

# Evaluation of the Project for the Improved Cook Stoves Diffusion in Cambodia

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A sense of crisis for the energy arose in the Oil Crisis in 1973 expanded also to the world 2 billion poors who are dependent only on the fuelwood. Ensuring the access to the fuelwood gradually became a part of the international cooperation strategy, which have been implemented as “forestation” from the supply side and as “improved cook stove (ICS) diffusion” from the demand side. Lately, it became more acknowledged that ICS enables not only the environment benefit by the fuelwood saving but also on various social and economical benefits by its spilled effect. Thus, more value is found in ICS nowadays in the context of the sustainable development as one of the tools to realize it. However, it doesn't mean that the projects on the ICS diffusion have been always successful because of its usefulness. There are lots of such projects which failed in the wide spread adoption and the continuous use.

Based on such background, the purpose of this paper is to find out what could be the conditions on the ICS diffusion. In order to enable this, the literature review is firstly conducted to organize the preceded knowledge comprehensively and to extract the hypothesis of the conditions on the ICS diffusion accordingly. Moreover, the actual ICS diffusion project in Cambodia is used as a model example to prove the hypothesis. This project is which the author of this paper was involved with for about six months from September 2009 for internship. The local interview is conducted to carry out the analysis and the results are added to the hypothesis to substantially enrich it. Through these works, the ultimate goal is to build up the useful conditions on the all ICS diffusion projects.

The model case project is to diffuse the big ICS so called “Vattanak stove” which is for the palm sugar production industry in Cambodia. This project is implemented by the NGO GERES Cambodia. The palm sugar production in this country is a household industry which is especially engaged by the farming poor family. Vattanak stove can be manufactured with the local materials and the local technology but it has high combustion efficiency which could save 30% of the fuelwood use by its modern structure. It also protects the human body from the exposure to smoke by the attached chimney and even fetches higher price on the end products by enabling higher quality sugar making attributing to its function maintaining the high temperature for longer time. GERES disseminated 110 Vattanak stoves ever since the diffusion phase has started in 2008. However, 52 households have already completely stopped using this ICS as of 2011.

In the effort to prove the hypothesis of the condition on the ICS diffusion, this project is picked up to find its diffusion problems by the local interview conducted. As a result, it was found that the hypothesis is almost true since the elements which don't meet the hypothesis's conditions are the actual factors of the ICS diffusion problem. Also it was found that “Conditions on the ICS Technological Design” can be all critical to have. In addition, the new condition was added to these conditions. It is about the “childcare”. The number of babies and children is bigger in the least developed countries like Cambodia, thus women have to look after them while they are cooking as well. In the model case project, the institutional arrangement which is embedded well to reduce the burden of the farmers to pay back the stove cost ironically became the burden by posing them the added production process which they really need to concentrate on and prevent them from taking care of their babies and kids as usual. This was found to be one the core problems on the ICS diffusion in the model case project, thus the new condition with the element of “childcare” was added to the conditions on the further ICS diffusion.