize (the Prize), the UAE's pioneering global award for recognising sustainability and humanitarian solutions around the world. The Zayed Sustainability Prize acknowledges and rewards global pioneers and innovators who are committed to accelerating impactful sustainable solutions. This covers small to medium-sized enterprises (SMEs), non-profit organisations (NPOs), and global high schools. Since its establishment in 2008, the Prize has awarded 86 winners and has positively impacted over 352 million people worldwide.

20by2020 amplifies the positive impact of the Zayed Sustainability Prize winners' and finalists' sustainable solutions and technologies to vulnerable communities around the world. Through the 20by2020 initiative, the Prize is widening the reach and accessibility of sustainable solutions and technologies to last-mile and off-grid communities, to transform thousands of lives for the better.

Starting in 2019 and throughout 2020, thanks to the generous support of our partners, 20by2020 successfully deployed eight projects in eight countries. As of January 2021, these investments had already impacted close to 110,000 vulnerable people's lives, and are expected to reach more in the coming years.

Moving forward, the second phase of 20by2020 will support another 12 countries to improve their access to critical sustainable solutions. Rebranded 'Beyond2020' to capture its long-term impact and continuity, the next phase will continue to support vulnerable communities as the world is expected to transition out of the COVID-19 pandemic in 2021. Second phase projects are expected to begin in early 2021.

In the pages that follow, this report highlights the social, economic, and environmental impact achieved by the initiative in its first phase, broken down by deployment in each of the 8 countries impacted, as well as the technology and sector served.

### 20by2020 initiative Strategic Framework

20by2020's Strategic Framework illustrates how each of the eight current projects contribute to the initiative's overarching goal and objectives.

The 20by2020 initiative's ultimate goal is to leverage the Prize's outcomes to foster greater sustainable development worldwide and an environment that respects humanity.

To reach that goal, the initiative will pursue two complementary objectives:

- 1. Raise the living standards to respond to existing needs in vulnerable communities, further improve their livelihoods, and enhance community infrastructure.
- Foster an environment of stability, empowerment, and selfreliance within all communities where donation activities occur, carrying forward the immediate benefits provided by the donated solutions.

A core element of the Zayed Sustainability Prize and 20by2020 is understanding the multi-faceted nature of global challenges to achieve a sustainable future. Thus, projects focus on one of the four primary Sustainable Development Goals (SDGs) of the United Nations (UN), in the areas of food, energy, health, and water.

Furthermore, building on the UAE's role as a global leader in philanthropy and international development, 20by2020 also supports progress towards the UAE's National Priorities as stated in the Abu Dhabi 2030 Agenda for Sustainable Development.

Simultaneously, 20by2020 reinforces the powerful message that tolerance, compassion, and cooperation are needed to bring the world closer to transforming humanity. The initiative is guided on its mission by the values of inclusiveness and compassion, as advocated for in the UAE's Year of Tolerance which was marked in 2019 and the UAE National Wellbeing Strategy & Framework.



### JORDAN

Solar Streetlights from Sunna Design, 2018 Zayed Sustainability Prize winner, Energy category. **3,000 people will gain** access to energy daily.



### **EGYPT**

Solar Streetlights from Sunna Design, 2018 Zayed Sustainability Prize winner, Energy category. **3,500 people will gain** access to energy daily.



### UGANDA

Solar Suitcases from We Care Solar, 2019 Zayed Sustainability Prize winner, Health category. 12,000 mothers and their infants will gain access to better healthcare.



### TANZANIA

Flour Dosifiers from Sanku, 2019 Zayed Sustainability Prize winner, Food category. 50,000 adults and children will gain access to nutritious food.





### NEPAL

Solar Suitcases from We Care Solar, 2019 Zayed Sustainability Prize winner, Health category. 6,000 mothers and their infants will gain access to better healthcare.



### CAMBODIA

Water Filtration Units from Agir Ensemble Association (Safe Water Cube), 2019 Zayed Sustainability Prize finalist, Water category. 4,400 people will gain access to clean water.



### **INDONESIA**

Solar Home Systems from D.Light, 2013 Zayed Sustainability Prize winner, Energy category, with on-ground project execution by Kopernik, 2016 Zayed Sustainability Prize winner, Energy category. **20,700 people will gain access to energy daily.** 



## MADAGASCAR

Water Filtration Units from Agir Ensemble Association (Safe Water Cube), 2019 Zayed Sustainability Prize finalist, Water category. **8,500 people will gain access to clean water.** 



### TANZANIA

In Tanzania, the 2019 Zayed Sustainability Prize winner Sanku is helping 50,000 people have access to nutritious food.

SOLUTION PROVIDER



Sanku, 2019 Zayed Sustainability Prize winner

SOLUTION Flour Dosifiers

LOCATION Dar es Salam and Pwani region, Tanzania

IMPACT Increased access to nutritious food for 50,000 people SECONDARY SDGS



### THE CHALLENGE

Tanzania's population suffers from high malnutrition rates and related health issues due to insufficient access to healthy foods, and a diet lacking in crucial vitamins and minerals. According to USAID, 34% of children under five suffer from stunting, and 16% are underweight (USAID, 2019). Dar es Salaam, the country's capital and largest city, has some of the highest rates of chronic malnutrition and stunting in the country and has become a priority area for UNICEF's nutrition interventions (Tanzania Ministry of Health et. al., 2018).

Chronic malnutrition exacerbates other risk factors in Tanzanian communities. For example, 75% of Dar es Salaam residents live in informal housing with inadequate sanitation facilities, leaving the malnourished population more susceptible to diseases like cholera. Similarly, women of reproductive age in particular have insufficient iron levels, leading to anaemia and adverse effects on the pregnancy and the mothers' health. At current levels, malnutritionrelated productivity losses in Tanzania are projected to cost the country \$20 billion by 2025.



One of the main staple foods for residents of Dar es Salaam and the surrounding region is maize flour. However, the industry suffers from volatile prices and uncertain availability of raw maize inputs and packaging material. Simultaneously, the population's lack of information about the benefits of fortified foods has led to a lack of their usage to combat malnutrition.



It gives me immense satisfaction to know I am able to give my people healthy food.

### 

Khalima Juma, a 33-year-old mother and food stall owner in Dar es Salaam

#### THE PROJECT

Sanku's objective is to reduce malnutrition and related diseases and deaths in East African communities by producing fortified maize flour. Fortified maize flour adds critical micronutrients like B12, Folic Acid, Iron, and Zinc, which are scientifically proven to improve health and vitality.

For this project, Sanku selected ten flour mills in five districts throughout Dar es Salam and the neighbouring Pwani region to support implementation. To make this selection, the Sanku team conducted surveys with interested mills to collect information on their production capacity and consumer reach.

In each selected small flour mill, they installed a dosifier that adds a precise amount of the essential micronutrients. The dosifier allows the mills to produce and sell fortified flour, replacing the lessnutritious traditional maize flour that families eat every day. Sanku also supplies the inputs and packaging material the mills need to successfully produce fortified maize flour.

Throughout the project, Sanku provides mills with ongoing support through remote monitoring, follow up visits to restock nutrients and make repairs, and bi-monthly training for mill owners and operators. Additionally, Sanku holds awareness-raising sessions with the communities on the importance of good nutrition, which drives demand for fortified foods.

#### THE IMPACT

Thanks to this project, 50,000 people in Tanzania will have access to nutritious food. As of December 2020, this project's ten mills produced 1,830 tons of fortified flour, giving 50,000 people in Tanzania access to nutritious food.

The dosifiers make it easy for rural millers to produce quality fortified flour, and families can finally afford to buy and eat healthy food every day. As a result, it is expected that:

- Local populations receive the essential nutrients they need, thus improving nutrition and reducing stunting and infant mortality rates.
- Beneficiaries' immune systems improve, which helps fight off diseases. As people become healthier and less prone to malnutritionrelated illnesses and deaths, the burden on the city's healthcare should reduce, while people's productivity should increase.
- Pregnant women's anaemia levels reduce, leading to better maternal health and pregnancy outcomes.
- Children become healthier, and consequently, their ability to develop and learn should improve, resulting in higher academic performance.
- Flour mills also benefit economically from the project. As communities become more aware of fortified maize flour's benefits, the demand for the product increases, resulting in improved sales and revenue, and allowing mills to expand and hire additional employees.

### 10 mills produced 1,830 tons of fortified flour and reached 50,000 people



## **INDONESIA**

In Indonesia, the 2013 Zayed Sustainability Prize winner D.Light along with the 2016 Zayed Sustainability Prize winner, Kopernik are helping more than 20,700 people gain reliable access to energy every day.

SOLUTION PROVIDER



D.Light, 2013 Zayed Sustainability Prize winner and Kopernik, 2016 Zayed **Sustainability** Prize winner

SOLUTION Solar Home Systems

I OCATION Pulau Laut Barat, Pulau Laut Kepulauan, and Pulau Laut Selatan subdistricts, South Kalimantan, Indonesia



IMPACT Increased access to reliable energy for 20,700 people

SECONDARY SDGS





#### THE CHALLENGE

Kotabaru regency is one of the most remote and disconnected areas in the province of South Kalimantan, Indonesia. Out of a total population of 336,000 people, more than 48,000 people, or 23% of the population, lack access to electricity, making this the regency with the highest rate of households without electricity in the province.

While the state-owned electricity company has extended the electricity network to nearly all villages within the regency, access within communities is unevenly distributed. In the sub-districts of Pulau Laut Barat, Pulau Laut Kepulauan, and Pulau Laut Selatan, access to electricity is still a pressing challenge.

The lack of electricity negatively impacts small communities in these areas in several ways. Residents, who rely on agriculture, fishing, and operating small businesses for their livelihoods, cannot perform their jobs at night. Secondly, health centres cannot sufficiently accommodate patients in the evening. Lastly, children cannot study at night in local households, nor can people perform cleaning and cooking activities.

Prior to the deployment, these communities relied on battery-operated flashlights, candles, kerosene-powered lanterns, and diesel generators for lighting. However, these sources often run out and negatively affect both people's health and the surrounding environment. For instance, kerosene lights release toxic smoke and black carbon as by-products of incomplete combustion (The World Bank, 2013). Additionally, lead-acid batteries contain sulfuric acid and lead, which can contaminate soil and groundwater and pose a potential threat to human health and the environment if improperly discarded (University of North Carolina, 2020). Lastly, domestic diesel generators produce high emissions that pose more significant risks to human health and the environment due to proximity to homes and prolonged use duration. In fact, diesel exhaust contains more than 40 toxic contaminants, including many known or suspected cancercausing substances such as benzene, arsenic, and nitrogen oxide (Awofeso, 2011).

#### **THE PROJECT**

Through 20by2020's support, the project is providing Kotaburu communities with lanterns six times more powerful than kerosene-based lighting sources that stay charged for 12 hours (D.Light, 2020a). The solar torches the project also provides are 18 times more powerful than kerosene-based lighting sources, stay charged for eight hours and provide lighting for one km (D.Light, 2020b).

Locally, the project was managed by Aruna, an Indonesian fisheries' e-commerce platform that uses technological innovations to create a transparent fisheries trade, thus developing coastal economies. Aruna conducted Village Assessment Reports to determine which communities had the most pressing energy needs. This data collection was complemented by a desk review of Indonesia's Central Bureau of Statistics' data from 2019 and 2020, and Key Informant Interviews with the state electricity company PLN and the Regional Body for Planning and Development (BAPPEDA).

Across the 17 villages included in the project, nearly 4,600 solar lanterns and torches were distributed to public facilities, households, and fishermen. The distribution included: 1) Public Facilities - 230 solar lanterns were provided to public facilities such as health centres, schools, harbour offices, and places of worship. Based upon 30 people per facility, these lanterns are estimated to reach 6,900 people; 2) Households - 3,312 solar lanterns were provided to households, reaching an estimated 13,248 people (based on four people per family); and 3) Fishermen - 984 solar torches were supplied to fishermen.

The implementing partners also held meetings with the targeted communities and local officials before and during the project to introduce the project and demonstrate how the technology worked.



#### THE IMPACT

Thanks to 20by2020, more than 20,700 people have improved access to reliable energy. As a result, it is expected that:

- Productivity improves due to household lanterns that allow children to study at night, and enable women to cook and perform household chores in the evenings.
- Fishermen are better able to do their jobs, as solar torches that charge on the boats during the day provide them with a more reliable energy source. Solar torches also improve their productivity, which is expected to increase their fish sales and household income by 7%, each year.
- Solar lanterns for community buildings allow health facilities to adequately accommodate patients at night, thus improving the communities' access to healthcare.
- The lanterns also enable the villages to host community-based activities such as village meetings, sporting events, and night bazaars after dark while maintaining social distancing and following the proper COVID-19 protocols.
- Clean energy products replace diesel generators and kerosene lights, reducing toxic pollutants harmful to people's health, particularly when used inside.
- Villagers use fewer hazardous lead-acid batteries. This helps prevents leaching into the ground, which destroys the soil's fertility. The project also estimates that using solar energy rather than fossil fuels saves nearly ten metric tons of greenhouse gas (GHG) emissions per year.

In the future, village funds (referred to locally as Dana Desa) will fund solar light replacements, whose batteries are expected to last for five to ten years, based on their usage intensity. Having trained local government officials, the project expects the BAPPEDA to take over the technology's maintenance and management.

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Previously, I used candles at night. Now, that there is lighting in the house, thank God, even my children can study at night. We can also cook at night, with this light.

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Rashmatia, Kerasian Island resident



### JORDAN

In Jordan, the 2018 Zayed Sustainability Prize winner Sunna Design is helping 3,000 people gain reliable access to energy every day.

SOLUTION PROVIDER



Sunna Design, 2018 Zayed Sustainability Prize winner



SOLUTION Solar Streetlights

LOCATION Prince Hamzah Hospital, Amman. Jordan

IMPACT Increased access to reliable energy for more than 3,000 people daily

SECONDARY SDGS



### **THE CHALLENGE**

In Jordan, lighting is essential in building sustainable communities by providing better safety, security, and quality of life. However, access to lighting - and in particular clean, reliable lighting – remains inconsistent across the country, and even among some public facilities in the capital city of Amman. One such facility is Prince Hamzah Hospital, one of the largest government hospitals in Amman, which employs and treats thousands of people daily. The hospital has been a crucial part of the country's COVID-19 response.

However, for the past 12 years, streetlights near the hospital's entrances, walkways, courtyards, and car park have not been functioning. The lack of lighting poses a challenge for patients visiting the hospital who may suffer from limited vision or movement. In addition, the hospital's doctors and nurses feel unsafe when entering or leaving the hospital after late shifts. While there have been many registered complaints, the hospital lacked the funds to fix the external lighting.



We are confident that the solar streetlights by the 20by2020 initiative will complement and further optimise the efficiencies of Prince Hamzah 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

Dr. Abdul Razaq Al Khashman, Former General Manager of Prince Hamzah Hospital

#### **THE PROJECT**

Through the support of 20by2020, the project installed 55 solar streetlights in and around the premises of Prince Hamzah Hospital to ensure all patients' and medical staff's safety.

Implementing partners worked with local government authorities to determine where the lighting solution was most needed. Local partners also collected feedback from beneficiaries and followed up on the technology to ensure that there were no safety or access problems after installation.

#### ABOUT SUNNA DESIGN'S LED SOLAR STREETLIGHTS

Sunna Design's LED Solar Streetlights are being implemented by the 20by2020 initiative in Egypt and Jordan. Each Solar Streetlight includes frameless solar panels that convert solar energy into electricity, high-powered LED modules, a NiMH battery that stores the electricity produced during the day to power the LED modules at night, and smart energy management systems whose algorithms maximise the batteries' life cycles. Additionally, streetlights are Bluetooth enabled, and the SunnAPP application allows for remote diagnosis and configuration (Sunna Design, 2018).

These features provide robust and reliable off-grid lighting, that is fast to install and easy to maintain. Sunna Design provided the solar streetlights, while its partners Siraj Lighting and MEMCO Co. covered implementation costs and provided the poles on which the lights are mounted.

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**100 hospital staff** and thousands of patients have access to reliable energy everyday

#### **THE IMPACT**

Thanks to this project, more than 3,000 people, including patients and approximately 100 hospital staff, have access to reliable energy every day. As a result, it is expected that:

- Lighting at the hospital's entrance and car park increases, which improves the safety of all people entering and exiting the hospital at night.
- The new streetlighting supports the hospital in battling the COVID-19 pandemic by providing better visibility for the increased number of ambulances that transfer patients to the hospital at night.
- Maintenance costs reduce as the solar lights require very little upkeep, are designed not to collect dust, and therefore don't require cleaning. The technology is expected to last for ten years, thus enhancing the project's sustainability.
- Solar-powered lights' clean energy use reduces CO<sub>2</sub> emissions and pollution that would harm the environment.





## EGYPT

In Egypt, the 2018 Zayed Sustainability Prize winner Sunna Design is helping 3,500 people gain reliable access to energy every day.

SOLUTION PROVIDER



Sunna Design, 2018 Zayed Sustainability Prize winner

SOLUTION Solar Streetlights

LOCATION Habisha

Village, Asyut Governorate, Egypt



IMPACT Increased access to reliable energy for 3,500 people SECONDARY SDGS



#### **THE CHALLENGE**

Egypt's rapidly growing population has increased the country's energy demand, straining its domestic energy sources (IRENA, 2018). Habisha village in Asyut Governorate is an impoverished community of 3,500 people that, like many rural communities, lacked sufficient energy to provide essential services, such as streetlights. In Habisha village and elsewhere, streetlighting plays a critical role in reducing traffic accidents and crime, ensuring public safety, enhancing social cohesion, and increasing economic activity. Moreover, sufficient lighting is essential for ensuring women's safety at night while also allowing children and families to socialise, and businesses to stay open after dark.

#### **THE PROJECT**

Working with its partners Siraj Lighting and MEMCO Co., Sunna Design installed 51 Solar Streetlights (See their description in the Jordan Project on p. 13) on the village's critical main street. To identify Habisha Village as the recipient community, the project worked closely with the Ministry of Urban Planning to determine which community needed assistance.



# **51 Solar Streetlights** were installed on the village's critical main street

#### THE IMPACT

Thanks to this project, more than 3,500 people living in Habisha now have access to reliable energy every day. As a result, it is expected that:

- Night-time traffic accidents reduce, as drivers have increased visibility of the road.
- Street crime decreases, which makes all pedestrians, but in particular, women, feel safer moving around at night.
- Lighting allows families and children to gather after dark, enhancing the community's social cohesion. As the village lacks a playground, children can safely gather and play in the lit road in the evenings. They can also stay at school later, as they no longer have to fear walking home at night, allowing them to study more and potentially improve their academic performances.
- Street vendors and shops economically benefit from staying open later, which increases sales/income, while providing customers access to essential items like food and medications during the evening hours. Streetlighting is particularly beneficial for female street vendors, who would otherwise not stay open safely at night.
- Clean energy protects the environment and does not create pollution or emit GHGs. As in Jordan, the technology is expected to last for ten years.





## The

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



### **NEPAL**

In Nepal, the 2019 Zayed Sustainability Prize winner We Care Solar is helping 6,000 mothers and infants gain access to better healthcare.

SOLUTION PROVIDER



We Care Solar, 2019 Zayed Sustainability Prize winner



SOLUTION Solar Suitcases





IMPACT Increased access to better healthcare for 6,000 mothers and infants in five years

SECONDARY SDGS



### **THE CHALLENGE**

In recent decades, Nepal has made significant improvements to child mortality and maternal health. Between 2000 and 2017, the maternal mortality rate dropped from 553 per 100,000 live births to 186 (The World Bank, 2019). However, neonatal and maternal mortality rates in the country remain among some of the country's most significant health issues, particularly in rural areas that tend to be more impoverished and challenging to access.

According to a 2015 Nepalese health facility survey, only 42% of health posts have regular electricity access (Nepal's Ministry of Health, 2016). Such unreliable power in rural health facilities presents significant issues for safe childbirth. Due to the widespread power shortages in rural areas, health facilities cannot refrigerate medications, sterilise equipment, or operate life-saving medical devices.

Moreover, when lighting is not available during birth, midwives must resort to using candles, oil lamps, flashlights, or mobile phones, and they often have to hold these devices in their mouths to keep their hands free. These unhygienic practices reduce healthcare quality, increase infection risk, and prevent midwives from verbally communicating with the mother during birth. Often, the only other solution is to delay treatment, which can be life-threatening.



The Solar Suitcase has been an absolute game-changer for us... The number of women seeking ANC and delivery services is increasing day by day, and Solar Suitcases are one of the contributing factors...We are in a much better position to provide effective services to the community.

44

Amrit Wanim, auxiliary nurse midwife, Walankha Health Post

#### **THE PROJECT**

Through this project, We Care Solar installed Solar Suitcases in ten health centres in rural Nepalese communities, which were selected due to their high maternal and neonatal mortality rates. Each of the chosen health centres suffered from irregular access to electricity, yet possessed the existing health services and structural suitability for installing the Solar Suitcases. To identify these health centres, the project conducted surveys, in-depth interviews, and observed the locations to determine their needs. We Care Solar then worked with its local partners One Heart Worldwide, SunFarmer, and the local government to introduce the technology solution to these health centres and demonstrate how it works. The project also collected baseline and endline data to compare the health centres' functioning before and after receiving the Solar Suitcases.

At each centre, three health workers were trained on how to operate the Solar System and its components, and six local district technicians and members of partner organisations were trained on how to install and maintain the technology.

### ABOUT WE CARE SOLAR'S SOLAR SUITCASES

We Care Solar's Suitcases are being implemented by the 20by2020 initiative in Nepal and Uganda. The suitcases are compact, ready-to-use solar electric systems tailored to provide underresourced health facilities with power for lighting, small medical devices, and mobile communications. The suitcase includes a 12V, 20Ah lithium ferrous phosphate battery, two 12V DC accessory (lighter) sockets, four high-efficiency LED lights for medical task lighting, two USB ports, and two expansion ports for additional lights or other optional accessories.

Altogether, this system is powerful enough to light a typical birthing centre, such as a four-room, single-storied building. The four LED lights provide both fixed and mobile medical lighting, while the LED headlamps offer additional focused light for suturing or activities outside the facility. Additionally, the suitcase's phone charger allows midwives to call for help if needed. Finally, the fetal doppler provides midwives with a way to assess and monitor the fetal heartbeat.

#### THE IMPACT

Thanks to this project, 6,000 mothers and new-borns are gaining access to better healthcare over five years. The project estimates that each health centre this programme supports will enable 100 mothers to give birth, for a total of 1,000 births in its first year of implementation. The Solar Suitcases have notably improved the quality of care at night, and as a result, it is expected that:

- Midwives no longer have to hold a cell phone in their mouth or use a flame-based source of lighting, allowing them to see and communicate with the mother during the delivery process.
- The medical staff can better handle a range of medical issues at night, leading to a 10% increase of night-time deliveries and a 41% decrease in referrals. As such, both the healthcare workers and the community have more faith in the quality of services at night, and providing around-the-clock services increases access to maternal healthcare.
- Women in labour no longer have to risk potentially life-threatening delays.
- Improved lighting and hygiene practices also help fight the spread of infections and COVID-19, as the proper prevention and control practices can be implemented.
- The technician trainings to install and maintain Solar Suitcases are creating new jobs and boosting these technicians' household incomes. The training for healthcare workers also enhances their skills for handling solar technologies, while improving the health centres' infrastructure.
- Non-fossil fuel-based sources help reduce GHG emissions; the project estimates that these Solar Suitcases reduce CO<sub>2</sub> emissions by 80 tons per year.
- The replacement of candles, kerosene and oil wick lanterns, and diesel generators improves air quality and reduces air pollution from black carbon, leading to environmental and health benefits.

In the future, the project plans to transition the technologies' maintenance to local governments to ensure upkeep and sustainability.



## UGANDA

In Uganda, the 2019 Zayed Sustainability Prize winner We Care Solar is helping 12,000 mothers and infants gain access to better healthcare.

SOLUTION PROVIDER



We Care Solar, 2019 Zayed Sustainability Prize winner

SOLUTION Solar Suitcases

LOCATION Minister's Village of Ntinda, Kampala, Uganda



IMPACT Increased access to better healthcare for 12,000 mothers and infants over five years

SECONDARY SDGS



#### **THE CHALLENGE**

Despite recent government efforts, only 8% of Uganda's rural population has access to energy. As in many parts of sub-Saharan Africa, less than a third of health facilities have reliable energy access.

The lack of energy contributes to Uganda having one of the world's highest maternal mortality rates, at 343 per 100,000 live births in 2015 (World Health Organization, 2018). Without electricity, giving birth at night is an even more complicated process, with higher potential rates of infection or complications. Proper healthcare requires good lighting for visualisation and emergency communication abilities whose equipment is dependent on electricity.

Additionally, there is a high turnover rate among midwives, nurses, and doctors in Uganda's challenging context, further disrupting the availability of healthcare providers in rural communities. These workers provide essential services in preventative care, diagnosis and testing, paediatric care, emergency visits, and minor surgeries. Their role has become even more urgent against the backdrop of COVID-19, as they try to help stop the disease's spread.





We Care Solar light has enabled me to comfort mothers in distress at night, especially those experiencing labour pains for their very first time.

Ayikoru Peace Maria, midwife, Angaya HC III, Uganda

#### THE PROJECT

Solar Suitcases were installed in five health centres in rural Ugandan communities that suffer from extreme poverty and high maternal mortality rates, but have infrastructure suitable for installing solar technology. These Solar Suitcases (See their description in the Nepal Project on p. 17) include medical-surgical lights that use 2-6 watts of electricity, which provides sufficient lighting to handle obstetric deliveries, suturing, and various small-scale surgeries.

We Care Solar worked with local partners Healthy Child Uganda, Intrahealth, Brick by Brick, and the Ugandan Ministry of Health, who helped identify health centres and co-develop the project strategy. The collaboration also resulted in training 12 technicians for installation and maintenance and 20 health workers on how to use the technology. Furthermore, project staff visited the health facilities to interview staff and community members to determine their needs.

Primary beneficiaries for the project include (1) expectant mothers, newborn infants, and their families, (2) healthcare workers in remote health centres, and (3) government ministries striving to improve obstetric care.

#### THE IMPACT

Thanks to this project, 12,000 mothers and newborns are gaining access to better healthcare over the course of five years. With an estimated average of 200 deliveries per health centre, these five centres are expected to support 1,000 mother-infant pairs in their first year of implementation. As a result, it is expected that:

- The Solar Suitcases improve health workers' capacity and service quality, reduce delays, and lead to more appropriate referrals. These factors help reduce maternal and newborn mortality and improve community well-being.
- Lighting allows health centres to prevent contamination and enforce infection control protocols of COVID-19, as noted by the Ministry of Health officials.
- Local technician installation and maintenance training leads to improved marketable technical skills and creates new employment opportunities for 12 technicians, generating more income for their households.
- The solar technology, instead of fossil fuel-based solutions, reduces CO<sub>2</sub> emissions by 40 tons per year, according to project estimates.
- Improvements are sustainable, as the technology only requires a battery change every five years. The longer battery life allows the Solar Suitcases to continue benefitting more mothers and infants in the years to come.

# **12,000 mothers and new-borns** are gaining access to better healthcare



# **CAMBODIA**

In Cambodia, the 2019 Zayed Sustainability Prize winner Safe Water Cube is helping 4,400 people gain access to safe drinking water.

SOLUTION PROVIDER



Safe Water Cube. 2019 Zayed Sustainability Prize finalist



SOLUTION Water Filtration Units



LOCATION Chhnok Trou, Kampong Phrah, and Ses Salab villages, Cambodia



IMPACT Increased access to safe drinking water for 4,400 people







13 CLIMAT

### **THE CHALLENGE**

Access to clean water is a major challenge in Cambodia, as the National Institute of Public Health reports that only 50% of the population has sufficient access to water to meet their daily needs. In poor communities along Tonle Sap Great Lake, communities lack resources to purchase filtered water, priced at \$1.25 for a 20-litre bottle. Instead, they are forced to drink boiled water sourced from the lake. The bacteria in the water however leads to malnutrition and a host of water-borne diseases, including cholera, hepatitis, dysentery, and diarrhoea.

The resulting health issues create many additional problems, as sick students miss school, and adults' productivity suffers due to a lack of focus on economic endeavours. Women, traditionally responsible for fetching water, spend a disproportionate amount of their time searching for potable water. Consequently, girls spend even less time at school, and women have less time to devote to income-generating activities.

The dire water situation has forced many Tonle Sap Great Lake residents to flee to the cities, creating a rural exodus.

I am so reassured to have access to this fountain. I was very worried about my child's health while drinking the water from the lake. Today I don't get sick anymore, and my stomach cramps have stopped.

### 

San Sophy, 23 year old mother, Doun Sdaeng



#### **THE PROJECT**

In response to Tonle Sap Lake communities' challenges, the project installed five Safe Water Cube fountains in the lakeside villages of Chhnok Trou, Kampong Phrah, and Ses Salab. While developing the project, the implementers worked closely with Professor Puy Lim, the Vice Chairman of the Tonle Sap Authority Advisor of the Water Resources & Meteorology, Ministry of Cambodia.

The project first visited and surveyed these communities several times prior to installing the water fountains to better understand their needs. The implementers then staged a play for local communities to raise awareness about safe drinking water and hygiene.

To ensure community access, water fountains were installed in easy-to-reach public locations, such as schools and health centres. Each fountain filters 1,000 litres of water per hour, making one unit capable of serving 1,000 people per day. Beneficiary families are each entitled to 20L of water, and are expected to pay 0.05 EUR per month.

In addition to providing the fountains, Safe Water Cube trained ten fountain managers (one male and one female per fountain) to use and maintain the fountains.

#### THE IMPACT

Thanks to this project, 4,400 people have access to safe drinking water in the Tonle Sap Lake communities. For the first time, these villages have easily accessible and affordable potable water sources that they can use for drinking, cooking, and washing.

As a result, it is expected that:

- The rates of water-borne diseases reduce, and community members' health improves.
- The school absenteeism rates diminish, as fewer students have to miss class due to water-borne sicknesses.
- Adults are able to devote more time to incomegenerating activities, increasing their productivity, and hopefully, their income.
- Women and girls spend less time fetching water, as the fountains are easily accessible within communities.
- Clean water allows communities to improve their hygiene through hand-washing, which also helps prevent illnesses. This is particularly relevant during the COVID-19 pandemic.
- Ten new fountain manager jobs are created in the communities, which is expected to increase their families' incomes.
- Pollution and GHG emissions reduce, as the water fountains operate without electricity or chemicals for cleaning.

Safe Water Cube continues to monitor the fountains' volumes and cleaning via weekly text message updates from the trained fountain managers. This follow-up aims to ensure the fountains' sustainability.

#### **ABOUT SAFE WATER CUBE'S FOUNTAINS**

Safe Water Cube fountains are being implemented by the 20by2020 initiative in Cambodia and Madagascar. Each fountain is a compact (Diameter: 70 cm; Height: 120 cm; Weight: 56 kg), robust, and mobile solution for creating potable water, thanks to its five steps of mechanical filtration:

- Screening at 500 microns at the tank inlet and 100 microns on the pumping strainer
- 60 micron filtration by plastic filter
- 25 micron filtration by textile filter
- 5 micron filtration by textile filter (only consumable of the device)
- Ultrafiltration to 0.02 micron by a ceramic filter
- This system filters out harmful viruses and bacteria, but leaves the necessary minerals found in water sources that are beneficial to consume.

Only the filters have to be changed annually, the rest of the technology has a 10-year guarantee. These filters are NSF Certified, and the equipment is approved by Wras, a British Water Regulations Advisory Scheme.



### MADAGASCAR

In Madagascar, the 2019 Zayed Sustainability Prize winner Safe Water Cube is helping 8,500 people gain access to safe drinking water.

SOLUTION PROVIDER



Safe Water Cube, 2019 Zayed Sustainability Prize finalist



solution Water Filtration Units



LOCATION Antsirabé, Madagascar



IMPACT Increased access to safe drinking water for 8,500 people





#### THE CHALLENGE

In Madagascar, more than 58% of the population does not have access to safe drinking water (USAID, 2020). The lack of potable water is particularly challenging in Antsirabé, the country's third-largest city. At an altitude of 1,500 meters, the city is characterised by poverty and inadequate water, hygiene, and sanitation conditions. While the region is surrounded by mineral and thermal waters (Safe Water Cube, 2018), the local water sources are unpotable. Consuming this water leads to multiple adverse health impacts, including water-borne diseases and malnutrition. An estimated 30% of the city does not have access to safe drinking water (Zayed Sustainability Prize, 2020a), and 80% of the illnesses that plague children in Antsirabé are due to the water they drink (Safe Water Cube, n.d.). The lack of clean water is also problematic at the local health centres, where patients have to bring their own boiled water not only to drink, but also for the healthcare workers to use.

However, to date, the lack of capacity and coordination between regional water sector actors has prevented the city from gaining better access to potable water.





I can have clean water that taste good every time I am thirsty, and even my younger siblings can enjoy it too because I bring water for them every day.

### 

**Anjara Rakoto,** 9 year old student

#### THE PROJECT

The project worked with local authorities, the Taratry Ny Ankizy Association, and Salette missionaries to install five Safe Water Cube fountains in five schools of the Antsirabé region: Champfleury (387 children), Talata Andraikiba (600 children), Saint-Jean Andraikiba (1,217 children), Vohitrarivo (725 children), Ambalavato (1,300 children).

As in Cambodia, these schools were selected based on the results of questionnaires and field visits to determine their level of need, while plays were used to disseminate information about the project to the targeted communities.

The project's direct beneficiaries include school children, their families, and the schools' surrounding populations, which can also access affordable, potable water.

The project used the same Safe Water Cube fountain technology as provided in Cambodia (See their description in the Cambodia Project on p. 21), and similarly trained ten fountain managers (two per fountain) for monitoring and cleaning.

#### THE IMPACT

Thanks to this project, 8,500 people have access to safe drinking water. As a result, it is expected that:

- Beneficiaries' rates of water-borne diseases reduce.
- Healthcare centres have sufficient clean water to use and provide to patients.
- The communities' health and hygiene improves, which in turn increases school attendance and productivity, particularly for women.
- Training fountain managers creates new jobs, which increase their families' incomes.
- Pollution and CO<sub>2</sub> emissions decrease, as the fountains do not use any electricity or chemicals that would harm the surrounding environment.

Similar to its engagement in Cambodia, Safe Water Cube continues to monitor the fountains' volumes and cleaning via weekly text message updates from the trained fountain managers. This aims to ensure the fountains' sustainability.

### 8,500 people have access to safe drinking water

### **Key Partners**

The success of the 20by2020 initiative would not be possible without our partners whose collaboration and commitment have been integral to the launch and success of this humanitarian effort. We wish to thank the following partners for their generous support.



Established in 2015, **ABU DHABI GLOBAL MARKET'S (ADGM)** strategy focuses on maximising Abu Dhabi's key strengths, including private banking, wealth and asset management, derivatives and commodities trading, financial innovation, and sustainability. ADGM comprises three authorities: ADGM Courts, the Financial Services Regulatory Authority, and the Registration Authority.

Since its inception in 1971, **ABU DHABI FUND FOR DEVELOPMENT (ADFD)** has helped implement projects in more than 90 countries. Spanning the last 50 years, the Fund's development projects, valued at over AED 90 billion, have helped the international community achieve socioeconomic growth and have supported the implementation of the United Nations' Sustainable Development Goals (SDGs).

**MUBADALA PETROLEUM** is a growing international upstream oil and gas exploration and production company. It is a wholly-owned subsidiary of Mubadala Investment Company (Mubadala), owned by the Government of Abu Dhabi. Mubadala Petroleum manages assets and operations spanning ten countries, with a primary geographic focus on the Middle East and North Africa (MENA), Russia, and South East Asia.

In line with the UAE Vision 2021 and UAE Centennial 2071, the **MINISTRY OF TOLERANCE AND COEXISTENCE** aims to create a roadmap to spread these national values of the UAE worldwide. Through its initiatives, the Ministry seeks to develop a spirit of mutual respect and peaceful coexistence among all country residents, encourage interfaith dialogue, highlight the true image of Islam, build bridges of understanding, communication, and dialogue, and reject violence, discrimination, and hatred.



ماجدالفط

MAJID AL FUTTAIM

**MASDAR,** the Abu Dhabi Future Energy Company, is a regional and international leader in renewable energy and sustainable urban development. Headquartered in the UAE, Masdar has been advancing the development, commercialisation, and deployment of cutting-edge solutions in the industry for more than a decade. It focuses on developing clean energy power projects, sustainable urban planning, high-impact innovations, and facilitating world-class industry and knowledge platforms that accelerate the adoption of clean-tech solutions.

Founded in 1992, **MAJID AL FUTTAIM** started from one man's vision to transform the face of shopping, entertainment, and leisure to 'create great moments for everyone, every day.' As the leading shopping mall, communities, retail, and leisure pioneer in the Middle East, Africa, and Asia, it has grown into one of the UAE's most respected and successful businesses. Majid Al Futtaim spans 16 international markets, employs more than 44,000 people, and has obtained the highest credit rating (BBB) among privately-held corporations in the region.

🚰 BNP PARIBAS

BNP PARIBAS is a leading European bank with a presence in 71 countries, with more than 198,000 employees. BNP Paribas has been operating in the Middle East and North Africa (MENA) region including countries of the Gulf Cooperation Council (GCC), for over 45 years. This work has generally focused on the fields of Corporate and Institutional Banking and International Financial Services.

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#### LIST OF ACRONYMS

ADFD ADGM	Abu Dhabi Fund for Development Abu Dhabi Global Market	GCC MENA	Gulf Cooperation Council Middle East and North Africa
AIDFI	Alternative Indigenous Development	NPO	Non-Profit Organisation
	Foundation Inc.	SHS	Solar Home Systems
BAPPEDA	Regional Body for Planning and	SME	Small and Medium Enterprise
	Development (Indonesia)	SDGs	Sustainable Development Goals
CO2	Carbon Dioxide	UAE	United Arab Emirates
GHG	Greenhouse Gases	UN	United Nations

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