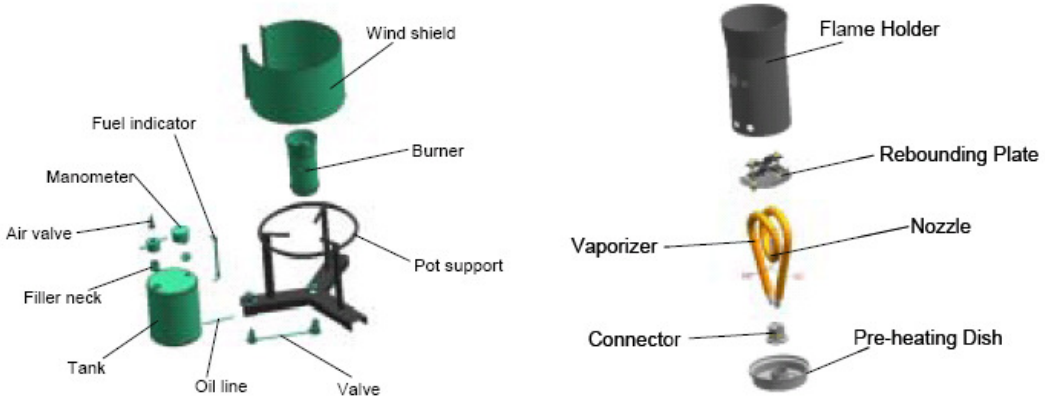
FAQ Protos

1. How does the plant oil cooker work?

The tank is filled with plant oil. The burner is pre-heated with a small amount of alcohol or other available fuel source. Through application of the pump, the tank is pressurized. The oil rises into the vaporizer where the heat of the flame converts the liquid into a gaseous mixture. The gas flux emits from a nozzle into a burning area, where it mixes with surrounding air and burns in a blue flame. The power output can be adjusted with a valve in the fuel line.



Picture 2: Components of tank and support as well as of burner.

Facts and figures:

Power range:	1.6–3.8 kW
Usage:	2 liters oil per week for a family of 4-5 → 100 liters per year
Fuel:	diverse plant oils, plant oil esters
Efficiency:	40-50%
Emissions:	ten times lower than with high quality kerosene
CO_2-balance:	neutral

2. What types of fuels can be used in the cooker?

Possible fuels include the full range of both edible and inedible plant-oils such as Coconut oil, Jatropha, Sunflower oil, Rapeseed oil, Cottonseed oil or Peanut oil. The fuel can be refined or unrefined. In addition to pure plant-oil it is also possible to burn used frying oil and plant-oil esters (bio-diesel).

3. How can I purchase a cooker in Germany, Europe or North America?

Unfortunately for the large number of interested individuals it is necessary for us to inform you that Europe and other industrialized countries are not currently included on our

priority list at present. We have made an internal decision based on the available capacity, to focus on larger projects in specifically selected developing countries.

We appreciate the understanding for the need to concentrate our initial projects on individuals in developing and emerging countries from the lower income levels who can best be served by this technology.

If you are interested in purchasing the cooker, we encourage you to check this website occasionally information regarding availability of the cooker in Europe and elsewhere.

4. Where can I get a cooker in the Philippines?

Currently the cooker can only be purchased on the islands of Leyte and Samar. Beginning the middle of 2007, we plan to make the cooker available in additional regions.

5. **Where are there currently plant oil cooker projects underway?**

At present projects are currently underway in the Philippines and in Tanzania. Further projects in 2007 are planned in India, China, Madagascar and Sri Lanka.

In the Philippines the cooker can currently be purchased on the islands of Leyte and Samar. There we are working with our partners at Leyte State University with whom we have established a small production facility for the cooker as well as oil production with a nearby cooperative. LSU is currently selling the cooker on the islands of Leyte and Samar and have more than 1000 orders on their books. We plan to expand availability of the cooker to additional regions in the Philippines in the middle of 2007.

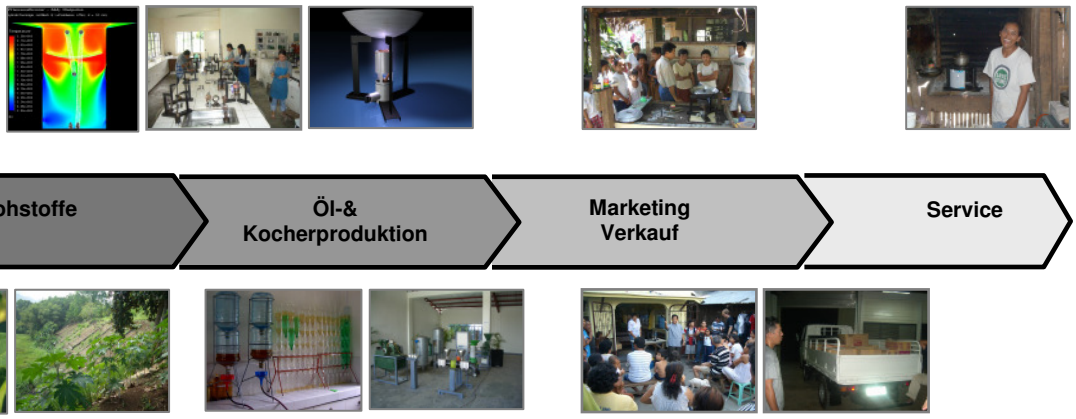
In Tanzania there is currently a field test underway with 25 households. As a result of initial positive feedback, there are efforts underway to expand this by an additional 75 households by April 2007. We are also currently exploring the different possibilities available for local production.

6. What are the criteria used when deciding to introduce the Protos technology to a country or region?

Our aim is to introduce Protos where the largest number of people can benefit from it within a sustainable social, environmental and economic context. Based this goal, we have identified the primary user as those who currently purchase their cooking fuel (Wood, Charcoal, Kerosene) and would be better served through the use of our technology for economic, environmental, health and / or safety reasons.

Local social, economic and environmental conditions are of particular import in the introduction of this technology. Consequently, we make strenuous efforts to ensure that suitable plant-oils are available through local production and are sourced in a non-exploitative manner. To achieve this goal, we look to work together with local, regional, national and international partners.

A Protos project requires attention and coordination in each part of the value-chain:



For 2007 the locations for introducing the cooker are planned. For 2008 we are carefully researching additional regions that fulfill our criteria.

Complimentary to addressing the triple bottom line of economy, ecology and social benefits, we recognize that a successful introduction of the plant-oil-cooker while also address meet this these criteria:

- Affordability
- Accessibility
- Availabilitiy

7. How can I bring Protos to my Country?

In order to expand the reach of our technology – which needs to occur on a large scale in order to achieve the desired efficiency – it is necessary to take in to account, in addition to the known project costs, further issues related to manufacture, service and maintenance networks for the plant-oil cooker as well as the necessary subsidies of the retail price of the cooker. The required introductory training might be provided by our partners at Leyte Estate University, who were responsible for the pilot test in the Philippines, and would have the additional added value of a fostering a direct south-south dialogue. In order to ensure the sustainability of the project, adequate plant-oil production must be present in the target region.

If your organization has the capacity to help us fulfill these and the above mentioned criteria, we encourage you to contact us with background information including a description of your capabilities at: protos@bshg.com

8. How high are the greenhouse gas (GHG) emissions for the plant-oil cooker?

The CO2 released by burning plant-oil is equal to that which was absorbed by the plant through the photosynthetic process; thus the process of GHG neutral. When used to substitute fossil fuels (kerosene, gas) it is possible to reduce CO2 release by up to 1 ton per year. In many countries fuel wood and charcoal are harvested through processes which are not sustainable. The substitution of non-sustainably harvested wood or charcoal can result in a reduction of CO2 emissions of between 3-7 tons per cooker per year.

Within this context, we pay special attention that the plant-oil used for our technology is harvested sustainably. The production of plant-oil should not come at the expense of bio-diverse rich areas nor encourage monocultures.

9. **I am a scientist / inventor / entrepreneur is it possible for me to receive /purchase a cooker for testing purposes?**

   Unfortunately this is not currently a possibility. It is our goal to introduce our technology in a manner that brings the greatest value to the end-user. In order to accomplish this goal, it is necessary to preserve the integrity of the design and follow correspondingly appropriate introduction guidelines that ensure safety and sustainability. This requires that BSH staff members monitor and coordinate each introduction project. As a result it is not possible for us to distribute individual or small numbers of our cookers. This is also the circumstance for inquiries from Germany/Europe and other industrialized countries.

10. **I / My Organization would like to produce the cooker locally. What do I need to do?**

    In order to ensure economic sustainability, the local manufacture of the cooker must be part of the second step of the introduction process following the successful market introduction that has proven there is sufficient and consistent demand.

    The decision to focus on local production rather than import of the cooker is a core element of the feasibility study and is based purely on economic factors. Only in the circumstance that local production would mean overall lower costs for the end-user is it sensible to invest in mass-production facilities.

11. **Press reports consistently report on "health advantages" that arise from the use of Protos. What are these advantages?**

    Burning wood, charcoal or kerosene for cooking purposes (especially in enclosed spaces) releases significant toxic emissions. The World Health Organization (WHO) estimates that more than 1.6 million people (predominantly children) die as a result of these emissions. Protos burns plant oil that is nearly emission-free and therefore drastically reduces the serious health-risks associated with other fuels.