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“Development on the margin”

## Assessing the Appropriability of Food Processing Technologies Based on Renewable Energies Applying a Need-oriented Methodology

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### Abstract

Food is a basic human need, as is the production and preparation of it. All forms of food preparation are linked to the provision of energy. In rural areas biomass is the dominant energy source. About 2.5 billion people worldwide rely on wood, agricultural residues or dung as source of energy for cooking, but often used in a traditional, inefficient and unhealthy way. If no changes are made, this figure could even increase to 2.7 billion by 2020. Wood as energy source is becoming increasingly scarce, especially in marginal lands, and the rising demand is leading to deforestation, desertification and longer collection times.

The need-oriented methodology presented in this paper is based on research results from WIS-ONS initiative, run by the Wuppertal Institute. The initiative intends to improve the South-South and North-South knowledge transfer on sustainable energy models and technologies. The initiative's scientifically founded information tool, called “Technology Radar”, aims to give a comprehensive overview of technologies and their possible contribution to meeting basic energy needs. The energy-related need “Food processing” is the second topic to be regarded, it addresses processes such as cooking, baking, drying, refrigerating, pressing and milling, based on renewable energy resources. To evaluate the applicability and appropriateness of these technologies, a set of criteria was defined: potential contribution to global sustainable development and to achieve the Millennium Development Goals; environmental impacts; socio-economic aspects and regional impacts; economical viability and expected technological developments.

In the last six years, WISONS also selected and supported more than 50 small-scale implementation projects in various developing countries. One third of these projects dealt with sustainable energy supply for food processing. In the analysis it became apparent that the socio-economic and institutional context represents the most significant constraint for the implementation. The underlying aim is to ensure the long-run adoption of the technologies, *i.e.* as part of the daily routine of people. This implies a process of adaptation at the user level as well as changes of the socio-economic structure.

The findings of the technology radar as well as lessons learned from the practical implementation are presented in this paper.

**Keywords:** Community-based solutions, developing countries, food, food processing technologies, information tool, renewable energy, sustainability