



UMM Thematic Paper

by the e-MFP University Meets Microfinance Action Group

Understanding the Challenges:
New Insights from Practice & Research on
Mobile Banking, Remittances and Green Finance

10th University Meets Microfinance Workshop
Frankfurt School of Finance & Management
July 4th & 5th, 2013



ABOUT UNIVERSITY MEETS MICROFINANCE

The growing interest by students and academics as well as the increasing need for knowledge creation and dissemination in the microfinance sector, led to the launch of UMM by PlaNet Finance and Freie Universität Berlin in 2009. UMM is a European initiative which fosters cooperation between universities, students in Europe and microfinance practitioners to contribute to microfinance innovation and education for development.

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All UMM activities are carried out under the umbrella of the European Microfinance Platform (e-MFP) in the frame of the e-MFP UMM Action Group.

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ABOUT THE EUROPEAN MICROFINANCE PLATFORM

The European Microfinance Platform (e-MFP) was founded formally in 2006. e-MFP is a growing network of over 120 organizations and individuals active in the area of microfinance. Its principal objective is to promote cooperation amongst European microfinance bodies working in developing countries, by facilitating communication and the exchange of information. e-MFP members include banks, financial institutions, government agencies, NGO's, consultancy firms, researchers and universities. e-MFP's vision is to become the microfinance focal point in Europe linking with the South through its members.

www.e-mfp.eu

The 10th University Meets Microfinance workshop on "New challenges for microfinance: Mobile banking, remittances and green finance" took place at the Frankfurt School of Finance & Management on July 4th & 5th, 2013. This Workshop was organized in close cooperation with the Frankfurt School of Finance & Management.



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Foreword from the European Microfinance Platform

The European Microfinance Platform (e-MFP) is pleased to present the latest workshop report in the "University Meets Microfinance (UMM) Action Group Series". This issue focuses on the output of the 10th University Meets Microfinance Workshop, which took place in Frankfurt the 4th and 5th of July 2013.

The event which gathered 80 participants from 20 organisations was a big success.

The Workshop brought together three relevant and important topics in the field of financial inclusion: remittances, mobile banking and green microfinance. Over the course of two days, practitioners, professors and students from across these fields shared their expertise and opinions on these subjects - this publication presents their interesting articles.

Since its inception, the e-MFP, a growing network of over 120 organisations and individuals active in the area of microfinance, has prioritized the role of research as an essential component for the development of good and sustainable microfinance practices. Therefore, in 2010, the e-MFP University Meets Microfinance Action Group was set up as a result of the interest of several e-MFP members to further enhance exchange and cooperation between microfinance practitioners, researchers, academics and talented students from universities across Europe. Its main purpose is to perform as an innovative task force active at the different levels of education, knowledge creation, capitalization and dissemination in the fields of microfinance and inclusive finance contributing to the development of the microfinance sector.

For e-MFP, it is a pleasure to support excellent and value added initiatives such as the UMM workshops not only because they provide students and academics with the opportunity to present and discuss the outcome of their research with practitioners and contribute to current debates, but also because practitioners get exposure to cutting-edge research and meet talented, future young professionals, academics and other microfinance experts. We thank all the experts involved in this project for their valuable contributions to the publication and invite you to explore the latest findings to stimulate further reflection and encourage additional research in microfinance.

Best wishes,

Christoph Pausch, e-MFP Executive Secretary

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Introductory article

Yasmin Olteanu

Introduction

Portfolios of the Poor (Collins, Morduch, Rutherford, & Ruthven, 2009) richly describes the financial reality of low income households, their challenges of managing their often irregular and small income as well as the devastating effects of unforeseeable crises such as a serious illness of a household member. From this and other new insights on the use of financial services, evolves our understanding of the major role finance can play for this target group: supporting the poor in the management and maintenance of their household on the one hand and with small but relevant investments in basic needs like income generation, housing, education and health on the other hand (Dercon, Bold, & Calvo, 2007). This view substantially alters the earlier recognition of microfinance as poverty alleviation's silver bullet, but at the same time opens up the perspective to new opportunities. A selection of some of the most promising of these new opportunities and their respective challenges were discussed during the 10th University Meets Microfinance Workshop, which took place in Frankfurt the 4th and 5th of July 2013: Remittances, Mobile Banking and Green Finance.

Remittances

Remittances, funds that migrants send back to their families in their home countries, and microfinance share some similarities: both have the potential to contribute to a household's risk management strategy and thus decrease vulnerability, and both can ultimately lead to job creation and possibly economic development. Many voices thus call for an increased involvement of microfinance institutions in remittances with the aim of increasing financial inclusion for respective households (Johnson & Sedaca, 2004). The officially recorded flows of money sent were expected to reach \$414 billion in 2013. Remittances hence exceed official development aid by far (World Bank, 2013). However, whether remittances contribute to the economic growth of the receiving economy in a positive or negative way is until today an unresolved debate between economists. Rapoport and Docquier (2005) give a comprehensive overview about the respective theories, with some suggesting remittances discourage labour supply and work effort by resulting in increased dependency, lower productivity and thus slower growth. Others however argue for remittances to be seen as a catalyst for growth. Empirical evidence will have to show which of these theories will prove true.

In his contribution, Dominique Villeneuve discusses the general challenges that remitters face when having to choose the way they send their money home. He suggests three courses of action: increased involvement of new technologies to reduce costs, financial education programs that better inform remitters about their options and innovative financial products supporting the receivers with a productive use of the received funds.

Christian Ambrosius looks at the relationship between local financial markets and remittances. He uses the case of Mexico to test the two hypotheses that remittances on the one hand can be a substitute for local financial services and on the other might improve the receiving household's general access to finance and finds that both hold true.

Christiane Ströh de Martinez focuses on the family risk-management side. In her contribution, she develops a combined savings and insurance product for TRANSnational families, which aims to reduce the high vulnerability caused by depending on only one migrated family member.

Mobile banking

With the success of the Kenyan M-Pesa project, the advantages and challenges of offering financial services without the use of a branch network has become one of the top debates in the area of financial inclusion. Pickens et al. in 2009 even expressed their concern over a possible “hype” (Pickens, Porteous, & Rotman, 2009, p. 3) and called for a realistic assessment of the instrument’s potential.

Two different models can be distinguished: one being a bank-based and the other a non-bank-based one. While bank-based models describe set-ups of financial service providers that develop options for branchless operations, non-bank-based models entail those operated by other actors (e.g. mobile phone companies) aiming to enter the financial services market. Both models have their strengths and weaknesses but share the challenge of having to closely operate with a third party (Lyman, Pickens, & Porteous, 2008). Currently the mobile banking projects aiming at financial inclusion are numerous throughout the developing world. The data however is scarce: In those cases where authorities do engage in collecting it, the information gathered is often restricted to the number of clients, the number of agents and the amount of the respective transactions (Dermish, Kneiding, Leishman, & Mas, 2012).

In his contribution Michael Klein gives insight into the results of a survey conducted with a number of very successful mobile banking projects in different countries. He points out the characteristics which are shared by these outstanding projects and highlights specific challenges such as regulatory barriers.

Simon Priollaud in his contribution shares his practical experience with the setting up of mobile banking services. He offers eight take-aways for practitioners.

The impact that mobile money can have on the operational costs of an MFI was examined by Casey Marie Conzett, Patricia Rodríguez Pulido and Maricruz Lacalle. The result of their case study on expected changes of operational costs showed that the MFI’s employees expected an increase in marketing, training and stationary costs as well as a decrease in transportation costs.

Green microfinance

While microfinance in its first decades was considered to have a double bottom-line approach reflected in both social and financial objectives, today a third relevant bottom-line is part of the discussion: environmental goals (Rippey, 2009; Schuite & Pater, 2008). This development is in line with the elements of sustainable development and has led to initiatives such as microcredit aimed at environmentally friendly activities, certain business activities being excluded from finance or the training of clients on environmentally friendly behaviour. The evaluation of an MFI’s effort in this regard however has not been standardized yet (Allet & Hudon, 2013).

The debate on green microfinance is twofold: The first aims at reducing the ecological footprint of MFIs and their clients. The second focuses on the fact that poor households suffer most from climate change and seeks possible options of how to ease this burden. These discussions however go hand in hand and overlap substantially (Hall, Israel, & Wenner, 2008). Green finance currently is on top of the international financial inclusion agenda and there are a number of pilot and research projects being conducted on this topic.

In a short contribution, Noara Kebir from MicroEnergy International answers five questions on green microfinance that were collected by the UMM team during the workshop. Another five collected questions were answered by Patricia Kawagga from the Rural Electrification Agency Uganda.

Davide Forcella in his article discusses possible adaptation strategies of MFIs to climate change. He concludes that projects can run successfully but underlines the relevance of an approach that integrates developmental and environmental issues in the general strategy of the MFI.

Natalia Realpe Carillo takes a closer look at energy microfinance and the reasons why financial sustainability and scale remain challenges. She recommends the creation of separate business units dedicating themselves to energy microfinance and calls for a supporting policy framework.

Christopher Neidl shares his insights on energy microfinance in India where respective projects so far have been rather short-lived. The sector's challenges are assessed and presented before new trends and developments, which might be able to overcome them, are discussed.

Susanne Schwan presents research results from a study looking at the relation between carbon lending and microfinance using the case study of a solar home system project in Bangladesh. She concludes that the impact of carbon lending on the economic viability of the MFI's project is rather marginal. The benefits to the clients however were found to be substantial due to cost saving and access to clean energy.

Finally, the contribution of Klara Lindner looks at the provision of solar home systems under a microfinance scheme. She examines the possible problems that can occur with these kinds of schemes and presents a conclusive list of possible solutions derived from relevant literature.

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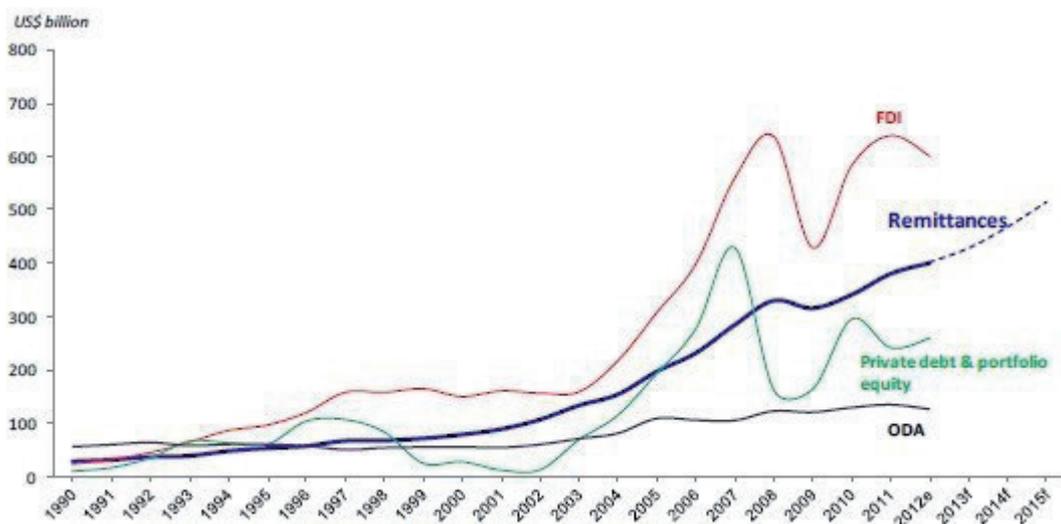
Remittances: a general overview

Dominique Villeneuve

Abstract

Migrant economic remittances are a crucial source of foreign funds for most developing countries. Moreover, remittance flows are expected to continue to increase in the near future. The best choice for sending money back to their families however, remains a tough question for remitters. The level of informality continues to be quite high and although international commitments have been taken to reduce the remittances prices, the real costs decrease very slowly. In order to improve this situation, best practices seem to be those mixing new technologies to reduce costs, financial literacy to give more information to the remitters and innovative financial products to give greater opportunities to use the remittances. Migrant economic remittances are an important and growing source of foreign funds for several developing countries. At present, according to World Bank estimates, these flows are more than double the Official Development Aid (ODA) received by developing countries, reaching more than US\$ 400 billion in 2012.

Figure 1: Remittances and other resource flows to developing countries



Source: World Development Indicators and World Bank Development Working Prospects Group

For many developing countries, remittances constitute a large source of foreign income relative to other financial flows. In 2009, in some countries economic remittances have “become as large as foreign direct investment” and, in a large group of developing countries, remittances represent a resource inflow that often exceeds a variety of other balance of payments flows. Moreover, remittance flows are expected to grow, according the World Bank, at an annual rate of 8.8 percent on average between 2013 and 2015, to reach

about US\$515 billion in 2015.

But if these figures seem impressive, they could actually be up to 50 percent higher or more because of the large use by migrants of informal channels. So the statistics regarding remittances flows are always to be used with precaution.

In order to understand the remittances phenomenon, two major factors have to be taken into consideration:

- the “corridor” remains always crucial for explaining remittance habits: the country of origin and host country are key determinants for the way migrants will send their remittances.
- the typology of migrants’ habits for remittances has been possible using a prioritisation of criteria, according to a study conducted by PlaNet Finance in 2010 :

Cost driven	Is looking for the less expensive service Very sensitive to fees Women are more sensitive to costs
Convenience driven	Is looking for a cheap and easy-to-use service Sensitive to the opening hours
Habit driven	Uses always the same service by habit Is very sensitive to the employee that he used to work with Prefers confidence and someone speaking in his language
Community driven	Prefers the informal channels Has more confidence on the people he knows Lack of real other choice than informal

Large issues for remitters still to be addressed

Formal vs informal

Whilst formal remittances refer to those remittances which enter a country through official banking channels, informal remittances include those money transfers which occur through private, unrecorded channels. Such private transfers include remittances brought home by friends, relatives and even the migrant himself/herself. Estimates of the size of informal remittances vary widely, ranging from 35 to 250 percent of formal remittances. Findings also suggest that the size of informal remittances varies by region: informal remittances to Eastern Europe and Sub-Saharan Africa are high, while those to East Asia and the Pacific are relatively low. The main reasons for use of informal channels for remittances can be:

- **Cost:** by using the help of friends or relatives, migrants try to bypass the relative high cost of formal remittances.
- **Currency exchange on the black market:** when a black market currency exchange

exists, those using formal channels will receive less than those making unofficial exchanges.

- **No tax records:** in many developing countries trust in the State is very low and people remain reluctant to pay tax. Using only cash transactions allows them to avoid having financial records in order to not pay tax.
- **Weakness of the banking system of the migrants’ country of origin:** if the banking system of the migrant’s origin country is strong, there is an increased likelihood that the migrant will trust it and use it.

A global trend towards more formal remittances seems to be emerging

An example was provided by a study conducted in 2010 in Mali by Frédéric Ponsot and Bruno Obegi: it showed that, according to BCEAO statistics, formal inbound flows in Mali have doubled over a three-year period, from 80 billion in 2005 FCFA to 180 billion in 2008. Meanwhile, the stock of migrants has only slightly changed. This would signify that the share of informal flows fell from 73 percent

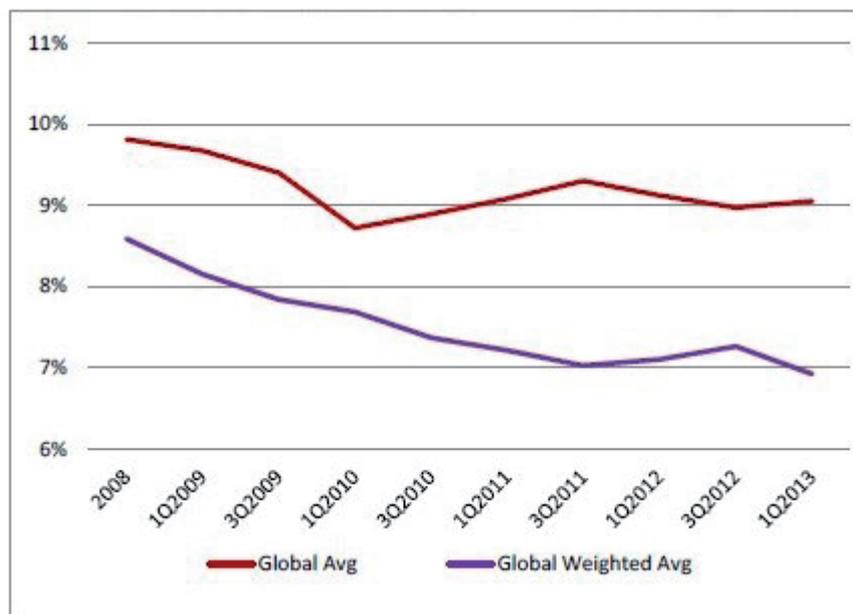
in 2005 to 42 percent in 2008. Another example can be taken in Bangladesh: The amount of remittance inflow to Bangladesh through informal channels seem to have decreased significantly due to strict imposition of laws by the government and improvement of services by the commercial banks. According to two latest studies by Bangladesh Bank and the Financial Action Task Force (FATF), a global anti-money laundering body, 17 to 24 percent of the total remittances come to Bangladesh through the informal channels. Both the studies were carried out in 2010. However, an earlier

survey conducted on the period between 2000 and 2006 put the figure at 54-60 percent. Experts and economists said that strict enforcement of anti-money laundering laws has brought the amount down. The banks have also significantly improved their costs and service delivery.

Prices remain high

In November 2008, the G20 summit adopted its Commitment 77: "We will work to reduce the average cost of transferring remittances

Figure 2: Trends in Remittance Prices Worldwide
(Total cost of sending \$200, including fees and exchange rate margins)



Source: Remittance Prices Worldwide, The World Bank

from 10 percent to 5 percent by 2014, contributing to release an additional 15 billion USD per year for recipient families."

Despite this strong commitment, the decrease of remittance prices faces strong resistance. As highlighted recently by the World Bank, "The global weighted average remittance cost (weighted by the size of bilateral remittance flows) has, at times, shown a different pattern from the simple average. After declining from 2008 to 2011 to reach 7.0 percent, the global weighted average increased slightly for the first time in 2012, before falling again to an all-time low of 6.9 percent in the first quarter of 2013. This suggests that prices are decreasing where higher volumes are being transferred, such as from the United Kingdom

to Bangladesh (where total average cost fell from 5.3 percent in the third quarter of 2012 to 4.8 percent in the first quarter of 2013), or from the US to Mexico (where the total cost fell from 5.6 to 5.3 percent over the same period)."

The last mile

Proximity to the recipient has been highlighted in many surveys as the most important factor for migrants in selecting their remittance channel and in most of the cases remittances are particularly relevant – and particularly expensive – for underserved rural areas. For instance, in Africa, IFAD showed that the rural areas receive an estimated 30-40 per cent of all remittance flows. Often these remittances

are picked up far from home and families must add substantial travel costs and time to the already high transfer fees. For this reasons, solutions able to “reach the last mile” will be certainly the most successful.

What for?

The issue of the use of remittances is a very sensitive question because it deals with private money and no commitment is required to the migrants for the way their families use their remittances

The use of remittances will depend mostly on:

- Generation of migrants (1st, 2nd, etc.)
- Age of migrants
- Country of origin, etc.

This is a reason why it is quite difficult to build global strategies aimed at using massive remittance flows for productive investment. Only case by case projects can have an effective impact in that sense.

Solution will come from a combination of different ingredients

Obviously there is no one “miracle” recipe to cope with all these different issues and the best approach will be to combine various solutions. This is exactly the recommendation by AFD-AfDB in a recent report and also the practice that PlaNet Finance intends to develop in the field.

- Agence Française de Développement (AFD) and African Development Bank (AfDB) report recommendations

AFD and AfDB issued a report in December 2011 titled “How to reduce migrant remittances costs and to optimize their impact on development”. This report is the result of a study managed by Epargne Sans Frontières in the Maghreb, Senegal and Cameroon. Among various recommendations the report highlights especially:

To increase competition:

For instance by “unlocking” exclusivity agreements proposed by some Money Transfer Operators.

To boost the role of MFIs:

The MFIs have developed very large networks close to their clients. Depending on their size and the regulatory aspects of their country, they can play an active role. A good example can be found with the PAMECAS experiment in Senegal with MTO Money Express for the Italy-Senegal corridor which developed innovative financial services for migrants and their families.

To promote “bi-bancarization”:

Services of bi-bancarization aim to enable the ability of money senders to have access to a whole range of financial services in their country of origin. Either the same bank is present in both host and origin country (for example, Attijariwafa Bank in France and in Morocco) or there may be an agreement between two banks (for example, the agreement between La Banque Postale in France and Attijariwafa Bank in Morocco). The key question remains about the regulatory possibility of the existence of bank accounts for non-residents.

To take special care for productive investment:

As we mentioned previously, the use of remittances remains a very sensitive issue but more and more often, migrants, especially from the 2nd or 3rd generation, would like to invest in their country of origin, but don't know how to do so. That is the reason why actions focused on the assistance for migrants willing to develop businesses in their origin country need to consider all the aspects of the chain; from detection of the project through to assistance for the realisation.

- PlaNet Finance approach

The approach developed is based on three pillars (improvement of remittances channels, financial literacy and dedicated financial products) aiming to provide a global solution for the migrants: This approach has already been applied in a project funded by IFAD in 2010-2011 to enable Filipino migrants and their families to maximise the value of remittances to improve their quality of life.

The same approach will be also implemented soon for a three-year project in partnership with Union Postale Universelle and 4 postal operators (Mali, Côte d'Ivoire, Burkina Faso) funded by the European Union.

Results IFAD Project

Component	Objective/targets	Achievements
1. Build partnerships	Establish 6 partnerships between remittance service providers and microfinance	5 partnerships between remittance service providers and microfinance institutions
2. Train migrants and their family members	Train 700 migrants and their families on financial literacy and entrepreneurship	Train 1598 migrants and their families on financial literacy and entrepreneurship
3. Help MFIs offer migrant-oriented products	Assist MFIs to develop 3 products that help 500 clients per MFI save \$100 each, and 250 clients per MFI access credit	<ul style="list-style-type: none"> • 5 products developed • 2571 clients have saved \$67 each on average (thru May) • 2199 clients borrowed \$552 on average (total \$1,300,000) • 1230 clients have life insurance

Further reading

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Remittances and the financial management of migrant households

Christian Ambrosius

Abstract

This research addresses the question of how migrants' remittances relate to incomplete or rudimentary financial markets in the migrants' countries of origin. Because migration and financial services can both be understood as asset-building and risk-management tools, remittances and financial services may, in some cases, substitute for each other – for example, when family members in the US function as a source of capital from outside the regular household to cover emergency spending, similar to credit or insurance from financial institutions. In other cases, remittances and financial services complement each other because financial institutions offer a way of saving remittances or, because financial institutions may accept remittances as collateral for loans.

Introduction

The worldwide growth of remittances – the money migrants send home, usually to family members who have stayed behind – has raised the interest of academics and policy-makers alike in the impact this money has on economic development. Migrants are increasingly seen as development actors who contribute to the economy of their countries of origin through the sending of remittances. They are praised by the World Bank and other international organizations as an important and stable source of external finance for developing countries (Ratha 2003).

While much of the growing research on migrants' remittances has focused on poverty effects and the spending of remittances, the question of how remittances relate to the financial sector of receiving countries has received relatively little attention.

Linking research on remittances with research on financial sector development

Financial instruments such as savings accounts, credit or insurance are part of the asset building and risk management strategies of households. The same can be said about migration and remittances: As argued by the New Economics of Labor Migration (NELM, Rosenzweig & Stark 1989; Stark & Bloom 1985), migration and remittances can be

perceived as 'self-help' strategies, enabling households to self-insure and to finance investment in human or physical capital in the context of absent or rudimentary formal institutions for finance and insurance.

Departing from this observation, several studies by researchers at the Institute for Latin American Studies at Freie Universität Berlin (Ambrosius 2011; Ambrosius 2012; Ambrosius & Cuecuecha 2013; Crayen et al. 2013; Fritz et al. 2010; Stiegler 2012) have brought together two largely separated strands of research: Research on the effect of remittances on economic development on the one hand, and research on the development of the financial sector on the other. These studies respond to one common question: How do migration and remittances, while they take place within a context of incomplete or rudimentary institutions for credit and insurance, relate to financial markets in the migrants' countries of origin?

This question can be approached by two different hypotheses. The first hypothesis postulates that access to transnational money transfers functions as a substitute for financial services. The second hypothesis proposes that remittances improve receiving households' access to financial services. These two hypotheses are less contradictory than they sound: Remittances can be a substitute for credit and insurance from financial institutions

and a 'catalyst' for improved access to financial services at the same time. Recent research based on financial diaries has shown that poor households mix and combine different financial tools and instruments to cope with expected and unexpected financial gaps (Rutherford 2003; Collins et al. 2009). Since migration and financial services are both asset-building and risk-management tools, remittances and financial services may, in some cases, substitute for each other – for example, when family members in the US function as a source of capital from outside the regular household to cover emergency spending, similar to credit or insurance from financial institutions. In other cases remittances and financial services may complement each other because financial institutions offer a way of saving remittances or because financial institutions may accept remittances as collateral for loans.

Linkages between remittances and the financial sector have a high relevance with respect to the impacts of these transfers on receiving countries. Firstly, receivers themselves may benefit from more efficient, asset-building strategies through monetary savings options and, eventually, from improved access to other financial services such as credit and insurance products. Access to adequate financial services among poor households plays an important role in reducing poverty and may lead to a more equitable distribution of income (Jalilian & Kirkpatrick 2002; Beck et al. 2007). Beyond these direct benefits to receivers, the linking of remittances with financial services has potentially wider economic effects. Savings from remittances can be channelled to their most productive use and be matched with the demand for credit elsewhere, thereby also benefiting those who do not directly receive remittances themselves. There is a broad consensus among development economists that financial institutions play a crucial role in the process of economic development (see Levine 1997 for an overview). For example, cross-country studies have shown that a relative increase in savings and credit is associated with an increase in both growth and per capita income (Goldsmith 1969; King & Levine 1993; Beck et al. 2000; Levine et al. 2000).

Remittances as a substitute for, and complement to, financial services: findings from case studies on Mexico

The idea that remittances function as a substitute for credit has been used as a theoretical argument to explain empirical findings (for example Woodruff & Zenteno 2007; Giuliano & Ruiz-Arranz 2009). Using Mexican household panel data, we can directly test the question of whether remittances and credit are substitutes for each other (Ambrosius & Cuecuecha 2013). The empirical strategy we employ consists of studying the effect of exogenous events – health-related shocks – that create a demand for finance among exposed households and to compare the effect that these events have on the debt levels of national and transnational households. The results from the treatment-effect model show that, while the occurrence of serious health shocks that required hospital treatment doubled the average debt burden of exposed households compared to the matched control group, households with close family members (a parent, child, or spouse) in the US did not see an increase in their debt due to health shocks. At the same time, we observed an increase in remittances when families suffer from health shocks. These findings are consistent with the insights of the New Economics of Labor Migration that remittances respond to the needs of transnational families to finance emergencies.

However, remittances might not only be a substitute for financial services, but might also function as a driver of institutional change at the local level. In policy discussions, it has been claimed that remittances often create an initial contact with formal financial institution, paving the way for further financial services (e.g. Orozco 2004; Orozco & Fedewa 2006). However, although remittances figure prominently in policy discussions, academic publications on the impact of remittances on financial development are scant, with the notable exceptions of Aggarwal et al. (2010) and Asli Demirgüç-Kunt et al. (2011), who have found evidence that remittances are correlated positively with indicators of financial development at the cross-country (macro) level (Aggarwal et al.) and the municipal (meso) level (Demirgüç-Kunt et al.). The case study on

Mexico (Ambrosius 2012) adds to this recent line of research, and is one of the few studies that uses household panel data to investigate the relationship between remittances and financial development. This approach allows me to analyse the relationship between remittances and access to financial services in a more detailed way than previous studies have done, and to control for unobserved time-constant household heterogeneity through household fixed effects.

The results show that receiving remittances is strongly correlated with the holding of savings accounts and, to some degree, with the availability of borrowing options. These effects are stronger and more significant for the rural subset, and the linkages between remittances and the financial sector are more important for non-traditional financial institutions from the microfinance sector than for commercial banks. These results support the argument made by Orozco and Hamilton (2005), Hastings (2006), and Orozco (2008), among others, that institutions from the microfinance sector are often 'closer' to remittance receivers, both socially and geographically, and are therefore better positioned to link remittances with further financial services. The household data used in this study indicates that remittances function as a 'catalyst' for financial access, especially for rural households from lower-income groups, which tend to use non-traditional financial institutions from the microfinance sector more than commercial banks.

Conclusion

The main message of the two case studies is that remittances can be both a substitute for credit as well as a 'catalyst' for improved access to financial services in receiving countries. These findings are not contradictory: migration and remittances on the one hand and financial services on the other are both part of the risk-management, and asset-building strategies of households. They partially replace absent or rudimentary institutions for formal credit and insurance and partially complement each other – for example, when financial institutions provide households with savings options or accept remittances as collateral for loans. This interpretation contrasts with critiques of the

overly 'consumptive' spending of remittances when the reality may prove contrary to this: The case study of Mexico, for example, indicates that remittance receivers demonstrate a strong demand for savings options. Institutional frameworks that open up monetary savings and borrowing options and facilitate more efficient use of remittances for families are more promising than a paternalistic debate on the 'correct' use of these incomes.

Discussion

Part of the discussion questioned to what degree the Mexican case is exemplary for other countries. One specificity of the Mexican case is that the MFI-sector is very heterogeneous and segmented and the commercial banking sector has a low outreach. It was mentioned that in small and highly remittance-dependent countries (such as Albania or El Salvador), commercial banks have a strong interest in gaining remittance-receivers as clients. These experiences stand in contrast with findings from the Mexican case.

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Risk management for transnational families: a demand-side approach

Christiane Ströh De Martínez

Abstract

Remittances are often part of the risk management strategies used in developing countries. But in order to effectively mitigate the risks that arise from natural disasters or individual negative shocks, formal insurance for the transnational families is needed. A demand-side approach allowed identification of the specific challenges and led to development of the TRAnsnational Family Insurance Model (TRAFIM).

Risk management is a key topic in the context of migration of low-income populations

Low-income households often face high risks due to the unhealthy environment they are living in and suffer from a lack of resources to mitigate risk or to deal with the consequences (Arun and Steiner, 2008). Even ordinary events such as illness, can cause a descent into poverty and more importantly the respective consequences (Krishna, 2010). Limited coverage through social safety nets and access to formal insurance products in most developing countries forces the low-income population to develop their own strategies for risk management, ex-ante as well as ex-post. One possibility of ex-ante risk management is the diversification of income sources via migration. First of all, working abroad often provides a higher income to the families but simultaneously, it reduces the risk through diversification. However, migration itself brings new challenges and risks to the families and the workers as discussed below. A pre-feasibility study commissioned by the GIZ and MIPSS Philippines conducted by the author and Andrea Riestler aims to inquire how the specific vulnerability of migrant households can be lowered.

Migration diversifies risk but also carries new challenges for transnational families

For families in the country of origin, migration of its members represents diversification of livelihood strategies and risk management¹. Migrants often work on short and uncertain contracts in the host country, making their income vulnerable and unsteady (Ströh de Martínez and Riestler, 2011). The family in the home country depend heavily on the remittances; hence the migrant is faced with additional risks during migration and time abroad and high expectations from part of the family, particularly in case of calamity. Hence remittances act for the transnational families as a sort of insurance. Literature shows for example, that external shocks such as natural disasters usually led to an increase of remittances (see Gubert, 2002, Mohapatra et al., 2009, Yang, 2007). There is also evidence that remittances act as substitute for formal insurance (Crayen et al., 2013). Furthermore receiving money from abroad sometimes provides disincentives to earn their own money (Azam and Gubert, 2006).

Taking the case of the Philippines, survey data shows that households invest the major part of the money earned abroad in housing and housing utensils (Ströh de Martínez and Riestler 2011). With a high exposure to natural disaster, families can lose these assets instantaneously.

¹. The challenge for a family to be separated for so long is not mentioned above because of the inability of financial instruments to provide solutions.

Furthermore, families face difficulties in managing the uncertain and very unstable income streams from migration. All these factors together lead to the sad pattern known as “from rags to riches to rags” which occurs to lots of transnational families. Existing insurance products only cover life insurance and risks of the migrant being abroad even though the assets of the family at home are, in case of the Philippines, highly vulnerable to climate shocks. Limited financial education makes saving and long-term financial planning difficult. Improved risk management and sound asset creation for transnational families is highly relevant and can be addressed by an innovative insurance product such as the TRAFIM.

A demand-side based approach helps to address the financial management needs of transnational families - the transnational family insurance model: TRAFIM

The TRAFIM, developed as an insurance prototype by Ströh de Martínez and Riestler (2011), insures the assets of transnational families from natural calamities and personal risks such as accidents of family members. In addition, it supports long-term asset creation including savings for investments or retirement. In order to do so, it bundles different products together in individual insurances packages. Instead of ordinary indemnification, TRAFIM provides lump-sum cash assistance without in-depth assessment, a strategy that ensures a very fast response in the case of damage. The importance of providing a quick response after natural catastrophes with a high probability to lower the cost of the consequences, has also been highlighted during the workshop by Mrs. Beck. The current design of TRAFIM recommends a home model for the Philippines – hence to be marketed, sold and operated in the Philippines. Migrants could purchase it before the departure of their families. The premium might also be paid by both sides. An additional and very important feature of the TRAFIM is a financial literacy component that is necessary in order to ensure a clear understanding of the product and its benefits.

Concluding: financial solutions need to go beyond migrants and target transnational families

Risk management is a significant topic, especially for the poor, in order to improve the sustainability of their livelihoods. Transnational families face very unique challenges that call for adapted financial solutions. Their dependency on the migrants’ income increases their vulnerability and the existing market does not provide a product adjusted to their needs. TRAFIM points to the need for transnational financial products that combine insurance and savings components and go beyond the target group of the migrants also including their families. Such a TRAnsnational Family Insurance has been designed for the Filipino case.

Discussion: questioning financial literacy and migration focused programmes

The discussion that arose from the presentation at the 10th UMM Workshop focused on two main subjects. The first concern focused on the need for financial literacy training for the target group and the providing institutions. In fact, most people worldwide could benefit from further financial education. As with every kind of education, life-long learning also applies to financial education which is also fundamental in increasingly complex financial systems. The relevance of financial literacy programmes in comparison with other interventions depends then on the specific context. In the case of the insurance model presented, its focus on low-income families who have family members working abroad turns it into a relevant component. It is difficult for people with limited financial literacy to manage uncertain and irregular income streams. Possible providers of such programmes are MFIs, NGOs, Savings and Credit Cooperatives and others. In the Philippines, specialized NGOs caring for migrants’ families exist which are already implementing financial literacy programmes.

Another option in the Filipino case would be a compulsory seminar for outgoing workers, which already includes some basic information on financial services and remittances. Another way to promote financial education to low-income families is via a special kind of product marketing. This would firstly solve

the funding problem of such programmes and secondly, help the participants to select and obtain an insurance or finance product (Tiwari et al.2013). Wright et al. (2011) explains that people need practical exercise in order to internalize money management concepts. To prevent a mission drift of the financial educational programme, the training should always present a range of products from different companies.

The second subject of the discussion focused on improvements in TRAnsnational families' livelihoods from a macroeconomic perspective. A participant argued that creating an insurance scheme out of a phenomenon that limits the economic development of the home country, would support the phenomenon, in this case migration, itself. However, migration is an important reality for many families in developing countries. Whether it is favourable or not for the local development, its existence causes immediate challenges to the TRAnsnational families that can and should be addressed by innovative product creations such as the TRAFIM.

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Mobile money

Michael Klein

Abstract

Mobile money is a promise to tackle problems attached to moving money in countries that have limited banking facilities at their disposal. Mobile phone-based deposit and transfer services are seen as an efficient tool to cut the risks, administrative and opportunity costs of money transfer. In recent years, many banks and telecommunication companies experimented with this approach, among them the popular M-PESA in Kenya, which increased the industry's momentum. Nevertheless, analysing the success factors for mobile money offers and programmes, it becomes evident that numerous challenges remain for a larger global dissemination. Regulatory barriers to the market entry of telecommunications companies (telcos), and other operational, administrative and security issues have to be tackled in this experimental phase. Thus, analysing the detailed functions of a mobile money scheme such as M-PESA helps to understand the regulatory challenges as well as operational ones.

Moving money is a hazardous business; many poor countries offer only limited banking facilities and when a worker in the capital city wants to send money home to the village, he needs to travel himself. This costs a lot in lost revenue and expenses for the trip. Alternatively, he can entrust the money to a worker, a friend or a bus driver but all too often, cash has a way of getting lost or stolen. All sorts of cash transfers are costly in such countries and take time.

Mobile money can change all of this; where an account provider commands trust, they can offer mobile phone-based deposit and transfer services that radically cut costs and the risks of money transfer. For over a decade, banks and telecommunications companies (telcos) in various parts of the world have experimented with phone-based payment services, including fairly successful models as in the Philippines. The advent of M-PESA in Kenya added momentum to the industry: launched in March 2007, M-PESA has signed up over 14 million users in just 6 years – about three quarters of all adults in the country.

Since the launch of M-PESA the move to mobile money has accelerated. According to the GSM Association, there are 183 mobile money deployments with an additional 108 in the planning stage today. The Global Money Adoption Survey sheds light on the lessons that can be learned from such schemes. It surveyed

52 schemes and their development up to the end of 2012. Here are some highlights:

Initially, experimentation was spread across the world with no clear regional focus. Since the success of M-PESA, Africa has become home to more than half of all deployments, followed by East and South Asia and Latin America with 10 to 15 percent each. Not much is happening in Eastern Europe, Russia or Central Asia. Somaliland has high mobile payment usage, Russia hardly any.

The survey identified 14 fast-growing mobile money providers that have been termed "sprinters", several in East Africa. They are developing at a pace rivalling that of M-PESA. Their product offering is focused on air-time top up and other basic payments services, in particular, person-to-person (P2P) services. It seems that they can work in varied country environments – some very poor, some in middle-income countries with income of over \$5,000 per person. Initially, it seemed that M-PESA's success was due to the dominant position of the telco that runs it, Safaricom, with 80 percent market share in Kenya. Yet, by now rapid development is also happening in markets where sprinters have just 25 percent of the telco market. The identity of the "sprinters" and other respondents to the survey are kept confidential so as not to compromise willingness to respond. Yet, four of the sprinters recently revealed their status:

Telesom from Somaliland, Easypaisa and UBL Omni from Pakistan and Orange Money from Madagascar.

The success factors for mobile money offering are becoming clearer. Most sprinters are driven by telcos. Banks tread cautiously and often fear market disruption. Regulatory barriers to the entry of telcos seem to hold back development in a number of countries. The sprinters really focus on mobile payment service. They start with just one or two basic services such as P2P. Top management is behind the initiative and sets up dedicated departments to develop the service. Interestingly, initial investments are often not higher than \$1 million. Dedicated full-time staff and operating costs are key to marketing and managing the service. Critically, successful deployment requires the build-up of a large network of cash-in, cash-out outlets. There, "agents" or cash merchants allow customers to convert cash into electronic form accessible via SMS on their mobile phone or to withdraw cash. M-PESA now boasts over 40,000 such outlets across Kenya compared to little over 1,000 bank branches.

M-PESA, the still-young "grand-daddy" of sprinters continues to innovate under the name M-Shwari; it now allows its mobile platform to offer banking services for the Commercial Bank of Africa – an interest paying savings account and an overdraft facility.

Mobile money is still in the experimental phase. Major setbacks and surprising developments may yet occur. For some, the experiments herald a brave new world where e-money and e-wallets will help solve problems of financial inclusion. Fascination with technology meets concern over inclusion.

Regulators are often worried: should they oversee all 40,000+ M-PESA cash merchants? Should mobile money be seen as a "deposit-taking" activity that attracts capital and liquidity requirements? Do mobile money schemes creating "e-money" threaten to undermine monetary policy by the central bank? Should one allow "telco-based" schemes or only "bank-based" ones? How would bank regulators supervise telco-based systems? What about money-launderers and terrorists? Will they use large numbers of

small payments via mobile phone ("smurfing") to hide their tracks?

All too often the terms used in the debate confuse. For example, talk about "e-wallets" is rampant yet usually, mobile phones are just communication devices that allow users to access their account that sits on a server of the mobile money provider. When the phone is lost, the money is still there – unlike with a lost wallet. It is technically possible to store money on a phone or a smart card. After all, money is just information about claims on someone else. The world of mobile money in developing countries is, however, not one of "wallets".

Is e-money "new money"? To create a balance in a mobile money account, customers have to hand over cash in return. Unless the mobile money provider lends out that money or creates deposits via credit creation, there is 100 percent backing of all money balances recorded in electronic form. There is no new money – just a different way of recording money: electronically instead of on a piece of paper.

To analyse what is happening in any particular mobile money scheme it is useful to unbundle the service offering conceptually. Essentially, four functions are relevant. The case of M-PESA is used to provide a flavour of the type of analysis that helps understand what the risks of a particular system are and what kind of regulation may be required.

- *Exchange of forms of money:* at cash-in, cash-out outlets (e.g. small stores) customers exchange cash for electronic balances. In the case of M-PESA, the merchant may receive cash and in return, transfer money from its electronic account via SMS to the customer at the very same time as cash is being handed over. Two individuals exchange forms of money, just like two people exchanging coins for a bill. When two people exchange their own private property, no special regulation is required beyond general commercial law against fraud and theft. It would be a different case if the person in the outlet were a bank employee not dealing with their own money.

- *Storing money*: the money holdings of customers are stored electronically by the account provider. In the case of M-PESA, this happens on the servers of Safaricom. It is important that the information is safely stored and cannot be stolen or disappear due to technical damage. This requires operational standards just like the regulation of safe deposit boxes. No capital or liquidity requirements are needed.
- *Transferring money*: the account provider needs to be able to receive and carry out instructions for cash transfer. This requires authentication and verification procedures with adequate encryption. Again, operational standards are needed. The money is then transported by telecom systems just like checks are transported by mail.
- *Investing money*: when money is invested, there is a risk that the investment may go bad. Against this risk, one needs prudential regulation (e.g. capital and liquidity requirements). In the case of M-PESA, the account provider places the net cash in the system with commercial banks and does not make any further investments. In this case it just acts as a “conduit” or “aggregator” of deposits for banks. The banks are subject to prudential regulation and no extra prudential regulation of M-PESA is needed. If, however, M-PESA itself made investments such as extending credit, it would require prudential regulation.

Analysing the detailed functions of a mobile money scheme helps to understand the regulatory challenges as well as operational ones. For example, each function can, in principle, be unbundled and fulfilled by a different independent party. Zambia, for example, started with a mobile money account provider, Celpay, that was separate from both telcos and banks.

Anti-money laundering regulators are gradually warming to new ways of accommodating mobile payment schemes. Standard “know your customer” (KYC) rules may not work in poor countries where people opening an account may not be able to present

an identity card or a utility bill as evidence of identity. Regulators are more and more willing, for example, to accept a graduated approach to KYC with minimal requirements for accounts with small maximum balances. Emphasis is thus placed on bringing customers into the scheme, where their transactions can be monitored under suspicious transaction reporting.

It is still early days for mobile money with only around 30 million account holders actively using it. Regulators remain suspicious and providers keep experimenting with their business models. Yet, it has become clear that dynamic schemes can be launched and regulatory approaches can be adapted without generating unusually severe risks. We have also seen that the most innovative approaches may well come out of Africa and other difficult country environments. The toughest places are open to experiments that more developed countries may not be willing to undertake for fear of regulators and due to lobbying of banks preserving their old business models. As often in history: In the long run, nothing fails like success.

Some African insights to bear in mind while developing mobile banking

Simon Priollaud

Abstract

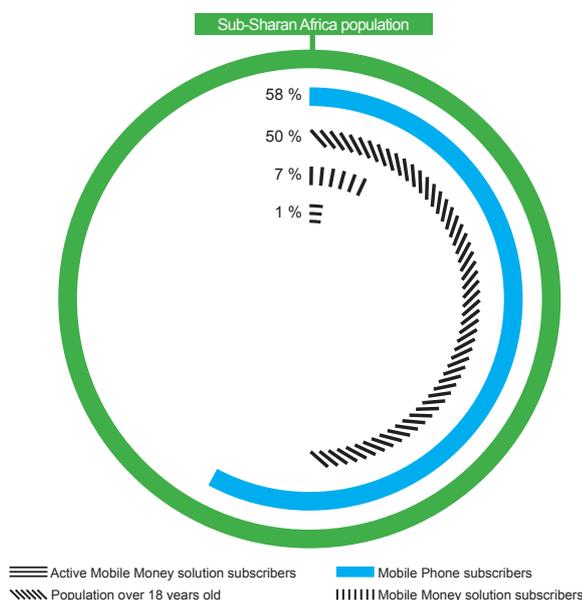
Mobile Money solutions are rapidly changing the African financial landscape. The article provides an insight into operation and implementation of mobile banking and presents the two major concepts: additive mobile banking and transformative mobile banking. Based on the conceptual clarifications, eight insights are given for the efficient establishment of a mobile banking service. These insights are particularly directed at microfinance institutions which are considering offering mobile banking services.

A quick introduction: the extraordinary uptake of mobile phone and mobile money solutions in Africa

It is an exciting time in Africa. African countries are introducing innovative financial models that developed countries have not followed and the mobile phone is playing an important role in this. Access has become more and more widespread (through both uptake and network coverage) and traditional "old-fashioned" operations in Africa can now be carried out on a mobile phone including birth registration, seeking advice on how to run a business, receiving health advice or financial services etc.

Mobile money is one of those innovations that is rapidly changing the African financial landscape. To understand how mobile money works, let's take a concrete example; if a person in Uganda wants to send money to his grandfather living on the other side of the country, he may register with a mobile money solution provider, convert the cash he wants to send into a form called "e-money" with an agent (the step usually called "cash in") and then send this "e-money" to his grandfather with an SMS. Then the recipient needs to convert the "e-money" into cash with an agent (the step known as "cash out").

Figure 1: Overview of the mobile money solution outreach (December 2013)



Source: World Bank, GSMA, MMU, ITU, 2013

The best thing about this process is that it can be done with any low-end mobile phone as it does not require an internet connection.

Benefitting from the fact that nowadays, most people in developing countries have a mobile phone (or at least access to a mobile phone through a family member), GSMA¹ have identified 200 mobile money solutions² relying on extensive networks of “agents” (type of merchants conducting cash in and cash out for the clients). Free inscription facilitated the uptake of these solutions and we now estimate that most urban people in developing countries have access to this new method of transfer. Financial actors (such as microfinance institutions, postal networks and banks) have seized this opportunity to link mobile money solutions to traditional bank accounts (and therefore allowing loan repayments by this method).

Mobile banking sounds great but... what is it really about?

When talking about Mobile Banking, we usually refer to two different concepts; additive and transformative mobile banking.

Additive Mobile Banking is basically giving clients of a financial institution the ability to transfer money from one of their accounts to another held at the same institution with their mobile phone. It also allows clients to remotely consult their account balances held at the institution. Finally, it also gives the opportunity to remotely pay bills (electricity, water, school fees...).

Transformative Mobile Banking adds the possibility for the client to link the account of an institution with another acceptance network (mobile money solution for instance). In this example, clients can repay their loan while crediting their electronic money account (usually referred as an “e-wallet”) and then by transferring an amount from this account to a traditional bank account. Transformative Mobile Banking is what is usually meant when talking about mobile banking in sub-Saharan African countries as it gives the client the possibility to rely on wide networks to repay their loan (for instance, there are more than

60,000 agents in Kenya where it is possible to perform Cash In and Cash out). Both additive and transformative mobile banking are compatible.

Assuming you are part of a microfinance institution willing to offer mobile banking services, below are eight insights that might give you food for thought.

Insight 1: make sure that mobile banking is really what you are looking for

If your only aim is to lower the interest rate of your institution, then Mobile Banking is probably not entirely the solution you have been looking for; it has not been successfully proven that mobile banking is generating large-scale economies (except for large institutions with significant portfolios). What has been proven on the other hand, is that setting up a mobile banking interface will require large investments (IT, human resources, marketing...) but with an uncertain return on these investments.

Keeping that in mind, mobile banking is a great way to give clients the possibility to remotely repay their loans and to avoid queuing in the traditional brick and mortar branches, to save their transport costs and give them the opportunity to repay their instalments in the evening and on weekends (meaning they don't have to close their microenterprise while making the trip to the bank). Moreover, assuming that your competitors have not released Mobile Banking yet, this is also a great competitive advantage.

It is important to choose the right fit for your products by selecting if your clients require additive or transformative mobile banking products (or both). Finally, reinforce your assumptions with market research that should indicate to you, which Mobile Network Operator (MNO) your clients favour, how much they are willing to pay for these products and which technology should be used in accordance with their ability/capacity to use those services.

1. Groupe Speciale Mobile Association

2. GSMA - (source, GSMA deployment tracker, August 2013).

Insight 2: try as much as possible to keep the loop open

Accessibility of the product is a key component of success. Assuming that you want to allow your client to repay through a mobile money solution (Transformative Mobile Banking), partnering with a unique mobile network operator will only allow clients of this MNO to repay, others will need to switch from their MNO to the one you have partnered with if they want to repay through a mobile phone. An alternative would be to partner up with all mobile money solutions in the country you are implemented in - this is costly but effective.

On the other hand, you may work with third party operators (basically based on SMS pull/push or data) open to clients from any MNO. This gives your clients the option to transfer money and consult their account balance, but with the downside that your clients will still need to go to one of your branches to credit their account. It is possible to overcome this difficulty by developing an agency banking network. This consists of creating a "correspondent" network of entities (shopkeepers, drugstores etc.) that will be able to open bank accounts and do transactions on behalf of your institution. Agency Banking is a great way to extend your physical outreach but is definitely a complicated scheme that would only be possible for a large institution (due to its distance from an MFIs' core business as it would be necessary to recruit, train, and monitor a network). Agency Banking may be the right fit in countries where mobile money is not present or where the uptake is low.

At this stage, before going anymore further, it is important to ensure that regulation within your country is compliant with the feasibility of the scenario you are planning to implement.

Insight 3: find the right partner(s)

Let's be pragmatic, if you are willing to develop a partnership with only one mobile money solution (Transformative Mobile Banking), then it may be relevant to start discussions with the one with the largest Mobile Money Solution networks and market share – it may also benefit you to avoid partnering up with one perceived as "elitist" or with a bad reputation.

It is thus essential to keep in mind that you are partnering with a Mobile Money Solution in order to gain access to its acceptance network and its agents, mainly doing cash-in and cash-out. That being said, partnering with one with the largest networks of active agents makes sense. The acceptance network is, to date, more essential to the client than even the price of the product.

Otherwise, should you wish to offer additive mobile banking products, finding the right technical partner is crucial for the project completion. Issuing a full request for tender may be constraining but it is important to ask at least two providers to submit a quote in order to select the best match.

Insight 4: think wisely about the business model

In the case of Transformative Mobile Banking, on the one hand, Mobile Money Solutions will try to charge the financial institution at least the price of the incentives that the Mobile Money Solution has paid to the agent during the cash in (otherwise, MMS would be losing money in the short term). On the other hand, the Mobile Network Operator also benefits from this service in the long run as your clients using the service to repay loans may also buy other services from the mobile Operator³ (raising the average revenue per user). It will therefore reduce the number of its clients switching from one MNO to another (called "churn") which is large in developing countries where 98 percent of the clients use pre-paid services. This is an important concern when engaging in discussions with MNOs.

Working with an additive Mobile Banking model, you will need to pay acquisition fees for the software you are intending to use as well as maintenance fees. Furthermore, each time the client will access to your service, communication costs will be charged to the client (SMS/data/voice), it is central to bear this in mind while setting the fees.

During the Business Model definition, it is essential to decide how you would define the

3. PlaNet Finance has also proven that mobile money users recruited at MFI's are revealed to be more active than the "classical ones"

staff incentive. It entirely depends on the existing structure – if your cashiers are remunerated on the number of transactions they do each day in the branches (e.g. loan repayments...), then you may find it difficult to rely on them to promote your mobile banking service without reviewing their incentive scheme. One of the best schemes is to not only incentivise the number of subscriptions, but also the number of active accounts (meaning the number of clients who actually conduct transactions). Assumptions for the financial projection model have to be as accurate as possible; they will need to be redefined following the pilot of the service.

Insight 5: I.T. is an important stream to look after...

In a transformative model it may be necessary to interconnect your MIS with the one used by the mobile money solution. If you want to interconnect in real time with the MIS of the MMS, it will be a long process, with the exact length depending on the quality of your MIS. If you consider developing partnerships with multiple mobile money solutions, then developing a switch platform may save you the costs of integration with each of the mobile money solutions. In that case, the MNO is basically the one providing the efforts to connect with your platform.

In an additive scheme, IT developments are often revealed to be quicker than when liaising with other operators.

Insight 6: ...but definitely not the only one

A mobile banking service has an impact on all departments of the financial institution; operations, legal and regulatory, marketing, human resources, IT, finance – accounting and internal audit. Even if not directly impacted at every stage of the process, we recommend keeping all actors posted on a bi-monthly basis for a smooth integration. A task force should also be in charge of this project and hiring of competent human resources personnel may have to be considered.

Moreover, it is important to instruct the clients on how to use the service. The marketing campaign should not be limited to publicity; a tutoring guide should also be given to

the client when he or she subscribes to the service. This is necessary to give the clients all the relevant information on tariffs, security concerns, what to do in case of a problem and how to properly conduct transactions. In a few words, this guide should make the client feel safe and give him/her the concrete steps to follow to conduct transactions.

Finally, it is essential to make your staff use the service; it sounds obvious but we have found that it is not often the case. If the clients want to repay their loans but do not know how to do so, their first move will be to call their loan officers to learn how to carry out the process. This can create frustration if the loan officer is not able to tutor the client. If you are offering the service through a mobile money solution, then it may be a good solution to disburse a part of your staff salaries through this mobile money solution.

Insight 7: pilot your service before rolling it out

Running a pilot scheme is a step often underestimated. It is often skipped in order to launch the service quicker. As Mobile Banking is something uncertain and difficult to estimate, a pilot will validate/fine tune the assumptions stated during financial projections and measure the uptake of the service. Moreover, a pilot is not a two-week process; if you want to see the uptake of your service for loan repayments for instance (and if your instalment period is monthly), then clients will learn about the ability to repay with a mobile phone when coming to a branch to repay their loan. They will then only be able to use this service the following month. This is one of the reasons why a two month pilot, monitoring Key Performance Indicators (KPIs) may be a good fit. It is also important to launch the pilot in a “live situation”, (your employees should not be the only ones testing the product), to not pilot with your Headquarters (biased branch) and to offer no more “rewards” than those expected during the roll out. Furthermore, document the experience with lessons learned and proposed corrective actions for the roll out. Finally, take the time to conduct Focus Groups at the end of this pilot with end-users and non-users in order to learn from their feedback.

Insight 8: finally, run the last mile. And the one after that

By this time, the mobile banking application will be working but there may still be doubts over the user-friendly aspect of this interface. That is why it is important to conduct usability testing sessions to make sure that the ergonomics side is understandable and easily carried out by your clients. These usability testing sessions are more easily conducted for additive mobile banking interfaces rather than transformative mobile banking that strongly depends on mobile money solutions interfaces.

After engaging so much effort, no doubt you would rather have active clients (doing at least a transaction per month) than inactive ones. The activation process is something that should be done in one step, setting up a PIN code should be easy, and activation of the products should ideally be done instantaneously. To enrol a client is expensive for any institution, it takes time for the staff to convince him or her to use it, to conduct the registration steps and to hand him/her the marketing materials. That is why clients should be called if they do not conduct any transactions at all. Setting up a call centre may also be a good way to boost the adhesion and transaction processes.

Finally, the extra mile also might be to establish a customer satisfaction process. Complaint processes should be in place to collect feedback about the service quality, fees, issues (during activation, transaction etc.), marketing campaigns and key needs. This is not such a time consuming process to establish, but you may find it useful in order to be informed of what your clients really want.

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The impact of mobile money services on microfinance institutions*

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Abstract

This study sets out to measure the presumed impact of mobile phone banking services on the operational costs of microfinance institutions (MFIs) in Tanzania to further delve into whether or not mobile banking could lower high MFI operational costs. At the time of the research, Mobile Money Transfers (MMT) were not fully operational, so data was collected with a forward thinking expectation of how staff thought MMT could impact the MFI and provide real data where possible. Overall, 75 percent of staff members felt that marketing costs could be expected to increase as a result of the MFI having to raise awareness of the new services that they would offer; 71 percent thought that training costs could be expected to increase due to the responsibility for training the end user shifting from the MMT to the MFI, possibility leading to a decrease in loan officer/staff efficiency; 60 percent believed that there would be a decrease in transportation costs as the MFI beneficiary would utilise agent locations to repay loans in lieu of a loan officer visit, and 60 percent surmised that stationary costs would increase as IT solutions to integrate record keeping with the MFI were either unavailable or prohibitively expensive for the MFI, leading to a possible increase in hand written documentation.

This study was set out to measure the impact of mobile phone banking services on the operational costs of microfinance institutions (MFIs) in Tanzania to find out if mobile banking could be a solution for MFIs to reduce the high operational costs that are inherent within the microfinance service provision sector (Jimenez and Roman, 2005; Gonzalez, 2007; Ivatury and Mas, 2008)

After inviting the 4 major MNOs in Tanzania to participate in the research, we began working with one – MIC Millicom (Tigo) and a total of 10 MFIs were included in the first phase of research, divided between 7 cities in 4 regions of Tanzania.

A cross-sectional study was carried out between January and March of 2011 and with a sample group of the 10 microfinance institutions in Tanzania mentioned above. These MFIs were given the quantitative survey to complete the information online between April and June of the same year regarding general aspects of their institution

and operational costs for year ending 2010. The results from this survey were received by the research team and the data analysed by August 2011. After the first part of the research was finalised, a team of two researchers went into the field to carry out the second half of the investigation. The objective of this field visit was to observe first-hand, the operations of the MFIs and to re-verify all information that was collected online and carry out qualitative interviews in-person. In-depth information was collected through qualitative interviews questioning the inherent characteristics of products and services offered by each MFI: target client profile, type of loans offered, size of the loans, criteria to request a loan, procedures and processes of loan disbursement, savings, interest paid and charged on each product, average length of time to disburse loans, other products such as insurance, training offered, necessity of collateral and the like.

* This research study was carried out with the financial support of the Institute for Money, Technology and Financial Inclusion at the University of California.

The qualitative interviews were given to the General Manager, a member of the Financial Department and a Loan officer, at each of the institutions to gauge the responses and opinions of each department towards the initial implementation of mobile banking in the MFI. At each of the MFIs, each department was represented by one person¹. Part of the qualitative interview was given solely to the Financial Director, asking about their views regarding the impact of mobile banking services on specific operational costs; training, marketing/advertising, telecommunication, transport and stationary costs etc. As the overwhelming majority of the MFIs had not yet implemented mobile banking in their operations, this question was designed to encourage the Financial Director to give their opinion on how they feel mobile banking would affect operational costs in the future².

Marketing cost impact

Three quarters of Financial Directors thought that the implementation of mobile banking would increase costs in marketing and 25 percent thought that it would make no difference, whereas none of the organisations felt that marketing costs would decrease as a result of mobile banking. MFIs operate on a smaller budget than traditional banks and cannot be expected to assume the full costs of marketing the new mobile banking service to their clients. Kilimanjaro Community Bank noted that not all of their members have used mobile banking and may not be aware that the bank is offering the service. Mwanga Community Bank highlighted the lack of resources as a constraint to beginning aggressive marketing campaigns.

1. With the following exceptions: USAWA, a network of SACCOs, had three loan officers (Jamal, Harry and Kasmir) that responded to the interview, all of their responses were taken into consideration for the final conversion into quantitative data; Moshi Rural Teacher's SACCO had one person that worked as both the General Director and the Financial Department; at YOSEFO and Efatha Bank, the General Manger was not available to respond to the interview and omitted from the final statistical analysis. At Tandahimba Community Bank, the loan officers were out of the office and not able to participate in the interviews and were also omitted from the final statistical analysis.

2. One exception to this is YOSEFO, the MFI that had implemented mobile banking during a pilot study, in which case the Financial Director was asked to give their views on how mobile banking did impact operational costs during the pilot, from their perspective.

Training cost impact

When it came to training costs, 71 percent felt that it would increase costs for their organisation, whereas 29 percent believed that the MFI would not experience any changes.

Training costs included both training internal staff on how to use mobile banking, as well as the implied cost it would take to train the end user on how to use the service when the end user does not receive this training elsewhere. This cost is implicit because, even though MFIs are not required to train the end user on how to use the service, many loan officers and other staff must spend significant time and effort to show their clients how the service works. Mwanga Community Bank highlighted the training for staff and clients as one of the principal challenges facing their organization and USAWA noted that training is difficult and requires an investment of time. Efatha Bank also pointed out that the implementation of mobile banking for money transfer services in their organisation has increased the workload of their tellers, due to the increasing number of clients that visit their bank to carry out these transactions than before.

Stationary cost impact

60 percent of respondents felt that stationary costs would increase due to mobile banking and 40 percent did not feel that there would be any change. This is due to the usage of additional paper to keep records of the transactions carried out by mobile phone. As the overwhelming majority of the MFIs that participated in the research did not have an IT system that allowed for the computerisation of the data, many felt that the tasks would need to be carried out by hand.

Transportation cost impact

The only sector where Financial Directors thought there might be a decrease in costs was in transportation: 60 percent felt that transportation costs for the MFI would decrease, while 40 percent thought transportation costs for the MFI would increase - but they were sure that the costs would not stay the same after the implementation of mobile banking. Transportation costs are of particular importance to MFIs, as they have

to deliver financial services at the community level, bringing the bank to the client and not vice versa. Of the loan officers interviewed, the average distance that the loan officer had to travel was 50 kilometres and the average time it took to reach these communities was 139 minutes, or just over 2 hours. If the MFIs can reduce this expenditure in time and effort by utilising the mobile phone, a major impact on transportation costs can be expected as a result.

Technological challenges for implementation

Technological problems were the number one challenge highlighted by the MFI staff throughout the qualitative interviews. 52 percent of respondents claimed that network issues were the greatest challenge that the MFI would face as a result of the implementation of mobile banking. Network connection was the number one response; the MFIs confront slow network connections and network errors with the MMT. In addition, the majority of MFIs stated that they did not have IT systems that were integrated with the banking software they are currently using. Therefore, transactions are done by hand, which makes it impossible to keep data on the usage, commissions and true payments schedules for the beneficiaries in real time. IT programmes offering an integrated solution between MFI and mobile banking records are generally considered too expensive for the MFI.

Discussion

If the MFI instead of the MMT is required to assume the responsibility for training the end user on the functionality of how to use the service, then the MFI is forced to redirect its efforts away from their main functions (mobilising deposits). As such, this can be expected to have a negative impact on its ratios across the board, but especially in its productivity ratios, such as borrowers per loan officer (measuring caseload) and active clients per staff member (measuring overall productivity).

These ratios will be expected to decrease as the staff members and loan officers have to spend more time with clients who are unaware of or just beginning to use, mobile banking. As the end users are also unfamiliar with the use of new technologies for banking purposes, an aggressive marketing campaign by the MMT is recommended. Efficiency ratios may also be tied to how easily the MFI can attract external funding, so they may be given negative ratings as a result of their concentrating on assisting their clients instead of focusing on lending. This is why the MMT should launch the marketing campaign based on the attraction of clients, not only for microfinance purposes, but because the client use could extend into other MMT offerings such as money transfer, savings and the like once they are accustomed to using the service. Such potential spill-over effects would provide a greater return on the MMT than the MFI.

Pilot programme case study: YOSEFO

YOSEFO piloted the mobile banking service for 2 months, from October to December of 2010 for the disbursement and collection of microfinance loans, or what they called "nanobanking". Due to the slowness of the system and transaction errors, YOSEFO lost over 4 million Tanzanian shillings, or the equivalent of USD \$2,500. The loss was mainly due to the slow network connection – as the loan officer did not receive instant confirmation regarding the disbursement of the loan, many loans were disbursed twice. Also, there was not a secure record keeping method in YOSEFO during that time, so there was no way to verify who had received or had paid a loan. After this experience, the MMT has worked with YOSEFO to continue to provide solutions, but the pilot has been suspended until the issues can be addressed properly.

With this study being the first in a potential series of data collection, many questions remain: How does mobile banking affect the operational cost structure and by how much? Does the implementation of mobile banking negatively affect the efficiency ratios within the MFI over the short and long term?

If so, how can this be appropriately addressed? The hope is that further research will be carried out in the future to create a map and portfolio over time of how mobile banking is shaping the microfinance sector, and in which ways.

We will carry out the next part of the still investigation when funding and logistics permit. We will take into consideration the need for timely data collection as data expires, but as the research requires heavy field work and is time intensive for the MFIs, additional funding is needed for this ground-breaking research to provide real numbers and data to propositions.

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Five questions with Noara Kebir

Noara Kebir, Managing Director and co-founder of MicroEnergy International and Board Member of the Microenergy Systems Association, participated in the workshop as speaker, discussion group leader and active participant. Below she answers five questions on green microfinance, collected by the UMM team:

1. What should the objective of green microfinance be?

The need to shift to a green economy is a pressing issue on the global policy agenda. However, green finance mechanisms for implementing this change are still largely under-developed. There is no common definition of this concept, but it can be understood as the deployment of financial means for the purpose of transforming towards an environmentally-friendly and resource-efficient economy.

The transition to a green economy often requires high initial investments with long-term repayment periods along the value chains, which makes this process particularly challenging for the countries in the Global South. Many low-income economies in developing regions are held back in their efforts towards environmental protection and climate mitigation and adaptation due to a lack of knowledge and financial resources. As many of these countries are particularly vulnerable to climate change, the ability to finance mitigation and adaptation measures is gaining importance.

Moreover, several studies show that within these regions and countries, low income households are the most exposed to the increased scarcity of natural resources and the pressures caused by climate change. This presents a serious danger to their social and economic well-being, impeding their opportunities for development. Furthermore, micro-, small- and medium-sized enterprises (MSMEs) constitute another major stakeholder in emerging economies which lack access to green finance, but which could play a decisive role in the transition towards greener economies.

Accordingly, our main objective in the field of green microfinance is to design financial

tools and vehicles that allow low income households and MSMEs to access, use and implement green technologies and strategies.

2. Who should be the key stakeholders involved in green microfinance?

Green microfinance requires a joint effort of public and private stakeholders from the field of environmental and climate change as well as from the field of finance. In our 12 years journey in this exiting ecosystem at MicroEnergy International (MEI), we experienced that these stakeholders are particularly missing a common language, and that there are also conflicts of interest that have to be identified and addressed. However, green microfinance bears huge win-win opportunities, which can have an enormous impact on poverty alleviation efforts and economic growth as well as for the environmental protection and climate change adaptation.

However, to start a green microfinance project, you need at minimum either a motivated microfinance institution (MFI) with additional capacities and motivation for implementing innovative projects or a willing green technology provider with good access to finance. For scaling up, willingness and support on the policy level becomes an important requirement.

3. Where can we expect the fastest and biggest advances in regard to green microfinance in the upcoming years?

It depends what you mean by "advances" - The most advanced case in my eyes is still the example of Bangladesh. The Grameen Bank has developed a very innovative approach for financing Solar Home Systems (SHS) in the 90's. This approach was adapted at a national level and replicated by many NGOs in the last 10 years. Today, more than 2.5

million SHS have been disseminated through this approach in Bangladesh; these represent seven percent of the households and it is just the beginning of the scaling up phase.

However, Bangladesh is a specific case, and there are still many lessons that can be learned. With regard to other advances, I am personally optimistic about interesting advances in Latin America, not only because of the strong and competitive microfinance sector, but also due to supportive funding instruments such as EcoMicro.

4. When is the right time for a stakeholder to get involved in green microfinance?

Normally, an MFI should engage in green microfinance if it already experienced a number of innovations and portfolio diversifications, particularly, if it plans to finance a hardware product such as a solar home system rather than focus on a financial product as this often requires many efforts in managing the supply chains. However, at MEI, we have developed a Green Strategy Consulting Toolkit, which supports MFIs in their general managerial challenges with green strategies.

If technology suppliers are interested in getting involved in green microfinance, it is important for them to be aware that this approach needs financial perseverance and accordingly, access to long-term capital. This is often a huge challenge, particularly for SMEs in the Global South. We have published a study on this topic last year¹.

Regarding public stakeholders, they cannot start early enough to prepare the field for green finance. A study undertaken for the GIZ by MEI in 2013 has shown that, when it comes to green finance, policies are still underdeveloped. On the one hand, often fossil-fuel energy subsidies which played a positive role in enabling access to electricity in urban areas, can be contra-productive for the dissemination of green microenergy systems in remote rural areas.

On the other hand, regulated MFIs have few opportunities to finance hardware because of their limited role in the supply chain, as regulated by the law.

5. Why did you personally decide to specialize in green microfinance?

I wanted to dedicate myself to a real green field sector! One where many things are still to be developed and where my knowledge and experience as an engineer and a manager can have a substantial impact - I have been doing this for 13 years, and I look forward to the next 20 years.

1. <http://microenergy-international.com/index.php?id=931>

Five questions with Patricia Kawagga

Patricia Kawagga is an experienced expert in designing energy loan products for financial institutions as well as designing viable partnerships to ensure easy access of credit by rural communities for renewable energy products. She currently is microfinance coordinator at the Rural Electrification Agency, Uganda. Prior to joining the Agency, she was Coordinator Special Projects and Head of the Energy Unit within FINCA Uganda. Below she answers five questions on green microfinance, collected by the UMM team:

1. What in your opinion, are the key challenges for green microfinance?

Over the last 20 years, microfinance institutions (MFIs) have played an important role in enhancing economic opportunities through credit and savings mobilization. MFIs have established wide outreach, access and developed good will across the different social strata (rural, peri-urban and urban) communities. This therefore positions MFIs as one of the viable vehicles to extend much needed services and products. As such, they have the capacity to spearhead the 'Green Microfinance' revolution. However, despite the importance of renewable energy in preserving the environment and producing social and economic benefits, only a limited number of MFIs have funding projects related to renewable energy.

Microfinance providers are highly profit-oriented for the sustainability of their operations, and as such, they require feasible collateral that guarantees recovery of their money which most rural community members can scarcely afford. Although MFI intervention addresses one financial barrier, namely lack of access to credit for 'poor' households and micro-businesses, high initial capital costs, limited capacity and familiarity with renewable energy technologies remain major obstacles for green microfinance.

A great number of MFIs stipulate community development as one of their key objectives through disbursement of small affordable loans. However their lending methodology in which credit assessment is based on rate of returns, disqualifies lending to renewable energy users as the rates of return are in most situations seen as low. This is further hindered by the competing needs of households

(working capital loans, home improvement loans, salary loans, medical insurance etc.).

2. How would you try to tackle the challenge of "the last mile"?

Rural areas are more vulnerable in terms of energy scarcity and the time is ripe for the private sector to partner with the public sector in order to deliver smart solutions to the challenge of the last mile. This challenge of addressing the last mile is a national problem. The reality is that lack of access to both services and products of renewable energy is hindering economic growth, and as such it needs to be dealt with by both the government and the private sector. The capital investment required, the time it takes to deploy infrastructure and the requirement for a variety of financial products and technology to address the last mile, mean that this challenge is not something that can be solved by any single entity. There is therefore need for both the public and private sector to collaborate.

Energy services may not be available particularly for people living in rural areas, because energy companies do not typically consider these economically viable markets for their products and rarely open outlets in rural areas. This needs to change so that the solar companies are more visible and accessible to rural clients. In my opinion, renewable energy products need to be easily accessible and visible just like kerosene is visible even where there is no petrol station. In the rural areas, you will find a retailer with bottles/jerrican of kerosene under the tree in every village known to all in the village as the retailer selling kerosene. This is the paradox in relation to visibility of renewable energy products that needs to be addressed to reach

the last mile.

Even though this is a huge challenge, it also presents a unique opportunity for private sector entities to get involved in delivering last mile infrastructure in form of renewable energy retail outlets not only for installation, but also in regard to after sales services. The demand for renewable energy is insatiable and there is more than enough room for multiple players stepping on the stage.

3. Which is the most striking success story you have experienced?

Microfinance with all its advantages and opportunities to bring about the much needed revolution in green microfinance has not yet reached its full potential in Uganda. The Rural Electrification Agency is implementing the Photovoltaic Target Market Approach Program through various delivery models namely the Pay Plan and the Fee for Service Models alongside the microfinance model. Both alternative models have addressed the challenges we experienced with microfinance solutions. The eligibility criteria for the energy end users for these two models are very flexible. Approval is not based on cash flow, but on an estimation of energy costs for traditional energy. The success with up to 70 percent of all project connections being based on these two models has been the most striking success story for me.

4. How can green microfinance reach its full potential in Uganda?

Green Microfinance is one of the vehicles/ means to the last mile. We however have to synchronize the missions and objectives for all stakeholders that are involved in this cause.

Creating innovative green financing models and flexible lending methodologies still needs to go a long way to reach its full potential. MFIs need to go beyond standard lending methodologies and design products that are flexible in terms of repayment schedules, collateral requirements, loan tenure, and eligibility criteria. MFIs also need to explore the possibility of offering parallel loans or packaging energy loans with other, larger loans.

MFIs should offer energy products that when compared to baseline or traditional energy products, reduce ongoing energy expenditures or increase revenue, improve productivity, and are easily operated with minimal training. MFIs can improve the likelihood of success of energy lending activities by designing products that suit the unique needs and conditions of its existing client base. Energy companies need to listen to microfinance clients and offer energy packages that match their demands and purchasing power with appropriate conditions. Most importantly, as Dr. Vikram Akula once expressed, one of the key points to note is that the poor need an opportunity (access) not charity to shape their future.

5. Why did you personally decide to specialize in rural energy finance?

My background in mainstream microfinance challenged me to focus on non-conventional loan products. One of these unique products that I spearheaded within the bank was the village phone. The ability for a rural client to run a village phone caused another challenge: the charging of the phone. Solar energy was the best available renewable alternative to address this challenge, and that is how I developed interest in and directed my attention towards green microfinance as a viable vehicle. I strongly believed that this would foster a holistic household improvement besides the mere increase of working capital.

Microfinance and adaptation to climate change

Davide Forcella

Abstract

In this article, we discuss some adaptation strategies for expected Climate Change events that MFIs could develop, as well as the motivation and potential comparative advantages and constraints of MFIs in implementing such programmes. A case study is also presented.

Introduction

There is much convincing evidence that the climate of our Earth is undergoing a rapid and potentially dramatic change, and that one of the major causes of such change is human activity (AR4, 2007; CC, 2009; IPCC, 2013). Two related, but quite different, set of events would hit countries and households: a constant, hopefully slow, global average increase of the Earth's temperature that would induce changes in weather and rain patterns, desertification, reduction of clean water, rise in sea level, disease outbreak etc.; and an increase in frequency and intensity of weather shocks and extreme weather events such as droughts, floods, cyclones, etc. These two trends would probably require different but coordinated adaptation policies. Some important characteristics of Climate Change (CC) are: It is already happening; the various trends of CC will be different in different locations; its pattern is uncertain: the present predictions are quite accurate on the large scale and the long term, but its manifestations are very uncertain for specific locations and the short term; it is multidimensional: social, political, economic, health aspects are strictly correlated and interacting; it is highly uneven: those that polluted less and the poorest are the ones that will suffer more at the country, regional, and family level.

Many discussions and proposals have been raised to cope with CC at a global, macroscopic, national or international level (see for example (Stern, 2006; Harris & Goodwin, 2009)), while it seems that the local strategies to cope with CC at microscopic level have been less explored.

Why should MFIs care about climate change?

MFIs should care about CC mainly due to: the countries in which they operate, the population they provide services to and the forecast increase in the risk to microfinance activities. Indeed CC could cause losses of human and physical capital for MFI clients; it could increase the variability of the income of the poor; it could decrease the productivity of agriculture; it could negatively affect investments in livestock; and it could partially destroy property and equipment of the MFIs (see for example Hammill et al., 2008; Agrawala and Maëlis, 2010; OECD, 2013; Heltberg et al. 2008; Dowlal, 2009; Rippey, 2009 and references therein). Moreover, CC events could lessen the ability of clients to repay their debts; it could increase the run on savings and increase claims on insurance; and it could increase the pressure on MFIs to forgive the debt. In addition, there could be many indirect effects that will affect the MFIs and their clients through for example, health problems and educational challenges. In summary, CC is forecast to introduce new, important sources of risk for the MFIs' clients and for the MFIs and their portfolios.

What to do and how?

To cope with CC, two main strategies are proposed: mitigation and adaptation (see for example AR4, 2007).

Mitigation is actions taken to reduce the sources of emission or increase the sinks for greenhouse gases and could be implemented by MFIs via the promotion of renewable energies, energy efficiency and environmentally friendly activities such as agroforestry or silvopastoral

systems, etc. Adaptation is instead, the set of actions implemented in response to actual or expected CC events and to reduce their negative impacts on households and countries.

Adopting mitigation strategies can be a choice for MFIs and their clients, however implementing adaptation strategies will be necessary, because as explained in the previous section, MFIs and their clients could be among the first and more severely affected by CC events. In this note we will focus on adaptation strategies, these can be divided into ex-ante risk management: the actions implemented to cope with a forecast weather pattern, and ex-post risk management: the actions to be taken to reduce the long and short term damages generated once a particular weather event has already affected the MFI's clients.

Strategies, synergies and the potential of MFIs to adapt to climate change

CC is a global phenomenon and national and international policies, strategies and actions should be taken to redirect the development pathways of our society and stimulate a more environmentally friendly and climatic adapted development. However, the effect of CC will also be perceived at the household level and would directly affect the people with whom MFIs work. The proximity of the MFIs to their clients and the large number of people served by microfinance could provide a comparative advantage for MFIs to deliver CC adaptation programmes and strategies at the microscopic level (Hammill et al., 2008; Heltberg et al. 2008; Dowla, 2009) and foster the institutionalisation, with the help of international scientific understanding, of local adaptation strategies for poor people and MFI clients.

Due to the overall incertitude of the effects of CC at local levels, MFIs could push for a no-regrets strategy (Heltberg et al., 2008): namely a set of actions that would not depend too heavily on a specific forecast effect of CC but that would instead provide an overall benefit in a broad range of climatic events. Policies of this kind are (Hammill et al., 2008; Heltberg et al. 2008; Dowla, 2009): strategies that push towards the increase of the

resilience and the decrease of vulnerability of poor households; plan to foster development strategies and poverty reduction; strategies to stimulate assets accumulation, diversification of sources of income and the shift towards more adapted productions.

According to the nature of the various MFIs these strategies could be implemented in different ways and with different focuses. The development of specific (pilot) microfinance programmes for adaptation to CC, and the procedure to (partially) climate proof the MFIs' portfolios are two valuable options.

Some practical strategies to adopt (see for example Dowla, 2009) are: increase repayment flexibility; develop emergency loans; introduce voluntary savings; develop microinsurance products (also but not only weather-based index insurance) to protect and stimulate CC adaptation investments (Steinmann, 2012); stimulate information sharing, awareness raising, and training on adapted cultivations; develop non-productive loans to stimulate households to invest in climate proof assets for their house and properties; develop remittances as a non-correlated source of income in case of weather damaging events; etc.

Constraints and trade-offs of MFIs to develop CC adaptation strategies

As explained in the previous section, there are reasons to believe that MFIs are in a good position to implement CC adaptation strategies. However, there are also some quite important trade-offs between features of CC and adequate adaptation strategies and microfinance mechanisms that should be carefully considered when implementing microfinance programmes for CC adaptation (Hammill et al., 2008; Heltberg et al. 2008; Dowla, 2009).

Trade-offs could exist between: the intrinsic short term products and mechanisms of microfinance compared with the intrinsic long term CC adaptation needs; between some short term development needs (such as food, energy, income, etc.) and poverty alleviation strategies, and the long term adaptation needs for CC: some short term development

strategies could increase the medium-long term vulnerability of some households. It could be argued that the mission of MFIs to finance informal businesses could indirectly foster the degradation of the local environment and leave people more exposed to CC related risks as a consequence (households living in a degraded environment for example, are on average more vulnerable to weather hazards). This can be the result of weaker formal rules to enforce environmental preservation, difficulties in accessing information related to the environmental damages generated by their business, insufficient capital to access new and more environmentally friendly technologies compared to old polluting equipment, etc. In addition, CC would probably require lending activity to expand during environmental shocks, while contrarily financing uses to decrease in times of crisis. CC will strongly affect rural populations and agriculture, a sector to which MFIs still have difficulty providing adequate services and products. CC is a clear example of a covariant risk, and for this reason it could be difficult for a MFI to have enough resources to fulfil such macroscopic demand. The poorest households, those with less social, human and physical capital, are the most vulnerable to CC, but at the same time are the ones to whom MFIs have more difficulties in providing services. Another issue is if microfinance is intended to increase the resiliency of poor households and work as a development tool or if instead, microfinance is more a coping instrument that helps poor households to smooth consumption and cope with risk. Moreover, CC is a multidimensional phenomenon, and it seems quite clear that microfinance alone cannot address the main structural problems of adaptation strategies.

Microfinance as an important tool, not the answer to climate change

Even if microfinance has some significant constraints, it still seems to have an important role to play in CC adaptation strategies. However, microfinance is clearly not the answer to CC and only the coordination of such actions with well-structured national and international adaptation and mitigation policies could provide a first response to CC.

Moreover, microfinance programmes for adaptation to CC should not be simply

thought of as financial or market tools, rather they should instead take into account the fact that the human-environment system is in general a complex structure (see for example Vatn, 2005; Norgaard, 2010; Ambrosio-Albalà and Bastiaensen, 2010; Van Hecken, 2011; Huybrechs, 2012; Forcella, 2012; Huybrechs et. al., forthcoming; and references therein) comprising of access to resources, environmental preservation, value chain structure, poverty, inequalities, power relationships, development pathways, etc. and these interacting structures are shaped by behaviours, local culture and attitudes and they are affected by strong feedback and indirect effects. Microfinance operates in this complex system and such complexity should be considered and further analysed when we want to link it with microfinance programmes for adaptation to CC. A simple market product seems unlikely to provide positive sustainable outcomes; while instead, it seems reasonable to argue that we should work towards an integrated multidimensional approach.

Micro-insurance facility for adaptation to CC: a microfinance programme in Cambodia developed by STEC

In the following sections I would like to support, with the example of an actual microfinance programme for adaptation to CC, some of the theoretical arguments I have previously discussed. An interesting programme under the name: Micro-Insurance Facility (MIF) for adaptation to CC, has been implemented in a rural village in the West of Cambodia by a local NGO called Save The Earth Cambodia (STEC). The mission of the programme is to: *"increase the resilience of rural households to extreme weather events and climate change patterns, and foster the development of rural communities"*. The programme started in July 2007 and was phased out in September 2009. From the end of the programme until today, it is almost completely managed by the households in the village without the external help of STEC. The region in which the programme is implemented is very often affected by droughts and has poorly performing irrigation systems. The dominant development pathway is rice cultivation (an agricultural production very vulnerable to weather events) which the households use to complement informal migrant work to fulfil

some of the family needs. The programme was developed following a rather multidimensional approach toward livelihood and resilience improvement. It includes savings, credits, technical assistance, external funds and rice insurance. The MIF is indeed a revolving fund, owned and managed by the local community in the village. The households received training on financial management from STEC and they began to manage a sort of savings and credit group, formed by the households of the village that chose to be a part of the programme.

The elected community representatives regularly collect savings from the members and disburse credits to the members for asset building and to foster diversification of the sources of income financing activities such as gardening, ducks, pigs, cows, chicken raising, etc. A climate adapted farming calendar, based on local knowledge and international understanding, was developed and should be used every year to decide which type of crops should be planted and when, according to the weather conditions. The community members can receive training on agricultural activities, animal raising, clean water management, etc. Moreover the members of the MIF developed a type of microinsurance to cope with the food insecurity associated with weather shocks: the community representatives use part of the capital of the revolving fund to buy the rice of the community members during the harvest period, stock it in a rice miller, and in case of need, sell it back to the community members during the dry seasons at a price lower than the dry season market price. This mechanism should partially protect the village households against food price volatility and shortage in food during the dry season. The MIF also promotes both gender empowerment and education improving strategies. The interest rate is decided by the community and the capital and profit of the fund is owned by the community members.

Main outcomes of the programme

From November 2012 to March 2013, I did a preliminary assessment of the MIF programme that explicitly shows in practice, some of the potential and some of the difficulties previously discussed for microfinance programmes for CC adaptation (Forcella, 2013). The

data presented here was collected from 50 households out of the 82 households which are MIF members.

A successful microfinance programme

The MIF seems to perform quite well and to have stimulated the development of the local community. Indeed, three years after the phase out, the programme is still active and carefully managed by the communities' members.

In February 2013, 68 percent of the households in the village were part of the programme and the total capital of the fund was \$7,113 USD composed of a \$3,000 USD starting grant from STEC and another \$4,113 USD coming mainly from the interest accumulated from lending activity (2 percent monthly interest rate) that the community used to increase the size of the loans disbursed during the years: on average \$46.1, \$62.8 and \$79.1 USD for the first three loans. The present average number of income sources (primary plus secondary) per household was 2.8, with the household members claiming that, on average, they had implemented 2.2 new activities since the beginning of the programme, supporting a positive outcome on the diversification of income sources for the households. 96 percent of the households received training at least once in agriculture: animal raising or clean water management.

Every household received twice on average, one hundred kilos of rice each from the rice-insurance mechanism, which should be enough food requirements for at least one month during the dry season for an average family. The graphics reported page 39 clearly show an increase in the number of different activities financed by the programme, an increase in the average number of animals (chickens, pigs, ducks, cows, etc.) owned per household and a drastic reduction in the amount of families that declare their primary source of income to come from the revenue of one or more family members forced to migrate to look for seasonal dependent work.

Figure 1: Number of different activities financed

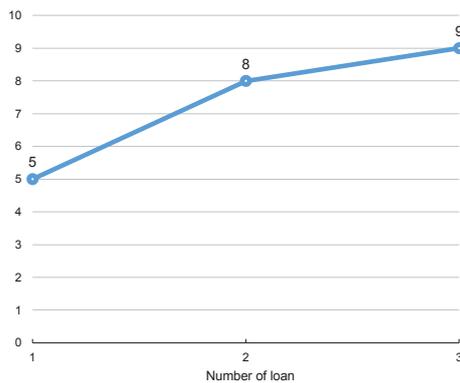


Figure 2: Average number of animals per household

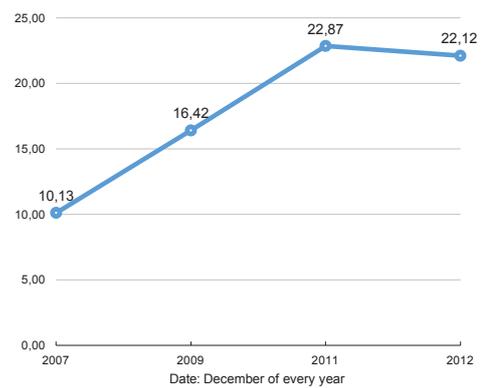
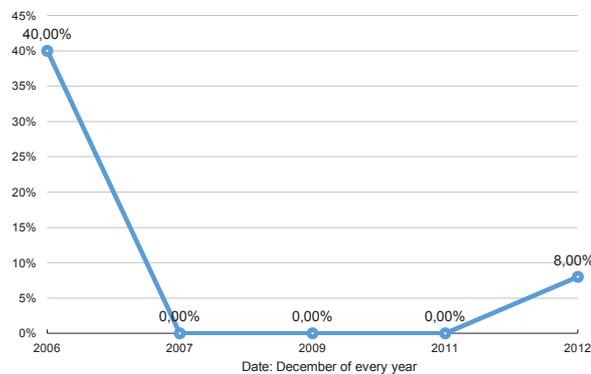


Figure 3: Percentage of household with migrant work as its principal source of income



Source Forcella, D. (2013). Preliminary Assessment of Microinsurance Facility for Climate Change Adaptation by Save The Earth Cambodia. Evaluation paper, March 2013.

The complexity of the socio-environmental system

In the previous section, we have presented some of the outcomes of the MIF programme that would lead us to conclude that the MIF programme is indeed successful for adaptation to CC and that the community seems to be at present, more resilient and possesses some mechanisms to cope with the slow average change in the weather pattern and to at least partially insure itself against shocks. However, as we have previously observed, microfinance programmes act in a complex socio-environmental system shaped by behaviours, local cultures, power relationships, etc. that contribute to the generation of development pathways for a society. Let us try and observe some of the effects of the complexity of the socio-environment system on the MIF programme: The three graphics reported here below clearly show that the community loans invested in chickens, pigs and duck raising decreased with the development of the programme, while the loans invested in

agriculture (mainly rice) and fertiliser (mainly for rice cultivation) by contrast increased. The amount that households' principal sources of income produced remained quite stable, even when they claimed to have up to three different sources of income (primary plus secondary). It is very interesting indeed, to observe that the number of families that base their livelihood strategies mainly on rice cultivation constantly increased: starting from the 22 percent of the respondent households before the beginning of the programme in 2006, and reaching the 54 percent of the respondent households in 2012.

Figure 4: Percentage of households that invest the MIF loans in some of the most financed activities

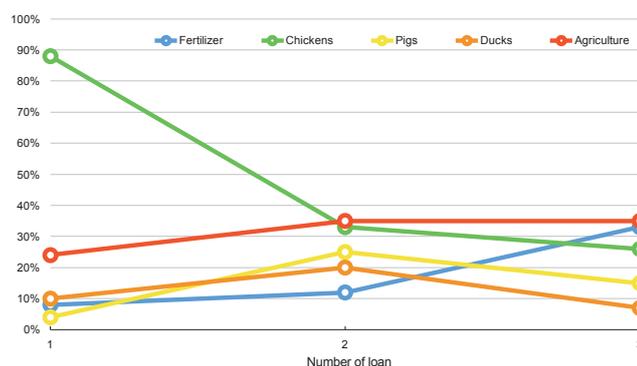


Figure 5: Average number of principal source of income per family

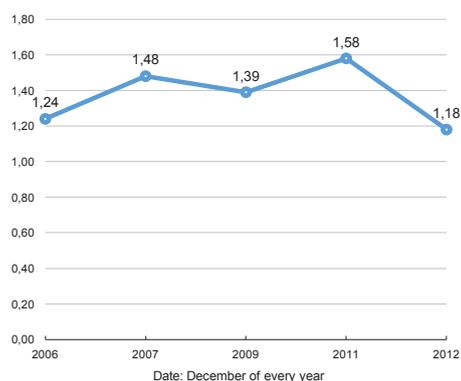
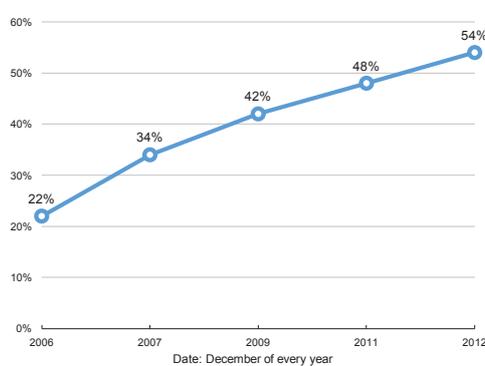


Figure 6: Percentage of families that declared that rice cultivation is their principal source of income



Source Forcella, D. (2013). Preliminary Assessment of Microinsurance Facility for Climate Change Adaptation by Save The Earth Cambodia. Evaluation paper, March 2013.

The increased dependency on rice cultivation could be a good development strategy in the short term and where market conditions are favourable, it can be nicely matched with seasonal credits. It could also be argued however, that it increases the vulnerability of the households towards a single main source of income that is moreover, quite vulnerable to weather shocks. This trend seems to support the idea of the existence of potential trade-offs between short term microfinance mechanisms and development needs, and long term CC adaptation strategies. The stimulation of the engagement of the local community and the promotion of local knowledge developed by the MIF is indeed remarkable. However, it also shows how this engagement does not necessarily mean local community empowerment as it appears, for example, by the fact that even if the MIF programme states that there should be yearly elections of the community representatives, actually there were no more elections after the first one in 2007. Moreover, the rice cultivation in that region is mainly done using chemical

fertilisers that were financed primarily by the credit of the MIF as shown in the above figure, raising a warning on the indirect financing of environmentally dangerous activities by the fund.

The additional need for macroscopic-structural interventions and the necessity to scale-up the programme are underlined by the fact that money lenders (commanding 50 percent annual interest rates) are still active in the community; the majority of the households in the village still need to migrate in dry season; the rice stocks provided by the community are not enough to support the households' food needs during the entire dry season; no one has managed to plant rice more than once per year; the loans provided by the community are still too small compared to the needs of the households; the poorer households are the most vulnerable yet this segment of the population is limited by various social-financial mechanisms.

Conclusions

Our conclusion is that microfinance programmes for adaptation to CC seem to have good potential to tackle some of the issues of CC and could be efficiently implemented. However, it also seems that they should be embedded into a clear set of environmental and developmental strategies that point toward redirection of the dominant development pathways. To realise this aim, we believe that the complexity of the human-environment system should be recognised and an integrated approach should be developed. The absence of these strategies could foster the development of programmes that, even if they are performing perfectly at the financial level and sustaining short term livelihood improvements, they could at the same time increase the medium and long term vulnerabilities of rural communities to environmental shocks and promote environmentally dangerous practices. There exist intrinsic microfinance challenges to surpass and the difficulty in influencing the behaviour of people and changing development pathways should be carefully considered when a microfinance programme for adaptation to CC is developed. Linking microfinance to climate adaptation is rather recent but there are already some successful examples from which various lessons could be learned. We would need more research, understanding and cooperation between practitioners, academics and fund providers, and more information sharing and learning from already implemented programmes. Sooner or later everyone should adapt to CC. The poorest, the MFIs' clients, and the MFIs themselves will be among the first affected. Starting first will provide comparative advantages.

Working group

Following the presentation, a working group on microfinance and climate change adaptation was formed with part of the participants in the session and the following questions were discussed:

1. What synergies/conflicts exist between microfinance and CC adaptation?

2. What types of solutions can microfinance offer? What are the priorities?
3. What type of new capacity do MFIs need?

Part of the discussions aimed at reaching a deeper understanding of some of the arguments already discussed and reported on in the previous part of this note and will not be repeated here; however another part of the discussion focused on topics that we didn't yet cover, and I'm going to report them in this section. They deal mainly with priorities and capacity.

The working group members thought that some of the priorities for microfinance programmes for adaptation to CC are: the need to take into account the political and power structure in which the MFIs operate before defining the actual microfinance programme to be implemented, and to evaluate the risk associated with this political environment; promote decentralised solutions that try to build on the capacities of local entrepreneurs and work to carefully adapt the programme to the local context; consider the needs of the local population and develop a consciousness to the threats of CC thanks to the implementation of awareness-raising campaigns; take into account the potential environmental degradation as an additional source of risk in CC adaptation microfinance programmes and work to reduce local environmental degradation.

The participants of the working group believe that some of the capacities that MFIs should develop to implement CC adaptation programmes can be obtained thanks to the partnership of the MFIs with local NGOs that have in their main core business, educational projects to stimulate awareness raising, trainings and capacity building for the local community.

Moreover, the working group discussed the importance of carefully assessing microinsurance for adaptation to CC and whether it is actually insuring rural productions, making them more resilient to CC events and not supporting unsustainable practices instead.

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A practitioner's outlook on the debate: why green microfinance, and if so, how?

Natalia Realpe Carillo

Abstract

Green microfinance, as a set of microfinance services addressing the triple bottom line, encompasses a variety of actions that microfinance institutions (MFIs) undertake with the common element denominator of environmental preservation. Among the strategies embodied in green microfinance, energy-lending aims at enhancing access to clean energy by offering credit for modern energy technologies through partnerships with local energy companies. Whether driven by environmental consciousness or business opportunities, green initiatives still appear to lack long-term sustainability and remain difficult to up-scale.

The high investment costs in the learning process and access to knowledge and technical expertise are two main obstacles for the MFIs as they pursue large-scale commercialization. Local energy companies, often small and medium enterprises (SMEs), involved in green microfinance partnerships, named the 'two-hand model' approach, also have to overcome challenges in the supply chain design and in the adaptation of its products and services in order to be able to expand their market together with the partner MFIs. In the roll-out of these programs, efficiently reaching remote microfinance clients becomes a challenge for both MFIs and energy service suppliers.

A successful up-scale of this two-hand model approach could be achieved by strengthening the partnership via supporting local SMEs and MFIs with specialized technical assistance. In the long term, the creation of separate business units of the MFIs dedicated to energy might be the key towards the sustainability of large-scale green microfinance. This leads to a transformation from a strategic partnership into a one-hand model approach integration, in which the organization deals with the entire supply chain and financing. To this aim, sectorial support must be oriented to provide MFIs with proper external policy frameworks and to develop separate energy business lines and internal technical skills for promotion, deployment, installation and after-sales services. Thanks to their infrastructure, social commitment and the close and long lasting relationships with their clients, MFIs are in a favorable position to become the financiers and distributors themselves, allowing the complete integration of the triple bottom line into the MFIs' mission.

*"We are doing the energy supplier's work! Our logo should be on the product."
Caja Huancayo's Energy Technical Advisor on Solar Water Heaters' promotion,
Huancayo, Peru, June, 2013.*

Aside from the financial and social missions that have been at the core of the development of the microfinance sector, a third objective, which addresses environmental management, has been included into the matrix. Tracing the questionable development of the integration of this triple bottom line approach, practitioners, experts and researchers discuss and largely disagree on how the role of the microfinance sector engaging in the environmental agenda should be demarcated (or not), and most of

all, if a successful business case is reachable. Green microfinance, as a set of microfinance services addressing this triple bottom line, encompasses a variety of internal or external actions that microfinance institutions (MFIs) undertake with the common denominator of environmental preservation. However, it is still unclear whether this shared goal and the financial, human, operational and logistical capacities of the MFIs match in reality. And, if so, is a scale-up possible?

In literature, MFIs have been identified as the right vehicle to address climate change (Gutierrez & Mommens, 2011) and energy supply (e.g. Mohiuddin, 2006 and Srinivasan, 2007). Motivation to meet the challenges and/or opportunities of this objective could be driven by risk mitigation interests, ethical responsibilities, donor pressure or business opportunities, directed by both ethical and instrumental arguments (Allet, 2011). Reasons to go green have been described by Hall et al. (2008), listing scale risk management, regulation procedures, competition pressure, ethical considerations and access to funding (Van Elteren, A. 2007), as the main key drivers.

Among the different green microfinance initiatives, those with an impact on the clients entail the design of specific financial services such as green loans, i.e. energy-lending, savings and microinsurance, organization of dedicated campaigns and screening and monitoring loans with environmental criteria (Wenner, 2002 and Allet, 2012). Energy-lending aims at enhancing access to clean energy, by offering credit in order to finance modern technologies through specific delivery models. Such green loans mean understanding end user energy needs and customizing solutions to these needs. Rural energy projects for under-served households need to be implemented which create ways for end users to afford systems based on their cash flow. The two-hand model is based on partnerships between MFIs and local energy companies, most of them, small and medium enterprises (SMEs). Alternatively, in the one-hand model, the same organization is in charge of the supply chain and financing.

Diversifying a MFIs' portfolio in energy represents an opportunity for such partnerships to extend their markets jointly, thereby reaching vulnerable communities in need of both access to finance and/or energy (Groh, 2013). Moreover, appropriately designed loans closely match installments to existing energy expenditures or income flows (Morris et al. 2007), resulting in attractive self-repaying credit schemes as a consequence of automatically generated energy savings (Levaï et al. 2011). However, as green loans are built upon the linkage between the

microfinance and energy sectors, MFIs require the willingness and capabilities to channel capital into loans for energy, as well as a high capacity to assume the largest risk (Rao et al. 2009). Hence, pursuing these opportunities requires not only strategic decisions from the MFIs' management followed by identification of adequate products and careful program design, piloting, and roll-out (Levaï et al. 2011), but also full support from the energy companies (Morris et al. 2007). Given the right circumstances, capital, interests, and favorable external conditions, this approach has potential to succeed. Nevertheless, to date, most pilot green programs have not been able to reach large-scale commercialization.

What goes wrong?

High investment costs: from the MFIs point of view, disbursing green loans might be highly challenging, and requires a strong ability to foresee and tackle market obstacles. In contrast to traditional microfinance activities aimed at commerce, green programs entail different risks, payoff streams and initial efforts and investments (Wenner, 2002). Although the need for clean energy exists, it still has to be translated into a market demand. In particular, in order to build a viable business model, the factors that need to be in place include financially sustainable returns, and institutional and operational capacity to manage an energy program both at the head office and branch levels (Levaï et al., 2011).

In addition, Allet and Hudon (2013), who depict the characteristics of MFIs involved in environmental management, have shown that, first, MFIs implementing green strategies are as profitable as other microfinance institutions and second, that more mature MFIs tend to have more positive and innovative strategies of environmental performance when providing green microcredit and non-financial services. Indeed, a deep understanding of the business opportunities arising from microlending for clean energy solutions is necessary to facilitate access to appropriate financial services and to raise environmental awareness among clients.

Access to technical assistance: Allet (2011) has shown that, besides a solid financial situation, one of the most constraining factors

for MFIs engaging in green initiatives is access to technical expertise and knowledge in order to acquire specific technical skills and set up new management procedures. Indeed, the ability to mobilize technical assistance from external donors and consulting companies has been the key for pioneer MFIs in green microfinance.

However, limitations are not only on the MFIs' side. Local energy companies involved in green microfinance partnerships are often SMEs and start-ups with limited access to funding and technical assistance (Kebir et al., 2013), which have to face important challenges to match the client-relationship of the MFI. When it comes to building up these distribution networks, these companies face important challenges in supplying microfinance clients and in matching their client-relationship conception to that of the MFIs. As observed by Levai et al. (2011), the local expansion of energy services into the working areas of the MFIs requires well-built distribution capabilities in order to guarantee a reliable supply of products.

Profitable business model: Finally, achieving well-balanced partnerships is the key to success of the two-hand model approach. These alliances, defined in written agreements based on both parties' strengths and weaknesses, and incentives and motivations, determine the responsibilities and duties of each party regarding marketing activities, staff and client training, after-sales services, and procedures in case of loan default (Allderdice et al., 2007). Thus, when it comes to working together, the main challenges are due to the differences between their infrastructures and business models. Based on an MFI's available human resources (loan officers), the promotional campaigns that MFIs undertake and the coordination endeavors among branches – given guaranteed quality of the products and services of the supplier – MFIs often have a higher potential to expand their market, albeit with larger expenses. Moreover, MFIs make their margins with a service during a loan period, whereas energy SMEs make their profit by selling their products as soon as possible, for which their business incentives are already very different and need to be aligned.

Supporting green microfinance

MFIs willing to engage in environmental management agree that they currently do not have the required technical skills and specialized resources needed to tackle the environmental risks and challenges within their own financial and operative structures (Allet, 2011). In order to successfully up-scale the two-hand model approach, a set of recommendations regarding flexibility, capacities investments, partnerships and risk balance should also be made to SMEs when adapting their business models to link with MFIs. In this phase, efforts should concentrate on harmonizing these two business cultures. Hence, to guarantee the reliability that MFIs need from local energy companies throughout the partnerships, local energy companies should receive adequate support in terms of technical assistance, aligning both visions. Specifically, they should be supported in standardizing products and services, achieving required quality and learning to efficiently distribute products and services, particularly at the last mile.

Yet, while donors and investors might be reluctant to support young or start-up companies banking on a productive and efficient partnership with MFIs, a way forward in the long term is to support MFIs gradually developing their own business units that are fully dedicated to energy (Kebir et al., 2013). Outcomes from Allet (2011) show that institutions with an integrated approach identify both a responsibility and an opportunity in environmental management for themselves and for their clients. Thanks to their infrastructure, social mission and the close and long-lasting relationship with their clients, MFIs are in a favorable position to become the financiers and distributors themselves through the development of separate business units. This means that the MFI, parallel to its classical business model, manage a stock, distribute, install and provide the required after-sales services while maintaining the closeness to its clients.

In this scenario, in areas where access is challenging, either due to their remoteness or because of very low incomes for investing in modern energy solutions, MFIs introducing

green loans carry out intensive promotional activities of energy services, not only promoting the benefits of the products, but also creating environmental consciousness. Furthermore, by facilitating MFIs with technical training and ensuring established procedures and a strong infrastructure, i) the MFIs could be able to adapt their current processes to supply their clients, accomplishing the B to C step, ii) loan officers could also deliver or install technologies, and iii) in the same visits, loan officers could train the end-user on the benefits, instructions, and maintenance procedures.

Success cases such as Grameen Shakti in Bangladesh demonstrate how a scale-up based on a one-hand model, responsible not only for the financing but also for the product installation and complete life-cycle, converts the partnering challenges into business case opportunities along the supply chain. Grameen Shakti adopted the lessons of Grameen Bank's decades of provision of microfinance and developed its own in-house financing approach and mechanism. This case shows how end-user finance combined with effective marketing, sales, deployment and maintenance can lead to a breakthrough in the adoption of clean energy solutions by the poor and the middle class in the rural areas of a populous, energy-deprived country (Counts, 2011). 2.7 million solar home systems (SHS) have been disseminated since the establishment of the Grameen Shakti approach. Reaching up to 7 percent of the Bangladeshi households who now have solar energy-based electricity, Grameen Shakti is reaching 1.5 million people¹; the other million is achieved through the remaining partner organizations replicating the same business model.

Nevertheless, external and regional-specific barriers must not be neglected and supporting policy environments in both sectors are key for committing to this path.

Also, academia has recognized that there is a large untapped potential for new perspectives and innovative approaches for decentralized

energy supply through global knowledge transfer of experiences around the world (Van der Straeten et al., 2013). Despite the difficulties in replicating an overall solution encompassing the entire value chain, lessons learned from these cases could be leveraged and imbedded when supporting MFIs to pave the way towards achieving a successful energy-lending model. In the long term, steps in the direction of MFI specialization need support and dedicated financial and technical assistance in order to effectively establish the green microfinance sector.

Discussion

For the first time a UMM Workshop dedicated a significant amount of attention to Green Microfinance. The topic was introduced with a discussion panel and then a variety of research presentations and several group discussions on the subject took place. During the debates the following concerns arose:

In relation to the role of microfinance in climate change, it was agreed that, although it is of concern at the microlevel, burdens should not be put on MFIs. Moreover, they should not be distracted from their mission with monetary incentives such as carbon credits, nor should technologies be introduced without undertaking energy needs assessments. Moreover, the role of SME finance was questioned, inviting participants to reflect on the types of financing that addresses climate change, drifting from end-user finance to supply chain enhancement.

Furthermore, when comparing latest green microfinance growth in the last years, it was recognized that even if specific goals on energy access are not on the agenda yet, initiatives and small-scale programs count. In fact, although the Millennium Development Goals (MDGs) are not specifically set up for energy, energy is a pre-condition for development in terms of the MDGs (EIB, 2012). Unlike the concerns in developing and emerging economies where the discussion involves the decrease of carbon emissions and the efficient use of natural resources, in the least developed countries, energy access is the real aim. Thus, the focus of the debate should shift from climate change to energy poverty.

1. By the end of June 2013, Grameen Shakti disbursed its 1'000.000 energy loan. http://www.gshakti.org/index.php?option=com_content&view=article&id=190&Itemid=73

Indeed, differentiation and harmonization of this approach and its expected outcomes should be undertaken: Are the expectations mainly on the decrease of emissions or on the increase of access? Or, is the enabled environment already an important success? The microfinance sector still requires to develop the right financing structure as well as the right indicators as the next milestones for up-scale. On the other hand, larger energy companies are launching business lines targeting the Base of the Pyramid (BoP), although these do not yet address systematically end-user finance or last mile distribution.

Different lines of action for donors and investors were suggested in order to strengthen green microfinance. Required support on the three axes entail: i. Government policy consulting; ii. funding for working capital, and iii. technical assistance in the field of logistics development and distribution. On the latter, MFIs should be guided in building internal capacity; requiring and advising in their environmental accountability and performance; and acquiring funds for financing technical assistance. Indeed, expert technical assistance guides MFIs in conducting energy needs assessments, developing products, designing green loans, introducing and implementing internal new processes, developing business plans, and monitoring the products; SMEs. Thus, having established the needs, the sector leaders had a discussion that was no longer focused on 'what' and 'how', but 'when'.

Given the recent development of customized funding programs such as EcoMicro² and

2. Designed by the Multilateral International Fund, and co-financed by both, MIF and the Nordic Development Fund (NDF), the EcoMicro Program is a technical cooperation launched in 2012 with the aim of supporting motivated MFIs in integrating green microfinance core elements in their organization. By supporting Latin American and Caribbean MFIs through specialized technical assistance, the program pursues the development of green finance products for micro, small and medium enterprises (MSMEs) and low-income households can access clean energy, energy efficiency or adaptation (www.eco-micro.org). This is achieved through the implementation of three modules: design and implementation of green financial product to finance clean energy technologies or to solutions for climate change adaptation; analysis of loan portfolio vulnerability to climate change and development of risk management tools; and greening the institution: reduction of the MFI energy operational costs and greenhouse gas emissions.

energy inclusion initiatives³ worldwide, if donors and investors already supported the foundation of the microfinance sector decades ago, then it is now time for green microfinance to capture comparable efforts and interest in order to accomplish its ambitious goals.

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3. The Energy Inclusion Initiative (EII) is a program created by the Luxembourgian NGO, Appui au Développement Autonome (ADA) and the German consultancy company, MicroEnergy International (MEI), with the objective of successfully incorporating clean energy technologies into the portfolio of MFIs. In 2010, ADA and MEI started in Peru, resulting from a ranking of countries worldwide with the largest potential in integrating energy renewable or energy efficiency projects given a mature microfinance sector. In 2012, ADA and MEI, together with Frankfurt School, launched the EII in the Philippines, following a network approach. By assisting MCPI, knowledge transfer promises a larger impact and dissemination potential.

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Energy microfinance in India: yesterday's challenges, today's opportunities

Christopher Neidl

Abstract

With its enormous rural population, high levels of energy poverty per capita, a dynamic, growing rural energy sector, and the world's largest microfinance industry, India is a potentially fertile context for energy microfinance experimentation and success. However, until very recently, attempts to build productive linkages between the energy and microfinance sectors have been marked more often by short-lived pilots and small-scale successes than by sustained, large-scale impact and growth. In this paper, the author presents an overview of some of the challenges that have historically hindered energy microfinance practices from attaining mainstream success in India, and offers insights into new developments and trends that could point to a more varied and vital interplay between energy and microfinance in the future.

The energy microfinance challenge in India

Over the past decade, microfinance has been identified repeatedly as a potentially significant platform through which higher levels of access to improved energy services among poor people might be realised on a large scale. For one, the industry's core product offering, microcredit, has the potential to help make improved energy affordable to the poor by enabling individuals to purchase and incrementally pay for high upfront cost energy technologies such as solar home systems, solar charging devices and improved cooking stoves. At the same time, organisations that provide finance to the poor collectively command the power to gather millions of customers, often in groups, at fixed times in fixed places on a regular, ongoing basis. Many have argued that this unique institutional capacity could be leveraged as a channel for key value chain functions such as distribution, marketing, consumer education, sales and even after sales service.

There are a number of factors that would appear to make India an especially conducive context in which the energy and microfinance sectors might naturally converge to drive improved energy access on a truly large-scale. Foremost among them is the staggering level of energy poverty that persists among India's rural and low-income populations. The

estimated 75 million households – 94 percent of which are located in rural districts – that live off-grid with no access to centralised electricity and the many millions more that receive limited, irregular service (IFC, 2012); combined with the 166 million households dependent on traditional solid fuels for cooking, constitute an enormous potential market for alternatives (Gaurav et al., 2013). Private sector innovation is another factor that would seem to favour inter-sector collaboration in India. In response to unmet and growing demand, India has become a global hotbed of private sector engagement in the energy sector, with new products and services being brought to market each year by both small start-ups and, increasingly, large, established corporate players.

Finally, India is home to the world's largest and most diverse pro-poor financial sector, with total outreach nation-wide exceeding a hundred million low-income individuals. The microfinance sector alone – itself characterised by a great diversity of institutions - reached over 26 million clients in 2012 (Puhazhendhi, 2013). Thousands of self-help group (SHG) networks and federations claim over 60 million members and receive continued investment and support from the public sector, which increasingly views SHGs as leading platforms for not only financial inclusion, but also the delivery of other essential pro-development services (Puhazhendhi, 2013). In parallel - in

response both to clear market opportunities as well as a growing number of government incentives and mandates - India's commercial and public sector banks (including Rural Regional Banks) continue to become more focused on penetrating rural India's unbanked population.

However, in spite of market size and demand, energy sector growth and dynamism, and the financial sector's scale and maturity, until recently, the story of financial sector engagement in improved energy access in India has been decidedly limited in proportion to its potential. A number of factors account for this outcome. One fundamental reason involves the prevailing mission orientation and guiding philosophies that underpin certain types of financial institutions that serve the poor. This is particularly important in the case of the microfinance sector. While over the past decade a growing and vocal cross-section of institutions have come to envision microfinance as a broad platform for delivering multiple pro-development services to the poor, most continue to operate, at least in practice, with a narrower mandate that remains focused on the promotion of entrepreneurship through the provision of working capital loans for income-generating activities. As a consequence, many of India's largest institutions have tended to resist or reject outright the very premise that providing credit to enable energy access - or playing any role in promoting energy access - has a place within microfinance, if such access does not directly promote income-generation and entrepreneurship. In this view, credit to facilitate ownership of, for example, household energy products such as solar home systems or improved cooking stoves that are valued because they increase savings and improve living standards, do not qualify as valid uses of microcredit.

Importantly however, such resistance is not merely philosophical in nature, but rather is tied to concrete calculations of risk and operational costs. In India, there is a strong correlation between MFI size and degree of specialisation and standardisation, with most large institutions characterised by a narrow focus on IGA credit products. The operational makeup and mechanics of conventional microfinance lending is designed and,

arguably, in great part works because it can be sustained and rapidly scaled using simple, standardised operational protocols that require few resources and skills on the part of field staff. Many argue that introducing loans for unfamiliar products, such as energy technology, which must be demonstrated and explained to members, can impose additional operational complexities and require a level of sophistication on the part of field staff that runs counter to the standardisation formula that has driven much of the sector's growth over the past two decades. In India, a wave of interest in energy lending took place in the mid-to-late 2000s when the launch of several solar portable lighting and improved cooking stove companies intersected with the rising influence of the 'microfinance plus' vision within the sector. Many fledgling energy companies, lacking resources or capacity to reach their target customers, viewed large MFIs not only as potential consumer finance partners, but also as ready-made distribution and marketing channels that could provide direct access to hard to reach markets. Many pilots resulted, but in the end very few programmes took off. The specific reasons were mixed, but in general it was discovered that MFI networks designed to disburse loans and collect payments are not necessarily well-suited for marketing, selling, and, above all, servicing physical energy products. For partnerships to work, energy companies would have to supply more upfront and ongoing support. At the time, few had the resources to do so.

There is also the issue of 'productive' versus 'consumption-based' use of loans that give many MFIs pause when considering energy as a portfolio area. The microfinance sector's success in India is fundamentally tied to maintaining high rates of repayment and low portfolio risk. Conventional microcredit is meant to support increased cash flows from entrepreneurial activities. Energy products can certainly support additional revenue when used as an input for many common informal commercial activities. However, in the context of household use, the immediate cash flow benefits of increased savings and the longer-term benefits associated with improved health and educational performance are less certain, obvious and predictable in the estimation of many MFIs. Indeed, most conventional MFIs

simply do not have capacity to even attempt to quantify such benefits. Furthermore, current regulations introduced by the Reserve Bank of India (RBI) limit the amount of lending that can be made for consumption-based investments, giving MFIs further reason to avoid considering energy lending.

Other factors that create resistance on the part of MFIs have less to do with the internal mechanics or disposition of microfinance and more to do with the nature and historical performance of off-grid energy technologies in India. Foremost among these are concerns about the reliability and quality of off-grid energy technologies. Given the high volume of cheap, low-quality energy products – particularly in the solar lighting product category – that continue to flow into the rural market today, along with the many less than successful government giveaway and subsidy programmes that have ended in high levels of product failure, these concerns are not unjustified. As risk-focused institutions, credit providers are naturally wary of financing investments that they are unfamiliar with or suspect might cease to function properly before a client has repaid the entirety of their loan. High levels of energy product failure not only risk increasing loan default, and therefore hurt portfolio quality, but also have the potential to overwhelm field staff with customer complaints and requests for repairs, and thus siphon away time and resources from other core activities. Perhaps the greatest danger posed by such an outcome is degraded trust between client and institution. Trust is the oxygen in which client-institution relationships grow and thrive, and any event that damages that trust places institutions in positions of great insecurity. Many early pioneers and recent practitioners of energy microfinance have had to cope with the fallout from technical malfunction. Such an experience can and often does eliminate an institution's appetite for experimenting further.

A changing picture: growing interest in energy portfolio development

In spite of the challenges and barriers summarised above, interest in energy as a portfolio area for financial institutions that serve the poor appears to be growing today, albeit at a gradual pace. There are many

reasons why this may be the case, but, in the opinion of this author, two factors are most pervasive. The first involves the changing status of the rural energy sector. Far from static, the sector continues to grow, diversify and innovate and this creates new openings for MFIs to engage. Companies that have thrived in this challenging market over the past five years have done so by steadily improving and technically de-risking their products. This is particularly the case in the retail solar portable lighting segment. While there are no perfect, 'maintenance-free' energy products, great strides in battery and LED lighting technology, and new durability-focused designs have resulted in much lower fail rates in the field, and greater product longevity. The standardisation of mobile-charging functionality in this product category has transformed these products into more "pull" than "push", reducing the resources required to 'make a sale', by either an MFI or energy company representative. In short, demand is more active and apparent than it was even just a couple of years ago.

At the same time, small startups that have made it this far have done so in part through growth and increased commercial sophistication, and now command a greater ability to cover key parts of the value chain that they once sought MFIs to perform exclusively. If energy product providers can now expend more resources for distribution, marketing, training and, above all, after sales service, then MFIs can embrace narrower roles that more closely match their core competencies, and can expect greater ongoing support and quality from energy companies if they do venture into functions that they have less experience performing. It is fair to say that the overall level of risk facing an MFI that seeks to engage in energy is much lower today than it was even two years ago. At the same time, a greater array of products at different price points has taken shape, making the likelihood that MFIs can match energy solutions to their clients' specific needs and demands much greater. Finally, as the sector has progressed, larger global players have entered the arena, bringing resources and production volumes that did not characterise their smaller predecessors or their current competitors. If this trend continues, it is possible that more competitive prices and

greater supply chain investments could further reduce the risks and barriers for MFIs seeking to engage in energy.

The changing nature and position of the pro-poor finance industry in India may also be pushing a greater number of institutions in the direction of energy, or at least increasing their willingness to consider such a strategy. Following the Andhra Pradesh crisis of 2010, many microfinance institutions, particularly small to medium sized institutions continue to struggle to return to positions of equilibrium and growth. While such 'survival' conditions can and have reinforced a narrow view of microfinance's social value and of what constitutes a sound business strategy among many institutions, others have come to acknowledge that they must diversify their practices and demonstrate, to both donors and clients, alike, a greater capacity to deliver multiple forms of value, not just credit for income-generating activities. While such an impression is anecdotal at this stage, the author, in his outreach and advisory to Indian MFIs of various sizes throughout the country, has heard such explanations offered more frequently as a reason for moving forward with new energy programmes.

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Overcoming barriers to rural electrification: an analysis of micro-energy lending and its potential in the international carbon market based on the example of solar home systems in Bangladesh

Susanne Schwan

Abstract

This paper explores how the combination of micro-energy lending and carbon finance can overcome barriers to rural electrification and renewable energy sources. In particular, it analyses how a Solar Energy Programme in Bangladesh based on micro-energy lending can be linked to and benefit from the Kyoto Protocol's Clean Development Mechanism (CDM) and how this project promotes sustainable development. The paper finds that carbon finance marginally improves the economic viability of micro-energy projects and thus, does not overcome cost barriers to rural electrification. However, solar home systems (SHS) achieve significant cost savings for rural households and provide clean energy, improving the living conditions of the rural poor. Carbon emission reductions of SHS are marginal on a global scale but SHS achieves the goal of low-carbon development. To ensure sustainability on the project level, micro-energy projects must provide high-quality technology, proper training and maintenance services as well as strong credit risk management.

Twin-challenges: climate change and energy poverty

Climate change and energy poverty are major impediments to the development of rural areas in developing countries (Rippey, 2009; Watkins & UNDP, 2007). The two challenges are interlinked: energy-related activities are the main source of carbon emissions and the provision of electricity for rural off-grid areas requires large extensions of energy services (Baer et al., 2008; FitzRoy & Papyrakis, 2010; IPCC, 2007; Munasinghe, 2009). Therefore, new economic mechanisms and instruments must be developed that simultaneously address climate change and energy poverty through sustainable development. Micro-energy lending (MEL), the approach this paper is intended to analyse, promises to be such an instrument addressing climate change mitigation and the lack of access to energy in rural areas.

The focus of this paper is on the micro-level, or more precisely, on mitigation activities by households and micro-businesses, which at the same time foster development. Energy is an essential requirement for development and poverty reduction (Iliskog & Kjellström,

2008; Iliskog, 2008; Rao et al., 2009; UNEP, 2007a). Having no access to modern energy services, such as electricity, impedes "opportunities for economic development and improved living standards" (Munasinghe, 2009). Probably the most important benefit of clean energy is the reduction of the indoor air pollution that currently leads to more than 1.9 million deaths per year (Legros et al., 2009). Still, nearly 1.5 billion people (IEA, 2008a) in developing countries have no access to electricity, clearly showing the scale of global energy poverty and the majority of these energy-starved households are located in rural areas (Legros et al., 2009; World Bank, 2008a). The further dissemination of electricity grid connection or decentralised energy systems faces a number of barriers, and limited access to finance represents the primary gap. This is where microfinance (MF) interventions could overcome the barrier and provide micro-energy loans in order to enable poor households and small enterprises, especially in rural areas, to finance access to energy (Aron et al., 2009; Beck & Martinot, 2004; Urmee et al., 2009).

Owing to climate change, the challenge is two-fold: the energy needs of those lacking access to modern energy services have to be met while a global transition to low-carbon energy systems has to be achieved (Ahuja & Tatsutani, 2009). On a global level, industrialised countries have to make the largest mitigation effort (Baer et al., 2008) but it should also be in the interest of developing countries “to avoid locking into a high-carbon infrastructure” (World Bank, 2009) in order to achieve sustainable development without putting further pressure on the climate. Both low-carbon energy production and the expansion of rural energy services can be achieved by a more intensive use of renewable energy (RE) sources (Munasinghe, 2009), which is the focus of this paper. In particular, the focus is on rural off-grid electrification with solar home systems (SHS), often a viable alternative to grid extension (REN21, 2010). For the rural poor, however, improvement of living standards takes priority, whereas climate change mitigation plays at best a minor role (Modi, 2004).

Although microfinance intervention for energy access addresses one financial barrier, namely the lack of access to credit for poor households and micro-businesses, high initial capital costs, limited capacity and familiarity with RE technologies remain major obstacles for rural electrification (Beck & Martinot, 2004). In order to make RE economically viable for households and micro-businesses, further financial resources are needed. One opportunity analysed in this paper is to couple MEL with the international carbon market in order to generate carbon revenues from emission reductions (Bahnsen et al., 2009; Hayashi et al., 2010; Rippey, 2009). To date, the only mechanism under the Kyoto Protocol involving developing countries in mitigation activities is the Clean Development Mechanism (CDM), which aims at both emission reductions and sustainable development co-benefits. Renewable, modern energy sources promoted by MEL promise significant development benefits, suggesting that synergies between these instruments should be utilised more effectively (Dowla, 2009). The most promising tool under the CDM is the Programme of Activities (PoA), a specific project type also known as the programmatic CDM (pCDM), allowing for an

aggregation of emission reductions from a number of projects and thus addressing high transaction costs, which pose a barrier for micro-scale projects in the CDM market (see also Boyd et al., 2009).

The research gap

The pCDM offers potential sources of carbon revenues for MEL projects but research as well as project cases in this area are sparse. The literature on the CDM states that “further research in planned and ongoing projects are needed in order to improve sustainable development benefits through CDM” (Boyd et al., 2009). The authors add that rural electrification projects contribute especially to sustainable development but are rare in the CDM project pipeline. Other papers explicitly recommend microfinance as a financial mechanism for small-scale CDM projects without going into a deeper analysis of the suitability of project requirements for MEL (e.g. Heeren & Karcher, 2010; van der Gaast et al., 2009). A study analysing the potential synergies between the pCDM and microfinance points out that “there is a need to investigate further and demonstrate ... how CDM funds in combination with microfinance can improve the economic viability of a project” (Bahnsen et al., 2009). Accordingly, further research on MEL and its potential under the CDM is needed. This paper aims to contribute to the applied research on this particular field from an economic and a sustainable development perspective.

Research focus and methodological approach

The core problem addressed can be stated as follows: What opportunities does the programmatic CDM offer for MEL projects and how do these projects promote sustainable rural development? The objective of the paper is to investigate opportunities and consequences by addressing the following research questions:

1. *What consequences* does the combination of micro- and carbon finance offer to rural electrification, and *what barriers* do projects face?

2. *How do carbon revenues improve the economic viability of micro-energy projects and do they justify high upfront and monitoring costs?*
3. *What consequences does micro-energy lending have with respect to social and environmental benefits, i.e. does it promote sustainable rural development?*

The methodological approach combines a theoretical analysis of linkages between MEL and carbon project cycles as well as a case study of a MEL project promoting solar home systems (SHS) in Bangladesh. As a source of primary data, the theoretical analysis draws on expert interviews with carbon market, microfinance and rural electrification experts. For the case study, a multi-criteria analysis (MCA) based on quantitative data substantiated with comprehensive qualitative information from stakeholder interviews, field visits and internal documents is conducted. The set of indicators for the MCA is defined according to sustainomics principles presented by Munasinghe (2004; 2009) and includes indicators for economic, social, environmental, institutional and technological sustainability.

Barriers remain while the goal of sustainable development is achieved

The author finds that microfinance infrastructure can very well integrate PoA projects and CDM monitoring procedures and that synergies reduce CDM transaction costs. Most importantly, the combination of the two financing mechanisms addresses major barriers to rural electrification, the lack of infrastructure, the lack of access to credit for end-consumers and high upfront costs. However, the major barriers of the CDM for small-scale projects, high transaction costs and complexity, remain obstacles under the pCDM. Improvements to the economic viability of micro-energy projects through carbon finance are marginal and revenue streams of the CDM are not well matched with financial needs of MEL projects. SHS achieve significant cost savings for the rural poor but impacts on economic development are limited compared to grid-electrification. Still, SHS clients value high-quality lighting and some use electricity for productive purposes. Greenhouse gas (GHG) emission reductions

of SHS are marginal but achieve the goal of low-carbon development. On the project level, micro-energy projects must ensure longevity of technology through proper training and maintenance services as well as strong risk management, as energy loans are generally a higher credit risk than other microloans.

Workshop discussions

The discussion pointed out that the methodological approach applied in the paper, a multi-criteria analysis with five dimensions measuring economic, social, environmental, and sustainability as well as financial risk, is a very good tool for the microfinance sector. However, it was criticised because the total CDM monitoring costs were not calculated. The IDCOL Solar Energy Programme, because of its design, reduces additional monitoring costs significantly and thus might not be representative for other solar programmes.

Furthermore, new monitoring technologies, such as remote monitoring could reduce monitoring costs significantly and further research should address the question of how it could be integrated into micro-energy projects. In general, the replicability of the Bangladesh project is questionable due to a number of issues, such as the existing MFI infrastructure, high population density, and successful MFIs that set up spin-off branches specialising in micro-energy lending. Nevertheless, important lessons can be learned from the case study, namely the design of the analysed programme, the grant structure to build up viable markets, that entering the carbon market requires a strong and dedicated coordinating entity, and that a PoA is most likely to reach scale when a number of MFIs join the programme.

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Microfinanced solar home systems: issues and ways to overcome them

Klara Lindner

Abstract

One approach to provide power to poor households living in rural off-grid regions is the distribution of solar home systems under a microfinance scheme. This paper illustrates some of the major problems that have been observed with that concept. It furthermore shows that the current literature contains recommendations to overcome these issues. Lastly, this paper highlights two different approaches to apply the recommendations – a certification, which is issued by local test laboratories, and a technology provider piggybacking on the fast-growing mobile network.

Background

In rural areas off the grid, solar PV technologies offer an alternative source for power. Solar home systems (SHS) are battery-based and generate enough electricity to light an individual household and power smaller appliances like a radio or TV.

Microfinance is seen as a powerful tool to lower the high upfront cost and make this technology affordable also in low-income markets. Compared to donation-based programs, this approach has a lot of advantages. However, the market-based distribution of SHS is not without flaws, and as a review carried out by the International Energy Agency in 2004 concludes:

"In spite of good intentions, many programs implementing Photovoltaics (PV) in developing nations have failed in one way or another, and only a very few, if any, programs can be regarded as all round success stories. A large number of failures can be attributed to lack of quality, both in terms of components and installation quality as well as in the organization and management of implementation programs."
(Wilshaw, Bates, & Oldach, 2004)

In my diploma thesis, I depicted recurring problems and collected recommendations to overcome them – this paper highlights some of my results.

Research design

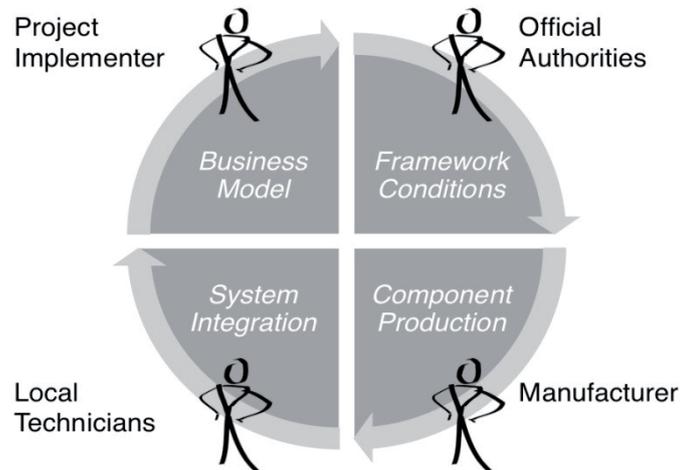
A mixed-method design was used to gather quality-related problems: Technical analyses from numerous SHS in Tanzania and Uganda were triangulated with qualitative insights from a workshop with practitioners and stakeholder interviews in the field. Then, the substantial amount of existing standard documents was reviewed, and tender procedures as well as best practice cases were investigated to come up with a manageable set of recommendations.

Problems encountered

The problem analysis produced issues at various points of the value chain. I clustered these into four groups – each with a designated change agent, who if at all possible, could take responsibility in tackling the issue. On the technical level, I separated problems that result from the product components themselves from those problems that materialize once the technology is integrated into complete systems. A clustering on the meta-level was made into problems that emerge from the implemented business model on the one hand and challenges linked to the respective framework conditions on the other hand.

In this section, I will give examples for each cluster to explain the following model.

Figure 1: Problem clusters and their change agents

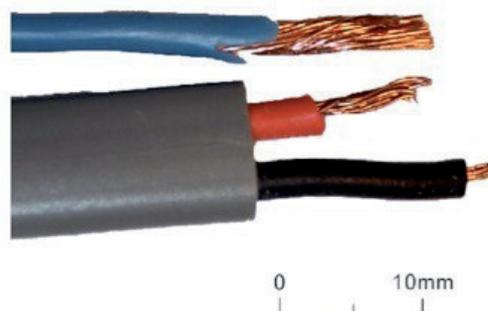


Cluster 1: Most obvious are problems which are linked directly to the product itself – in this case to the individual parts that make up a solar home system.

As the PV panel is the main component of a solar home system, it is often initially blamed for a system breakdown – but as various

studies reveal, the pure solar part rarely fails (Egido, 2001). A more alarming component is the cabling: While this is the cheapest element, sub-standard product imitations, shown in Figure 2, have been the reason for a severely damaged system in a number of cases (Rothenwänder, 2009).

Figure 2: Original and fake cable diameter 2.5 MM² (Blue: Germany, Red/Black: Tanzania) (Rothenwänder, 2009)



Cluster 2: Yet even if the best quality components are used, a number of issues arise once those individual parts are integrated into a system, designed and installed locally and put into operation.

A lot of problems originate from miscalculations (Rothenwänder, 2009). Either because assumptions made upfront are inaccurate and lead to unsuited system sizes, or because important safety principles are ignored and calculations based on a rule of thumb (Egido, 2001). The outcome may then vary from a

minor decrease in usability to a severe drop of service life leading to complete system failure. (Fahlenbock & Haupt, 2000).

According to Kristjansdottir, the origin of early system failure can be traced back to the wrong installation of the charge controller: a study that checked 20 different charge controllers from 7 countries stated that none of those regulators disconnected the battery as it should; even more alarming is his comment that sometimes the technician himself bypasses the regulator to allow for deeper discharge of

the battery (Kristjansdottir, 2003).

Cluster 3: The chosen business model defines the way the solar home systems get to the end-user starting with pre-sales activities such as product testing through training and financing to after-sales services.

Most microfinanced SHS are distributed through a partnership of one or several technology providers and a microfinance institution. Many challenges originate from the fact that roles are not clearly allocated, risks are shared unevenly and responsibilities, e.g. for customer education, are moved back and forth from partner to partner (Kebir, 2008).

Moreover, the solar home system is commonly offered under business loan conditions, with credit periods of 12 month or less. Because the technology is mostly used for consumptive purposes, clients have difficulties in repaying the loan in time (Sahu, 2010).

Cluster 4: A number of external conditions set a framework in which the particular business model has to be placed in. Those realities may derive from the respective location, for example regional climatic conditions can be formed by the actual public policy or are set by the situation on-site.

Kerosene subsidies or trade barriers distort the market and affect the competitiveness of solar PV systems adversely. Moreover, political promises of grid extension plans that are not mirroring reality decrease the attractiveness of a SHS further.

With regard to the infrastructure, difficulties arise from a limited road accessibility making it hard to transport goods into rural areas (Painuly, 2001).

Recommended practices

As a matter of fact, numerous guidelines are already in place to support the lifetime and acceptance of SHS - IEC standards, tender documents, procurement standards, best practice case studies and expert papers. They vary in scope from stating the performance criteria for components used to installation standards and procedures and proper marketing activities.

I collected these documents and tried to create a synthesis with those sections most relevant to tackle the problems I had found earlier. They are organized into 5 groups, namely: Component quality and system performance, energy performance, installation quality, user-friendliness, operation and service.

The following table provides examples how diverse and precise the recommendations in those documents are.

Examples for the available documents and the recommendations therein:

- IEC 61427 Cycle-Endurance Test in Photovoltaic Applications
- Test specifications to assure battery cycle endurance
- Universal Technical Standard for SHS (University of Madrid)
- Safety factors to calculate with for appropriate system sizing
- IEC 62124 Photovoltaic (PV) stand-alone systems – Design verification
- Contract details between project partners
- Quality Standards for Solar Home Systems & Rural Health Power Supply (GIZ)
- Design of graphical user manual for customer education
- Description of the contents of a maintenance kit for technicians
- IEC TS 62257 Small RE and Hybrid Systems for Rural Electrification
- Template for service activity scheme to organize after-sales service
- Bangladesh Procurement Standards for Solar Home Systems
- Defined warranty periods for system components

In total, the list contains 65 recommendations. These are available upon request.

Initial approach for implementation

The first approach to apply the recommendations was a certification for microfinanced solar home systems and a low-cost local test laboratory setup. This facility may not only verify the performance of the system and its components or assure that the service is appropriate, but also research new

product developments that are adapted to local conditions and evaluate direct end-user feedback. Furthermore, it can serve as a means to create awareness about the technology's limitations as well as potentials within the microfinance institution and its client base, and foster trust and a mutual understanding between all stakeholders involved.

Discussion

During the session, a different concept was discussed in more detail: An approach, where a technology provider on its own offers solar home systems under a microfinance scheme – like the company Mobisol does. Its strategy piggybacks on the rapidly expanding mobile network infrastructure to offer remote maintenance of the solar systems. It further uses mobile banking to collect loan repayments from its customers living in rural areas. A switch inside the system makes it possible to block or enable electricity generation depending on the punctuality of payments.

Mobisol underwent a pilot phase in East Africa to adapt technology and business model to the local context and since December 2013 makes SHS in the range of 20Wp to 200Wp commercially available.

While the technology provider seems to be better suited to handle the complexity that comes with the technology used, the discussion brought up open issues that could become barriers for the scale-up, mainly: the need to pre-finance the systems and the due diligence and credit approval of customers. Because these are core activities of microfinance institutions, the development of partnerships with them could increase the sustainability of the approach and allow for a rapid expansion of served communities.

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Closing remarks

The 10th UMM Workshop brought together three relevant and important topics in the field of financial inclusion: remittances, mobile banking and green microfinance. Over the course of two days, practitioners, professors and students from across these fields shared their expertise and opinions on these subjects, the results of which are sampled in this publication.

Remittances

As discussed during the workshop, remittances have long been a significant source of capital inflow for developing countries as migrants living abroad send money back home to their families through formal and informal channels, sometimes making it difficult to track the total amount of remittances. Workshop discussions highlighted that remittances could be both a substitute for credit and a 'catalyst' for financial inclusion.

Debates underlined that more research is necessary in order to better understand key features of the main migration corridors which would inform the design of appropriate remittance products in terms of cost, trust and client proximity.

Relevant future research questions might include:

- *What are the key features of migration corridors?*
- *How can the relevant actors reduce the costs of formal remittance channels?*
- *What types of actors represent the ideal partner for delivering remittance products?*

Mobile banking

Following M-PESA's success in Kenya, the world turned its attention to mobile banking as a viable medium by which to help achieve financial inclusion even in remote rural areas. However, doing so has been a challenge. Discussions underlined that regulatory barriers and differing country contexts have hampered the spread of mobile banking. While understanding and meeting clients' needs is still a challenge for the industry, experts highlighted that selecting good partners (telecommunications providers or "telcos") is a key driver to implement successful experiences enabling outreach to a significant portion of the financially excluded population. According to the discussions, the outreach of mobile banking services is apparently increasing, but the industry still needs to improve knowledge-sharing regarding the use of mobile banking services.

Relevant future research questions or activities might include:

- *Documenting mobile banking experiences and successful models*
- *Who are the most appropriate partners to facilitate the spread of mobile banking products?*
- *Studying clients' needs and key drivers influencing the USE (not only the access) of mobile banking services*

Green microfinance

The relatively new field of green microfinance formed an important component of the workshop. Several experiences presented during the workshop illustrated how MFIs can energize their clients, offer green products and support client's adaptation to climate change. The discussions revealed that the industry is still in the process of gathering best practices. Further research and information sharing are necessary in order to know more about client needs, establish links with climate change, understand the best level on which to react and how, identify profitable business models and determine the role of microfinance.

Relevant future research questions and topics might include:

- *What is the best and most sustainable way to combine environmental practices with existing microfinance models?*
- *What is the role of microfinance in solving environmental issues?*
- *What is the most effective way to diffuse green microfinance activities across the developing world?*
- *Who are the potential clients of green MFIs?*

Conclusion

A common theme throughout the workshop and across the three subjects - remittances, mobile banking and green microfinance - was the importance of finding the correct partnerships. Whether between formal financial institutions and remitters, telcos and microfinance institutions or microfinance institutions and solar energy providers, partnerships and an efficient division of responsibilities are vital in best serving financially excluded populations. Limitations and challenges vary from country to country, but costs and long-term sustainability were cited in more than one case. Despite this, the work of organizations represented during the workshop is leading the way for a brighter future in the area of financial inclusion.

We would like to express our special gratitude to the Frankfurt School of Finance & Management for their cooperation and for hosting the 10th UMM Workshop. We also would like to extend a special thanks to the funders of UMM. Without their support the organization of the workshop and the publication of this thematic paper would not have been possible: Thank you to the European Microfinance Platform (e-MFP), the European Commission, EIB-I, GIZ-BMZ, AFD, Freie Universität Berlin, Capgemini Italy and PlaNet Finance. Special thanks also go to Yasmin Olteanu, the UMM Scientific Coordinator from Freie Universität Berlin, for her valuable contribution in producing this publication.

Finally, we thank all the participants who attended the workshop and the speakers from 20 European Universities and different organizations, such as Arc Finance, CGAP, Frankfurt School of Finance & Management, GIZ, joyncoop, KfW, MicroEnergy International, Microfinanza Srl, Rural Electrification Agency Uganda, the UNEP Centre of the Frankfurt School and PlaNet Finance that contributed to the success of the event.

We welcome any comments and suggestions you may have.

Sincerely,

Vanessa Quintero

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Annex I: Photo gallery



Annex II: Workshop programme



10th University Meets Microfinance Workshop
of the e-MFP Action Group "University Meets Microfinance"

New challenges for microfinance: Mobile banking, remittances and green finance

Frankfurt School of Finance & Management - July 4th & 5th, 2013
Sonnemannstrasse 9-11, 60314 Frankfurt am Main, Germany

Thursday, July 4th

Time	Programme	Room
14:00 - 14:30	Registration	Reception
14:30 - 16:00	<p>Opening and Welcome Adalbert Winkler, Frankfurt School of Finance & Management Center of Development Finance Sven Volland, PlaNet Finance / University Meets Microfinance</p> <p>Introductory Presentation on Mobile Banking Michael Klein, Frankfurt School of Finance & Management</p> <p>Introductory Presentation on Remittances Dominique Villeneuve, PlaNet Finance</p> <p>Plenary Discussion <i>Moderation:</i> Adalbert Winkler, Frankfurt School of Finance & Management Center of Development Finance</p>	Audimax
16:00 - 16:30	Coffee break	
16:30 - 18:00	<p>Discussion in small groups</p> <p>Group A: Microfinance, mobile banking and technologies Input by Julia Abakaeva, Microfinance Specialist, Consultative Group for the Assistance of the Poor (CGAP)</p> <p>Group B: Remittances and Financial Access Input by Christian Ambrosius, Freie University Berlin</p> <p>Group C: Mobile Banking Input by Simon Priollaud, PlaNet Finance</p> <p>Group D: More than remittances - which financial management needs do migrants and their families have and how can they be met? Input by Christiane Ströh de Martínez, joyn-coop</p>	<p>Room 2</p> <p>Room 3</p> <p>Room NB01</p> <p>Room NB02</p>
18:00	Cocktail	

Annex II: Workshop programme

Friday, July 5th

Time	Programme	Room
09:30 - 10:15	<i>Registration</i>	<i>Reception</i>
10:15 - 11:45	<p>“Green microfinance: concepts, finance, implementation”</p> <p>Opening : David Levai, Freelance Consultant</p> <p>Round Table : Silvia Kreibiehl, Frankfurt School - UNEP Centre Roland Gross, GIZ Chris Neidl, Arc Finance</p> <p>Plenary Discussion : <i>Moderation:</i> David Levai, Freelance Consultant</p>	Audimax
11:45 - 12:00	<i>Coffee break</i>	
12:00 - 13:15	<p>Presentation of students research</p> <p>Group A <i>Moderation:</i> Adalbert Winkler, Frankfurt School of Finance & Management Center of Development Finance</p> <p>Klara Lindner, Technische Universität Berlin, Postgraduate School Microenergy Sytems / MicroEnergy International, “Microfinanced Solar Home Systems - Issues and Ways to Overcome Them” <i>Comment by</i> Umberto Trivella, Microfinanza Srl</p> <p>Patricia Pulido, Universidad Autonoma de Madrid, “Impact of Mobile Money Services on Microfinance Institutions” <i>Comment by</i> Davide Castellani, Università degli studi die Bergamo</p>	Room 2
	<p>Group B <i>Moderation:</i> Aymeric Fuseau, PlaNet Finance</p> <p>Anahit Sahakyan, Universität Trier, “Microfinance and Renewable Energies” <i>Comment by</i> Yasmin Olteanu, PlaNet Finance / Freie Universität Berlin</p> <p>Susanne Schwan, GIZ, “Overcoming Barriers to Rural Electrification” (<i>Research carried out at Aarhus University</i>) <i>Comment by</i> Natalia Realpe Carrillo, MicroEnergy International</p>	Room 3
13:15 - 14:15	<i>Lunch</i>	
14:15 - 16:00	<p>Discussions with practitioners</p> <p>Group A: The last mile – how do we energize our clients? <i>Moderation:</i> Roland Gross, GIZ</p> <p>Noara Kebir, MicroEnergy International Patricia Kawagga, Rural Electrification Agency Uganda David Levai, Freelance Consultant</p> <p>Group B: Climate adaptation – how is microfinance coming in? <i>Moderation:</i> Chris Neidl, Arc Finance</p> <p>Davide Forcella, Université Libre de Bruxelles / Fonds National de la Recherche Scientifique Monika Beck, KfW</p>	Room 2
16:00 - 16:30	Closing Speech	Room 2
16:30	<i>Cocktail</i>	

Annex III: List of participants

Abakaeva, Julia; CGAP
Albermann, Judith; University of Cologne
Ambrosius, Christian; Freie Universität Berlin
Baltz, Matthias; BFC
Bandi, Neha; GIZ
Barrien Mariama Seray; University of Reading
Beck Monika, KfW
Blanken, Marcus; University of Würzburg / KfW
Bloch, Olga; FSF
Bohl, Daniela Georg-August; Universität Göttingen
Busch, Carolin; Frankfurt School of Finance & Management
Castellani, Davide; Università degli di Perugia
Dang, Binh-An; Grenoble Ecole de Management / GIZ
Diaz Hernandez, Manuel Andres; Frankfurt School of Finance & Management
Erdelmann, Julia; Goethe Universität Frankfurt
Ergashbaev, Zafar; Goethe Universität Frankfurt
Ferber-Hammeke, Lothar; DZ BANK Mikrofinanzfonds eG
Fischer, Dennis; GIZ
Forcella, Davide; ULB, CERMI
Fuseau, Aymeric; PlaNet Finance
Gross, Roland; GIZ
Guiader, Lénaïc; PlaNet Finance Deutschland
Han, Johann; University of Cologne
Hansen; David, University Mainz
Haug, Ulrike; Oikokredit Deutschland
He, Dan; Frankfurt School of Finance & Management
Heesemann, Esther; Joyn Coop - LMU München
Hoffmann, Luisa; Goethe Universität Frankfurt
Iltgen, Simone; GIZ
Jagnow, Johanna; Frankfurt School of Finance & Management
Jeschke, Katharina; World Vision Germany e.V.
Kann, Sophia; Universität Goettingen
Kawagga, Patricia; Rural Electrification Agency Uganda
Kebir, Noara; MicroEnergy International
Klein Michael, Frankfurt School of Finance & Management
Kreibiehl, Silvia; FS UNEP Center
Levai, David; Freelance Consultant
Lindner, Klara; Technische Universität Berlin
Lopez, Tania; Frankfurt School of Finance & Management
Lutz, Clemens; ETH Zurich
Lutzenkirchen, Cedric; FSF
Martins, Fernanda; Finance in Motion
Matthiessen, Simon, Frankfurt School of Finance & Management
Mori, Margherita; University of L'Aquila
Moser, Rafael; University of Trento
Neidl, Chris; Arc Finance
Ntim, Rebecca; Universität Goettingen
Olteanu, Yasmin; PlaNet Finance Deutschland
Pausch, Christoph; European Microfinance Platform

Pensotti, Daniela; PlaNet Finance Italia
Pham; Dien, Universität Bonn
Pinheiro, Marlene; Albert-Ludwig-Universität Freiburg
Pinz, Alexander; University of Mannheim
Priollaud Simon, PlaNet Finance;
Pulido, Patricia; Universidad Autonoma de Madrid
Quintero, Vanessa; PlaNet Finance
Rank, Inka; Sparkassenstiftung für internationale Kooperation
Realpe, Natalia; Microenergy International
Richterich, Verena; Johannes Gutenberg University Mainz
Sahakyan, Anahit; Universität Trier
Schaefer, Julian; Frankfurt School of Finance & Management
Schipmann, Volker; NTT DATA EMEA
Scholz, Stefan; Uganda Martyrs University
Schoofs, Annekathrin; University of Reading
Schulte, Franziska; Goethe Universität Frankfurt
Schulte, Markus; Frankfurt School of Finance & Management
Schulz-Kirchner, Martin; University of Cologne
Schwan, Susanne; GIZ
Seifert, Susann; PlaNet Finance Deutschland
Seipp, Allegra; Frankfurt School of Finance & Management
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Ströh de Martinez, Christiane; Jooyin Coop
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Terpstra, Garrett; Frankfurt School of Finance & Management
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Volland, Sven; PlaNet Finance Deutschland
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