SIEMENS | Stiftung

Winning Solutions 2016

www.empowering-people-award.org

empowering people. **Award**

Technologies for basic needs

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Foreword
Joining forces to improve lives

The new UN Sustainable Development Goals describe a clear roadmap for the world until 2030. Countless inventors, technicians, craftsmen, business people, social initiatives, young and old creative minds from around the world are thinking of and working on solutions to find shortcuts on that challenging and sometimes remote road. Over 800 of them, from 88 countries, entered their best innovations, consisting of simple, yet intelligent technologies, supportive apps or tried and tested devices based on brilliant concepts to this year's *empowering people. Award*.

The booklet in your hands reveals such ingenious solutions that deserve the best support we can provide. We invite you to get to know these solutions, which include enabling access to clean water, improved health services, opening up new methods of learning, and even saving lives.

Financial sustainability, ideally through a social business model, is a key criterion for the *empowering people. Award*.

This time we further intensified the level of detail in this by installing a two-phase evaluation system: The degree of technological innovation and level of financial sustainability were thoroughly examined by two separate expert teams.

We would like to thank these two expert teams and all the jury members for their amazing work, their personal experience, expertise and their time. The diverse and excellent composition of the panel speaks for itself and makes us proud. The jurors and their organizations, with their personal conviction in the power of low-tech solutions, also present an important potential network for the finalists in future.

It is now imperative that these low-tech solutions and their entrepreneurship models grow in capacity so they can combat deficits in basic supply for as many people as possible. Providing support in this challenging endeavor is part of our daily work in the *empowering people. Network*.

We look forward to accompanying the finalists on their entrepreneurial journey today and in the future, and would like to congratulate all 23 of them for winning the *empowering people. Award*.

Rolf Huber
Managing Director of
Siemens Stiftung

Jury

Expert Partners

AT-Verband – The AT Association stands for advanced socially and environmentally sound technology practice that enhances conscious choice by the users and enables them to develop or apply technical solutions that are in their own genuine interest.

www.at-verband.de

FASE – The Financing Agency for Social Entrepreneurship supports selected social enterprises in raising growth capital. FASE wants to enable social enterprises to finance significant growth steps and help to shape a financial ecosystem for social innovations.

www.fa-se.de

Andy Bastable
Oxfam GB

César Buenadicha
Inter-American Development Bank

Genevieve Edens
Aspen Network of Development Entrepreneurs

Noha El-Ghobashy
Engineering for Change

Daniel Gonzales
formerly at Fundación Avina

Anil Kumar Gupta
Indian Institute of Management, National Innovation Foundation-India

Hinnerk Hansen
Impact Hub

Thomas Silberhorn
German Federal Ministery for Economic Cooperation and Development

Claudia Juech
The Rockefeller Foundation

Amy Smith
Massachusetts Institute of Technology / D-Lab

Christiane Laibach
Deutsche Investitions- und Entwicklungs-gesellschaft

Paul Smith Lomas
Practical Action

Oliver Nachevski
Engineers Without Borders International

Richenda Van Leeuwen
formerly at United Nations Foundation

Duncan Onyango
Acumen Fund East Africa

Michael Vollmann
formerly at Ashoka

Laura Paddison
Guardian Sustainable Business

Karen von Bismarck
Technology Exchange Lab

Milestones

July 1, 2015
Launch
Munich

800 entries from 88 countries

Categories
- Water and Waste Water
- Energy
- Food and Agriculture
- Waste Management
- Healthcare
- Sheltering
- Education
- Information and Communication

Expert Evaluation
On Technology for Development:
AT Association
On (Social) Business Approach:
FASE

Criteria
- Potential to help solve basic supply problems
- Technical feasibility with regard to resources at hand, functionality and reliability in local conditions
- (Social) Business concept regarding job creation and replicability
- Financial sustainability potential
- Environmental performance

SHORTLIST of 23 Finalists

Panel of 18 jury members representing international development organizations

Online Voting
July 2016

International *empowering people. Network* Community

Online Voting
August/September 2016

TOP 3 WINNERS

COMMUNITY PRIZE WINNER

October 6, 2016
Award Ceremony
Berlin

INVITATION

INVITATION

INVITATION

empowering people. **Network**

Technologies for basic needs

1st

1st Place

BEMPU Hypothermia Alert Bracelet

Bempu Health, India

The Solution

This temperature monitoring wristband with inbuilt thermometer and algorithms is designed for premature babies to avoid life-threatening hypothermia in a low-income setting. Once an infant starts becoming hypothermic, the body conserves heat by restricting the flow of blood to the limbs. This causes the arms and legs to become significantly colder. BEMPU uses this drop in temperature as an early sign and therefore provides a visual-audio alert. Used in low-resource clinics or borrowed from health centers, and functioning for 24 hours a day for four weeks, this continuous care further signals possible underlying infections. Such valuable information can prevent infant mortality or the complications arising from health issues.

FACTS & FIGURES

Material: Wristband: 100% hypo-allergenic medical-grade silicone material biocompatible as per ISO-10993 standard
Thermistor Metal Cup: stainless steel SS-316
Weight: 9 g
Alarm Volume Range: 70 dB – 85 dB
Device Life: 28 days
Operating Voltage: 2.8 – 3.3 V DG
Power Source: CR – 1632 Coin Battery (120mAH)

Used by Countries: India

Category: Healthcare

The one-size-fits-all bracelet is simply slipped onto the child's wrist, works offline and is intuitive and easy to use.

Background Information

According to statistics issued by the WHO, a total of 5.9 million children under the age of 5 died in 2015, with over half of these mortalities due to preventable conditions that may have been treated with simple, affordable interventions. UNICEF estimates that the prevention of hypothermia is one of the key factors in reducing neonatal mortality, with figures showing that such interventions can help reduce neonatal mortality or morbidity by 18%-42%. The consequences of hypothermia are far-reaching and include retarded growth, poor organ development and even death.

Social Impact

With a design leveraging cultural acceptance, BEMPU provides a clear and intuitive warning system to less-educated parents and caregivers. This enables them, especially in remote areas, to react to dangerous situations in an effective and timely manner. Prescribed by a doctor, it improves the survival chances of vulnerable babies and is currently available in 20 states in India.

www.bempu.com

2nd

2nd Place
Garbage Clinical Insurance
Indonesia Medika, Indonesia

The Solution

Garbage Clinical Insurance (GCI) is a micro-health insurance program using recyclable waste as a financial resource. Operated in Indonesia where waste management and access to health care are both critical issues, the integral scheme motivates individuals with low incomes to collect garbage from the streets and bring it to GCI. This waste is then weighed, separated and valued and the person "paid" in the form of a medical health insurance. The collected garbage is sold to waste companies, recyclers and collectors and the earnings are used to finance the medical care of individuals. For as little as 0.66 Euro per month, a person is provided with basic clinical services including rehabilitative healthcare, in-clinic counseling and laboratory checks.

FACTS & FIGURES

Organization Type: Regional insurance systems with approx. 500 members each
Insurance Installment: 0.66 EUR per member/ month (in the form of collected garbage)
Health Services: Basic treatment, in-clinic counselling, laboratory checks, rehabilitative healthcare
Waste Components: Collection facility, weighing station, recycling businesses

Used by Countries: Indonesia

Category: Healthcare / Waste Management & Recycling

Background Information

According to the United Nations Centre for Regional Development (UNCRD), the issue of waste management has become a great challenge in Indonesia. The Indonesian Ministry of the Environment quotes waste increases of 200,000 tons of solid waste a day. At the same time the healthcare system currently being further developed only covers 14% of the population, according to the GIZ. In particular the poorest of the population, earning less than 2 USD a day, are left without adequate health provision. An issue of uncollected garbage can further lead to unhygienic conditions, a factor that may cause premature deaths and chronic illnesses.

Social Impact

The scheme encourages communities to take care of their environment and create sustainable financing from their own resources. This enables access to medical treatment, especially for waste collecters, and improves the quality of the health program with respect to promotive, preventive, curative and rehabilitative wellbeing. The program also contributes to the improvement of local sanitation as rubbish is collected regularly.

www.indonesiamedika.com

3rd

3rd Place

Barsha Pump – Hydro-powered Irrigation

aQysta, Netherlands

The Solution

Barsha ("rain" in Nepalese) utilizes the energy from the flow of rivers and canals to transport water, without requiring any fuel or electricity to be operated. Propelled by a waterwheel using kinetic energy to evenly pump a supply of water to higher regions and fields at great distances, this device is easy and quick to install and does not need any mechanical parts to pump. The water can then be used to flood fields or be pumped to a reservoir to couple with an efficient irrigation system such as a sprinkler. As there are only few moving parts, little maintenance is needed, meaning that the Barsha Pump can save over 70% of irrigation costs for farmers, compared to conventional pumps.

FACTS & FIGURES

Components: Waterwheel, spirals where air is compressed between water columns resulting in air pressure that lifts the water
Size: 1.5 m in diameter
Transport Capacity: Up to 40,000 l of water per day, depending on flow velocity
Range: Up to 20 m vertical head and 2 km inland in flat lands
Requirement: Flowing waters (rivers, canals or similar)

Used by Countries: Nepal, Indonesia, Zambia

Category: Water & Waste Water / Food & Agriculture

Background Information

By 2050 the world population is estimated to reach 9.7 billion people, as UN statistics show. To ensure the global food supply on the agricultural land available, irrigation is necessary for increased food production. This has to be done in an energy- and water-efficient way, especially in rural areas where there is poor access to electricity and expensive fuel.

Social Impact

Barsha Pump addresses the prevalent need for cost-effective, low-maintenance pumping of water in remote areas. The solution is affordable and uses indigenous materials. The implementation of the pump helps enhance food security and, at the same time, reduce CO_2 emissions (250-500 kilo/hectare) by replacing conventional diesel pumps used for watering. aQysta also aims to support farmers who wish to shift from subsistence to commercial farming by providing irrigation facilities. Combined with a water purification system, Barsha could even be used as a drinking water supply.

www.aqysta.com

Breezergy Micro Wind Turbine
FuSystems SkyWind Company, Germany

The Solution

Breezergy is a highly compact micro wind turbine with rated output sufficient to cover the base load of a small household. In comparison to other big, heavy turbines which are expensive and complex, Breezergy consists of just two parts – a generator with tail and metal blades with a hub. Weighing in at just 30 kilograms, it can be mounted to any pole making it ideal for off-grid areas.

Background Information

According to studies by the International Energy Agency (IEA), about 2.7 billion people in developing countries have no access to energy. Especially remote regions without any prospect of a grid connection need help as generating energy is a daily challenge. Sun and wind solutions are widely available but while solar panels are put to good use, wind turbines are less so. In addition, state-of-the-art plastic turbines have proven too unreliable and fragile.

Social Impact

Energy is needed by everyone for lighting, communication and much more. The 1kW of power can charge batteries and power appliances supplying sufficient output for a small household. Easy to install, the turbine can be mounted with a few screws. It can also be added to any solar plant and once installed, clean energy is produced for years with no fuel, no emissions and at no further cost.

www.breezergy.com

FACTS & FIGURES

Components: Generator with 3 tail, patented aluminum rotor blades with hub
Rotor Diameter: 1.90 m
Weight: 30 kg
Max. Power: 1000 W
Requirements: No fuel needed, mounted by tightening a few screws

Used by Countries: Germany

Category: Energy

Café Compadre
Compadre, Peru

The Solution

Designed for use in Peru, Café Compadre roasts coffee beans using sunlight. Based on the Scheffler-type parabolic solar concentrator, the technology focuses the sunrays on one focal point that features a drum where the coffee beans are put and sunlight enters. It can be combined with simple solar tracking systems. Maintained locally, the sturdy device can roast 1 kilogram of coffee beans in approximately 15-25 minutes and requires five times less energy than conventional devices.

Background Information

Coffee is Peru's main agricultural export product. However, profits have not been fairly distributed along the production chain. According to US sociologist J.M. Talbot small-scale coffee producers earn less than 12% of the product's end value. Those handling the selection of beans, roasting and packaging earn over 70%. To date there is no access to technology that enables small-scale, local coffee producers to adequately participate in this chain.

Social Impact

The solution meets the increasing demand for socially- and environmentally-responsible products. Coffee producers can benefit from this by using the roasting device to carry out the last process in the production chain thus boosting their income.

www.compadre.pe

FACTS & FIGURES

Components: Scheffler-type parabolic solar concentrator, roaster drum consisting of conventional steel and bicycle parts, photovoltaic rotation system
Capacity:1 kg /15-20 min (device is scalable)
Requirements: Sunlight, no external fuel required

Used by Countries: Peru

Category: Food & Agriculture

Ennota
Ennota, Egypt

The Solution

Devised for use in Middle East and North Africa (MENA), this app is a financial management tool helping to empower micro and small businesses owners. By providing a financial overview as well as coaching modules with various levels depending on the financial literacy of the user, Ennota enables users to advance their knowledge. Cloud-based, and accessible from any device connected to the internet, it promotes collaboration while using banking level standards to secure all transactions.

Background Information

According to the World Bank Group, the potential of a business can often not be realized due to poor accounting. The majority of small and micro businesses in the developing world use pen and paper to manage their business financials. Existing interactive tools are generally created for qualified accountants. Business owners who do not work with these professionals and do not have adequate financial skills therefore have limited access to formal financing.

Social Impact

The app aims to empower SMEs by supporting their financial control and overview of their accounting processes thereby improving their business acumen and processes. It can be downloaded free of charge and is designed for those with no strong technical or accounting backgrounds.

www.ennota.com

FACTS & FIGURES

Components: Web-based financial management application, based on Microsoft.NET platform, mobile applications for Android and iOS, extra features such as offline capability, up to 9 different levels according to increasing businesses expertise
Requirements: Internet connectivity, computer, smartphone or similar devices

Used by Countries: Egypt

Category: Information & Communication Technology

Evaptainer
Evaptainers, USA

The Solution

The evaporation coolers provide electricity-free mobile refrigeration units. Used for keeping small harvests cooled before being taken to market or consumed, and operating on the same principle as a "Zeer Pot", this innovation is sturdier, easier to handle and less sensitive to shock than its traditional counterpart. Using modern materials, the technology is designed as double-walled containers with water evaporating through the porous outer wall that cools down the inner container.

Background Information

In developing countries, refrigeration can be both expensive and inaccessible. Lack of refrigeration is one of the main causes of the high spoilage rates for food before it reaches the consumer. The Food and Agriculture Organization of UN (FAO) estimates post-harvest losses as high as 45% worldwide, with a total loss of 4 billion USD in Africa annually.

Social Impact

This system is particularly beneficial in off-grid regions with constantly low humidity as considerable cooling performance is achieved. It enables people to store their agricultural products and improve sales conditions as food can be sold before it spoils.

www.evaptainers.com

FACTS & FIGURES

Materials: High-density expanded polystyrene frame, aluminum sheets, specialized synthetic cloth with highly wicking properties, donut-shaped water tank
Capacity: 60 l
Cooling Time: 12h (per 6 l water evaporated)

Used by Countries: Morocco

Category: Food & Agriculture

GiftedMom
GiftedMom, Cameroon

The Solution

GiftedMom aims to end preventable maternal and infant deaths. Using last mile mobile technologies, this smartphone app combines SMS/voice reminders and voice education with curative GPS-integrated tricycle solutions for pregnant women and new mothers. A mobile subscription method allows them to send their questions and get a fast response from a medical team. The solution also mobilizes a transport system which is adapted for rural areas.

Background Information

The problem of maternal and infant mortality is widespread in developing countries. Statistics from the WHO show a mortality rate of over 800 pregnant women per day from causes that are 97% preventable. They further show approx. 1.5 million infant deaths due to vaccine-preventable causes per year; almost all maternal deaths (99%) occur in developing countries.

Social Impact

GiftedMom bridges the gap in information and transport using last mile mobile health solutions. Leveraging the high number of mobile devices in Africa, the app supports antenatal and vaccination care. Voice notifications also provide access for illiterate women. Quick emergency medicine improves survival rates for mothers and babies in critical situations.

www.giftedmom.org

FACTS & FIGURES

Components: SMS/voice platform for customized, stage-based, automated messaging, SMS/voice reminders and education by medical personnel, GPS Tricycle transport solution for intervention
Requirements: Internet connectivity, smartphone or similar devices

Used by Countries: Cameroon, Nigeria

Category: Information & Communication Technology

GravityLight
The GravityLight Foundation, United Kingdom

The Solution

GravityLight provides instant light and powers a string of up to 4 ancillary 'SatLights' for use around the home. The product is attached to a sturdy beam or hook with strong zip ties. It transforms the pull of gravity into electricity, providing instant power with the lift of a 12 kilogram weight such as a bag of rocks or sand. The generated electricity feeds an LED lamp, which is six times brighter than a kerosene lamp, for 20 minutes.

Background Information

According to the International Energy Agency (IEA), about 2.7 billion people in developing countries have no access to energy; millions more have an unreliable supply. This often forces them to use dangerous, polluting and expensive kerosene lamps for lighting. Further, the growth of grid power is failing to keep pace with the rising population, especially in sub-Saharan Africa where about 600 million people still do not have access to electricity.

Social Impact

For families living on less than 3 USD per day and spending up to 30% of their income on fuel for lighting, this solution provides a clean, safe and affordable alternative to dangerous and harmful kerosene lamps in off-grid areas. Generating energy through the lift of a weight is possible in all climate zones for 24 hours a day.

www.gravitylight.org

FACTS & FIGURES

Components: Polymer geartrain, toothed belt, industrial-strength zip tie, 2 SatLights
Requirements: 12 kg weight (rocks, sand or similar)

Used by Countries: Kenya

Category: Energy

GRIS water saving system
IgenDesign, Hungary/Brazil

The Solution

The GRIS set of water-containers are laid on the bathroom floor under the shower capturing water whilst showering. These interlocking plastic containers can collect up to 95% of shower water and simply be opened to pour. They are produced from PET-R, a highly reusable plastic material, and can be cleaned easily with baking soda, vinegar or conventional washing soap. The water can be reused, for example, in toilet-flushing, cleaning, or watering the garden.

Background Information

According to UN statistics a population of 2.8 billion people is already affected by drought and water scarcity. Currently, this scarcity affects over 40% of people in the world, a proportion set to reach two-thirds by 2050. In particular, the Sahel and some regions in South America are facing a large-scale water crisis caused by climate change and deforestation.

Social Impact

GRIS does not only recycle water but can help control personal water usage and contribute in changing behavior. For example, an average citizen of São Paulo uses 175 liters water per day although the WHO recommends using 110 liters. The GRIS containers can cover 40 liters (60%) of the 65-liter difference.

www.igendesign.co

FACTS & FIGURES

Material: PET-R plastic
Size: 33×33×10 cm size interlocking water containers with non-slip surface per set
Volume: 40 l per set
Heat Resistance: 70 °C
Durability: At least 5 years; holds persons up to 150 kg

Used by Countries: Brazil

Category: Water & Waste Water

Groasis Technology

Desert Tulip/Groasis/ICU, Jordan/Netherlands/Italy

The Solution

Groasis Technology (GT) allows the planting of trees in degraded ecosystems. Consisting mainly of a 20-liter box, GT is placed around a young seedling. The box builds up a water column under the plant by collecting dew and rainwater, and distributing it over a long period of time through a wick at the bottom. The transplanted seedling will receive just enough water to survive and will therefore develop a strong taproot. This technique even works in the Rocky Mountains or in the Alps in areas with granite stones.

Background Information

Desertification has far-reaching implications on agronomic productivity and food security. It causes hunger, an increase in refugee movements and conflicts over scarce land and water resources. According to the UN, over 1.3 billion people have already been affected by land degradation. Especially in Middle East and North Africa (MENA), there is a rising demand for agricultural products combined with a fragile natural environment.

Social Impact

GT is a smart technology that targets the following challenges: Firstly, with tree establishment, which is critical for the long-term development of degraded land. Secondly by providing a cost-appropriate technology for use in low-resource settings, GT substantially reduces the cost of planting.

www.groasis.com

FACTS & FIGURES

Material: 20 l box, biodegradable "Growboxx" or plastic "Waterboxx"

Used by Countries: Globally

Category: Food & Agriculture

io™ solar power system
Shamba Technologies, United Kingdom

The Solution

The io™ system provides a new way to make solar power more affordable for rural, off-grid households in Sub-Saharan Africa. The basic product is the io™ Battery 100 set comprising a 3.5 watt solar panel, a solar charge controller, a battery and two LED ceiling lights with wall switches. If a second set is purchased and stacked with the first, the unit's proprietary circuitry connects the two systems' solar panels and the two systems' batteries together as one. The more sets in a single stack, the more power can be delivered to a single appliance that can operate appliances with higher energy demand such as radios, TV or refrigerators.

Background Information

Kerosene lighting is not only a major contributor to global climate change but also has a considerable impact on the health and safety of its users and should therefore be replaced by clean energy sources. In South Africa alone over 200,000 people are injured or lose property each year due to kerosene-related fires. Innumerable young children unintentionally ingest kerosene and develop chemically-induced pneumonia.

Social Impact

Bringing solar power to rural households allows hazardous kerosene lighting to be replaced. This affordable solution, scaled according to a household budget, provides access to energy and improves health and safety conditions.

www.iosolar.com

FACTS & FIGURES

Components: Basic set of 3.5 W solar panel, solar charge controller, 10W.h LiFePO4 battery, 2 LED ceiling lights with wall switches
Output Voltage: 12 V DC
LED: 80 lumen /5h (each LED) per full day's solar charge

Used by Countries: Tanzania

Category: Energy

Library For All
Library for All, USA

The Solution

Library For All aims to provide children in developing countries access to educational materials with a cloud-based library of e-books. Designed specifically for low-bandwidth environments, the platform is accessible on a full range of low-cost devices. The scalable Library is filled with primary and secondary education content, responsive to the needs of educators and children, and can also be used offline. In every country, the e-book collection is reviewed by an in-country Advisory Board; content is delivered from international and local partners.

Background Information

In the fight against global poverty, improving literacy is critical. UNESCO estimates that today, 250 million children worldwide are not learning basic reading and math skills, despite attending school. 70% of these children live in the developing world; one in four young people are unable to read at all. An obstacle in basic education is the lack of learning materials in developing countries.

Social Impact

In areas where books are scarce but mobile networks are growing, the digital library solution serves a critical need for relevant educational content that is culturally relevant and available in local and international languages. It supports teachers and improves teaching.

www.libraryforall.org

FACTS & FIGURES

Components: Online platform for low-bandwidth environments, cloud-based
Requirements: Tablets, smartphone and similar devices (even low-cost ones)
Content Delivery: International and local publishers, NGOs, governments, local stakeholders

Used by Countries: Haiti, Rwanda, Congo and Cambodia

Category: Education

MAPS G110
Mobile Agricultural Power Solutions, USA

The Solution

MAPS G110 is a utility vehicle designed to meet the needs of farmers and agriculture businesses in developing countries. This rugged, three-wheel vehicle is capable of navigating terrain both on- and off-road while carrying a payload of up to 900 kilograms. Powering attachments like food processors and water pumps, it can also pull small field implements such as planters and cultivators, making farming life considerably easier.

Background Information

Many areas in Africa and other parts of the developing world are in need of better transportation and agricultural solutions. For example, Cameroon only has 19 motor vehicles per 1,000 people, and 92% of the roadways are unpaved. Farmers in particular are affected as there is poor connectivity to markets in rural areas, which means that food can spoil before it reaches its destination.

Social Impact

MAPS G110 is affordable and can be maintained and repaired onsite. Since the G110 will be manufactured locally, jobs will be created in the region: The company estimates that the factory will employ over 120 workers in engineering, assembly and facility maintenance over 5 years.

www.mobileagpower.wordpress.com

FACTS & FIGURES

Components: 10 hp diesel engine, simple, lightweight chassis, frame made of angle iron, three wheels
Payload Capacity: 900 kg (more than double its weight)
Consumption: 40 to 60 mpg/18 to 26 km/l

Used by Countries: West Africa

Category: Food & Agriculture

Mellowcabs
Mellowcabs, South Africa

The Solution

Mellowcabs manufactures and operates three-wheeled, electric mini-cabs to provide low cost, eco-friendly and convenient taxi and transport services in built-up cities. Unlike meter cabs and private cars, the solution is less expensive, aims to be more comfortable and avoids mass pollution. Using shells made from recycled PET, the cars use regenerative braking which recovers and converts kinetic energy into electricity. A flexible solar panel in the roof can also generate up to 35% of the cab's power.

Background Information

Africa's transport market is characterized by large fossil-fueled vehicles and limited public transport infrastructure. Even on short trips, this results in congestion and high CO_2 emissions from fuel combustion. The Mellowcab is designed to bridge the gap between public transport and private car use by providing efficient and environment-friendly urban transport.

Social Impact

A single Mellowcab could save 12 kilograms of CO_2 emissions per day, or 4.3 tons per year. All the Mellowcabs are locally produced and the company aims to create sustainable job opportunities in manufacturing as well as drivers and technicians. The 500 vehicles planned in South Africa are to generate a minimum of 1,100 jobs.

www.mellowcabs.com

FACTS & FIGURES

Material: Frame chassis: aluminum, shell material: fiberglass composite
Drive: Lithium ion 200Ah battery
Output: 48 V/5kw
Maximum Load Capacity: 415 kg
Maximum Forward Speed: 65 km/h

Used by Countries: South Africa

Category: Energy

Multi-Crop Thresher
Elliot Avila, Tanzania

The Solution

The Multi-Crop Thresher is an agricultural solution that can thresh various types of crops such as maize or rice in just one machine. Reducing the amount of hard labor, the thresher is a clean agricultural product designed for portability in the field and around rural settings. An indented seat easily fits onto the back of a motorcycle rack.

Background Information

Agriculture accounts for over a quarter of the gross domestic product in Tanzania but many farmers are still dependent on traditional farming methods. Activities such as threshing are time-consuming and laborious. On average it can take up to three hours of hitting bundles of rice against a rock to produce 100 kilograns of threshed rice, and three hours of beating dried maize with a stick to produce 100 kilograms of shelled maize. Conventional mechanized threshers are expensive, bulky and not user-friendly.

Social Impact

The Multi-Crop Thresher aims to create employment and entrepreneurship opportunities by creating a technological alternative to traditional post-harvest processing. Additional benefits can include increased incomes, and time that can be spent on other productive activities. This will especially impact women, who are traditionally responsible for post-harvest processing.

Avila.Elliot@gmail.com

FACTS & FIGURES

Components: 2 wheels to easily move around the threshing site
Capacity: 10 min per 1 sack of rice (time spent manually: 3 h)
Power: 6.5 hp

Used by Countries: Tanzania

Category: Food & Agriculture

Pearltect
Pearltect, Netherlands

The Solution

Pearltect is designed as a self-defense product helping women to protect themselves. Worn as a bracelet, it contains a breakable capsule (the pearl) filled with an unpleasant, odoriferous substance to repel, and DNA dye to mark the attacker. Once the capsule in the bracelet is broken by the victim when needed, the smell is released and the attacker repulsed. In addition, the DNA dye marks the attacker when touching the victim and can assist in identification at a later stage.

Background Information

WHO figures indicate that about 1 in 3 women worldwide have been subject to either physical and/or sexual violence during their lifetime. Simple and inconspicuous tools for defense can be of great help in emergency situations: They improve the safety of women and girls and help them feel protected.

Social Impact

Pearltect wants to provide women with a personal defense mechanism that enables non-violent solutions and creates an overall awareness: Designed to empower women so they can protect themselves, the Pearltect strives to raise awareness about sexual violence. Further, in areas with trustworthy juridical systems, usage of the Pearltect bracelet can be used in court as additional proof that the wearer did not consent to the act.

www.pearltect.me

FACTS & FIGURES

Components: Bracelet, breakable capsule (the pearl), odoriferous substance, DNA dye

Used by Countries: Netherlands, globally (planned)

Category: Healthcare

Pocket FM
MiCT, Germany

The Solution

Pocket FM is a broadcasting system, which serves as an interface between internet and radio. Based on a Raspberry Pi computer and a circuit board at the heart of its technology, the solution offers a completely new way of transferring essential information by receiving cloud-based radio programs via a satellite connection and then re-transmitting them using FM waves. Pocket FM is powered with 10 to 15V, so it can be used with a car battery or with a small solar system.

Background Information

People living in remote areas without internet access are frequently cut off from vital knowledge. In addition, lack of information means many are also deprived of educational opportunities. This is supported by statistics by the World Bank showing that approx. 400 million people suffer from insufficient healthcare and lack of access to education due to poor access to information sources.

Social Impact

Pocket FM enables people to improve their living conditions by providing crucial and timely information e.g. in acute crisis situations. Details on where food, water or health services can be obtained in a conflict or post-conflict situation, or which roads are safe to pass on a given day, can be transmitted. Requiring virtually no experience with electronic devices, the broadcasting system does not need to be maintained.

www.pocket-fm.com

FACTS & FIGURES

Components: Raspberry Pi controlled, 25 W FM stereo transmitter, GPS receiver, DVB-S tuner, WiFi card, stereo RCA analog-in
Requirements: Software runs on Raspberry Pi; 3G data connection, GSM/SMS or browser-based remote control (provided with software update)
Power Supply: Small solar panel, DC 10-15 V, approx. 4.5 A maximum power consumption
Weight: ca. 3.4 kg
Measurements: ca. 20 × 20 × 13 cm

Used by Countries: Sierra Leone, Syria, Tanzania, Yemen

Category: Information & Communication Technology

Quintas Biomass fired Hot Air Dryer/Dehydrator

Quintas Renewable Energy Solutions, Nigeria

The Solution

The Quintas device dries agricultural products without complicated temperature and flow controls and can be assembled on site. It requires no additional costly fuel or energy resources. Flue gases from the gasifier are made to pass through a heat exchanger from which heat energy is transferred to the incoming fresh air from the blower. The spatial separation of the flue gases and fresh air in the heat exchanger allows an indirect heating process producing hot air, which is free of pollution.

Background Information

According to UN figures in Nigeria agriculture accounts for approx. 80% of total food consumption. Empirical studies show that about 40% of agricultural produce is lost as post-harvest wastage as farmers in rural areas rely on sun drying for preservation of their harvests. Alternative faster drying technologies using wood lead to deforestation and pollution.

Social Impact

The technology aims to provide efficient and cheap heat energy for food preservation helping to fight malnutrition in Nigeria. Effectively using biomass as fuel, the device enables drying processes independent of weather vagaries. It further contributes to a decrease in deforestation as wood is not required to power the dryer. The solution thereby reduces smoke and particulate emissions.

www.quintasenergies.com.ng/

FACTS & FIGURES

Components: Gasifier stove, tubular heat exchanger, centrifugal air blower, drying chamber
Requirements: Electricity power source (generator or solar power, approx. 800 W)
Burn Capacity: Approx. 7 kg biomass ph
Heat Generation Capacity: 40 kWe to 500 kWe
Drying Temperature: 45-60 °C

Used by Countries: Nigeria

Category: Energy

Safe Travel
Traveler, Cameroon

The Solution

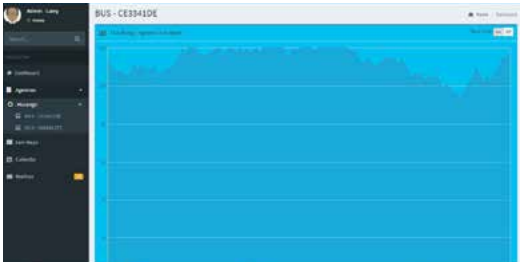
Safe Travel is a free phone app which works as a monitoring system called 'traveler' that offers a platform and data system tracking a bus passenger's location. Once a user creates an account, he enters his trip and provides information on an emergency contact. Stored on the Safe Travel server, these contacts can track the journey. Intervention can also be undertaken in time: firstly to prevent accidents as passengers can send details of reckless driving allowing the police to act, and secondly by the emergency services if an accident occurs.

Background Information

According to a study by the WHO in 2015 over 85% of all deaths and 90% of disability-adjusted life years lost from road traffic injuries occurred in low- and middle-income countries, which only have 47% of the world's registered vehicles. Adequate emergency information systems are often lacking in these regions and require support structures.

Social Impact

Safe Travel can help save lives by facilitating better response times of emergency and road safety teams. It also provides a helpful information system for travelers and their relatives. This is especially needed for people living in remote areas often having to travel long distances.



arnoldcolf@yahoo.com

FACTS & FIGURES

Components: Safe Travel server, free android phone application, geo-positioning tool
Requirements: Smartphone
Availability: via Google Play

Used by Countries: Cameroon

Category: Information & Communication Technology

SolarTurtle
SolarTurtle, South Africa

The Solution

The SolarTurtle is a mobile solar kiosk that can be deployed by simply off-loading the container and unfolding the panels towards the sun. These solar kiosks sell 'electricity by the bottle' meaning that a recycled plastic bottle is halved and battery inserted. Delivered as a turnkey plant, this fold-away solar PV system locks up all the components, such as solar panels, batteries, or charge controllers, which is an imperative feature in theft-ridden areas where expensive technology is at risk.

Background Information

Energy is needed for most aspects of life, whether it is education, commerce or everyday domestics. This is particularly prevalent in off-grid regions. Life-quality can only be improved and communities able to grow if reliable and affordable energy is offered. At the same time, theft and vandalism are major factors limiting the power supply, especially in rural and informal settlements where PV panels are often stolen or destroyed.

Social Impact

Mobile, plug 'n' play and secure plants which can provide electricity in a simple way offer a real benefit to lives in South Africa. The kiosks are offered as a micro-franchising system to less privileged communities, allowing them to run the stations as micro-unities on an entrepreneurial basis and thus also provide employment.

www.ugesigold.co.za

FACTS & FIGURES

Components: Lockable shipping container, solar panel mounting system, solar battery charging station

Used by Countries: South Africa

Category: Energy

Videobooks in Sign Language
Canales Asociación Civil, Argentina

The Solution

Enabling deaf children remote access to literature and reading, Canales has created videos available online. These combine children's books and young adult literature read in sign language, with voice-overs and animated illustration. Many of these children have never enjoyed the pleasure of being read to as their families don't know sign language. Videobooks help families share stories, offer tools for teachers and bridge the gap in literacy skills between deaf and hearing students.

Background Information

Over 90% of deaf children have adults around them that can hear and cannot sign. This causes communication problems with subsequent difficulties in language and cognitive development. Further, a lack of teaching materials and training limits possibilities for deaf children to integrate with society and reach their full potential.

Social Impact

Aiding society to become more inclusive, the free-of-charge product is a model of bilingual quality education. Sign language ensures that deaf children naturally participate and understand, and Spanish as a second language allows the sharing of culture and information with the community.

www.videolibros.org

FACTS & FIGURES

Components: Online platform, videos, manual with notes on content and technical specifications, additional useful tools for teachers
Requirements: Internet connectivity, computers, smartphones or similar devices

Used by Countries: Argentina

Category: Education

WAFFCO
Fraunhofer Gesellschaft, Germany

The Solution

WAFFCO is a closed biomass burning stove for households. Simple and cheap to produce, it is constructed mainly of clay and metal and designed to replace open-fire stoves. It serves as a pollution- and cost-free cooking technology since it is fired with agricultural, domestic and packaging waste. The stove can be manufactured locally using materials at hand in the region. The emission and safety parameters are in accordance with European standards.

Background Information

According to the WHO, indoor pollution generated from cooking on open fires using dung, wood and coal claims around four million lives each year. Solid waste management is another critical challenge in developing regions. For example, Accra in Ghana produces around 0.6 kilograms waste per capita and up to 70% of this is biogenic waste is produced on a daily basis.

Social Impact

A closed combustion chamber inside the stove avoids indoor pollution. It saves households hours of searching for wood and money for buying it. The WAFFCO solution ensures a safe cooking environment and, at the same time, helps combat the growing waste problem.

www.fraunhofer.de/en.html

FACTS & FIGURES

Material: Fireproof clay and metal
Tested according to: DIN EN 12815:2005-09
Weight: 30-50 kg
Fuel: Biogenic solid fuel and packaging material
Nominal Heat Output: 5.6 kW
Efficiency (with backing room): 80%
Efficiency (without backing room): 75%
Training Time: 1 week

Used by Countries: Ghana

Category: Waste Management & Recycling

Entrepreneurial Journey towards Increased Impact and Sustainability

»I have developed a water purification system in Uganda with social potential that could be of interest in other regions.«

»I work hard every day and I love what I do – but I often wish I could meet peers from other countries and sectors to gain new insights and share experiences.«

»My local team is highly motivated but often lacks specific knowledge and hands-on experience.«

epAward

Solutions Database

epOnsite Training

epWorkshop

DEVELOPMENT PHASE SCALING PHASE

The *empowering people. Network* supports social entrepreneurs and inventors through manifold activities

1 **empowering people. Award** – The international competition identifies, awards and highlights low-tech innovations with the potential for significant impact in critical areas of basic supply.
2 **Solutions Database** – Winning solutions and further best practice projects are showcased on the public online Database which includes detailed facts reaching international potential supporters.
3 **empowering people. Onsite training** – Intensive regional three-day training sessions offer tailored hands-on skills, practical knowledge and advice to help social enterprises work more efficiently. 4 **empowering people. Workshop** – Entrepreneurs, innovators, philanthropists, academics, social investors and intermediaries worldwide convene to focus on key intersecting

»I am not quite sure whether my company is on the right track or which areas I should be focusing on – but consultants are expensive.«

»My company offers access to medical services in the Amazon region and would benefit a lot if I could only afford the support of an external expert now and then!«

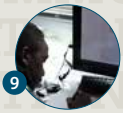
Online Training

SAMforSE

epExpert Service

Coaching and Mentoring

Stories about us



FOUNDING PHASE DEVELOPMENT PHASE

areas in social entrepreneurship, networking and peer exchange. 5 **Online Training** – Online modules with videos, background reading and individual assignments, provide knowledge and skills on implementation and organizational improvement. 6 **Self-Assessment Manual for Social Entrepreneurs** – The online tool helps identify strengths, highlights areas with room for improvement and offers an additional help & support section. 7 **empowering people. Expert Service** – External experts willing to volunteer their time and know-how to assist, train or educate Network organizations for a limited time. 8 **Coaching and Mentoring** – Individual coaching and mentoring opportunities allow discussions on strategies based on identified deficits or the tackling of challenging situations. 9 **Stories about us** – Business narratives can be a real asset for social entrepreneurs to use for investors, customers, and other stakeholders.

The project descriptions provided are based on the information given by entrants for the empowering people. Award (submission phase: July 1, 2015 – January 31, 2016). Any project modifications made after the close of the Award may not have been taken into consideration in this brochure. The business approach specified by entrants has also not been included here; further details on this can be found on our website:

www.empowering people-network.org

empowering people. Network

The empowering people. Network is an initiative of Siemens Stiftung and supports passionate inventors and entrepreneurs who are making a difference in the daily lives of people at the base of the pyramid. It focuses on individuals and organizations who have developed simple technical solutions with potential to eliminate deficits in basic services as they face formidable challenges to expanding their much-needed impact in developing regions. Our Network promotes these urgently needed solutions, initiates new partnerships, furthers knowledge and technology transfer, and fosters entrepreneurial thinking for social development. Connecting social entities at different stages worldwide, it offers on- and offline activities that are tailored to the specific needs of social developers at various points along their entrepreneurial journey as they proceed to scale, replicate, increase capacity and develop viable internal structures. Siemens Stiftung also launches joint operational initiatives with selected projects of the Network to further enhance their positive impact.

Siemens Stiftung

As a non-profit corporate foundation, we promote sustainable social development, which is crucially dependent on access to basic services, high-quality education, and an understanding of culture. To this effect, our project work supports people in taking the initiative to responsibly address current challenges. Together with partners, we develop and implement solutions and programs to support this effort, with technological and social innovation playing a central role. Our actions are impact-oriented and conducted in a transparent manner.

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Imprint

Published by:
Siemens Stiftung
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80801 Munich
Phone: +49 / 89 / 54 04 87-0
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Design:
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