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Drinking-water treatment project coordinated by Fraunhofer IST receives Solar Impulse Efficient Solution label**SafeWaterAfrica: Sustainable, profitable and now also award-winning**

The SafeWaterAfrica project not only improves drinking-water supplies in South Africa and Mozambique and protects the environment: The technologies for water treatment are the responsibility of first and foremost African companies, which strengthen the economy and employment in these countries. For this both ecological and economic success, the project under the leadership of the Fraunhofer Institute for Surface Engineering and Thin Films IST in Braunschweig has been awarded the Solar Impulse Efficient Solution label.

20,000 liters of drinking water per day in accordance with WHO standard

The SafeWaterAfrica project made it possible: In South Africa and Mozambique, two demonstrator plants can each produce 10,000 liters of drinking water per day from river water – and in a quality that complies with the World Health Organization (WHO) standard. Near Johannesburg, solar cells and batteries have been providing an energy-autonomous water-treatment system since September 2018, which is composed of various purification and filtration stages and reduces CO₂ emissions. The second plant, in Ressano Garcia, has been in operation since April 2019.

The Fraunhofer IST has contributed in particular its expertise in water disinfection. The technology uses electrochemical cells with diamond electrodes through which the water flows. A low voltage is applied to the electrodes, causing ozone to form. This ozone is dissolved in the water and kills the germs. The Fraunhofer IST developed the technology and has one of the world's largest facilities for diamond coating. It is capable of applying a thin diamond coating to a 0.5 square meter electrode surface.

Partners from Africa have the largest share in the project

A host of partners have collaborated on the project, which is funded by the EU's Horizon 2020 framework program for research and innovation. The majority of the partners are from Africa. Only two key technologies of the water-treatment plant originate from Europe, including the technology from the Fraunhofer IST. The two demonstrators are now so mature that they can be used in other countries in the future and can be operated there economically.



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The fact that SafeWaterAfrica is a gain for both the environment and the economy has prompted the Solar Impulse Foundation to award the project the Solar Impulse Efficient Solution label. The Swiss foundation, founded by environmental visionary and researcher Bertrand Piccard, rewards efficient technical solutions that sustainably combat climate change and are also economically viable.

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Solar Impulse Foundation label spurs on implementation

The Solar Impulse Efficient Solution label provides the project with a powerful boost. "We are very happy about the award for the SafeWaterAfrica project. We would like to utilize the publicity it brings in order to further advance the implementation at local level," reported Dr. Lothar Schäfer, Deputy Director of the Fraunhofer IST and coordinator of SafeWaterAfrica.

South of the Sahara, 40 percent of the population – i.e. more than 100 million people – have no access to clean water. The water-treatment system from the SafeWaterAfrica project improves living conditions and the health situation. "What is special about the plants is that they are not solutions for Africa, as is often the case," emphasized Dr. Lothar Schäfer. "The development is "Made in Africa": In the design and construction, our African partners provided the major contribution. The operation of the two plants was carried out exclusively by local personnel in South Africa and Mozambique."

"Made in Africa" approach ensures high level of acceptance

This high level of own contribution has played a major role in the success. Experience shows that many projects fail in Africa if the local communities are not involved in the planning and implementation. To ensure that the drinking-water treatment plants are accepted, SafeWaterAfrica follows the "Made in Africa" approach. The maxim is that African companies perform as much development work, component construction and installation as possible. In order to promote training, two African universities were involved in the project. During the field tests, which lasted several months, student and academic staff operated the systems and evaluated the tests.

In the past three years, the Solar Impulse Foundation has honored more than 1000 technological innovations with its label worldwide. In the spirit of the foundation's founder Bertrand Piccard, they are intended to be important tools for enabling governments and companies to work together to combat climate change. The water-treatment system from the SafeWaterAfrica project is now one of these award-winning solutions.

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To address environmental challenges while enabling economic growth, Bertrand Piccard has launched, through the Solar Impulse Foundation, the challenge of selecting 1000 profitable solutions to protect the environment in order to convince decision-makers in governments and businesses to achieve their environmental targets and adopt more ambitious energy policies, which are necessary to pull these solutions to market. Our aim: to accelerate the transition to a carbon-free and sustainable economy.

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About the “Solar Impulse Efficient Solution” Label

One of the first labels for positive impact businesses bringing together protection of the environment and financial viability, the “Solar Impulse Efficient Solution” Label is attributed following an assessment performed by external independent experts. In collaboration with renowned institutions, solutions applying for the label must go through a neutral methodology based on verified standards. This label serves as an award for clean and profitable solutions.

About the Solar Impulse Foundation

The Solar Impulse Foundation is dedicated to accelerating the implementation of clean and profitable solutions. Moreover, the Foundation is helping decision-makers in businesses and governments to achieve their environmental targets and adopt more ambitious energy policies, which are necessary to pull these solutions to market. A way to carry the success of the first solar-powered flight around the world further.



SafeWaterAfrica ist part of the #1000solutions to change the world.

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Raw water extraction point of the demonstrator in South Africa from a polluted running waters. ©Fraunhofer IST, Lothar Schäfer

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Demonstrator in South Africa: overall view including the solar panels supplying the electrical power needed. ©Fraunhofer IST, Jan Gäbler.



Electrode assembly of the SafeWaterAfrica system in Ressano Garcia, Mozambique. ©Fraunhofer IST, Lothar Schäfer

The Fraunhofer Institute for Surface Engineering and Thin Films IST is an innovative partner for research and development in surface technology, with expertise in the associated product and production systems. The aim is to develop customized and sustainable solutions: from prototypes, through economic production scenarios, to upscaling to industrial magnitudes – and all this whilst maintaining closed material and substance cycles. The Fraunhofer IST is one of the seventy-five institutes of the Fraunhofer Society, Europe's leading research organization.