

# INTRODUCTION: MARKETS AND SOCIAL STRUCTURES

Today, 1.6 billion people still have no access to electricity and over 2 billion still rely on traditional biomass for the everyday cooking and heating needs which are fundamental to human life. However the very accessibility of Bioenergy to the poor represents part of a possible response to the challenge of increasing access to affordable energy services. Around the developing world there are examples of small-scale initiatives which are working to provide improved energy access through the development and transformation of various Bioenergy resources into cleaner and more convenient forms of energy at local level. The aspiration of these initiatives is however not just to provide energy access but also for the production of Bioenergy to power rural development through the creation of new Livelihoods opportunities. It is increasingly recognised that both improved energy access and the Livelihoods created through its production and use are essential if the Millennium Development Goals are to be achieved. Whether Small-Scale Bioenergy Initiatives can make a substantial and sustained contribution to these energy access and Livelihoods outcomes is the question which lies behind this study.

The Small-Scale Bioenergy Initiatives Study was developed jointly between PISCES and FAO addressing the common goal of improving understanding internationally regarding Small-Scale Bioenergy Initiatives and their impacts on rural livelihoods. Through the provision of brief descriptions and preliminary lessons on the livelihood impacts of a range of case studies in Asia, Latin America and Africa, it is hoped that some of the key challenges and opportunities of such initiatives may be better understood as a guide to future more detailed research, as well as ongoing and future initiatives in policy and practice.

Policy Innovation Systems for Clean Energy Security (PISCES) is a five year Research Programme Consortium funded by the U.K's Department for International Development (DFID). PISCES is working in partnership in Kenya, India, Sri Lanka and Tanzania to develop new knowledge and policies promoting energy access and livelihoods through Bioenergy. This new knowledge also contributes to the global debate on whether and how humanity should find more energy from Bioenergy sources, and how that pathway might affect the poor and the environment.

The Food and Agriculture Organisation (FAO) of the United Nations leads international efforts to defeat hunger and serves both developed and developing countries. FAO acts as a neutral forum where all nations meet as equals to negotiate agreements and debate policy. FAO is also a source of knowledge and information. The FAO Bioenergy Group is active in building the international knowledge base on sustainable exploitation of Bioenergy.



Practical Action Consulting (PAC) led the development of the case studies work along with PISCES research partners the African Centre for Technology Studies (ACTS), the University of Edinburgh and the MS Swaminathan Research Foundation (MSSRF). Case studies themselves were carried out by a combination of PAC and PISCES partner staff, local consultants and initiative participants, with management and co-ordination from PAC UK and Regional offices. A full list of contributors is provided in Annex 2.

The focus for the case study work on the linkage between Bioenergy and Livelihoods was developed in consultation with the PISCES Consortium Advisory Group (CAG) made up of leading international participants in the field of energy and development including from the IEA, UNEP, ENERGIA, DFID and FAO, as well as policymakers and research organisations in the PISCES target countries of India, Kenya, Sri Lanka and Tanzania. The feedback from this group was clear in that the contribution of these case studies would be most valuable in interrogating the extent and nature of the impacts that different types of local level Bioenergy initiative have on rural livelihoods in different contexts in the developing world. Livelihoods in this respect are understood as the enhancement of the full range of **natural, financial, human, social and physical capitals** on a sustainable ongoing basis.

In order to address this challenge, the study team selected cases from around the developing world, drawing on networks, contacts and existing literature to select a range of 15 international case studies from 12 countries in 6 regions of 3 continents. The cases were selected to highlight the use of a range of Bioenergy resources including natural **Bioresources, Bioresidues** from existing forestry, agricultural or industrial activities, and purpose grown energy crops better known as **Biofuels**. The matching of these resources to a range of energy needs including cooking, mobility and productive uses in addition to electricity for lighting, communication etc was specified to investigate the breadth and impact of Bioenergy applications. The approach also takes into consideration non-energy **by-products** of production processes where these form, or could form, a significant added benefit in terms of livelihoods, revenues and efficiency.

In between resources and end uses lies a sometimes complex series of processes and intermediate steps and in order to establish the full extent of these, the case study approach has at its heart a **Market Systems** perspective and in particular the use of Market Mapping. This approach enables the identification and illustration of the main **Market Actors** as well as the crucial **Supporting Services** and **Enabling Environment** which contribute to the success or failure of a given initiative.

Taking this market map with respect to a given initiative within a market system as the basis, the project then applies the 4'Rs Framework of **Relationships, Rights, Responsibilities and Revenues** to the actors and linkages in the system. This approach aims to better understand the dynamics of each case in terms of key parameters like risk, vulnerability, governance and equity. This approach seeks to make the crucial differentiation between a job, and a sustainable livelihood in which rural people are participants and drivers of their own development.

With these aspects of the cases considered, it is then possible to draw preliminary conclusions on the extent to which Livelihoods capitals have been enhanced by each initiative, and what the prospects are for sustainability and expansion. Final preliminary conclusions can then be drawn on the wider impacts, prospects and main lessons of each initiative.

It should be clear that the cases selected are not intended to be inclusive of all types of Bioenergy development and neither are they necessarily recommended as ideal. Rather they are considered to be examples at the forefront of development in the Small-Scale Bioenergy sector in different respects, and as such offer windows into aspects of the emerging sector and guidance on what factors appear to be most important in delivering sustainable livelihoods objectives.

