

Using Plants Oil Stoves for Improved Health and Against Deforestation

The plant oil stove introduced in the Philippines by Bosch and Siemens Home Appliances Group (BSH) in cooperation with Leyte State University unites social, economic, and ecological priorities of the earth's poorest regions in a unique way. Through intensive development work with partners in the research community as well as through support from government and environmental organizations, the stove is as an innovative contribution for sustainable development in developing countries. The solution focuses on more than only the basic human need of food preparation for each day. "Being developed in our product area cooking, the plant oil stove Protos belongs to our core competence. With this new stove we have developed an ecological and economical cooking technology for developing and emerging countries. With its low emissions, Protos contributes towards a better health situation of the people in those regions," says Gerd Strobel, Senior Vice President of the Product Area Cooking at Bosch and Siemens Home Appliances Group.

The motivations to develop a plant oil stove are obvious. They are based on the fact that even today more than 2.5 billion people prepare their food on traditional "three-stone fireplaces", which are open fires, fueled by firewood or plant residues. The emissions from those fires contain hazardous concentrations of carcinogenic substances and lead to eye and lung disease. According to an estimation of the WHO over 1.6 million people die annually of those "indoor air pollution."

The very low efficiency of those open fires results in a high consumption of firewood which leads – especially in combination with a growing population – to an increase of destruction of forests and consequently to serious ecological problems such as erosion, desertification, and flooding. As forests are reduced, collecting firewood becomes more time-consuming and the prices for firewood will rise for those who have to buy their fuel. Often, the firewood is more expensive than the food to be cooked.

Utilization of alternative energies is therefore desperately required. Utilization of plant oils as is beneficial, especially because a vast number of oil plant are inherent to the tropics and subtropics. Even in remote areas, traditional methods exist for the harvest as well as for the production of the oil. In some places the supply of the plant oil exceeds the demand. Moreover, numerous oil plants have been neglected so far because their oil is toxic for the

human being or otherwise not suitable for nutrition. Examples for those plants are the Physic nut which is also known as Jatropha and the castor plant, respectively.

The Protos stove allows now the utilization of those oils in a sustainable system as renewable fuel.

The development of a plant oil stove for the tropics and subtropics is based on an investigation at the University of Hohenheim, which has abundant experience in technologies for developing countries. The original project was supported by the German Federal Foundation for the Environment and other members of the Bellagio Forum for Sustainable Development. In 2003, the Bosch and Siemens Home Appliances Group acquired the technology and developed the technology in cooperation with research partners as well as environmental organizations. Along with the experts from BSH, several German universities have participated in the technical development and optimization of the stove. Since the end of 2004, Protos has been field tested in the Philippines together with the Leyte State University. More than 100 families in rural, urban and island areas were included in the test. Moreover, with the University of Hohenheim different methods of the production of plant oils were investigated and a rural production center of plant oils was set up in a cooperative level. The stove's practicability for urban slum areas was investigated in cooperation with the Deutsche Gesellschaft für Technische Zusammenarbeit mbH (GTZ).

The project is supported by the Public Private Partnership Program of the German Ministry for Economic Cooperation and Development (BMZ) through the German DEG (German association for investment and development), one of Europe's largest development agencies. BSH is now planning the introduction of the plant oil stove technology in other countries.