



Munich Climate Insurance Initiative (MCI)

Microinsurance, Weather-Related Risk, and Climate Adaptation
A rapid literature review for the Microinsurance Innovation Facility

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I. Introduction

Microinsurance has emerged as a subset of financial tools from the microfinance-sector and is now widely recognized as a mechanism to assist the poor, especially in

developing countries, to better manage the risks they face. One group of risks of particular growing interest is weather-related risks which affect crop yields, livelihoods and assets, and personal safety of growing numbers of people worldwide.

A great deal of attention has focused recently on experience emerging from piloted public-private micro-insurance systems that protect the poor in highly vulnerable developing countries against droughts, floods and other climate-related extremes. Microinsurance thus might serve as a target for adaptation funding that is emerging within the climate change negotiation process. The precise role of insurance instruments in an adaptation regime is still, however, largely undetermined.

The Microinsurance Innovation Facility hosted at ILO and in partnership with the Bill and Melinda Gates Foundation is the clearing house for information about ongoing work on risk management at the micro-level. One of the purposes for the Munich Climate Insurance Initiative¹ (MCII) to undertake this literature review is to explore the degree to which current microinsurance work and research addresses or does not address weather-related risks and climate change. In discussion with the Facility, MCII wanted to explore the degree to which microinsurance accounts for weather-related risks in theory and in practice, and whether experts and practitioners view this financial tool as a viable way to adapt to broader changes in the climate.

The idea behind this rapid review was to scan available information on micro-insurance, weather risks, and climate adaptation. By looking at available documents, the aim of this effort was to assess what is known about how microinsurance (particularly in the business lines of property/asset insurance and crop insurance) tool helps the poor adapt to weather risks today and in the future. The focus of this modest survey is to probe the current status of insurance schemes focusing on climate-related impacts and the potential of these mechanisms to serve the poor in adapting in the long term to the effects of climate change. This review serves primarily as a point of departure for more in-depth discussion about existing knowledge and also gaps in that knowledge base. MCII hopes that this beginning will

¹ MCII was founded by insurers, climate change and adaptation experts, NGOs, and policy researchers in response to the growing realization that insurance solutions can play a role in adapting to climate change, as suggested in the Framework Convention, the Kyoto Protocol and, most recently, the Bali Roadmap. www.climateinsurance.org.

be useful as a tool to assess what efforts might still be needed to facilitate improved risk management and social protection in the face of changing climate conditions.

The remainder of this rapid review is organized in the following way. Section two explains the method used to gather information from available literature. Section three summarizes the literature sources collected, analysing the content and grouping the themes in the small body of writings reviewed. Section four discusses the patterns coming out of about five dozen articles devoted to microinsurance, weather-related risks, and climate adaptation and section five draws conclusions for this preliminary review exercise.

II. Method

In the course of this exercise, we used two steps to gather information. In a first step, we surveyed books and journal articles related to insurance, microinsurance and microfinance, as well as literature related to weather risks and climate change such as natural hazards. Several online collections of related literature already exist, such as the Munich Re Foundation's annotated bibliography on microinsurance aspects in agricultural insurance, the Microfinance Gateway summaries of literature related to agricultural, livestock, crop, and weather microinsurance products, Michael McCord's landscape review, and the World Bank Agriculture and Rural Development Discussion Paper series. We searched the resources of partners such as the Microfinance Gateway, CGAP, ProVention Consortium, the World Bank, and specialist research institutes. We also searched the internet for relevant literature, not always academic or peer reviewed. The keywords used during this search included "*microinsurance*", "*weather*", "*adaptation*", "*climate risk insurance*", "*micro finance*", "*reducing poverty*", "*reducing vulnerability*". Related key words such as "crop", "agriculture", and "livestock" were also used as subsets of microinsurance literature. The exercise did not perform an in-depth search for project-related information, and this field-type documentation may be a rich source of information in the future.

In the second step of the rapid review, we set up a database where all the articles, papers and abstracts were summarized. Resources were ordered by citation, abstract and our own comments and analysis. Under "comments" we included some brief remarks of the relevance of the article or its respective state in lacking a specific

information, etc. The bibliography provides, where available, the links to articles to make it more transparent for the end-user to look up the respective document. During this second step we continued to examine literature and bibliographies recommended by key partners. We also explored whether related literature addressing microfinance had relevant information. For example, we compared the number of results in a search using the key-words “microinsurance” and “adaptation” further specified by “weather”. This search turned up 1110 relevant hits. By comparison, a search using the key words “microcredit” and “adaptation”, specified with “weather”, resulted in roughly 2010 hits. Therefore, a review of microcredit and microfinance may be useful to assess the degree to which the suite of risk management and finance tools at the micro-level address weather risks and climate adaptation.

III. Data and Analysis

The survey came up with 59 articles pertinent to the keywords explained above. A more in-depth and more time-intensive review will likely reveal additional relevant related literature and field experience. The 59 articles which we found were grouped into eight categories depending on their content.

Results: Literature groupings

To have a more implementable structure, the 59 articles were arranged by their respective context which resulted in the following grouping:

1. Concrete projects, case studies (16)
2. Microinsurance overview, different schemes (14)
3. Addressing the need for microinsurance (7)
4. Microinsurance mechanisms (6)
5. Microinsurance as a tool to reduce vulnerability (6)
6. Policy and climate change adaptation (6)
7. Poverty reduction (3)
8. Climate change scenarios and insurance (1)

Furthermore, the context of the articles in each section was summarised in order to give a more direct impression of their relevance and significance:

Concrete projects, case studies:

In this section, we have 16 different articles that concentrate generally on countries, where micro-insurance-projects (e.g. crop-, flood insurance) are already implemented. However, there is no profound connection to the topics of vulnerability reduction vis-a-vis weather risks or adaptation to the effects of climate change.

Microinsurance overview and different schemes:

In this section, 14 articles concentrate in part on the evaluation of existing microinsurance schemes and try to give recommendations on how to adopt them into disaster risk reduction and poverty- / vulnerability reduction.

Addressing the need for microinsurance:

In this grouping, 7 articles address the need for microinsurance schemes to meet the challenges of climate change. These publications offer general remarks on the need for microinsurance, including the need for risk transfer mechanisms to reduce poverty, vulnerability, and better withstand weather-related stressors.

Microinsurance as a tool to reduce vulnerability:

This group found 6 articles about the connections of vulnerability to risk and opportunities for risk-insurance mechanisms to have a strong effect on reducing people's vulnerability to the effects of climate change

Microinsurance mechanisms:

This section provides 6 articles that deal with microinsurance mechanisms in general. They give a technical overview of applicable schemes relevant to weather extremes and disaster risk reduction. These articles do not link microinsurance to climate adaptation or define alternative (financial) strategies of affected populations.

Policy & Climate change adaptation:

All 6 papers in this section concentrate on the challenges of adaptation to climate change and emerging consequences for policy. Ways to finance adaptation in terms of being a part of national development as well as microinsurance- or microfinance schemes are described with respect to their need in implementation

Poverty reduction:

The 3 articles in this group provide information about poverty reduction and the role insurance mechanisms play when dealing with effects of climate change in the context of poor populations.

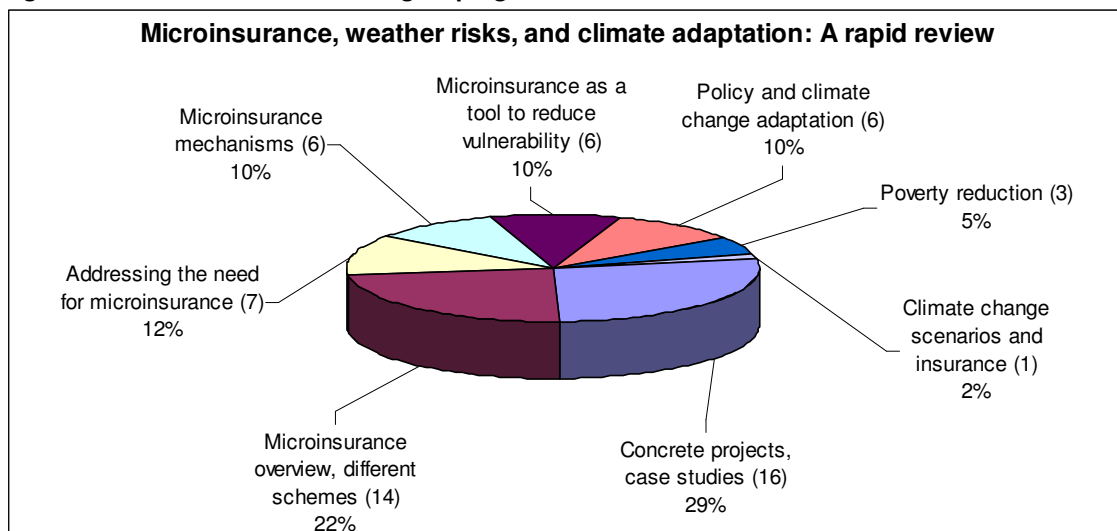
Climate change scenarios and insurance:

The single paper in this group discusses the need of financial assistance systems to help the poor adapt to climate change. In particular, the authors use different scenarios of effects of climate change to foster their appeal to insurers to take microinsurance as a tool for adaptation in not only poor countries but countries prone to climate change.

IV. Discussion & Concluding Remarks

This rapid review of literature related to microinsurance, weather risks, and climate adaptation reveals three trends.

Figure 1: Breakdown of literature groupings



First, almost half of the literature reviewed provided assessments of the current state of the tool as it relates to weather risks (the groupings “microinsurance mechanisms,” addressing the need for microinsurance”, and “microinsurance overview, different schemes). This includes agricultural risks (including crop and livestock). These articles tend to describe the need for microinsurance to address these risks, providing an overview of current schemes, as well as a description of mechanisms such as the benefits of indexed products. These articles sometimes describe the need for greater experience and research in particular areas, and are helpful in gleaning insights about future work programs.

Recommendation: Review these kinds of articles and expert opinion, and incorporate the recommendations in a work stream designed to gain experience about whether and how microinsurance increases the ability of clients to effectively manage weather risks that affect social protection. As part of complementary efforts at the Microinsurance Innovation facility, develop strategies to overcome barriers (i.e. Skees has overview of agricultural products and the Hazel Ratio)—such as investments in weather data and weather stations.

Second, about one third of the literature reviewed addresses specific projects and case studies, many dealing with projects such as agriculture and crop insurance, and tools such as weather index-based mechanisms (the group “tool to reduce vulnerability,” “poverty and climate adaptation,” “climate change scenarios.” And “poverty reduction”). For example, some literature such as the Landscape of Microinsurance in the World's 100 Poorest Countries by the MicroInsurance Centre (April 2007) report signals that weather index insurance has promise to address a range of risks faced especially by farmers. The characteristics of this particular tool are attractive in overcoming moral hazard, reduction of transaction costs, and administration of payouts. The literature did not clearly indicate (yet) the degree to which this particular kind of product or more generally any microinsurance tool affects vulnerability to weather risks, or whether microinsurance is a tool that helps the poor adapt to changing climate conditions.

Recommendation: Many of these projects are new or ongoing. A specific inquiry about the relationship of microinsurance weather-related risks, including whether and how the insurance product affects clients behaviour would be useful. It would be especially helpful if the results of the qualitative and quantitative survey were repeated over time to facilitate both individual projects (i.e. lessons learned and good practice) as well as comparative evaluation of emerging experience.

Third, a cluster of literature groupings came out of the review that investigates the usefulness of microinsurance to achieve a number of development-oriented goals (the groupings “concrete projects and case studies, and “microinsurance overview, different schemes).). These goals include poverty or vulnerability reduction

(vulnerability to natural hazards), and climate change and adaptation to climate change. Together, these kinds of articles made up about 24% of the articles reviewed. These articles tended to discuss the financial mechanism in general terms and the aspiration that microinsurance could help the poor improve their development prospects. This group of articles tended to pose the hypothesis that microinsurance could facilitate development goals. These articles did not necessarily provide evidence that goals such as vulnerability reduction or the effect of the product on resilience to weather-related risks are either measured or achieved.

Recommendation: Measure the impact of a range of microinsurance products on how microinsurance clients manage weather-related risks. A comparative study of how microinsurance clients and people in similar areas or facing similar risks manage weather related risks would be useful.

Finally, as projects related to microinsurance for crop, livestock, or other weather-risk relevant coverage move forward, a central library of project documentation would be very useful. Similarly, it would be useful to develop and implement a project monitoring tool that could allow assessment and comparison over time the ability of microinsurance tools for weather risks to help microinsurance clients adapt to changing climatic conditions. Such an evaluation tool would provide valuable feedback about the possibilities and limits of microinsurance to support climate adaptation.

Annex

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Abstract:

Low-income entrepreneurs are particularly vulnerable to the risks, many of which are insurable, but comparatively little insurance is available to them. Insurance is one of the most difficult of all financial services to provide. All insurers face risks getting the prices wrong, fraud, moral hazard and adverse selection. Those who provide insurance to low-income entrepreneurs face the additional challenge of trying to cover their costs (and make a profit) through the sale of relatively low-cost insurance policies. Recently a few microfinance institutions have begun to add microinsurance to their product lines, with varied results.

This paper presents findings of fieldwork in Burkina Faso on life, health and cattle insurance. The findings suggest that even in a country as poor as Burkina Faso, microinsurance schemes can flourish. The research finds that simpler forms of insurance can be operated relatively effectively, with limited actuarial skills, provided that pricing is prudent and that institutional defences are in place to combat the hazards that typically affect microinsurance schemes. The paper concludes with a series of recommendations for changes in the existing insurance legislation that will both promote and regulate the nascent microinsurance industry in Burkina Faso.

The Government of Burkina Faso expressed a wish to develop a specific microinsurance policy framework. The InFocus Programme on Boosting Employment through Small Enterprise Development (IFP/SEED) aims to ensure that low-income entrepreneurs have access to social services and protection. This research indicates that a viable strategy for achieving this is by delivering microinsurance through microfinance institutions. Many of the lessons learned in this research project have been incorporated into a training manual developed jointly by the InFocus Programme on Boosting Employment through Small Enterprise Development (IFP/SEED) and the Social Finance Programme (SFP). The manual will be used to train the managers of microfinance institutions in introducing and managing microinsurance products.

Available online:

http://www.microfinancegateway.org/files/3454_03454.pdf

- **ALL INDIA DISASTER MITIGATION INSTITUTE (2006):** Community Risk Transfer through Microinsurance: An Opportunity for South Asia.

Abstract:

Following the UN year of Microcredit in 2005, there is growing interest in microfinance solutions to help alleviate poverty in developing countries.

In Asia, in particular, the demand for microfinance has encouraged an everincreasing number of institutions to provide services, such as microcredit, savings and social funds for low-income households. Microfinance services are also now beginning to include the provision of microinsurance as financial protection for low-income households or businesses against specific losses, including death and funeral expenses, health expenses, loss of small-scale assets, damage to property or loss of livestock and crops. The emergence of microinsurance is an important development within the field of microfinance and challenges the previously wide-held belief of the "non-insurability" of the poor.

Microinsurance is also emerging as a potential instrument for transferring natural disaster risks by providing cover, or indemnification, against losses from a disaster event. Like other forms of microinsurance, the intent is to provide easily accessible insurance cover for small-scale assets at affordable premiums by keeping transaction and other costs low. By protecting the poor from disaster losses and providing incentives for risk reduction, microinsurance is increasingly recognised as an important part of disaster risk management.

This issue of southasiadisasters.net examines the subject of microinsurance and discusses the opportunities and challenges that have been learned through recent experiences in implementing microinsurance schemes in Asia. The opening articles introduce the concept of risk transfer that underpins microinsurance and discuss its relevance to disaster mitigation. Case study examples illustrate different approaches to microinsurance, including a range of insurance services and products tailor-made for low-income communities, and highlight salient lessons learned for the evolving microinsurance agenda.

Published online:

http://www.proventionconsortium.org/themes/default/pdfs/AIDMI_May06.pdf

- **BARNETT, B.J., C.B. BARRETT, J.R. SKEES (2008):** Poverty Traps and Index-Based Risk Transfer Products. In: World Development (2008). Article in Press (Elsevier).

Abstract:

A growing literature suggests that in low-income countries, households with few assets can be trapped in chronic poverty. This article reviews relevant threads of the poverty traps literature to motivate a description of the opportunities presented by innovative index-based risk transfer products. These products can be used to address some insurance and credit market failures that contribute to the persistence of poverty among households in low-income countries. Applications are considered at the micro, meso, and macro levels.

- **BOUWER L.M., J.C.J.H. AERTS (2006):** Financing climate change adaptation. In: Disasters. Vol. 30, No. 1 (2006). Pp. 49-63.

Abstract:

This paper examines the topic of financing adaptation in future climate change policies. A major question is whether adaptation in developing countries should be financed under the 1992 United Nations Framework Convention on Climate Change (UNFCCC), or whether

funding should come from other sources. We present an overview of financial resources and propose the employment of a two-track approach: one track that attempts to secure climate change adaptation funding under the UNFCCC; and a second track that improves mainstreaming of climate risk management in development efforts. Developed countries would need to demonstrate much greater commitment to the funding of adaptation measures if the UNFCCC were to cover a substantial part of the costs. The mainstreaming of climate change adaptation could follow a risk management path, particularly in relation to disaster risk reduction. 'Climate-proofing' of development projects that currently do not consider climate and weather risks could improve their sustainability.

- **BANKING WITH THE POOR NETWORK (B.W.T.P.) (2006):** Microinsurance for Risk Mitigation and Crisis Recovery. In: Research Brief 7. Banking With The Poor Network (B.W.T.P.), The Foundation for Development Cooperation (FDC), Citigroup Foundation.

Abstract:

Microinsurance intends to offer the poor protection against specific risks in return for payment of regular premiums proportionate to the likelihood and cost of the risk involved. A growing body of literature on microinsurance highlights design and implementation challenges, but provides some successful pilots in developing countries along with valuable lessons for MFIs that intend to provide microinsurance services to their clients. The available information, however, only provides guidelines to design and implement life, loan and health insurance that protect the poor from personal calamities.

Microinsurance, when available at affordable prices, is now recognised as an important financial service providing some protection to the poor in the event of personal and natural disasters. A recent study of microinsurance in Bangladesh shows that health, life and loan insurance are now functioning and covering about one third of the poor. But disaster and livestock insurance are virtually unavailable, and the only institution providing them covers about 4% of MFI clients. While it is important to cover asset and livelihood losses in the wake of a major disaster, many microinsurance experts point to the inability of current microinsurance products to cover such losses from these events. Information on such microinsurance programs is sketchy due to poor documentation and monitoring, and lack of evaluations to learn lessons. As a result, it remains unclear whether microinsurance is either feasible or effective in the event natural disasters such as highly destructive tsunamis and hurricanes.

Available online:

http://quick-centre.or.id/index.php?option=com_docman&task=cat_view&qid=49&dir=ASC&order=date&Itemid=4&limit=5&limitstart=10

- **CARLTON, A., H. MANNDORFF, A. OBARA, W. REITER, E. RHYNE (2001):** Microfinance in Uganda. Published by the Austrian Federal Ministry of Foreign Affairs.

Abstract:

The evaluation of microfinance as an instrument of the Austrian Development Cooperation has comprised three stages: The first stage consisted of the assessment of Austria's microfinance interventions in Zimbabwe and was carried out in 1999. During the second stage, ADC's microfinance strategies and their application in Mozambique and Namibia were evaluated in early 2000. The assessment of microfinance as an instrument of the Austrian Development Cooperation in Uganda represents the final stage of the evaluation cycle.

While in the first two stages the evaluations have focused on the analysis of the institutions supported by Austria and the assessment of ADC's policies and structures, the focus of the final stage has shifted to the analysis of the environmental conditions of microfinance in Uganda and how these conditions impact on the performance of the microfinance industry and the institutions supported by Austria. This overview is part of the output of the evaluation and is open to a wider public than the assessment of ADC's microfinance policies and strategies in Uganda.

Available online:

<http://www.oecd.org/dataoecd/20/21/35481055.pdf>

- **CARTER, M.R., P.D. LITTLE, T. MOGUES, W. NEGATU (2005):** Shocks, Sensitivity and Resilience: Tracking the Economic Impacts of environmental Disaster On Assets in Ethiopia and Honduras. University of Wisconsin-Madison. Department of Agricultural and Applied Economics. Staff Paper No. 489.

Abstract:

Droughts, hurricanes and other environmental shocks punctuate the lives of poor and vulnerable populations in many parts of the world. The direct impacts can be horrific, but what are the longer-term effects of such shocks on households and their livelihoods? Under what circumstances, and for what types of households, will shocks push households into poverty traps from which recovery is not possible? In an effort to answer these questions, this paper analyzes the asset dynamics of Ethiopian and Honduran households in the wake of severe environmental shocks. While the patterns are different across countries, both reveal worlds in which the poorest households struggle most with shocks, adopting coping strategies which are costly in terms of both short term and long term well-being. There is some evidence that shocks threaten long term poverty traps and that they tend to militate against any tendency of the poor to catch up with wealthier households. Policy implications are discussed in terms of access to markets and the design of government safety net programs.

Available online:

<http://129.3.20.41/eps/dev/papers/0511/0511029.pdf>

- **Microinsurance: Improving Risk Management for the Poor.** Newsletter by CGAP Working Group on Microinsurance.

Abstract:

This Newsletter informs about the specific field of microinsurance and its relevance for people in developing countries.

The CGAP Microinsurance Working Group aims at facilitating coordination between initiatives towards the development of insurance products for low-income households. It is chaired by ILO and currently structured into four subgroups: Operations and Donor Guidelines, Demand, Regulation and Dissemination. The composition of the working group includes donors, insurers and other interested parties. Others are welcome, especially if they are willing to actively contribute to one of the subgroups. In order to share information about microinsurance initiatives, the working group issues this quarterly Newsletter.

Available online:

http://www.microfinancegateway.com/fulltext/results.php?ft_datatype=32%2C11%2C7%2C20%2C5%2C13%2C9&ft_junction=all&ft_keywords=microinsurance&pr=cgap_mfg&order=r&Submit=Go+%3E

- **CHURCHILL, C. (Editor) (2006):** Protecting the Poor. A Microinsurance Compendium. Munich Re Foundation, International Labor Organisation, CGAP.

Abstract:

This authoritative compendium brings together the latest thinking of leading academics, actuaries, and insurance and development professionals in the microinsurance field. The result is a practical, wide-ranging resource which provides the most thorough overview of the subject to date.

The book allows readers to benefit from the valuable lessons learned from a project launched by the CGAP Working Group on Microinsurance analysing operations around the world. Essential reading for insurance professionals, practitioners and anyone involved with offering insurance to low-income persons, this volume covers the many aspects of microinsurance in detail including product design, marketing, premium collection and governance.

It also discusses the various institutional arrangements available for delivery such as the community-based approach, insurance companies owned by networks of savings and credit cooperatives and microfinance institutions. The roles of key stakeholders are also explored and the book offers insightful strategies for achieving the right balance between coverage, costs and price.

Published online:

http://www.munichre-foundation.org/StiftungsWebsite/Projects/Microinsurance/2006Microinsurance/Microinsurance_Compndium.htm

- **CHURCHILL, C. D. REINHARD, Z. QURESHI (2006):** Into Action - Microinsurance. Making Insurance work for the Poor. Report Summary of the Microinsurance Conference, 18-20 October 2005, Munich. Munich Re Foundation and International Labour Office, Geneva.

Abstract:

In its quest to be more useful at a smaller cost to more poor people, microinsurance got a macro boost when about a hundred experts from around the world gathered to thrash out

obstacles and opportunities at the conference facility of Munich Re in Germany from 18 to 20 October 2005.

- **DIAZ NIETO, J., S. COOK, M. LUNDY, M. FISHER, D. SANCHEZ, E. GUEVARA (2006):** A System of Drought Insurance for Poverty Alleviation in Rural Areas. Colombia, South America: Centro Internacional de Agricultura Tropical (CIAT).

Abstract:

This document presents a feasibility study of a practical method of drought insurance that is self-sustaining and ready for use by farmers, non-government organizations (NGOs) and other development organizations.

The paper argues that in the case of drought, insurance works best by encapsulating the best available scientific estimate of drought probability at a site within a single number - the insurance premium - which allows insurers to offer insurance to insurable parties in a transparent risk-sharing agreement.

The paper presents a feasibility study of providing weather insurance for dry bean farmers in Nicaragua that had the following features:

- * Dry bean farmers were canvassed in workshops to rank risks that yield the greatest losses;
- * The results depended on the farmers' climate;
- * Farmers coped with risk by limiting investment and labor input when the weather was bad, and increasing the areas of production if good weather was assured.

The paper explains:

- * The methodology of designing a payout index based on rainfall;
- * A sample contract and the calculation of this hypothetical scheme;
- * The site specific probabilities of a trigger event;
- * The practical issues of distributing insurance.

It concludes that:

- * Crop insurance, combined with microfinance, has the potential to help poor farmers break out of poverty;
- * The insurance scheme that the paper describes provides the scientific tools that allow the expansion of microfinance and insurance to people who have not yet had access to them.

Available online:

<http://www.microfinancegateway.com/content/article/detail/35365>

- **GINÉ, X., R. TOWNSEND, J. VICKERY (2007):** Statistical Analysis of Rainfall Insurance Payouts in Southern India. Policy Research Working Paper. The World Bank - Development Research Group. Finance and Private Sector Team.

Abstract:

Using 40 years of historical rainfall data, this paper estimates a distribution for payouts on rainfall insurance policies offered to farmers in the State of Andhra Pradesh, India, in 2006.

The authors find that the contracts primarily protect households against extreme tail events; half the expected value of indemnities paid by the insurance are generated by only 2 percent

of rainfall realizations. Contract payouts are significantly correlated cross-sectionally, and also inversely associated with real GDP growth. The paper discusses the implications of these findings for the potential benefits of insurance to households, the risks facing a financial institution underwriting rainfall insurance contracts, and pricing.

- **HESS, U., K. RICHTER, A. STOPPA (2002):** Weather Risk Management for Agriculture and Agri-Business in Developing Countries. IFC, World Bank and Procom Agr., Rome.

Abstract:

This chapter has three components. The first part argues that weather risk causes substantial inefficiencies in developing countries; agri-businesses, faced with underdeveloped formal financial markets, have to rely on traditional WRM that is associated with underinvestment and overdiversification. We discuss how new WRM can overcome the pitfalls of traditional WRM and have a large development impact. In the second section, we discuss the range of potential uses of new WRM. The final part turns to the operational aspects of a new WRM, studying in detail the case of WRM for cereals in Morocco.

Available online:

http://www.microfinancegateway.org/files/39251_file_45.pdf

- **HESS, U. (2003):** Innovative Financial Services for Rural India Monsoon-Indexed Lending and Insurance for Smallholders. Agriculture & Rural Development Working Paper 9. The World Bank Agricultural and Rural Development Department. Washington.

Abstract:

With the advent of an international market for managing weather-related risk, the use of insurance products based on a weather index is becoming a reality. In Alberta and Ontario, Canada various insurance programs based on weather and vegetative indexes have become mainstream insurance products for farmers. In emerging markets, such as Mexico and South Africa, risk insurance contracts based on weather are also beginning to be used. Following a World Bank Group feasibility study, an IFC-sponsored weather insurance project has developed weather insurance for cereals which will be sold to farmers in Morocco for the 2003/2004 crop season. (Hess, Richter, Stoppa, 2002) In another initiative, the Agricultural and Rural Development Family (ARD) of the World Bank, in collaboration with various private and public partners in India, is now supporting pilot studies to explore the feasibility of insurance for crop loans based on rainfall indexes. This paper outlines an integrated crop loan insurance and risk management product for Indian rural finance and agriculture. This monsoon insurance for crop loans—combined with the risk management account proposed in this paper—could significantly improve farmers' access to crop loans and their capacity to manage risk. The paper is organized into the following sections:

1. the first section defines the problem of access to financial services, how monsoon risk affects that access and how the India government is currently addressing the problem;
2. the second section describes the concept of monsoon-indexed lending and risk management accounts for smallholders; and

3. the final section describes the findings of a modeling exercise applying the service in India.

- **HOCHRAINER, S., R. MECHLER, G. PFLUG, A. LOTSCH (2008):** Investigating the Impact of Climate Change on the Robustness of Index-Based Microinsurance in Malawi. World Bank Policy Research Working Paper No. 4631.

Abstract:

This analysis explores the potential impact of climate change on the viability of the Malawi weather insurance program making use of scenarios of climate change-induced variations in rainfall patterns. The analysis is important from a methodological and policy perspective. By combining catastrophe insurance modeling with climate modeling, the methodology demonstrates the feasibility, albeit with large uncertainties, of estimating the effects of climate change on the near and long-term future of microinsurance schemes serving the poor. By providing a model-based estimate of the incremental role of climate change, along with the associated uncertainties, this methodology can quantitatively demonstrate the need for financial assistance to protect microinsurance pools against climate-change induced insolvency. This is of major concern to donors, nongovernmental organizations, and others supporting these innovative systems; those actually at-risk; and insurers. A quantitative estimate of the additional burden that climate change imposes on weather insurance for poor regions is of interest to organizations funding adaptation.

Available online: http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1149134

- **HOFF, H., K. WARNER, L.M. BOUWER (2005):** The Role of Financial Services in Climate Adaptation in Developing Countries. DIW, Berlin. Vierteljährliche Hefte zur Wirtschaftsförderung. Ausgabe 74, Nummer 2 (2005). S. 196-207.

Abstract:

Finance and insurance industry ("financial services") can play a key role in climate adaptation, by reducing and transferring risks. However, financial services are largely absent from developing countries with their highly vulnerable economies and livelihoods. The financial services sector claims in particular a lack of business opportunities for that. We provide examples of innovative financial tools such as micro-credits, index-based insurance, government supported insurance pools, international re-insurance and adaptation and new partnerships between private sector, governments, civil society and international organisations, that support pro-active adaptation to climate change and disaster reduction, and thus reduce the costs of climate change. In some cases these tools have been introduced successfully in developing countries. Through partnerships with the financial services sector, currently fragmented adaptation activities can be integrated and mainstreamed with development goals and natural resource management. Science can support these partnerships e.g. with climate scenarios and assessments of future risks and hotspots for intervention.

- **HUQ, S. H. REID, L.A. MURRAY (2006):** Climate Change and Development Links. Gate Keeper Series 123. International Institute for Environment and Development (IIED).

Abstract:

Until recently, climate change was viewed largely as an environmental concern, of little relevance to development policy-makers or practitioners. Likewise, development approaches have been given less attention within the climate change community, who instead favour natural science approaches focusing on reducing greenhouse gas emissions. This paper describes the independent evolution of climate change and development discourses, and provides some explanation as to why the two fields have operated largely independently from one another. The recent initiatives to strengthen links between the climate change and development communities are also described. These are of particular importance as climate change impacts will significantly affect national development. Climate change experts can no longer ignore the fact that most climate change impacts will fall predominantly on the world's poorest people. Likewise, without addressing climate change issues, much development policy and practice will be wasted. Alternative development pathways will influence the capacity of communities and countries to adapt to climate change and will also determine future greenhouse gas emission pathways. The authors make some specific recommendations for particular groups of actors: • International donor agencies need to assess the extent to which their investment portfolios in developing countries might be at risk due to climate change and take steps to reduce that risk. • Developing country governments need to understand the extent to which they may be vulnerable to climate change and take steps to reduce vulnerability (and enhance adaptive capacity) of the most exposed sectors and populations. • Vulnerable communities (and NGOs and other agencies working with those communities) must also understand the extent to which they may be vulnerable to climate change and to take steps to reduce their vulnerability (and enhance adaptive capacity), eg. through microinsurance schemes. • Less developed country countries should implement their National Adaptation Programmes of Action (NAPAs). • All conscious citizens of the world must understand their own contribution to the problem of climate change and their capacity to reduce emissions and support those most vulnerable to unavoidable impacts.

Available online:

<http://www.iied.org/pubs/pdfs/14516IIED.pdf>

- IDS in Focus. Issue 02. Climate Change Adaptation: A Research Agenda. November 2007.

Abstract:

About 420 million people live in chronic poverty, the majority of them from South Asia and sub-Saharan Africa. Poverty reduction efforts designed to help this group are threatened by climate change, but climate change adaptation may also present developmental opportunities. A pro-poor adaptation research agenda investigates how adaptation can provide pathways out of chronic poverty by going beyond tackling the additional impacts of climate change.

Published online:

http://www.ids.ac.uk/UserFiles/File/publications/in_focus/InFocus2.0ClimateChangeAdaptation.pdf

- **INSURANCE REGULATORY AND DEVELOPMENT AUTHORITY, INDIA (2007):** Concept Paper on Need for Developing Microinsurance in India.

Abstract:

Microinsurance refers to protection of assets and lives against insurable risks of target populations such as micro-entrepreneurs, small farmers and the landless, women and low-income people through formal, semiformal and informal institutions. Such products are often bundled with micro-savings and micro-credit, thereby allocating scarce resources to micro-investments with the highest marginal rates of return. Microinsurance is the most underdeveloped part of microfinance. Yet various schemes exist that are viable, benefiting both the institutions and their clients. Such schemes have generally served two major purposes: (i) they have contributed to loan security; and (ii) they have served as instruments of resource mobilization. The greatest challenge for microinsurance lies in the combination of viability and sustainability with outreach.

Although introduction of sound practices such as appropriate policy sizes and timely payment of installments of premium or positive incentives to renew on time in order to avoid policy getting lapsed can be feasible, the ultimate effectiveness of interventions focusing on institutional transformation and sound insurance practices will vary considerably, depending on the appropriateness of the regulatory environment.

Published online:

http://www.microhealthinsurance-india.org/content/e22/e156/e288/e289/conceptpaper_microinsurance_aug182004.pdf

- **International Livestock Research institute (ILRI) (2006):** Mapping climate vulnerability and poverty in Africa. 200 pages.

Available online:

<http://www.ilri.org/ILRIPubAware/Uploaded%20Files/Mapping%20Climate%20Vulnerability%20and%20Poverty%20in%20Africa.pdf>

- **KANG M. G. (2007):** Innovative agricultural Insurance Products and schemes. Agricultural Management, marketing and Finance Occasional Paper. Food and Agricultural Organisation of the United Nations (FAO). Rome.

Abstract:

Farmers are exposed year round to a variety of risks, both market-related, such as price variations, and non-market-related, such as unfavourable weather, pests, and diseases. Such risks make agricultural production unstable from year to year, affecting the income and welfare of agricultural producers. If agricultural commodities are important food or export crops, the risks eventually reduce foreign exchange earnings and further lead to a lower national income and to reduced long-term productive investments in agriculture. Agricultural insurance, a financial tool to minimize the adverse effects of agricultural risks, has been devised to address the agricultural production or yield risks that are mainly due to adverse climate. However, as agriculture became more sophisticated, producers, marketing companies and bankers are

demanding insurance to cover a greater number of risks. Complying with this demand and in order to overcome the limitations of traditional agricultural insurance that originate from the characteristics of agricultural risks (occurring over a wide area at the same time, etc.), new insurance products, schemes and alternatives are continuously being developed.

This paper aims at identifying the recently developed innovative products and schemes of agricultural insurance, followed by some alternatives to insurance. It is an introductory guide for policymakers, farmers, and insurance planners.

Available Online:

http://www.microfinancegateway.org/files/42748_file_5.pdf

- **LEFTLEY, R. and S. MAPFUMO (2006):** Effective Microinsurance Programmes to Reduce Vulnerability. Opportunity International Network.

Abstract:

The provision of insurance products to microfinance clients is becoming increasingly common and much has been learnt over the last ten years about how to design products to better meet the needs of clients. This paper sets out to provide an overview of some of those lessons learnt.

The provision of any financial service to the poor must start with an understanding of client demand; the authors take this one step further and explain how client demand is tempered with other factors such as regulations, the operational environment and insurance supply. A product development process is outlined providing examples of how an effective product can be developed and implemented within a microfinance organisation.

The paper continues to look at some lessons learnt and some common features that are found in effective products. This is conducted both at the generic level for those features that are common across different types of products and then in more detail for each type of product (e.g. life, property, health etc).

Whilst the provision of insurance to the poor has mainly been via either mutuals / cooperatives or microfinance organisations using the “partner- agent” model; the authors argue that in fact there are a myriad of ways to provide the poor with access. The distribution chain is broken into distributor, administrator and risk carriers so that the reader can consider potential options. The paper concludes by considering some of the issues that the industry faces as it seeks to expand beyond mainly life insurance via microfinance loans and into the provision of insurance to the mass market.

Published online:

<http://www.opportunity.net/publications/Effective%20Micro-Insurance%20Programs%20to%20Reduce%20Vulnerability.pdf>

- **LEVIN, T. and D. REINHARD (2007):** Microinsurance aspects in agriculture. Discussion Paper. Munich Re Foundation. CGAP Project.

Abstract:

Agricultural microinsurance in the context of this discussion paper involves the broad question of how low-income farmers close to or below the poverty level can be indemnified for agricultural losses due to severe weather conditions – regardless of the level of the insured (micro: individual; meso: community, farmer association, etc.; macro: national institution, government). In other words, it should be differentiated from the term “microinsurance” used purely to describe the level of the insured (individual).

It is very important to assess the farmer’s risks and the appropriate coping strategies and instruments. Especially risks resulting in small losses, with a high predictability of occurring or high frequency of occurrence, require other strategies such as savings or emergency loans rather than insurance solutions. Only exceptional risks leading to high losses are considered to be insurable. Thus, agricultural insurance is likely to complement, rather than displace, existing ways of coping with risk.

This paper is a joint effort between GTZ (Thomas Levin) and the Munich Re Foundation (Dirk Reinhard) to provide a short overview of the current discussions about agricultural insurance in developing countries. It is based on literature research and analysis of more than 70 publications as well as on interviews with reinsurance experts from Munich Re, a global reinsurance company. This discussion paper is not intended to be an exhaustive compendium. However, it can serve as a basis for more detailed research and for triggering further discussion on the way forward for the CGAP Sub Group on Microinsurance in Agriculture. CGAP, the Consultative Group to Assist the Poor, is a consortium of 33 public and private development agencies working together to expand access to financial services for the poor, referred to as microfinance.

Published online:

http://www.munichre-foundation.org/StiftungsWebsite/Publications/MIC_AgroPaper_Publication_summary.htm

- **MAEZ, M.S. and S. WONG (2006):** Insurance in Emerging Markets: Sound Development; Greenfield for Agricultural insurance. In: Sigma. No. 1 (2007). Swiss Reinsurance Company. Economic Research and Consulting. Zurich.

Abstract:

Emerging market economies continued to deliver strong growth in 2005 despite generally rising global interest rates and commodity prices. Both, life and non-life insurance premiums are registered further gains, of 7.5% and 5%, respectively, in the year after adjusting for inflation. While uncertainties stemming from the global interest rate cycle and geopolitical tensions look set to persist in the near term, the insurance growth outlook for 2006 and 2007 remains sound. Few emerging markets currently offer sufficient insurance coverage against the broad range of production risks inherent in agriculture activities. Total agricultural insurance premiums in emerging markets were estimated at around USD 1.1 billion in 2005, less than 20% of the global total, although emerging markets account for nearly 70% of food production worldwide. A properly-designed risk management system is thus essential for protecting farm operators and reinforcing rural development.

- **MAPFUMO, S. (2007):** Weather Index Insurance. The Case for South Africa. Micro Insurance Agency Holdings LLC.

Abstract:

South African smallholders farmers like other farmers in Africa, are faced with high yield variability due to weather related perils such as drought, floods and snow. Their plight is made worse by their inability to access high yielding, disease resistant seed varieties and other required inputs such as fertilizer. To access input loans, they would need to pledge their assets as collateral to banks or microfinance institutions. Most of these farmers do not have such assets. The lack of collateral and their high dependence on rainfall make smallholder farmers high risks and most banks do not avail their loans to them.

On the other hand, medium and large-scale farmers not only have access to finance, but also access risk transfer mechanisms such as multi-peril crop insurance (MPCI). Though not very efficient, MPCI has not even been attempted as a risk transfer mechanism in the micro-level farming community. This is because issues of moral hazard, adverse selection and high monitoring and administration costs would be even worse with these farmers than with medium and large scale ones. Given the size of the land holding by smallholder farmers, per field loss adjustment costs are considerable and hence such an approach is inappropriate. In light of the above, our challenge then, is to design and implement an alternative efficient and cost effective crop failure insurance program that can easily be reinsured and distributed to micro-level farmers. Weather index insurance attached to input finance proved very popular in Malawi where two financial institutions provided loans to farmers to purchase high yielding seed and other chemicals. In times of drought, the farmers' debt to the financier is paid off. Since the majority of farmers in the pilot have little or no collateral the insurance policy is acting as some form of collateral to the bank.

Available online:

http://www.microfinancegateway.org/files/43854_file_Weatherinsurance_SA.pdf

- **MANUAMORN, O.P. (2007):** Scaling up Microinsurance: The Case of Weather Insurance for Smallholders in India. Agriculture and Rural Development Discussion Paper 36. The World Bank (Editor).

Abstract.

The objective of this paper is to study the experience of BASIX, which, as the intermediary agent between the insurance company and rural customers, has successfully scaled up the rainfall index insurance program in a three-year period. This paper highlights the technical and operational viability of bringing such an innovative microinsurance product to smallholder farmers in remote rural areas and analyzes the conditions that allow BASIX to do so effectively. By examining BASIX's experience, the author aims to draw lessons from the project's implementation that are transferable to other developing countries.

The study identified several factors that are key to BASIX's ability to rapidly expand weather insurance coverage both geographically and in terms of number of beneficiaries.

Available online:

<http://siteresources.worldbank.org/INTARD/Resources/ScalingUpMicroinsurance.pdf>

- **MAYNARD, T. (2008):** Climate Change: Impacts on Insurers and How They Can Help With Adaptation and Mitigation. In: The Geneva Papers. Vol. 33 (2008). Pp. 140-146.

Abstract:

Climate change is already affecting the global insurance industry. These changes are often seen as being negative, although opportunities also exist. Other areas of insurance coverage may also be affected in addition to property damage. The potential for third-party liability claims from climate change is less well understood but has even greater potential to affect the industry. Financial assets held to meet claims and provide a capital buffer may also be affected. Therefore the balance sheet of an insurer may be damaged from all sides. Insurers cannot force policyholders to mitigate CO2 emissions, but they can give them a choice and a number of them are already offering such policies. They can also take steps to reduce their own carbon emissions. Insurance is adaptation; there are a surprisingly large number of small to medium companies that do not have catastrophe cover, so increasing insurance penetration of these markets would be an adaptive measure. Insurers will continue to lobby governments for appropriate weather defences to keep areas insurable for as long as possible. Non-traditional forms of insurance are available (such as those based on weather indices with parametric triggers) and it may be possible to continue to offer these for longer than traditional insurance. They do bring basics risk with them, and therefore possibly reputational risk to the industry. Insurers can only pool risk; we cannot insure our way out of this problem, but we can help to spread the impacts where possible.

- **MCLEMAN, R. and B. SMIT (2006):** Vulnerability to climate change hazards and risks:crop and flood insurance. In: The Canadian Geographer. Vol. 50, No. 2 (2006). Pp. 217-226.

Abstract:

This paper reviews the widely used concepts of risk and vulnerability as they relate to climate and weather hazards, re-conceptualizes these terms in the context of climate change and illustrates this development using crop and flood insurance as examples. Government subsidization of insurance against risks associated with adverse climatic conditions and weather events, such as flood damage and crop loss, may lead to individual decisions that actually increase the susceptibility of people, property and economic activities to those risks. The processes that give rise to this phenomenon are important in understanding the vulnerability of human populations to climate change. In many regions, existing conditions that give rise to flooding or crop failure are likely to be exacerbated by climate change over coming decades. In the climate change field, vulnerability has been conceptualised as a function of exposure to risk and as an ability to adapt to the effects. In this context, crop and flood insurance are possible adaptive measures. This treatment of vulnerability compares with similar concepts in insurance and risk management whereby events that cause loss are known as perils, and physical conditions, such as climate change, that increase the likelihood

of a peril occurring, are known as physical hazards. Human behaviour that increases the exposure of individuals to potential perils is known as morale hazard or moral hazard, depending on the intentions of the person. Vulnerability consequently becomes a function of hazard and responses taken to reduce risk. Examples of crop and flood insurance programs from Canada, New Zealand and the U.S. are used to show how subsidized insurance might create a morale hazard in addition to physical hazards such as short-term weather events and long-term climate change, resulting in a higher level of vulnerability than would otherwise exist. These findings demonstrate that human behaviour affects the formation of both exposure and adaptive capacity in the context of vulnerability to climate change. Responses taken to increase adaptive capacity may in some cases be offset by individual behaviour that increases exposure.

- **MECHLER, D. J. LINNERTH-BAYER, D. PEPPIATT (2006):** Disaster insurance for the Poor? A Review of Microinsurance for Natural Disaster Risks in Developing Countries. A ProVention / IIASA Study.

Abstract:

A limited number of schemes offering microinsurance cover against disaster risk already exist or are planned in developing countries. Experience of these schemes and the information available on them are too limited to allow a comprehensive evaluation; however, some insights into their potential benefits, limitations, and viability can be gained from recent experience. The ProVention Consortium is therefore collaborating with the International Institute of Applied Systems Analysis (IIASA) in a research initiative that aims to assess the benefits, limitations, and viability of microinsurance for disaster risk.

This desk-top study reviews microinsurance schemes that provide cover for natural disaster risks in developing countries. It is not intended to be exhaustive—many schemes are in the planning stages and there is only limited, open-source information—but to give an overview of the potential and the challenges of microinsurance for the poor. The study opens with a discussion of the benefits and limitations of risk transfer and risk pooling. The different organizational and institutional forms that microinsurance can take are described in section 3. Section 4 presents the evidence available on the organization, scope, and operations of the disaster microinsurance programs reviewed. In section 5 the viability of catastrophe microinsurance is examined in terms of four criteria: its contribution to risk reduction, its financial robustness, its affordability, and governance. The paper concludes with a summary of the main findings with regard to the potential of catastrophe microinsurance to protect the poor against the consequences of natural disaster shocks and to the significant challenges in making this protection viable.

Published online:

http://www.proventionconsortium.org/themes/default/pdfs/Microinsurance_study_July06.pdf

- **MECHLER, R. and J. LINNERTHOOTH-BAYER (2007):** Disaster Safety Nets for Developing Countries: Extending Public–Private Partnerships. In: Environmental Hazards. Vol. 7, Issue 1. Pp. 54-61.

Abstract:

In developed countries, public–private partnerships involving insurance companies and governments often provide security against the human and economic losses of disasters. These partnerships, however, are neither available nor affordable in most highly exposed developing countries. In this paper we examine recent innovations in financial risk management that extend traditional public–private partnerships to include NGOs, international financial institutions and other donors. Importantly, these partnerships provide secure financial arrangements to low-income communities before disasters strike and thus relieve the uncertainty and anxiety of depending on ad hoc post-disaster aid for recovery and even survival. We examine three examples of extended partnerships: the Turkish Catastrophe Insurance Pool; the Andhra Pradesh microinsurance program and an index-based weather derivative for farmers facing drought in Malawi.

- **MECHLER, R., J. LINNERTHOOTH-BAYER, D. PEPPIATT (2006):** Microinsurance for Natural Disaster Risks in Developing Countries. Benefits, Limitations and Viability. ProVention Consortium and International Institute for Applied Systems Analysis (IIASA).

Abstract:

Following the UN year of microcredit in 2005, there is large interest in microfinance solutions to help alleviate poverty in developing countries. Whereas microcredit and to a lesser extent microinsurance for life and health risks are now established on a wide scale, microinsurance to indemnify losses from severe and catastrophic risks is only emerging. The intent of disaster microinsurance is to provide low-income households and businesses with easily accessible and affordable insurance for deaths, health expenses, loss of smallscale assets, livestock and crops in the event of a flood, typhoon or other natural disaster. The viability of disaster insurance for poor households and businesses, however, remains questionable given the nature of disaster losses, which can affect whole communities and risk pools at the same time (so-called covariant risks). The disaster risk management community views microinsurance, if it proves viable, as part of a broader, integrated disaster risk management framework involving risk reduction, preparedness and risk transfer.

A limited number of schemes offering microinsurance for disaster risks have been or will be implemented in developing countries. Experience and available information are too limited for a comprehensive evaluation of these schemes, but some reflections on their potential benefits, limitations and viability can be made. For this purpose, the ProVention Consortium is collaborating with the International Institute of Applied Systems Analysis (IIASA) on a microinsurance research initiative.

Available online:

http://quick-centre.or.id/index.php?option=com_docman&task=cat_view&gid=49&dir=ASC&order=date&limit=4&limitstart=5

- **MICROFINANCE OPPORTUNITIES.** 501(c)(3) non-profit organisation

Abstract:

Despite its strong appeal as a product with high value and a huge untapped market, insurance is a complex endeavor, and a different business from current MFI products. In the current exploratory phases of insuring the poor, each effort requires careful market research to answer many questions, including:

- * What segments of the market should be targeted?
- * Which risks are a priority for insurance protection for the poor?
- * What do potential clients understand about insurance?
- * Given their knowledge, how will insurance need to be marketed?

Microfinance Opportunities specializes in this market research on microinsurance. This is a challenging undertaking because the lack of exposure and access to insurance means that potential clients are unlikely to articulate demand for it. Microfinance Opportunities draws on extensive experience in assessing market demand and especially, its in-depth knowledge about how the poor manage risk. It applies market insights to product concepts and facilitates the institutional linkages that can transform these ideas to marketable products. For example:

- * Vietnamese farmers are susceptible to typhoons, floods and heavy winds, but have no insurance coverage. After completing a market study of demand for microinsurance, Microfinance Opportunities will recommend potential products for further testing – insurance to protect crops against weather related losses and protection against loss of livestock.

- * Indonesia has 73 insurance companies none of which insure the country's 12 million low-income households. Microfinance Opportunities did research on demand for microinsurance among clients of three MFIs and identified several ways to extend coverage to this market. Given its core mission to improve microfinance services to clients, its is well placed to help guide the development of this new product line.

Website:

<http://www.microfinanceopportunities.org/workMI.html>

- **MOMMENS, X. (2006):** Insurance schemes for small farmers. Eurpean Microfinance Programme.

Abstract:

- * What products related to agriculture could be considered/ rejected?
- * How to organize the insurance scheme?
- * Does it reduce the vulnerability of farmers?

The paper provides reasons why insurance companies give difficult access to insurance companies in rural areas, especially to small farmers. These include:

- * Lack of information leading to moral hazard and adverse selection;

- * Lack of collaterals;
- * Covariant risk;
- * Costly administration
- * More risk than in other sectors.

As per the paper, some of the ways to deal with risks in rural areas, including new and promising insurance products, are:

- * Informal insurance arrangements;
- * More formal institution for the lender, like guarantee fund, mortgage, warehouse, risk central-credit bureau, rural management board;
- * Formal rural insurances, such as price insurance, livestock insurance, crop insurance;
- * Access to global market for microfinance institution (MFI) or micro insurance companies through reinsurance and new market instruments for sharing risk.

The paper also explores the future of rural microinsurance, its potential as the most appropriate solution and its implementation. It concludes that:

- * Better access for small farmers to microinsurance products could, to a certain degree, fill the gap between their need of access to credit and a better security of being reimbursed for the MFI;
- * For many farmers, however, access to savings will be more appropriate than insurance;
- * If insurance is the best solution to reduce vulnerability, then new index insurance products should be favored.

Available Online:

http://microfinancegateway.org/files/33497_file_Microfinance_Insurance_scheme_for_small_farmers.pdf

- **MORDUCH, J. (2006):** Microinsurance: The Next Revolution? In: Banerjee, A.V. , D. Mokherjee, R. Bénabou (2006): Understanding Poverty. Oxford.
Abstract:
This essay focuses on the design of insurance products for poor customers. Several promising innovations are described: credit life insurance, health insurance partnerships, and weather insurance. Each was created to serve populations that were previously unserved, and workable institutional solutions are emerging. The next step must be to shift from the question of what creates workable institutions to the question of how to refine designs to best serve low-income populations. In doing so, current approaches must be reassessed in order to most improve clients' lives and to avoid doing unintended harm.
- **MOSLEY, P. (2001):** Insurance Against Poverty? The 'New Generation' Agricultural Microinsurance Schemes. In: Small Enterprise Development, Vol. 12, No. 1 (2001). Pp. 51-58.
Abstract:
Insurance has often been proposed as a remedy for risk, which in turn is a major cause of poverty (World Development Report 2000/2001). However, the history of insurance schemes (especially crop insurance schemes) in developing countries is unpromising with relation to

both financial sustainability and poverty reduction. Is it possible to do better? As part of the diversification of microfinance, some new schemes aim to make progress by way of cost-covering premiums, poverty targeting and a range of defences against moral hazard of which the best known is restricting the insurance to climatic hazards in lieu of a yield or income guarantee. We examine three of these schemes (BASIX Andhra Pradesh, India; CERUDEB Uganda; and the proposed WIA in Ethiopia) and, with respect to CERUDEB, describe the process of premium setting, the results of sensitivity analyses and the determination of the optimal 'excess' or deductible. Serious impact analysis is premature, but the portents for filling a gap in the market and reducing poverty without running losses look promising.

- **OSGOOD, D.E, MCLAURIN, M. CARRIGUIRY, M., MISHRA, A., FIONDELLA, F., HANSEN, J., PETERSON, N., and N. WARD (2007):** Designing Weather Insurance Contracts for Farmers in Malawi, Tanzania, and Kenya, Final Report to the Commodity Risk Management Group, ARD, World Bank. International Research Institute for Climate and Society (IRI), Columbia University, New York, USA.

Abstract:

Index insurance is a relatively new weather risk management tool. While traditional insurance insures against crop failure, index insurance insures for a specific event or risk, such as rainfall deficits. The index insurance can be more cost effective since there is no need for in-field assessment of damage because payouts are triggered by weather data directly. Index insurance addresses two problems associated with traditional crop insurance: moral hazard (incentives for a farmer to let a crop die in order to get an insurance payout) and adverse selection (in which insurance is priced based on the risks of the entire population but only the most vulnerable farmers purchase insurance). However, index insurance only provides partial protection and is therefore only one part of a complete risk management package. It is critical that the client have a comprehensive understanding of exactly what risks are covered (and what risks are not covered) by the index product so that clients can effectively use the insurance as a part of their risk management system. Products must be transparent and completely understandable to the client or they will not be able to play their proper role. We designed and evaluated contracts for Malawi, Kenya and Tanzania. Because some contracts existed for Malawi prior to this project, and since the insurance is in its second year of implementation in Malawi, the Malawi initial contracts and implementation are used as a starting point. Following the project specification, we have developed in depth analysis, such as process based crop simulations and quantitative analysis of historical data, for the Malawi case study. These additional analyses are unique to the Malawi case.

Available online:

<http://iri.columbia.edu/~deo/IRI-CRMG-Africa-Insurance-Report-6-2007/IRI-CRMG-Kenya-Tanzania-Malawi-Insurance-Report-6-2007.pdf>

- **PEARLMAN, S. (2007):** Too Vulnerable for Microfinance?: Risk and Vulnerability as Determinants of Microfinance Selection. Department of Economics. University of Maryland.

Abstract:

Microfinance has become a popular part of poverty reduction agendas since its inception roughly 30 years ago. Despite dramatic growth, however, many microfinance institutions face low penetration rates. It turns out many potential borrowers choose not to participate. Current explanations for this phenomenon largely focus on skill, arguing that high skill entrepreneurs generate expected returns above the borrowing rate and select microfinance while low skill entrepreneurs do not and stay away. In this paper I contend these explanations are insufficient because they ignore risk altogether, a fundamental driver of poor household's behavior. I propose consideration of vulnerability, defined as the inability to smooth consumption across negative income shocks, as an additional factor driving microfinance selection. I outline a model in which the risk level of projects and a household's ability to manage risk help determine whether or not a household can "afford" microfinance. Using data from ACP, a large, profit-oriented microfinance institution in Peru, I find positive evidence that vulnerability is significant in determining microfinance participation. These results suggest risk and vulnerability should be incorporated into subsequent analyses of the effectiveness of microfinance as a poverty alleviation tool.

Available online:

http://www.econ.umd.edu/~pearlman/jmp_pearlman.pdf

- **PREM, K. and H. BHARGAVA (2006):** Role of Micro Insurance in Disaster Management – The Role of Micro Insurance in Disaster Management - A Concept Paper. In: Pravartak Special Anniversary Issue on Insurance and Disaster Management. Pp. 60-64.

Abstract:

Insurance is one financial instrument amongst several that helps the poor manage their risks. Insurance which was evolved as an instrument for social improvement is being now viewed as a social security tool by various stake holders. While poverty alleviation programmes draw their strength from a comprehensive financial package, instruments like insurance supplement the objective by taking care of unforeseen events. Persons who are covered with insurance will be benefited from the pool of insurance fund resourced from collections by way of premiums. Thus, a part of section who were unaffected by risks are contributing to the relief of the affected section, while affected section could be receiving more than what they paid as a premium. This aspect when experienced further strengthens the concept of a co-operative endeavour for which insurance happens to be an edifice. From the concept of risk transfer and risk sharing, insurance can be effectively viewed as an integral part of disaster management.

- **PROSPER.** Newsletter of the International Cooperative and Mutual Insurance Federation (ICMIF)

Abstract:

The Newsletter informs about recent developments in the microfinance sector and presents projects of the federation's members (i.e. IFFCO Tokio General Insurance Company, Co-

operative Insurance, United Kingdom (CIS), IFFCO-TOKIO General Insurance Company Ltd. India, etc.

Available online:

www.icmif.org/prosper

- **PROVENTION CONSORTIUM (2004):** Solidarity and Opportunity: The Potential of Insurance for Disaster Risk Management in Developing Countries. Conference proceedings and workshop report.

Abstract:

This report summarises the key issues discussed and synthesises conclusions of the International Conference on ‘Solidarity and Opportunity: The Potential of Insurance for Disaster Risk Management in Developing Countries’, held in Zurich at the Swiss Re Centre for Global Dialogue on October 21, 2004. The conference was organised by the ProVention Consortium as part of its on-going work to reduce disaster risk in developing countries through financial risk transfer mechanisms and enhanced private sector participation.

The conference brought together leading practitioners and academics from different organisations with knowledge and experience in the practice of insurance in developing countries. Some 80 participants from 17 countries, representing a diverse range of industrialised, emerging and developing markets, contributed to the initiative through presentations of experiences, innovations, research and plenary discussions. The conference focused on three main themes: microinsurance for low income households and businesses, innovative solutions for risk transfer and partnerships linking the private and public sectors and global and local stakeholders for insurance establishment and management.

Available online:

http://quick-centre.or.id/index.php?option=com_docman&task=cat_view&gid=49&dir=ASC&order=date&limit=4&limitstart=0

- **PROVENTION CONSORTIUM (2004):** Experiences in Micro-Insurance. Report on ProVention Consortium International Workshop, 22 October 2004.

Abstracts:

The ProVention Consortium organised the international Workshop ‘Experiences in Micro-Insurance’, held in Zurich at the Swiss Federal Institute of Technology (ETH) on October 22, 2004, as part of its on-going work to reduce disaster risk in developing countries through financial risk transfer mechanisms and enhanced private sector participation. Motivated by broad interest from participants at the ProVention conference “Solidarity and Opportunity: The Potential of Insurance for Disaster Risk Management in Developing Countries,” which took place on the preceding day, the Workshop brought together a unique combination of 35 professionals with knowledge, experience and interest in micro-insurance, ranging from global reinsurers to local NGOs.

Low income households in developing countries use many informal coping mechanisms to manage risks, but these activities often offer insufficient protection against the financial shocks of large or multiple disasters. Such communities would benefit from financial risk transfer and sharing through insurance. However, it can be a challenge to reach these potential customers and their access to local and global markets generally remains quite limited.

Available online:

http://quick-centre.or.id/index.php?option=com_docman&task=cat_view&qid=49&dir=ASC&order=date&limit=5&limitstart=0

- **PROVENTION CONSORTIUM (2004):** Regional Risk Transfer. Application of Micro Finance and Micro Insurance for Disaster Risk Management. ProVention Consortium, Geneva.

Abstract:

The Regional Risk Transfer Initiative (RRTI) stands for an innovative approach to risk identification, pooling, and transfer, which recognises the fact that a vast majority of the poor in India and South Asia have limited access to risk transfer schemes or programmes. The main objective of this initiative is the convergence of micro mitigation, micro credit and micro insurance to help poor people transfer risks that cannot be eliminated and have safety nets during times of disaster. The project also connects the corporate sector, in particular the insurance industry, more closely to the poor on managing disaster risks. The RRTI, which was launched by the Disaster Mitigation Institute (DMI) on September 25, 2003 at the India Habitat Centre in Delhi, proposes the design and implementation of a risk transfer model based on experiences of micro credit, micro finance and disaster mitigation initiatives. The project is split into three phases: designing the model, pilot implementation and dissemination of the scheme. The project builds on recent ProVention Consortium initiatives in developing innovative approaches to risk identification, risk reduction and risk transfer & sharing.

Available online:

http://quick-centre.or.id/index.php?option=com_docman&task=cat_view&qid=49&dir=ASC&order=date&limit=5&limitstart=0

- **PROVENTION CONSORTIUM / IIASA (2005):** Invest to Prevent Disaster. The Potential Benefits and Limitations of Microinsurance as a Risk Transfer Mechanism for Developing Countries. ProVention Consortium / IIASA.

Abstract:

As the international community places more emphasis on disaster prevention, there is growing interest in the potential of risk transfer as part of an effective disaster risk management strategy. Insurance, in particular, is an established instrument for transferring natural disaster risks by providing indemnification against losses from a disaster event in exchange for a premium payment. Whereas in high-income countries about a third of natural disaster losses are insured, there is almost no catastrophe insurance in developing countries¹. Instead of

insurance, households and business typically rely on family and public support. If this support is not forthcoming, there can be substantial socioeconomic consequences due to long delays in disaster reconstruction and recovery. For example, five years after the devastation of Hurricane Mitch in Honduras, in spite of exceptionally high donor pledges but little insurance penetration, GDP was 6% below pre-disaster projections.

- **ROBERTS R.A.J. (2005):** Livestock and Aquaculture Insurance in Developing Countries. A Brief Overview. Food and Agriculture Organization of the United Nations. Rome

Abstract:

The purpose of this publication is to meet the demand for a brief, accessible introduction to the role of insurance as a risk management mechanism in livestock and aquaculture enterprises. With the focus of the book being on enterprises in developing countries, most attention is given to livestock (especially cattle, sheep, goats, poultry) kept for food and/or fibre, and transport/motive power, rather than bloodstock used for sporting and recreational purposes. This book does not purport to be a guide on to how to design an insurance product for these types of farming. Rather it aims at setting the scene, and exploring with the reader some of the complexities involved in this financial mechanism for risk sharing. In doing so, it starts by stressing the importance of risk management practices other than insurance. Before taking this broader perspective, it is worth stressing that insurance does not increase a farmer's income; rather it helps manage risks to this income.

"Risk management practices" embrace a wide range of mechanisms, which are the foundation of sound farm management. These include policy issues e.g. site licensing, regulations relating to such matters as quarantine and compulsory veterinary procedures. They also include onfarm physical measures such as attention to structural maintenance of fences, cages, racks and housing, as well as daily monitoring for disease conditions, and both preventive and curative veterinary procedures.

Available online:

http://www.microfinancegateway.org/files/31305_file_64.pdf

- **RODRIGUEZ, M.U. and B. MIRANDA (2004):** SERVIPERU, Peru. Good and Bad Practices in Microinsurance. Case Study No. 1. CGAP Working Group on Microinsurance.

Abstract:

At the end of the 1980s and in the early 1990s, Peru suffered a severe economic crisis that led to the implementation of structural adjustments measures to achieve macroeconomic stability. These policies resulted in a revitalisation of the financial system, including the emergence of new types of financial institutions. In this context, low-income persons, who previously had not had access to credit, found funding alternatives in line with their circumstances, which enhanced their income and improved their living conditions.

However, the development achieved in microcredit did not result in the poor's corresponding access to insurance. The new insurance law issued in 1993 did not promote insurance products for the low-income market—in fact, quite the opposite. Higher capital requirements

caused some insurance companies to merge, while others left the market altogether. This case study relates the experiences of one insurer, SEGUROSCOOP, that was hurt not only by the regulatory changes, but also experienced a decline in its core market, Peruvian cooperatives, which had not weathered the storm of hyperinflation and macroeconomic instability very effectively. From October 1994 SEGUROSCOOP had to cease operating as an insurance company for the cooperative sector and became a company offering protection services, as Serviperú is today.

Available online:

http://www.microfinancegateway.com/files/22462_file_SERVIPER_.pdf

- **SIEGEL, P.B., J. ALWANG, S. CANAGARAJAH (2001):** Viewing Microinsurance as a Social Risk Management Instrument. In: Social Protection Discussion Paper Series. No. 0116. The World Bank. Social Protection Unit. Human Development Network.

Abstract:

The objectives of this paper are to highlight some of the potential and limitations of microinsurance in the context of Social Risk Management (SRM) framework to stimulate further discussion. The paper draws on existing literature on SRM and microinsurance. Where relevant, it invokes lessons from microfinance. The authors conclude that there is potential for efficient and equitable risk management through microinsurance, but also limitations.

Microinsurance may be an acceptable means of managing a few limited forms of risk, but not all. SRM practitioners need to recognize that effectiveness of any risk management instrument depends on the nature of risks, household and group characteristics and dynamics, and the availability of alternative risk management options. SRM options should strike a balance between household risk management activities and the multiple instruments available at different institutional levels, including informal, market-based, and publicly provided mechanisms. Microinsurance is a potential part of the SRM toolbox, but risk management can be enhanced through different mechanisms or combinations of them.

- **SKEES, F.R. (2008):** Challenges for Use of Index-Based Weather Insurance in Lower Income Countries. GlobalAgRisk, Inc.

Abstracts:

This article provides a perspective on the progress and challenges associated with index-based risk transfer products (IBRTPs)² in lower income countries. Effectively, IBRTPs are a proxy for loss and a vehicle to transfer risk to insurance or capital markets. These products are designed to pay out when an independent physical measure of a loss event (such as extreme weather, area yields, or even complex process models that use satellite images) crosses a threshold value of the index that indicate catastrophic conditions are creating serious problems for clients. The concept of creating an index to proxy losses is not new. Indian scholars were writing about the merits of these ideas in the early 1900s (Chakravarti, 1920), and at the University of Chicago, Professor Harold Halcrow completed a Ph.D. dissertation on area-yield crop insurance in the 1940s (Halcrow, 1949). The interest in using a variety of IBRTPs in lower

income countries has grown in recent years. A major objective of this article is to share a vision for what is possible to achieve and highlight important policy and market issues that merit serious academic attention. There are cautions to be raised. While there are enough pilot projects to begin assessing significant product design and project implementation issues, important behavioral outcomes from firm-level decision makers cannot yet be assessed due to the limited experience with these products. These efforts in lower income countries must also be placed in a larger economic and public policy context.

Available online:

http://www.globalagrisk.com/pubs/2008_Challenges_Use_Index-based_Weather%20Insurance_LICs_jrs.pdf

- **J. R. SKEES AND B. COLLIER (2008):** The Potential of Weather Index Insurance for Spurring a Green Revolution in Africa. GlobalAGRisk Inc. Lexington.

Abstract:

This paper focuses on the potential of index-based weather insurance products for contributing to a green revolution in Africa³. We begin by building a conceptual framework that links poverty, risk, and missing financial markets. Next, we present the case for why weather risk transfer and agricultural insurance can contribute to development. We then review the fundamental problems with traditional agricultural insurance products, which motivated efforts to develop alternatives such as index-based insurance products. Still, as we will demonstrate, there are numerous preconditions for making index insurance workable. Considering these preconditions in practice — which constraints can be overcome and which ones cannot — led to the development of our business model, which outlines the steps needed to develop sustainable weather insurance markets.

Both the conceptual discussion of index-based insurance and the pragmatic suggestions of how to develop these markets provide a foundation for analyzing four distinct products that we believe may be applicable in various parts of Africa. The weather risks that most affect African nations are drought and flooding.⁴ Index insurance for drought is currently much further developed than index insurance for other perils. Thus, most of the focus in this paper is on drought. Nonetheless, our experience working with flood risk in Peru and Vietnam also motivates our thinking about index insurance.

Available online:

http://www.globalagrisk.com/Pubs/2008_Skees%20and%20Collier_AGRA%20Paper%20on%20Weather%20Insurance.pdf

- **SKEES, J., BARNETT, B.J., COLLIER, B. (2008):** Agricultural Insurance: Background and context for climate adaptation discussions. Paper for the OECD Expert Workshop on Economic Aspects of Adaptation, Paris, April 7-8, 2008.

Abstract:

This paper addresses the important question of whether agricultural insurance can facilitate farm household adaptation to climate change. The focus is on lower income countries and the

emergence of index insurance as a new tool for delivering more cost-effective insurance to countries dominated by small farms. While agricultural insurance can provide needed funds when extreme weather events impact the livelihood of farmers, these funds will not necessarily be used for adaptation to climate change. Subsidizing agricultural insurance premiums may actually impede adaptation behavior.

- **SKEES, J., A. MURPHY, M. J. MCCORD (2007):** (MicroInsurance Note) Innovations in Insurance for Weather-Related Losses: Index Insurance. In: AMAP Microinsurance Note #5. April 2007.

Abstract:

The rural poor, economically dependent on agricultural production, face significant risks to their livelihoods from catastrophic weather events that cause widespread crop failure, with implications not only for the affected households, but for the whole rural economy. Index insurance is an innovation that circumvents many of the fundamental problems that hamper the development of insurance for weather risks in lower income countries. Payments are made based upon an objective index, with no need to calculate actual losses for each individual.

Available online:

http://www.microlinks.org/ev_en.php?ID=17905_201&ID2=DO_TOPIC

- **SKEES, J.R. and B. COLLIER (2007):** Weather Risks, Index Insurance and Developing Financial Services for the Rural Poor. In: Microfinance Insights. Vol. 5 (2007). Pp. 31-33.

Abstract:

Despite significant progress in microfinance and microinsurance in many developing countries, the outreach to the poor and the most vulnerable is still very limited. This article describes the role of index insurance and its role in dealing with agriculture and natural disasters. The authors explain how index can be used as the proxy for loss, reducing transaction costs and making agricultural insurance more affordable to smallholders.

- **SKEES, J.R. (2004):** Innovation in Agricultural Insurance: Linkages to Microfinance. Innovación y Fortalecimiento de las Finanzas para el Desarrollo. Documentos de Trabajo No. 3. La Paz.

Abstract:

This paper reviews an important innovation that provides unique opportunities for microfinance entities (MFEs) to manage correlated risk and expand their ability to assist rural households. The use of index insurance contracts to shift correlated natural disaster risk into global markets offers some promise for MFEs. Indexbased insurance involves making insurance payments based upon an independent measure that is highly correlated with losses. When insurance payments are made based upon an independent measure of losses, the need for monitoring individual behavior is significantly reduced as compared to traditional approaches to insurance. Linking index insurance to microfinance activities could facilitate improved risk taking behavior and expansion of services for MFEs. Rural financial markets in emerging and developing economies face numerous challenges. Managing and coping with risks are among the most significant challenges. Effective financial markets should include both banking and insurance markets. Banking allows for ex post borrowing to smooth disruptions in consumption

that result from unexpected shocks (risk) that beset a rural household. Insurance allows for ex ante indemnity payments for well-specified risk events that also disrupt consumption.

- **STEP and ILO (2006):** Analysis of the inventory database of microinsurance schemes of 2003. Consolidated database which includes all of the microinsurance schemes inventoried by the ILO/STEP in 15 countries.

- **UNITED STATES AGENCY FOR INTERNATIONAL DEVELOPMENT (2006):** Index Insurance for Weather risk in Lower Income Countries. Prepared by GlobalAGRisk, Inc. Lexington.

Abstract:

This primer focuses on innovation in weather insurance designed to fit the special circumstances of lower-income countries where rural and agricultural financial markets are largely underdeveloped. Weather insurance is important to the long-term economic development of lower-income countries as a means of spurring rural finance and agricultural and rural development. Weather insurance can also help alleviate chronic poverty. The lack of access to weather insurance can cause rural and farm households in lower-income countries to consume their assets to survive an extreme weather event, or their assets may be destroyed, throwing these households into a cycle of poverty with no means of recovery. To be clear, the lack of weather insurance may be only one of several constraints that are slowing progress in economic development and rural financial markets in lower-income countries. As critical as viable insurance markets are for economic stability and development in lower-income countries, creating these markets is a difficult undertaking. Looking to models from higher-income countries provides unsatisfactory answers. For example, agricultural insurance in higher-income countries is typically heavily subsidized. Lower-income countries cannot afford such heavy subsidies, particularly because a much larger percentage of the population is usually engaged in agriculture. Equally challenging, farm households in lower-income countries typically operate much smaller farm units, compounding the difficulty of providing rural financial services.

- **VARANGIS, P., J. SKEES, B. BARNETT (?):** Weather Indexes for Developing Countries. World Bank, University of Kentucky and University of Georgia.

Abstract:

The questions raised in this chapter surround the possible linkages between the emerging weather markets and public and private solutions to the problems created by weather-based natural disasters. While this book deals with many of the conceptual issues surrounding weather risks, we also provide our conceptual base that is tied to how these risks can be segmented and layered. By segmenting and layering out weather risks, there are numerous opportunities for risk aggregators within a country to share risks globally. We examine three possible applications of weather insurance in developing countries: providing weather risk coverage to:

1. Mutual insurance groups,
2. Directly to farmers and agri-businesses; and
3. to governments to protect their exposure when they offer catastrophic insurance and provide disaster aid.

Finally, as is emphasised throughout this book, we close by focusing on the needed infrastructure for measuring weather and making a strong argument that a supporting infrastructure has vast social benefits. These social benefits can only be recognised once the

numerous ways that weather indexes can be used to cope with and manage weather-based risks are understood. Private companies within developing countries, global markets that move the weather risks out of developing countries, governments of developing countries and the international donor community that is quick to respond when there are natural disasters in developing countries, can all play a role in using the same information and structure to address the problems brought on by extreme weather events.

Available online:

http://www.microfinancegateway.org/files/40809_file_Weather_Indexes_for_Developing_Countries.pdf

- **WARD, R. E.T., C. HERWEIJER, N. PATMORE, R. MUIR-WOOD (2008):** - The Role of Insurers in Promoting Adaptation to the Impacts of Climate Change. In: The Geneva Papers. Vol. 33 (2008). Pp. 133-139.

Abstract:

Scientific evidence is accumulating that climate change is having an impact on the frequency, intensity and geographical distribution of extreme weather events. With these trends likely to continue for the foreseeable future, the insurance industry can help society to adapt, by limiting and managing risks associated with extreme weather, and thereby maintaining the insurability of potentially vulnerable and exposed populations. There are already examples of the insurance industry promoting efforts to mitigate the impacts of weather hazards, by disseminating information about reducing the vulnerability of properties, offering financial incentives to invest in mitigating the impacts of extreme weather, and by working in partnership with policy-makers to establish maximum thresholds of acceptable risk. However, these efforts need to be more widely promoted by insurers to make a significant contribution to society's adaptation to climate change.

- **WARNER, K., L. M. BOUWER, W. AMMANN (2007):** Financial services and disaster risk finance: Examples from the community level. In: Environmental Hazards. Vol. 7, Issue 1 (2007). Pp. 32-39.

Abstract:

Increased attention has recently been given to the possible role of financial services in the management of natural disaster risk. Local communities have been at the forefront of developing innovative disaster risk finance strategies and implementing risk-oriented incentive programs. In view of increasing risks, including the impacts of climate change, such programs will become more important. This paper examines four models and some recent experiences in using financial services at the community level. The paper offers an overview of advantages and limitations of each model to manage disaster risk in communities. Examples include a federal government initiated scheme of social protection funds, a local government risk reduction scheme, an insurance product provided by a non-governmental organization, and a microinsurance scheme. Finally, the paper offers some directions about specific ways that the public and private sectors, in collaboration with other partners can improve finance alternatives

for disaster management at the community level. It appears that a range of follow-up studies and further dialogue is needed, in order to expand the knowledge on what types of risk finance models can help manage and reduce the financial impacts of natural disasters.

- **WILHELM, V. (2008):** Weather Index-based Microinsurance in Developing Countries: Analysis and Evaluation. Vdm Verlag Dr. Müller. 76 pages.

Abstract:

A bigger part of the population lives in low-income countries and is primarily dependent on agriculture. Not only, but also as a consequence of the ongoing climate change, these people are ever more exposed to natural hazards such as drought or floods, endangering their harvest and their lives. Weather index-based microinsurance is a new promising tool for the poor, especially designed to overcome the problems brought along by other financial instruments like credit, savings or foreign aid. Index-based microinsurance addresses the core problem of the poor: food insecurity. Lately, several parties, including international organisations, (re)insurance companies, microfinance institutions, NGOs and governments subsidize and project-manage microinsurance projects. It needs a lot of willpower and conviction to offer insurance to thousands of families and farmers, considering the very low premiums paid. Still, the Law of Large Numbers, that is volume, makes this market so attractive. This book offers an analysis of index-based microinsurance. It evaluates whether it is a sustainable instrument to reduce world poverty.

- **THE WORLD BANK (2005):** Managing Agricultural Production Risk. Innovations in Developing Countries. The World bank. Agriculture and Rural Development Department. Washington D.C.

Abstract:

The creation of risk transfer markets for weather events in developing and emerging economies is rapidly progressing. This document describes several sources of risk that create poverty traps for poor households and impede the development process, focusing on low-probability, high-consequence weather risk events as they relate to rural households. These types of risks are highly correlated and require special financing and access to global markets if they are to be pooled, rendered diversifiable, and improved in pricing. Thus, a significant contribution of this paper is the introduction of index insurance, highlighting its use at the micro-, meso-, and macrolevels for risk transfer. By using index insurance products, it is possible to organize systems that take advantage of global markets to transfer the correlated risks associated with low-probability, high-consequence events out of developing countries. This document presents both a conceptual backdrop for understanding this system and a progress report on several World Bank efforts to assist countries in using their limited government resources to facilitate market-based agricultural risk transfer when faced with natural disasters.

Available online:

http://siteresources.worldbank.org/INTARD/Resources/Managing_Ag_Risk_FINAL.pdf

- **WORLD FOOD PROGRAMME (2006):** Ethiopia Drought Insurance Update and 2007 Weather Risk Management Workplan.

Available online:

<http://www.wfp.org/eb/docs/2006/wfp105616~1.pdf>