



## 13. Fighting COVID and Reducing Health Disparities in Kenya & Uganda

Project Total Cost: \$253,000

Funding Sought: \$90,000

### PURPOSE

IEEE Smart Village and the Global Telehealth Network are collaborating to improve access to healthcare in medically underserved areas, while also empowering communities through improved education and rapid economic development.

Our initial efforts will focus on an immediate, urgent response to the global pandemic of COVID-19 through six pilot projects in East Africa. Our long-term objective is to advance progress on 14 of the 17 United Nations Sustainable Development Goals (SDG) in communities throughout Africa and on other continents.

### BACKGROUND

Relatively limited numbers of cases of COVID-19 have been reported so far in Africa, but we know that the pandemic will continue to worsen in the coming months. While lockdowns have slowed transmission, they have had a devastating effect on economies that were marginal even before the pandemic. Due to limited health services it is difficult to determine how many cases have occurred and how many deaths have resulted. However, there is substantial pressure to open up. When that happens there are likely to be extreme surges, and there will not be enough health workers on the ground to provide the amount of care that is needed.

The Global Telehealth Network (GTN) is a nonprofit organization of volunteer physicians and psychologists who can provide free, real time, online video consultations for health workers in medically underserved areas when they encounter patients who are impacted by COVID-19 or other complex medical problems.

GTN also offers free use of its technology to develop regional telehealth networks that not only enable doctors to obtain in-country specialty consults, but also allow them to supervise nurses in remote areas who currently have no physician backup. Meanwhile, our international panel of professional volunteers will fill any gaps in expertise with 24/7 availability.

IEEE Smart Village (ISVx) provides seed funding and training for local entrepreneurs whose for-profit social enterprises develop solar power installations to provide clean, sustainable electricity, often through Microgrids. ISVx will also support entrepreneurs in establishing broadband Internet access for hospitals, clinics, schools and villages. Electric power and Internet connectivity will allow access not only to telehealth services, but also to resources for education and economic development.

At each site we will work with community and government leaders, entrepreneurs and other NGOs to assess needs, then customize and implement projects to meet those needs.

### TEAM

**Jack Higgins, MD** is Founder, President & Chief Medical Officer of the Global Telehealth Network. He is a 20-year member of the Rotary Club of Los Altos, California, where he is Immediate Past-Director for International Service and Co-Chair of the Los Altos Rotary Climate Action Committee. He is also Chair of the Rotary District 5170 Coronavirus Response Task Force, Vice-President of Child Health and AIDS Prevention (CHAP) and President of RotaCare Bay Area, which operates 10 free medical clinics in the San Francisco Bay Area.

**Jude Numfor** is Founder and Managing Director of Renewable Energy Innovators Cameroon (REIc), with over ten years' experience in solar Microgrids for village homes, schools and businesses, and more recently, in Internet connectivity. He is a leader in SunBlazer development for highly scalable and profitable systems and recipient of a recent \$1M leveraged award for major expansion in multiple countries of Africa.

**Ray Larsen** (Advisor) is Co-Founder and Past Chair of ISVx and the Technology Committee, Past President of NPSS.

**Robin Podmore**, President Rotary e-Club of Silicon Valley Smart Village, will champion projects jointly developed and funded by ISVx and Rotary Clubs.

## LEVERAGING

These pilot projects in Kenya and Uganda involve two hospitals, two rural clinics and two schools. Each site is unique, and following detailed outcomes analyses, these projects will inform development of multiple models that will be adapted to meet the needs of hundreds more communities throughout the world. Therefore, we will leverage these projects to reach a total number of beneficiaries that is at least two orders of magnitude greater than the 100,000 directly affected at these six sites.

The technologies and infrastructure provided by the projects at these six sites – and through the models developed for use by projects in many additional hospitals, clinics and schools around the world – will provide many benefits beyond access to telehealth services. During and after the COVID-19 pandemic, these new systems will enable Continuing Medical Education for doctors, nurses and other health workers, as well as health information for patients. The availability of clean, reliable and sustainable electric power will improve safety at hospitals and clinics where grid power failures sometimes require surgeries and deliveries to be completed using flashlights. Facilities that have fossil fuel powered generators for grid backup or as their only source of electricity can avoid the resulting pollution and expense, utilizing the cost savings for better purposes.

Installations that are at or near schools will provide access to a vast array of online educational resources that will eliminate dependence on often badly outdated textbooks. Schools will also be able to utilize Internet-based resources for adult education and vocational training.

We will leverage the funding provided by the IEEE Societies with support from other sources. The Rotary E-Club of Silicon Valley Smart Village, the Rotary Club of Los Altos and

## TIMELINE

This is a 24-month program. Within 9 months after launch of the pilot projects, the collaborative will begin installations at other locations in Africa supported by funding from additional grants that we anticipate will be forthcoming following proof of concept and development of models that can be customized for use in other communities.

## AT A GLANCE

Project Locations:	In Kenya: Ukwala (hospital); Sekenani (clinic); Narok (clinic); Nambale (school) In Uganda: Rukungiri (hospital); Kyangwali (school)
Requested Funding	\$90,000
Payment Tranches	\$50,000/Q1 2021; \$20,000/Q2 2021; \$20,000/Q3 2021
# Local IEEE Members Involved	50 IEEE Members who are also members of the Rotary E-Club of Silicon Valley Smart Village + other IEEE Members
Technologies to be Deployed	Solar power installations, satellite dishes for Internet access
Number of Beneficiaries	100,000 total for the 6 pilot projects, and millions will benefit when the project scales
Commissioning/Service Start Date	Q1 2021
Completion/ Demonstration	Q4 2022
Project Contact	Jack Higgins – jhigginsmd1@gmail.com – (650) 823-9216

other clubs in District 5170 are applying for a Global Grant from The Rotary Foundation that will partially match the funds committed by the IEEE Societies. The team will also seek matching funds from other foundations and through corporate philanthropy.

## SUSTAINABILITY

The core technology for all of these projects is clean, sustainable solar power, which has very low cost for maintenance other than occasional replacement of batteries. The cost and useful life of those batteries is rapidly improving to the extent that maintenance costs may actually decrease over time. All installations will be managed by African entrepreneurs who will have financial incentives to maintain the systems.

The pilot projects will directly advance at least the following five United Nations Sustainable Development Goals (SDG):

- SDG 3: Good health and well-being
- SDG 4: Quality education
- SDG 7: Affordable and clean energy
- SDG 8: Decent work and economic growth
- SDG 9: Industry, innovation and infrastructure

The long-term benefits of the projects at these sites and others will address nine more SDGs:

- SDG 1: No poverty
- SDG 2: Zero hunger
- SDG 5: Gender equality
- SDG 6: Clean water and sanitation
- SDG 10: Reduced inequalities
- SDG 11: Sustainable cities and communities
- SDG 13: Climate action
- SDG 15: Life on land
- SDG 17: Partnerships for the goals