

RECOMMENDATIONS FOR FURTHER WORK

The largely descriptive scope of this study and the preliminary nature of the conclusions point to the need for further work in more fully elaborating the challenges and opportunities of Bioenergy initiatives at the local level. While this report has sought to highlight linkages of initiatives to rural Livelihoods, which appear to be largely positive based on available information, there is no doubt that significant challenges and trade-offs remain to be explored in the development of Small-Scale Bioenergy initiatives if the Livelihoods benefits identified are to be realised on a widespread and sustainable basis.

Some of the areas recommended for further work to PISCES, FAO and other actors in the sector include:

- **Develop sustainability criteria for Small-Scale Bioenergy Initiatives**

Although substantial work is ongoing internationally on sustainability criteria for Large-Scale biofuels production for developed country markets as a liquid transport fuel, there has not been corresponding work undertaken for Small-Scale Bioenergy Initiatives. Such criteria might assist in improving the design and sustainability of future Bioenergy initiatives focusing on energy access and livelihoods at local levels. Furthermore it may offer an opportunity to develop some consensus on the role of Bioenergy more generally in a currently polarized global Bioenergy debate focused almost exclusively on Large-Scale production of transport Biofuels. The cases included in this report as well as some of the frameworks and approaches used could strongly contribute to such a process.

- **Develop more detailed economic analysis on a selection of cases**

The economics and competitiveness of Small-Scale Bioenergy Initiatives with other sources were not addressed in detail in the case studies although several key related issues emerged through the Markets and Livelihoods analysis including: oil price dominance, partial insulation requirements and strategies, business/management models, and pricing of wider benefits. More detailed economic analysis of a selection of cases, especially covering the four business model types noted in 4.3.2, would therefore be a valuable addition.

- **Develop Natural Resource efficiency and energy balance assessments for a selection of cases**

An assessment of the natural resource and energy inputs and outputs of different types of production, processing and appliance pathways for a selection of cases would provide useful additional information and verification of the efficiency of different Small-Scale Bioenergy approaches. This could support decision making for natural resource and energy planning, however this analysis should be sensitive to local realities highlighted



in the cases where efficiency can and must sometimes be secondary to accessibility and availability of local resources.

- **Work on incentives and constraints faced by farmers/rural people to adopt improved Bioenergy technologies and practices**

Some key outcomes of this study include the extent of the local market systems created and their resultant Livelihoods benefits, as well as the benefits of use of Bioenergy resources transformed to higher levels on the energy ladder as more convenient and cleaner fuels. More fully investigating the incentives and constraints for rural people in engaging with new Small-Scale Bioenergy technologies and practices as well as adopting improved Bioenergy products and services as consumers, would provide further insights into robustness of these outcomes and their potential replicability.

- **Develop understanding of the cases further from an Equity and Gender perspective**

The scope of the cases studies allowed for a focus on the livelihoods outcomes of initiatives primarily at a rural household level, however the impacts of initiatives on different individuals within communities and households can of course vary considerably. In particular an analysis of the Livelihoods impacts of the initiatives taking a gender perspective could add important additional further disaggregated information to that already developed for the cases. This could build on ongoing work under PISCES on the Equity elements of Bioenergy development as outlined in the recent report on Gender and Equity in Bioenergy in Kenya, available at www.pisces.or.ke.

- **Replicate and test case approaches in other applicable contexts**

The information provided in the case studies and in the summary report, although incomplete, will certainly provide ideas and insights on models, practices, technologies and approaches which may be replicated in other countries and contexts. Establishing such projects with action research elements would provide valuable feedback on replicability and applicability which could help verify case approaches. Such plans are already under development within the framework of the PISCES programme and contact from others interested in conducting similar work would be welcomed.

For any further information about specific cases or this summary report please contact info@pisces.or.ke or the Case Study Project Manager Steven Hunt directly at Steven.Hunt@practicalaction.org.uk