

Why?

Rice is grown on approximately 160 million hectares of land worldwide – an area roughly five times the size of Germany. Together with maize and wheat, it is humankind's most important crop, and for 50% of the global population it forms an essential part of their daily diet. Rice has a key role in contributing to food security and income generation.

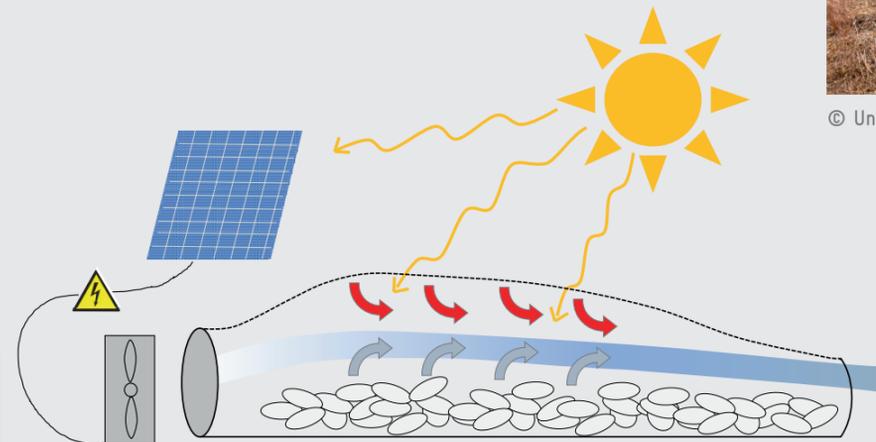
However, in developing countries up to 40% of harvested rice are lost post-harvest, as rice is spread out to dry in the sun on the soil, on roads or on unprotected spaces. This exposes rice to dirt, animals and vermin. Furthermore, fungal toxins present in soils or released during decomposition can contaminate rice, leading to subsequent health issues. Rain and strong sunlight can also reduce the quality of rice. Poor drying practices can decrease quality resulting in price reductions up to 30%.

SOLAR RICE DRYER



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What?



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The rice is laid out to dry in a 15 to 26 metre-long plastic tube, or 'bubble'. In this way 0.5 to 1 tonnes of rice can be processed in one to three days depending on the weather. The upper side of the tube is transparent, to allow the sun's rays to penetrate, build up heat inside the bubble and dry out the rice. Solar-powered fans provide ventilation for an even distribution of heat, and airflow to remove moisture.

The plastic tube protects the rice from rain, contamination and vermin. The rice is turned regularly using a rolling bar. Depending on size, scope of supply and the location, a solar dryer costs between €1,200 and €3,400. It is currently being energetically optimized with the objectives to reduce the investment cost per ton capacity and to improve the drying process.

With Whom?



IRRI

Where?



There is great potential for the use of this technology in a large number of countries. The dryers are trialed in the Philippines, Myanmar, Vietnam, Indonesia, Cambodia, Nepal, Colombia, Kenya and Ghana.

More?

Energypedia: https://energypedia.info/wiki/Solar_Drying

IRRI: <http://irri.org/rice-today/the-bubble-that-dries>