# Energy Globe World Award

5TH JUNE 2021

## Finalists 2020

UNITED NATIONS
INDUSTRIAL DEVELOPMENT ORGANIZATION

THE CLUB OF ROME

ADVANTAGE AUSTRIA

GLOBAL CHAMBER PLATFORM

Federal Ministry
Republic of Austria
Climate Action, Environment,
Energy, Mobility,
Innovation and Technology

Amiblu

# Energy Globe World Award - Finalists 2020

## Category Earth



## Category Fire



## Category Water



## Category Air



## Category Youth

# SyreN System

FINALIST: BioCover
COUNTRY OF IMPLEMENTATION: Denmark

Fertilizing our soil with chemical agents is highly controversial and it has been proven that major problems are caused for our environment. Morten Toft is a tinkerer who has been dealing with circular economy in agriculture for 40 years. For this he developed the sustainable SyreN process for the use of organic fertilizers. This unique process converts harmful ammonia into ammonium during use, reduces ammonia emissions by 70% and increases the volume of plant nitrogen to about 50 kg per hectare. Phosphorus and sulphur are also supplied in the right amount. This is important know-how for the European agricultural policy.

# Drylands Development Programme, Ethiopia (DryDev)

FINALIST: World Vision Ethiopia
COUNTRY OF IMPLEMENTATION: Ethiopia

In recent decades, around a quarter of the earth's land area has become deserted and infertile. Africa in particular is affected. Assefa Tofu from World Vision Ethopia did not want to accept this and began to recultivate the destroyed landscape by planting trees. In 2013, the team started the relevant "DryDev" campaign. Around 60,000 farmers have so far taken part and around 50,000 hectares of fruitless land have been reclaimed thanks to the restoration of vegetation and water extraction, improved seeds and better training for farmers. The so-called famine months were reduced from 3.6 to 1.4 per year.

# Sorting of municipal plastic waste with black components in a newly created competence center for raw materials

FINALIST: GRAF Polymers Ltd.
COUNTRY OF IMPLEMENTATION: Germany

Plastic is a unique material that unfortunately is very often misused. In Germany alone, around 6 million tons of plastic end up in the garbage every year, half of which is burned. A few years ago, the Graf company with 40 years of experience in recycling opened a raw material competence center in order to show which solutions are already possible today regarding plastics. For example, Graf will increase the proportion of recycled material in its plastic production, which is already 70% to an incredible 85%. This protects our planet, but also saves emissions equivalent to the operation of 60,000 cars.


# Soil improvement in Ghana for poor smallholder farmers /backyard gardeners

FINALIST: Agric Society Switzerland Ghana
COUNTRY OF IMPLEMENTATION: Ghana

The situation for small farmers in Ghana is extremely difficult, as the economic result is hardly sufficient to feed their families. And selling agricultural products on the market is unthinkable. Experts from the Technical University in Zurich took up the problem and analysed the soils in Ghana. It turned out that incorrect soil management has led to poor soil harvests. Now, a biochar compost has been developed which consists of charcoal waste, agricultural waste, chicken dung and organic waste from restaurants. Today, soil harvests can be increased 3 to 7 times on the same area without significant additional effort.


# HyBalance

FINALIST: HyBalance c/o Hydrogen Valley
COUNTRY OF IMPLEMENTATION: Denmark

The rapid increase in the use of fossil energy and the associated environmental impact have created a need for new ecological forms of energy, especially for industrial sectors. Hydrogen is a sensible alternative. A consortium of 6 competent partners from Europe demonstrates how this could be possible. The HyBalance project shows that the production of ecological hydrogen for the storage of surplus energy from photovoltaics and wind energy is technically feasible and economically profitable. Since 2018, this plant has been producing 130 tons of hydrogen from PEM water electrolysis.

# Barefoot College International Global Solar Initiative

FINALIST: Barefoot College International
COUNTRY OF IMPLEMENTATION: India

Around 1.2 billion people in our world currently have no access to electricity. Without access to energy, there is hardly any opportunity for economic development. That is why Barefoot College International has started an initiative in India to train women to become solar engineers. In total, more than 3000 women have already been trained who will ensure solar electrification in their home country. The results are overwhelming and women are now also valued as saviors. By replacing kerosene and fossil fuels, emissions have been greatly reduced. Due to the light in the evening and the resulting possibility to learn, education has become much better.

# Lexon office & commercial tower

FINALIST: Lexon Tower
COUNTRY OF IMPLEMENTATION: Iran

As in most major cities in the world, also in Tehran with around 16 million inhabitants air quality is a very important issue. Sustainable buildings are therefore sought whose energy supply is based on new energy concepts without emitting emissions. According to this specification, the Lexon office and commercial tower in central Tehran was designed by Toseh Abnieh Hemmat. Mainly natural light is used. Thanks to triple glazing an optimal insulation is given. Future-oriented energy management, a ventilation system with heat recovery, green areas on all floors and a green roof show the way to the energy future.

# AquaBattery - Clean and sustainable energy storage solutions

FINALIST: AquaBattery
COUNTRY OF IMPLEMENTATION: Netherlands

The availability of ecological electricity and its storage also for smaller applications is the topic of the future, as conventional batteries represent an ecological problem. Jiajun Cen, CEO and founder of AquaBattery, has developed a 100% sustainable battery. The basis for this is the use of salt water, whereby acid and base are stored in separate tanks. When electricity is needed, the acid and base are mixed in the same membrane stack. No toxic or rare chemicals are required. There is no risk of explosion. When the battery is not used, it does not lose any energy.


# PHANTOR.The mobile water giant.

FINALIST: Imhotep.Industries GmbH,
a neoom group company

COUNTRY OF IMPLEMENTATION: Austria

The sufficient availability of drinking water is becoming a question of survival for human beings. Already today, 3 out of 10 people have no regulated access to drinking water. To solve this problem, which occurs especially in poorer countries, Walter Kreisel and his team have developed the PHANTOR based on the latest technologies. The PHANTOR can produce drinking water anywhere in the world, by using a special process to exploit the surrounding humidity. In this way, around 10,000 liters of drinking water can be produced per day in the photovoltaic-powered container.

# Transforming lives in drylands with sand dams and access to clean water

FINALIST: Excellent Development Ltd
COUNTRY OF IMPLEMENTATION: Kenya

Drylands cover around 40% of our earth, containing 74% of the poor population, 50% of the world's livestock and more than half of the arable land. Excellent Development, a British charity, has developed a solution in the form of sand dams that store the water securely from disease and evaporation. In total, more than 1000 such sand dams have already been built in 10 countries, benefiting around 1 million people. This has led to improved water security, improved methods of managing harvested land and increased revenues. Their active involvement has significantly improved women's rights.

# Enviro Loo Dry Sanitation Rural Schools project

FINALIST: Enviro Options Ltd
COUNTRY OF IMPLEMENTATION: South Africa

In South Africa, as in many poorer countries, there are around 4500 schools, in which there are hardly any sanitary facilities such as toilets. This is a massive problem for teachers and students, and especially for women and girls. Very often the cause is not enough water. Enviro Options, a South African company, has faced the problem and developed a special dry toilet. A total of around 80,000 such toilets have now been installed with the support of the SAFE programme. This saves around 420,000 litres of water per school, generates 5.5 tonnes of dried waste as dung and creates hygienic conditions for everyone as well as jobs for maintenance.

# Buried diffuser and draining floater for sustainable and efficient water use - more food production and drought mitigation!

FINALIST: Dr. Bellachheb Chahbani
COUNTRY OF IMPLEMENTATION: Tunisia

Especially in the dry areas of our earth, the efficient irrigation of agricultural crops is an extremely important issue to be able to guarantee the nutrition of the population. Dr. Bellachheb Chahbani is a scientist and has developed a special system for this purpose. For irrigation, so-called diffusers are buried, which slow down the flow of water. This can significantly improve productivity in agriculture. With the same amount of water, the use of the diffuser can improve productivity by 2 to 3 times. Even dry years can now be survived without damage to the trees.


# Sustainable Development of the Small Village of Hostetín

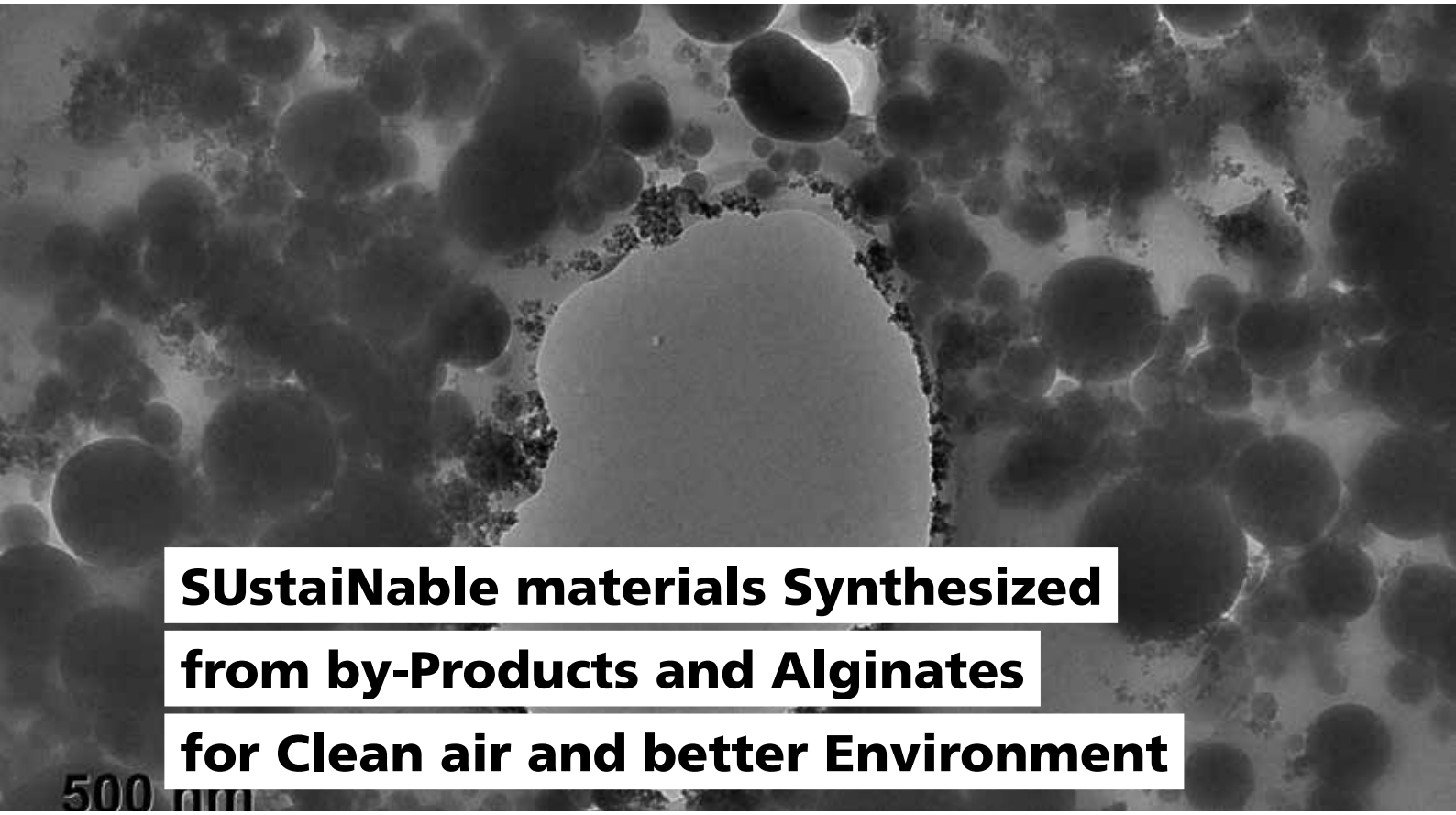
FINALIST: Village of Hostetín
COUNTRY OF IMPLEMENTATION: Czech Republic

Hostetín is a small village with around 200 inhabitants at the foot of the White Carpathian Mountains. For around 30 years, the citizens of this village have been striving for sustainable development and structures and have been able to achieve great success. The joint projects began with a reed bed sewage treatment plant. Since 2000, most houses have been heated by a central biomass heating system with wood chips. Every 5th house already has a thermal solar system or uses photovoltaics. The street lighting was designed to be particularly energy-saving. All of the measures have made it possible to reduce the CO2 emissions to 2.5 tons per person, which is less than half of the average value.


# Emissions-to-Liquids Technology

FINALIST: Carbon Recycling International
COUNTRY OF IMPLEMENTATION: Iceland

Carbon Recycling International is a company that has specialized in the production of ecological liquid fuels such as methanol by the use of CO2 emissions. This is of the most importance for our future, as the massive increase in emissions from the use of fossil fuels has resulted in climate change. The ecological methane is already being produced at several locations by means of renewable electricity such as photovoltaics and wind as well as CO2 emissions using a CRI technology. CRI wants to recycle a total of 1.5 million tons of CO2 for this purpose by 2022. The agency IRENA assumes that the market for renewable methanol will reach 400 million tons by 2050.




# SUstaiNable materials Synthesized from by-Products and Alginates for Clean air and better Environment

FINALIST: National Interuniversity Consortium for Materials Science and Technology and University of Brescia (Consorzio Interuniversitario Nazionale per la Scienza e Tecnologia dei Materiali (INSTM) and University of Brescia)

COUNTRY OF IMPLEMENTATION: Italy

The Chemistry for Technology Laboratory has set itself the goal of restoring ecosystems within the framework of circular economy using sustainable solutions. The focus here is on particulate matter pollution in cities. The European Environment Agency estimates that 85 to 91% of the population are exposed to increased levels of particulate matter, which has led to around 470,000 premature deaths in Europe. Following the pattern of leaves, the newly developed SUNSPACE material traps the fine dust. For this purpose, SUNSPACE is applied to large areas in cities in the form of plaster or paint. In this way, a significant reduction in fine dust pollution can be achieved.


# Mobile Application “BeCool” - an energy-efficient product database to assist Taiwanese citizens’ energy conservation!

FINALIST: Industrial Technology Research Institute, Green Energy and Environment Research Laboratories

COUNTRY OF IMPLEMENTATION: Taiwan

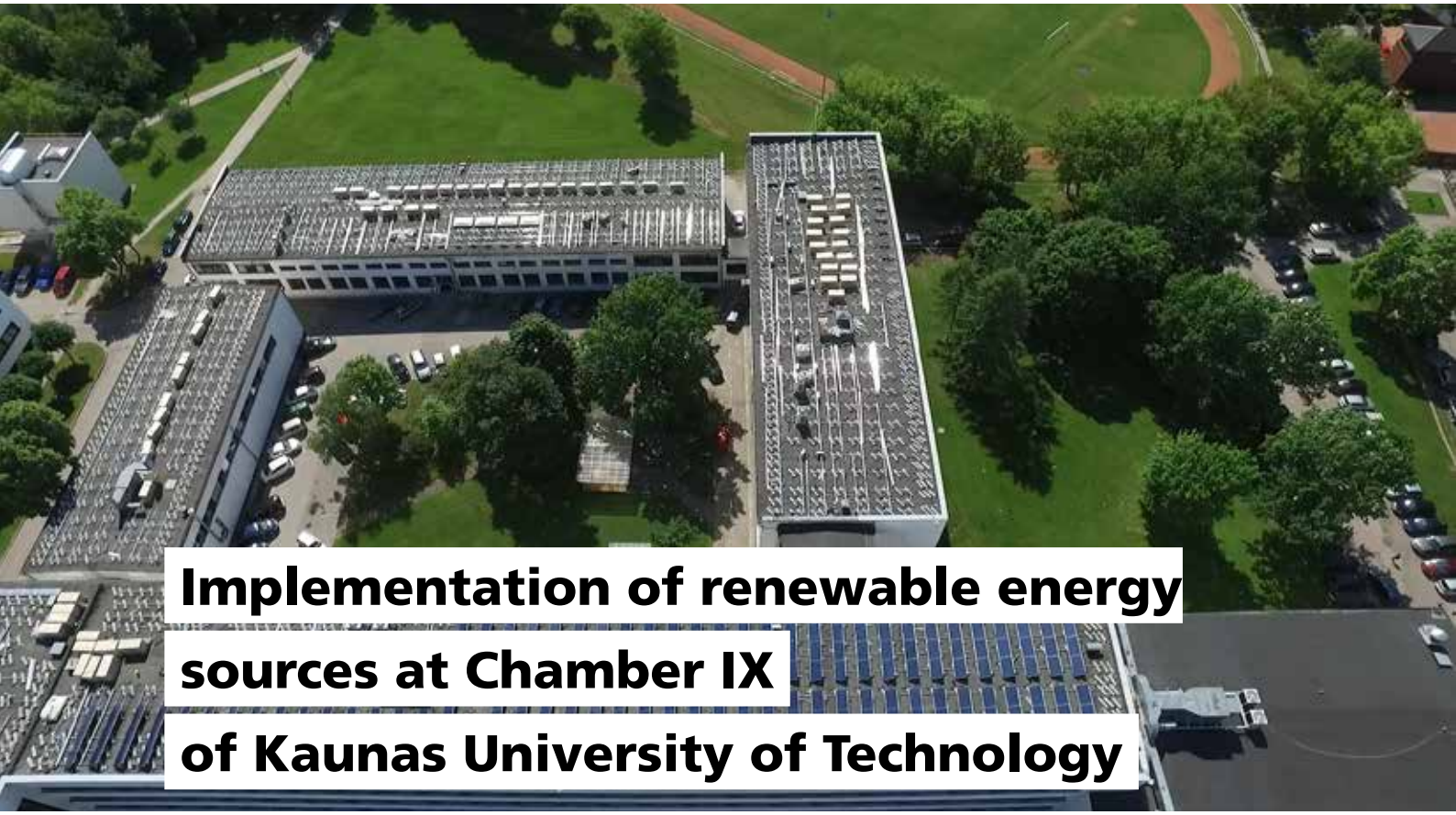
The Industrial Technology Research Institute is the largest non-profit research center in Taiwan with around 1000 patents per year. Activities focus on how to reduce greenhouse gas emissions coming from the use of fossil fuels. For this purpose, a mobile app called “Be Cool” was developed, which provides information on the energy efficiency of products and devices. The program’s artificial intelligence also analyzes individual consumer needs and provides personalized recommendations for reducing emissions. The app is continuously promoted in Taiwan and has already achieved great success.


# SUSTAINABLE, practical, good - „The green neighborhood of the future“

FINALIST: Higher Technical Federal Teaching and Research Institute Mödling, Department of Environmental Engineering (HTBLuVA Mödling /Abteilung Bautechnik Umwelttechnik)

COUNTRY OF IMPLEMENTATION: Austria

Everyone longs for a home that on the one hand offers maximum living comfort and on the other hand has minimal operating costs in harmony with nature. Two students worked together with a project team of 80 other students to develop a concept for an entire settlement in this regard. The main focus of each building was on energy requirements, water consumption, sustainable building materials and the use of renewable energies from the sun, wind and biomass. Social facilities, green spaces and tree planting were also taken into account. In addition, great importance was attached to local supply and sustainable mobility.



# Implementation of renewable energy sources at Chamber IX of Kaunas University of Technology

FINALIST: Kaunas University of Technology
COUNTRY OF IMPLEMENTATION: Lithuania

Young people are looking for new and environmentally friendly solutions for the energy needs of our world because energy is the basis for economic development. Kaunas University in Lithuania is a public research university and its goals are knowledge, skill and strength. With this in mind, a hybrid energy system was developed by professors and students, which draws power from photovoltaic systems and uses the waste heat from the data center as well as the advantages of the energy storage system. The energy storage system works in combination with heat pumps that extract and store the waste heat from the data center and deliver it again when required.

# Voices of Nature

FINALIST: Foundation For The Earth (Fundacion Para La Tierra)
COUNTRY OF IMPLEMENTATION: Paraguay

Young people feel that our environment and nature are no longer in order and are looking for solutions to preserve a future worth living in. This was the reason for Joseph Sarvary and Jorge Ayala to found Voices of Nature with like-minded people. They began to visit schools and give lectures on the biodiversity of Paraguay, which have been met with great interest. More and more enthusiastic people and communities are now supporting them in these activities. Today, volunteer moderators provide information to young people aged 7 to 14. The motto is, knowledge is the power to change the world for the better, based on creativity, curiosity and closeness to nature.

# Leublora Green Village

FINALIST: Leublora Green Village
COUNTRY OF IMPLEMENTATION: Timor-Leste

Timor Leste is a country in which a brutal war had been waged for 24 years, leaving many children traumatized. The village „Green Leublora" supports healing with an ecotherapeutic framework. The school has an organic farm, a botanical garden, a classroom and playground for children so that the children experience holistic growth between body and mind by feeling nature with their five senses. In addition to daily sustainable lessons, the program also includes green weekends and green camps. Special emphasis is placed on teaching English and Mathematics. So far, almost 700 children have taken part in the activities "together with nature".