

Briefing

Helping farmers weather risks?

Assessing the World Bank's work on index insurance



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Executive summary

In recent years the World Bank has engaged in several pilot programmes to assess the feasibility of private markets for index-based weather insurance in developing countries. Index insurance is aimed at moving from emergency ad-hoc aid in times of weather disasters to identifying and managing risk. Potential benefits include access to insurance, timely pay-out and an objective measurement for avoiding long disputes. However, its problematic aspects find no or only limited consideration in the work of the World Bank so far. The main problems and recommendations identified are:

Insurance **tackles symptoms not causes** and might disincentivise or distract from necessary changes in the way economic activity is organised, contributing to the build-up of the risks the insurance aims to mitigate. The Bank should directly link its work on insurance to a debate on the nature of risks and sustainability of the economy.

Insurance directly provided to individual households comes with a lot of difficulties regarding **knowledge and resource asymmetries**. The Bank therefore needs to ensure that its support for private solutions does not crowd out successful public and communal initiatives, as widely emphasised in its own research.

Private insurance is a step further in linking people's livelihoods and well-being to **international financial markets that are inherently volatile**, endogenously create risks, and are highly connected and therefore prone to contagion. In its research and advice, the World Bank needs to take the associated costs stemming from volatility and potential market-breakdown more into account. The **privatisation of insurance** might also create problems for coverage and the redirection of public money into private profit. Direct and indirect subsidies of private sector activity should be kept to a minimum, regulation needs to be extensive to avoid bail-outs, and progress should be measured based on coverage and affordability, not private profit-making or market existence. In any case, the World Bank should respect countries' policy autonomy and avoid pushing deregulation and privatisation.

Most importantly, the reports of the World Bank on index-related insurance focus on feasibility rather than developmental impact. An **assessment of the developmental impact should precede market creation**. The Bank needs to ensure that the facility that will deal with index insurance in the future will not be biased towards market solutions, and that its aims and later evaluation are defined in terms of specific goals that directly measure the progress in poor people's and smallholders' actual ability to mitigate risks and avoid crisis selling of assets, not the size or profitability of the market.

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Acronyms

ARD	Agricultural and Rural Development Department
CRMG	Commodity Risk Management Group
GIIF	Global Index Insurance Facility
GIRIF	Global Index Reinsurance Facility
ITF	International Task Force on Commodity Risk Management

Introduction

More than 40 per cent of farmers in developing countries face weather-related threats to their crops such as droughts, floods, freezes and heat, with losses adding up to over \$400 billion per year.¹ In recent years, the World Bank has expanded its work on this problem by financing and facilitating pilot programmes to assess the viability of index-based private insurance and building a market for such insurance for developing countries.

The design of pilot programmes varied from support for local insurance companies which provide insurance to individual smallholders or institutions such as banks or cooperatives, to the facilitation of weather derivatives² sold in international financial markets to insure governments' budget needs for social relief initiatives in case of weather-related catastrophes. Such insurance in developing countries is supposed to spread the risk globally and to investors who can supposedly afford holding it.

Index-based insurance differs from traditional insurance, as payout is linked to a weather-index, for example measuring rainfall instead of actual damage. It has some advantages, potentially making farmers or public institutions less dependent on international aid, and allowing for timely guaranteed payout. Some pilot programmes accommodated a role for public institutions and state owned organisations at a national or sub-national level which reinsure in international markets; and the participating actors drew the conclusion from the first pilot programmes, that market-based approaches are not always the appropriate, effective or most urgent solution to be implemented.

However, the Bank's approach has several problematic implications. The work of the World Bank is directly and indirectly subsidising private market actors and might

¹ World Bank, 2005, *International Task Force Will Expand Commodity and Weather Risk Management*, Press Release 2005/478/ESSD, <http://go.worldbank.org/FB9ZGVYH0>.

² Derivatives are financial instruments, whose prices are derived from the value of an underlying such as the price of commodities, bonds or mortgages. In theory, derivatives can be used to hedge against the risk of a change in the underlying, whereby speculative investors are supposed to bear the risk by trading with them. In practice, however, trading in derivatives has produced very serious problems. Speculation in derivatives has driven underlyings, not vice versa; and volatility in derivatives markets have fed back into the spot market, for example causing volatility in commodity prices that are completely unrelated to supply and demand.

lead to private firms complete take over of this crucial sector. Linking farmers and global financial markets is a further step towards the financialisation of national economies and people's livelihoods, which subjects governments and individuals to the volatility and structural pressures of financial markets. Index insurance thus creates new problems. Some of these problems, especially access and required knowledge level, became apparent in the World Bank's pilot schemes and need to be fully acknowledged in further discussion; others are macro problems that small pilot schemes cannot reveal, such as likely privatisation pressures due to the need to attract foreign investors to offer insurance or buy derivatives, or the increased interconnectedness of hitherto unconnected sectors that can lead to contagion in the event of crises.

Currently, the World Bank is in the stage of evaluating the pilot projects and designing its engagement in the future.³ Therefore, there exists now a window of opportunity to influence decision-making at an early stage, before potentially harmful strategies and mechanisms are set in stone and become difficult to change.

The following briefing will start with an overview of the main programmes and actors involved, followed by an explanation of the rationale behind index-related insurance. It will then briefly summarise what the World Bank has been doing so far and which lessons have been learned from the pilot projects. The second half of the briefing will spell out in detail the problematic aspects of private index-related insurance provision. It will identify the gaps in the current research and thinking and conclude on the implications for the role and tasks of the World Bank.

Programmes and actors

As part of their *Commodity and Weather Risk Management Program*, the World Bank provides technical assistance to developing country institutions for several feasibility studies and pilot projects regarding the management of weather-related agricultural risks. The programme is related to the World Bank's *Global Food Crisis Response Program*⁴, and the main goal is to test index-based insurance approaches for later

³ See, for example, the agenda for the last meeting of the International Task Force on Commodity Risk Management, Oct. 2008, <http://www.euacpcommodities.eu/files/ITF%20Agenda%20Sept%202023.doc>.

⁴ *Framework Document for Proposed Loans, Credits, and Grants in the Amount of US\$ 1.2 billion equivalent for a Global Food Crisis Response Program*, <http://www.esewa.un.org/rcg/documentation/12sep08/GFRPFrameworkDocument.pdf>, esp. p. 18.

implementation and to mainstream certain forms of risk management into World Bank projects⁵. These activities are part of the *Insurance for the Poor* programme of the World Bank, which was launched in late 2008 and aims to enhance access of poor people to insurance products in a variety of sectors.⁶

The main actors are the International Task Force on Commodity Risk Management (ITF), and its implementing agency, the Commodity Risk Management Group (CRMG). The International Task Force is an informal “partnership of private and public sector institutions”, which convene annual meetings to address specific topics regarding price and weather risk management. The Commodity Risk Management Group is housed in the World Bank’s Agricultural and Rural Development Department (ARD) and is comprised of World Bank staff and a team of either short-term or more regularly employed consultants. Most of the consultants have private sector background and expertise in the areas of commodity trading, finance, insurance, agronomy, rural development and training, but have been working predominantly on international development issues in recent years.

The ITF and CRMG have been working on three related areas: Firstly, they worked on weather-related risks and index-related insurance, which are dealt with in this briefing. Furthermore, they undertook research and supported pilot programmes on commodity price risk management, and currently their focus shifted to the topic of agricultural risk assessment practices and strategies of banks in developing countries.⁷

Other facilities that work on index-related insurance are the Weather Risk Management Facility, the Climate Risk Transfer Facility, and the Global Facility for

⁵ World Bank, Agriculture and Rural Development, Commodity Risk Management, 2008, *The International Task Force on Commodity Risk Management in Developing Countries: Activities, Findings and the Way Forward*, p. 2, 9,

www.brettonwoodsproject.org/doc/private/CRMGsynthesis.pdf.

⁶ World Bank, Insurance for the Poor, 2008, *Insurance for the Poor. Helping the poor maintain their livelihood in the face of unforeseen difficulties*,

[http://www.ifc.org/ifcext/economics.nsf/AttachmentsByTitle/GCMNB_InsuranceforthePoor_Brochure_11-2008/\\$FILE/Brochure_InsuranceforthePoor.pdf](http://www.ifc.org/ifcext/economics.nsf/AttachmentsByTitle/GCMNB_InsuranceforthePoor_Brochure_11-2008/$FILE/Brochure_InsuranceforthePoor.pdf).

⁷ See World Bank, Agriculture and Rural Development, Commodity Risk Management, 2008, *The International Task Force on Commodity Risk Management in Developing Countries: Activities, Findings and the Way Forward*, p. 31-38, 49-50,

www.brettonwoodsproject.org/doc/private/CRMGsynthesis.pdf.

Disaster Reduction and Recovery.⁸ In the future, one of the primary leaders on weather-related risk management at the World Bank will be a new facility, based at the International Finance Corporation, the private sector arm of the World Bank. The European Commission has given €24.5 million (\$30 million) in funding for the facility at the end of 2008 for a five year period.

Originally, the facility was called the Global Index Insurance Facility (GIIF), then renamed into Global Index Reinsurance Facility (GIRIF). GIIF/GIRIF was designed as a multi-donor trust fund linked with a specialized index-based reinsurance company.⁹ It was aimed at “mitigat[ing] weather and catastrophic risks in African, Caribbean and Pacific countries through the application of index insurance”¹⁰ and to fulfill four roles: market intermediation (buying derivatives from governments or sub-national bodies and selling them on to the market); risk pooling (packaging risks from various countries, regions or disasters); limited holding of risk where market access or low premiums are unavailable (holding the derivatives without selling them on to the market, which means de facto subsidising premiums); and market development (technology transfer to private market players). To be eligible for reinsurance, governments would have needed a “proper country-level risk management framework”, and properly registered banks and primary insurers.¹¹

However, the World Bank and donors have not yet decided on the structure, funding and mandate of this facility. Notably, the decision on the idea of setting up a separate insurance company that would be partially owned by the IFC has been put off, as insurance markets deepened. Information on the planned changes has not made been publicly available.

⁸ Hellmuth M.E., Osgood D.E., Hess U., Moorhead A. and Bhojwani H. (eds), 2009, *Index insurance and climate risk: Prospects for development and disaster management*. Climate and Society No. 2. International Research Institute for Climate and Society (IRI), Columbia University, New York, USA, chapter “Scaling up index insurance: Operational issues”.

⁹ IFC, 2007, *Global Index Reinsurance Facility. Summary of Proposed Investment*, <http://www.ifc.org/ifcext/spiwebsite1.nsf/0/0c3e26c0a76328ec85257235005bad08?OpenDocument>.

¹⁰ EU, 2008, *EU supports global insurance fund to help ACP countries 'weather future storms' from climate change*, Press release IP/08/1782, <http://europa.eu/rapid/pressReleasesAction.do?reference=IP/08/1782&guiLanguage=en>.

¹¹ CRMG, ARD, World Bank, 2006, *Global Index Insurance Facility (GIIF) Concept Note (Synopsis)*, http://www.proventionconsortium.org/themes/default/pdfs/GIIF_overview_Feb06.pdf.

The idea: index insurance

The problem to be solved is the vulnerability of farmers and thus of most of the population in developing countries to weather-related catastrophes such as droughts or floods. The long-term goal is to provide farmers, other vulnerable groups (e.g. merchants dependent on certain commodity markets) and governments with insurance against weather-related risks. This insurance should produce a timely and sufficient cash-flow in case of a weather-induced catastrophe in order to prevent suffering and long-term dependency on aid.

The rationale is to shift from emergency (ad-hoc) finance to *identifying and managing risk*, because there are several problems with ex-post aid. Firstly, timing is usually problematic: In the case of droughts, for example, farmers sell tools and livestock within four to six weeks after a rain failure to obtain enough cash for the purchase of food in the future. The actual harvest failure occurs several months later, and it takes several weeks until international aid is donated and delivered. By then, tools and livestock are already sold and thus farmers become dependent on aid for a long period of time.¹²

Secondly, aid is not something farmers can be sure of. They are therefore assumed to take fewer risks and forego possible returns. Related to this problem, farmers can often not get necessary credits because banks fear default due to weather-related catastrophes. Furthermore, traditional local informal insurance through family or community ties are likely to fail for poor households because of the covariate nature of weather-induced shocks, i.e. the fact that weather-induced shocks that affect one household or farmer are very likely to also affect the households and farmers in the same region or even the same country. Because of this, relatives, friends and cooperatives are unlikely to be able to offer sufficient support to a household in times of crisis.¹³

These micro level problems resulting from harvest failure translate into macro level problems because of increased necessity for government spending, “supply shocks, the diversion of domestic investment from productive activities, and in some cases a reduction in foreign investment in the aftermath of an extreme weather-related

¹² ReliefWeb, 2005, *Can insurance break Ethiopia's vicious cycle of hunger?*,

<http://www.reliefweb.int/rw/RWB.NSF/db900SID/EVOD-6D4DD7?OpenDocument>.

¹³ Harold Alderman, Trina Haque, 2007, *Insurance Against Covariate Shocks. The Role of Index-Based Insurance in Social Protection in Low-Income Countries of Africa*, World Bank Working Paper No. 95.

event”¹⁴. Furthermore, the increase in rural poverty resulting from harvest failures translates into other macro level problems such as generally worsening access to health care, education and rising unemployment with long-term development implications.

Advantages and disadvantages of index-based insurance

Index-based insurance is assumed to solve these problems. Payout is linked to an index, for example one measuring rainfall. As soon as certain weather conditions that are likely to cause a severe failure materialise, the insurer pays a certain amount of cash either directly to farmers or to local or national relief projects. Linking the payout to an index rather than actual damage occurred has three advantages. Firstly, an index is objective and creates little room for dispute. Secondly, it precedes the actual damage and thus leads to a quick payout. Thirdly, index-related insurance does not create the problem of *moral hazard* prevalent in most forms of insurance, because individual farmers still have an incentive to minimise damage to their assets. Both aspects are assumed to improve the efficiency of dealing with the risk.

The problem of *adverse selection*, however, is more complicated. In principle, the weather and crop loss data can be made publicly available to avoid adverse selection. Policy holders, i.e. farmers or low-level aggregators such as cooperatives, are thus unlikely to know more about their specific exposure to risk than insurance companies.¹⁵ However, insurance companies or derivatives investors are likely to have more resources and expertise to assess risk exposure, which might lead to undesirable risk screening, i.e. insurance will only be offered to those with low risk exposure.

Furthermore, index-related insurance schemes have some potentially very large disadvantages. As the name suggests, the insurance payout is linked to an index, not an actual loss. The potential mismatch between estimated loss based on the index construction and the actual loss is called *basis risk*. Given that insurance is provided to poor households or countries that have probably no other safety net in case of

¹⁴ World Bank, Agriculture and Rural Development, Commodity Risk Management, 2008, *The International Task Force on Commodity Risk Management in Developing Countries: Activities, Findings and the Way Forward*, p. 38, www.brettonwoodsproject.org/doc/private/CRMGsynthesis.pdf.

¹⁵ Barnett, Barry J., Mahul, Olivier, 2007, *Weather Index Insurance for Agriculture and Rural Areas in Lower-Income Countries*, American Journal of Agricultural Economics, Vol. 5, pp. 1241-1247.

losses, underestimated damages that result in too low payouts can have enormous negative effects and easily lead to bankruptcy of households, intermediaries and public bodies. This problem has been mentioned in World Bank publications, but no solution has yet been suggested apart from minimising the basis risk as much as technically possible and being careful only to create markets where the data available allows for a reasonably small basis risk.

Associated with the issue is the question of a fair and accurate assessment of that risk, as insurers have an incentive to under- and customers an incentive to over-estimate it. So far, the World Bank has engaged with state bodies to create models and indices and sees a considerable role for itself in supporting the development of indices.

Furthermore, not every weather-related event can be insured at affordable prices and usually it is impossible to get adequate insurance for extremely catastrophic events. In these cases, governments have to insure farmers for losses above a certain threshold.

The World Bank projects are aimed to provide poorer households with insurance, otherwise reserved to richer households. Thus, it might prevent a worsening of income inequality in case of catastrophes, but only if the poor have actual access to the insurance on terms that are comparable to bigger farmers, i.e. richer households.¹⁶ The costs of informing oneself about different insurance packages, weather information and yield estimations are also easier and relatively less costly for big farmers, making private insurance a much more viable option than for smallholders.

This argument needs special attention, because outreach to poorer households and smallholder farmers is extremely difficult. The low level of knowledge regarding financial services and the small size of farms makes the provision of fair and affordable insurance difficult. Partly due to this problem, the World Bank emphasises that insurance might in many cases be more appropriate if delivered either through or to existing institutions. Using existing delivery channels means that farmers remain the policy holders, but the insurance is provided through co-operatives or existing distribution points under a different programme. The second option is to provide the insurance to low-level risk aggregators, i.e. organisations such as agricultural banks,

¹⁶ Harold Alderman, Trina Haque, 2007, *Insurance Against Covariate Shocks. The Role of Index-Based Insurance in Social Protection in Low-Income Countries of Africa*, World Bank Working Paper No. 95, pp. 3-6.

microfinance institutions or co-operatives. These become the policy holders, insuring their own losses in case of harvest failures of their clients or members.

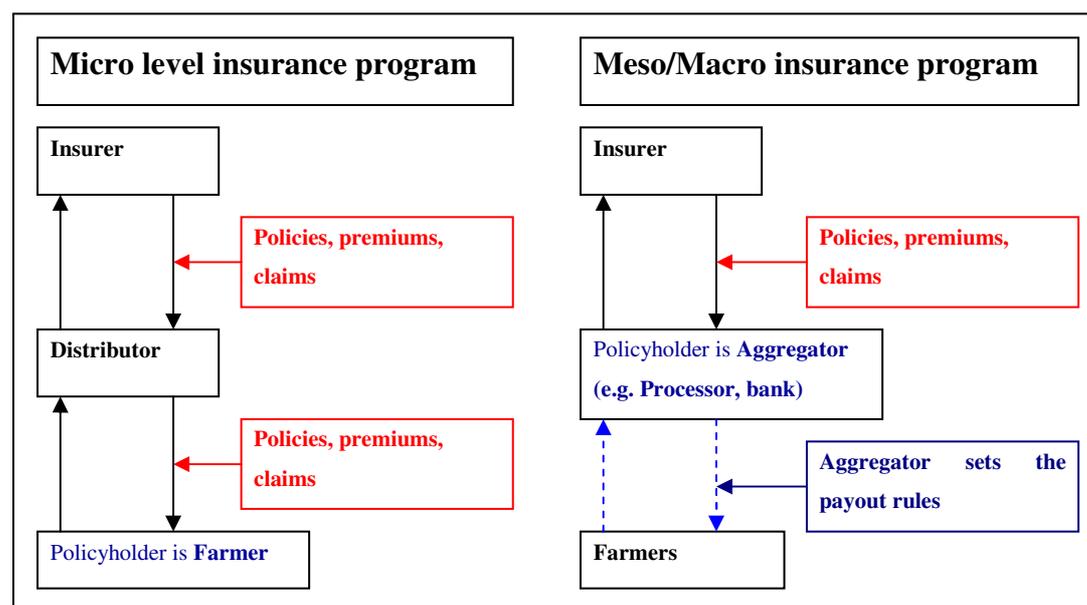


Figure 2: Insurance design models¹⁷

Analogously, governments can be policy holders (or sell weather derivatives to international financial markets either directly or through the World Bank) to finance emergency spending in case of widespread harvest failures in their countries.¹⁸

Apart from these advantages and disadvantages of index-related insurance and possible solutions, the World Bank mentions certain political implications that need to be taken into account in the design of insurance schemes. Individuals, regional authorities and governments might choose to rely on ex-post aid from donors rather than purchasing insurance they have to pay for. Making insurance mandatory or letting donors pay the premiums are cited as solutions. Furthermore, a transparent formula for payouts via the government or direct payouts by the insurer could make cash flows independent of governments who might wish to allocate in order to reward political supporters or might be reluctant to declare disasters.¹⁹

¹⁷ Source: ARD, CRMG, 2009, *Agricultural Insurance: Scope and Limitations for Rural Risk Management*, presentation by the CRMG.

¹⁸ Barnett, Barry J., Mahul, Olivier, 2007, *Weather Index Insurance for Agriculture and Rural Areas in Lower-Income Countries*, American Journal of Agricultural Economics, Vol. 5, pp. 1243.

¹⁹ Harold Alderman, Trina Haque, 2007, *Insurance Against Covariate Shocks. The Role of Index-Based Insurance in Social Protection in Low-Income Countries of Africa*, World Bank Working Paper No. 95, pp. 7f.

State of the art: Lessons learned from the pilot programmes

Given the above-mentioned complex economic and political issues, the World Bank has supported several pilot programmes at different levels to “test the use of market-based approaches to managing agricultural risks”:

At the micro level it involves assessing the feasibility of developing weather risk management products that can be targeted to small farmers. At the meso level, the program provides assistance to traders, processors, lenders, and insurance companies so that they can use new tools to assess exposure and evaluate how financial instruments might be used to mitigate risk. For banks, reducing risks associated with lending to agriculture can lead to expansion of credit to new clients, including small and medium-scale farmers and enterprises. Finally, at the macro level, the program has been supporting governments who are interested in developing ex ante risk management strategies to help improve responses to weather and price shocks, particularly in the context of food security and the recent food price crisis.²⁰

The different pilot programmes and the role the ARD/CRMG has played in it vary greatly. In their synthesis report *The International Task Force on Commodity Risk Management in Developing Countries: Activities, Findings and the Way Forward*,²¹ the authors give a brief overview of the existing work and the first lessons drawn so far. A table briefly describing the projects and individual lessons can be found in the appendix. Project designs have evolved over years of implementation to take into account new insights from the field. Mostly, they involve insurance of smallholder farmers through a cooperation of existing private and public organisations, facilitated or supported by the World Bank. Sometimes they are integrated or feed into broader national strategies of agricultural risk management.

Regarding micro and meso level weather-based index insurance, ARD/CRMG list the following crucial aspects that come out of the pilot projects:

²⁰ World Bank, Agriculture and Rural Development, Commodity Risk Management, 2008, *The International Task Force on Commodity Risk Management in Developing Countries: Activities, Findings and the Way Forward*, p. 1, www.brettonwoodsproject.org/doc/private/CRMGsynthesis.pdf.

²¹ Another very good overview of the issues involved in index insurance, which covers the World Bank pilot programmes, is Hellmuth M.E., Osgood D.E., Hess U., Moorhead A. and Bhojwani H. (eds), 2009, *Index insurance and climate risk: Prospects for development and disaster management*. Climate and Society No. 2. International Research Institute for Climate and Society (IRI), Columbia University, New York, USA, chapter “Scaling up index insurance: Operational issues”.

1. The infrastructure providing the data necessary for index construction needs to be increased to expand the projects to the needed degree.²²
2. The role of *local* participants and knowledge is crucial and need to be expanded by training. One-size-fits-all approaches will not work, so the help of external consultants needs to be limited to ensure that local conditions and clients are taken sufficiently into account and that the projects become sustainable.
3. It is too early to assess the extent of the basis-risk problem, and in any case marketing of the product “must involve comprehensive and careful explanation” of the risk.
4. Outreach to end-users is key but difficult in rural areas. Cooperation with existing organisations such as input providers is helpful in this regard, but only if the supply chain is well organised and functioning efficiently. In any case, insurance is only efficient and effective if complemented by other products and services such as finance or farmers oversight. Bundling insurance with other products such as credits can thus be useful. Regarding flood insurance, the meso and macro level seem more suitable than the micro-level for insurance, since floods can be highly localised.
5. Legal and regulatory frameworks differ and are crucial for the provision of insurance. They must be taken into account and potentially enhanced if no clear guidance on such insurance products exists.
6. There is still research to be done on the impact of education on take up of insurance products. Education of smallholders or small intermediary institutions is hypothesised to be crucial, but it is very costly and might offset the reduction in costs achieved by index-based insurance. It is thus very difficult to design index-related insurance so that it actually reaches smallholders and poor farmers and is not in the end disproportionately provided to bigger or richer farmers.

Regarding macro level insurance, only three pilot programmes have been implemented so far. Evaluations suggest that they have been successful (see appendix for programme descriptions). In 2008, the World Bank Board of Directors approved

²² It is pointed out, that the development of better weather data infrastructure is useful for a variety of other tasks, too, such as early warning systems.

in 2008 that IDA and the IBRD can offer financial intermediation services for weather derivatives to their clients.²³

Evaluation: critical aspects and recommendations

Addressing the problem of weather-induced shocks and related income losses of farmers is important, and long-term institutionalised solutions that do not depend on ad hoc aid are desirable. However, some problematic aspects are worth emphasising and have found only limited or no systematic consideration so far. In the following section, they are grouped according to three problem areas: the causes of weather-related shocks and who pays the premiums; unintended consequences of financialisation and privatisation; and governance at the World Bank body responsible for future implementation.

The causes of weather-related shocks and who pays

To begin with, the incidences of weather-related losses are partly related to the way economic activity is organised in developing countries as well as developed countries. The incidences of weather-related shocks increase because of man-made climate change, and their consequences are worsened by unsustainable forms of economic activity such as deforestation or dams building. Whereas the first one is mentioned in the Bank's synthesis report, the latter seems to go unnoticed in the paper. The links to climate change are also evident, given that index insurance is now considered as a climate change adaptation tool in negotiations under the UN Framework Convention on Climate Change.²⁴

One needs to be aware that commodity risk management through insurance does not tackle causes but symptoms; it manages risks instead of aiming to reduce them. Discussions about insurance should not redirect attention from also dealing with the causes, rooted in unsustainable economic activities or poor management of resources.

²³ World Bank, Agriculture and Rural Development, Commodity Risk Management, 2008, *The International Task Force on Commodity Risk Management in Developing Countries: Activities, Findings and the Way Forward*, p. 8-30, 38-46, www.brettonwoodsproject.org/doc/private/CRMGsynthesis.pdf.

²⁴ Hellmuth M.E., Osgood D.E., Hess U., Moorhead A. and Bhojwani H. (eds), 2009, *Index insurance and climate risk: Prospects for development and disaster management*. Climate and Society No. 2. International Research Institute for Climate and Society (IRI), Columbia University, New York, USA, chapter "Scaling up index insurance: Operational issues".

Even if index-related insurance avoids direct moral hazard for the individual, it might disincentivise governments to reorganise economic activity in order to lessen the number and consequences of weather-related shocks. As Perry points out, “catastrophic insurance penetration requires a well-integrated prevention and government insurance support program”.²⁵ Although the World Bank works on these issues and argues that insurance should be part of a broader framework, World Bank papers and reasoning on index-based insurance have so far not directly incorporated this problem into their analysis.

The World Bank and developing countries should therefore distinguish as far as possible between risks that can be reduced through reorganisation of economic activities and the remaining risk that cannot be reduced. For the former, insurance should only be a temporary solution while programmes for mitigating the risk in the first place are implemented and kick in. Furthermore, there needs to be further discussion about compensating countries being affected by unsustainable economic activities in other countries. Where a link can reasonably be established, the responsible country should reorganise its economy and pay the premium for the insurance in the meantime. This is a complex and difficult task. Discussion about compensation has already started regarding some issues, for example climate change related damages, for which Bolivia proposed the idea of ‘climate debt’ in the run-up to Copenhagen in December.²⁶ The World Bank should integrate these discussions into its work on insurance.

Regarding the costs of insurance, the World Bank and other authors have laid down pros and cons of letting farmers, developing country governments or donors pay the premiums and the build-up of insurance infrastructure. Premiums for unlikely but extremely costly incidents can be too high for poor households and state bodies in developing countries. However, subsidising them may lead to the take up of insurance where it is not necessary or efficient to do so. Indirect subsidies, such as paying for the development of the insurance infrastructure such as gathering sufficient data,

²⁵ Perry, Guillermo, 2009, *Beyond Lending: How Multilateral Banks Can Help Developing Countries Manage Volatility*, Baltimore: Brookings; <http://www.cgdev.org/content/publications/detail/1422098/>, p. 63.

²⁶ UNFCCC, 2009, *Ideas and proposals on the elements contained in paragraph 1 of the Bali Action Plan. Submissions from Parties*, <http://unfccc.int/resource/docs/2009/awglca6/eng/misc04p01.pdf>, p. 44.

developing models for the index or educating farmers and involved organisations are seen as less distorting by some authors.²⁷

So far, the World Bank has not made any concrete proposals for the split up of costs. In the case of commodity price insurance, however, the Bank proposed to provide farmers, cooperatives and governments with dedicated lines of credit to finance premiums, obviously further increasing countries' external debt.

Relying on the private sector

The World Bank research puts a lot of emphasis on the fact that various stakeholders including public institutions, farmers' co-operatives or mutual-aid associations are and need to be included in index-insurance schemes. Its first assessment report concludes that "[m]arket-based approaches may not be the most effective or urgent risk management activity". Nevertheless, the Bank's Insurance for the Poor programme is "based on the principle of market enhancement", "recognising that market failures can create sub-optimal wealth allocation and that private sector coordination is not always effective", but in the end "creating financially sustainable systems without heavy public intervention"²⁸. The pilot programmes in index insurance are thus designed "to assess whether or not it is feasible for developing countries to gain access to market-based tools" rather than to assess whether private index-based insurance delivers the social and economic benefits it is assumed to produce; and the assessment published by the World Bank so far does not cover the "developmental impacts" of index insurance.²⁹ It has not yet been empirically shown, that index insurance actually works as theory assumes it to work. Despite all the problems traditional insurance has displayed, it is by no means justified to assume that index-related insurance will in the end work better.

²⁷ Hellmuth M.E., Osgood D.E., Hess U., Moorhead A. and Bhojwani H. (eds), 2009, *Index insurance and climate risk: Prospects for development and disaster management*. Climate and Society No. 2. International Research Institute for Climate and Society (IRI), Columbia University, New York, USA, chapter "Scaling up index insurance: Operational issues".

²⁸ IfP, World Bank, 2008, *Insurance for the poor. A World Bank program*, <http://www.ilo.org/gimi/RessShowRessource.do?ressourceId=5711>; World Bank, IfP, 2008, *Insurance for the Poor. Helping the poor maintain their livelihood in the face of unforeseen difficulties*.

²⁹ World Bank, Agriculture and Rural Development, Commodity Risk Management, 2008, *The International Task Force on Commodity Risk Management in Developing Countries: Activities, Findings and the Way Forward*, p. 2, www.brettonwoodsproject.org/doc/private/CRMGsynthesis.pdf.

Different public solutions and programmes at the international level should therefore not be easily dismissed, for example an emergency fund financed by several countries in a region or by donor countries and operating as an index-based reinsurance to national public insurance companies. In any case, it must be ensured that market-based mechanisms do not preclude not-for-profit insurance forms such as co-operatives, mutual insurance or commodity boards.³⁰ Instead, market-based mechanisms should be designed to enable and support reinsurance for non-profit rather than direct individual insurance. In order to prevent a bias towards the private industry, not-for-profit institutions should be supported by the World Bank through technical assistance, start-up finance, and eventually subsidies. Where they do not work well, they should be reformed rather than abolished.

Index-related insurance can potentially increase the access of smallholders and poor people to a well-functioning insurance scheme, but there are two broader and potentially very harmful implications of involving the private sector into insuring weather-related risks, i.e. into a sector that is vital to peoples' lives and especially needed by the poor: financialisation and privatisation, which will be elaborated in more detail below.

Financialisation

Financialisation refers to “the increasing role of financial motives, financial markets, financial actors and financial institutions in the operation of the domestic and international economies”.³¹ This can be problematic because financial markets do not usually work smoothly and efficiently. It could be, for example, that insurance prices will be less determined by the costs and risks involved, but by speculation in weather derivatives markets where insurance companies and governments reinsure. Existing research also finds contradicting evidence regarding the ability of large investors to take positions against market fundamentals, and the ability of large speculators to influence price formation.³² In general, volatility in insurance premiums is a

³⁰ Examples are the now abandoned Australian Wheat Board, or the successful German and Austrian Raiffeisen models.

³¹ Gerald E. Epstein, 2005, *Financialization and the World Economy*, Northampton: Edward Elgar, p.1.

³² Domanski, Dietrich / Heath, Alexandra, Financial Investors and Commodity Markets, *BIS Quarterly Review*, March 2007; Susan Newman, *The Downside of 'Financialisation' of International Commodity Markets* (Development Viewpoint #32), <http://www.soas.ac.uk/cdpr/publications/dv/file52180.pdf>; World Bank, *Do Hedge Funds and Commodity Funds Affect Commodity Prices?*, 1997, <http://www->

widespread problem in all insurance markets, with premiums going sharply up after big incidents. This is especially problematic for weather-related index insurance, as it is designed to insure farmers in case of widespread regional events.

It is thus probable that insurance premiums or derivative prices will not accurately reflect the underlying risk profile due to the speculative nature of financial markets. If prices are too high, governments, intermediate institutions and farmers pay too high a price or are unable to afford the insurance at all; and markets become disrupted if the price bubble bursts. If prices become too low, insurance underwriters and derivative holders have to realise losses in case of a weather-related shock, which also might disrupt markets and force governments to bail insurance companies out.

These disruptions do not even have to originate in the weather derivatives market, which might be small, but can originate in another sector, spilling over into the insurance/derivatives sector. Insuring different weather-related risks in various regions in the world through a single marketplace (such as an international financial market in weather derivatives) or by common actors such as specific financial firms specialising in hedging and insurance products or by deliberately pooling risks together, links hitherto non-related risks. As we have seen in severe financial crises such as the Asian crisis in 1997 and the current financial crisis, such linkages increase the risk of contagion with investors going bankrupt or suddenly exiting otherwise healthy markets with solid fundamentals. This could happen to insurance markets, leaving countries suddenly exposed to the risks they were trying to hedge. This could not happen if insurance and reinsurance were provided through a public regional or international scheme or even through private but unconnected local insurance schemes.

Even more problematic is the possibility of a complete market breakdown, for example in a financial crisis or because a weather-related catastrophe has occurred elsewhere and made market actors averse to the risk associated with it. In both cases, when premiums become too high or are simply not offered anymore, there will be no guaranteed alternative mechanisms developed that could be employed quickly enough. The GIIF's role as a market maker might not mean that these problems are quickly solved, since market creation usually takes years. Even if the World Bank acts as an intermediary, these problems hold, because it would in most cases seek to

wds.worldbank.org/external/default/WDSContentServer/WDSP/IB/1997/02/01/000009265_3980625102345/Rendered/PDF/multi_page.pdf.

reinsure in international markets and pass the market price on to developing countries governments, farmers associations and so on.

Privatisation

Secondly, related to the problem of financialisation, private insurance means increased *privatisation*, which comes with its own shortcomings. The poorest are often excluded and access cannot be guaranteed without subsidising the industry. Even in the US, where farmers have higher levels of education and better access to related infrastructure such as communication technologies, individual insurance has not worked for many smallholder farmers.³³ Furthermore, insurance markets dominated by private actors do not necessarily reduce the costs, because the index-related insurance schemes benefit greatly from economies of scale (establishing an index, pooling risk, making insurance mandatory to avoid adverse selection) and are thus predisposed to concentration. These two problems of coverage and costs are interrelated, because private profit-seeking firms strive to insure those that are less exposed to risks, so that in the end those who need insurance most remain uninsured or pay a considerably higher price. A privatisation strategy without universal coverage might lead to a situation which is the opposite of the World Bank's aims, namely providing insurance for those that are currently not reached by private insurance markets. The World Bank and related bodies therefore need to state clearly that creating a fully private market will not be at the heart of their approach.

The condition that government participation in the GIIF/GIRIF depended on a "proper country-level risk management framework"³⁴, for example, might lead to pressure for privatisation, depending on the understanding of the word 'proper' in the future design of the facility. As presented by the CRMG, the country agricultural risk management model includes a section on "social versus commercial insurance".³⁵ Additionally, governments seeking to reinsure in international markets might face market pressures to privatise and liberalise the insurance sector. Excessive

³³ Breger, Sasha, 2007, "Who do derivatives markets serve? Rhetoric versus reality", in: Assassi, Libby / Nesvetailova, Anastasia / Wigan, Duncan, *Global Finance in the New Century. Beyond Deregulation*, New York: Palgrave.

³⁴ CRMG, ARD, World Bank, 2006, *Global Index Insurance Facility (GIIF) Concept Note (Synopsis)*, http://www.proventionconsortium.org/themes/default/pdfs/GIIF_overview_Feb06.pdf.

³⁵ ARD, CRMG, 2009, *Agricultural Insurance: Scope and Limitations for Rural Risk Management*, presentation by the CRMG.

deregulation and privatisation might easily permit large multi-national firms to enter the market place, potentially leading to the problems explained above, i.e. repeat or exacerbation of current global insurance sector problems such as the insolvency of big players (e.g. US insurer AIG) or whole markets (e.g. the market in credit default swaps), causing a withdrawal or a hike in premiums without any change in the underlying risk profile.

The World Bank argues in their assessment report that market-based approaches should *complement* other approaches and interventions; and where market-based solutions are introduced, attention must be paid to the policy environment.³⁶ The conclusion, however, that public and private institutions and mechanisms should be combined comes with its own problematic aspects. Public and private actors work together in the pilot programmes at different levels.³⁷ In the Indian project, for example, BASIX, an institution funded both by private as well as public money,³⁸ acts as an intermediary between private insurance companies and smallholders. The World Bank also mentions that tasks such as providing the index data used for private insurance or disseminating information (i.e. paying for the private companies' marketing) might need to be financed by the World Bank, donors or developing countries' governments. This means, donors, developing countries and World Bank money is used to *de facto* subsidise the private industry. In these cases, it must be ensured that programmes do not lead to the socialisation of costs and privatisation of profits. Given that insurance is in the end provided to smallholders for which the payout is absolutely essential, this is extremely difficult to ensure, since a bailout of a failing insurance companies and other intermediaries is almost inevitable.

³⁶ World Bank, Agriculture and Rural Development, Commodity Risk Management, 2008, *The International Task Force on Commodity Risk Management in Developing Countries: Activities, Findings and the Way Forward*, p. 4f, www.brettonwoodsproject.org/doc/private/CRMGsynthesis.pdf. See also Hellmuth M.E., Osgood D.E., Hess U., Moorhead A. and Bhojwani H. (eds), 2009, *Index insurance and climate risk: Prospects for development and disaster management*. Climate and Society No. 2. International Research Institute for Climate and Society (IRI), Columbia University, New York, USA, chapter "Scaling up index insurance: Operational issues".

³⁷ For an overview of project partners, see World Bank, Agriculture and Rural Development, Commodity Risk Management, 2008, *The International Task Force on Commodity Risk Management in Developing Countries: Activities, Findings and the Way Forward*, Appendix, www.brettonwoodsproject.org/doc/private/CRMGsynthesis.pdf.

³⁸ BASIX, *Financial supporters*, http://69.89.31.196/~basixind/index.php?option=com_content&task=view&id=31&Itemid=217.

All the above problems - disincentivising necessary broader economic restructuring, the potential impacts of a broader role of speculation-driven financial markets in the national economy, and impacts of privatisation on access and public and private losses and profits - cannot be sufficiently assessed by small-scale pilot programmes. Therefore, they need extensive consideration additional to programme evaluations, which is currently lacking.

International regulation

The World Bank and other authors emphasise that the legal, regulatory and policy framework of countries is crucial to protect consumers (policy holders) and investors (insurance companies), and to address market failures. However, the focus lies almost exclusively on national frameworks, whereas the international level is left out of the analysis. Hellmuth et al mention that the International Association of Insurance Supervisors has yet to produce international guidelines for the regulation of such insurance³⁹, a body which has been criticised by civil society for its lack of accountability and transparency.⁴⁰

As it stands right now, developing countries have no real power over international financial markets. Relying on them for reinsurance subjects governments, farmers and intermediary insurance underwriters to market forces which are controlled by governments and investors in the major financial centres. Regulation necessary to tackle the problems and implications explained above can thus become very difficult or practically impossible for a developing country, and developed country regulators and governments do not have a particularly good record in taking developing countries' interests into account when designing national policies.

This is especially problematic given the huge asymmetry between individual farmers or even small co-operatives, and potentially large financial firms offering insurance or investing into index-related derivatives. A strong national and international legal-regulatory framework that gives individuals, sub-national agencies and national bodies strong rights to hold the insurer or any other financial

³⁹ Hellmuth M.E., Osgood D.E., Hess U., Moorhead A. and Bhojwani H. (eds), 2009, *Index insurance and climate risk: Prospects for development and disaster management*. Climate and Society No. 2. International Research Institute for Climate and Society (IRI), Columbia University, New York, USA, chapter "Scaling up index insurance: Operational issues".

⁴⁰ Vander Sichele, Myriam, 2005, *Critical issues in the financial industry. SOMO financial sector report (Updated April 2005)*, http://somo.nl/publications-en/Publication_415/view.

counterparty accountable, and that ensures comprehensive consumer protection within and across borders, is crucial. Letting the private sector offer the needed insurance before such a framework is guaranteed at the international level puts farmers and their organisations in a very weak position, which might easily offset the benefits of such insurance.

Conclusion: The role of the World Bank

As has been shown, the index-related insurance approach has potential benefits, but it comes with a lot of problematic aspects, some of which find no or only limited consideration in the work of the World Bank so far. That is not to say that they have not been acknowledged, but they need to be systematically addressed and put at the heart of the debate. Supporting private index-related insurance before these aspects are sorted out might worsen not improve the situation of farmers and governments in developing countries.

Firstly, insurance tackles symptoms not causes and might disincentivise or distract from necessary changes in the way economic activity is organised, contributing to the build-up of the risks the insurance aims to mitigate. The Bank should therefore directly link its work on insurance to a debate on the nature of risks and sustainability of the economy.

Secondly, insurance directly provided to individual households comes with a lot of difficulties regarding knowledge and resource asymmetries. The World Bank therefore needs to ensure that its support for private solutions does not crowd out successful public and communal initiatives, an aspect it has widely emphasised in its research.

Thirdly, private insurance is a step further in linking people's livelihoods and well-being to international financial markets that are inherently volatile, endogenously create risks and are highly connected and therefore prone to contagion. In its research and advice, the World Bank needs to take the associated costs stemming from volatility and potential market-breakdown much more into account.

Fourthly, the privatisation of insurance might also create problems for coverage and the redirection of public money into private profit. Direct and indirect subsidies of private sector activity should be kept to a minimum, regulation needs to be extensive to avoid bail-outs, and progress should be measured based on coverage and affordability, not private profit-making or market existence. In any case, the World

Bank should respect countries' policy autonomy and avoid pressures for deregulation and privatisation.

Regarding the governance of the World Bank's approach, it needs to be ensured that the facility that will lead its work in the future is not biased towards market solutions. Its aims and later evaluation should be defined in terms of specific goals that directly measure the progress in poor people's and smallholders' actual ability to mitigate risks and avoid crisis selling of assets, not the size or profitability of the market.

Given the above considerations, several roles proposed for the World Bank seem potentially problematic. Financing the establishment and maintenance of indices, information and dissemination campaigns to inform smallholders, and financing insurance premiums (or making donors pay them) can be problematic if private profits made possible by these activities are not partly redirected to the public. Any information facility financed by the industry needs to be independent in its assessments and ensure that insurance does actually reach people, provides them with the safety they need and is actuarially fair.

Another proposed role for the World Bank is to facilitate the cooperation of several countries to pool their risks, which can reduce countries' costs considerably. However, care should be taken so that the created interlinkages do not lead to damaging contagion in the financial and insurance sectors in case of crises.

More consideration is needed of the proposals to let the World Bank use indices to trigger IDA grants and offer insurance itself. If designed well, and not attached with counterproductive conditionality regarding national insurance schemes, it might be a better solution both to ad hoc aid and to private insurance offered through volatile and poorly regulated financial markets. Alternatively, the World Bank could work with donors so that they disburse their existing resources earmarked for emergency response according to weather-related indices, rather than waiting for crop failures to materialise.

In any case, the World Bank should not dismiss alternative approaches to deal with weather-related risks than index-related insurance, taking the costs and benefits comprehensively into account and comparing them to alternative approaches. It would be an error to assume that those have not worked and index-related insurance is therefore the way forward. It has some powerful advantages in theory (avoiding moral

hazard and guaranteeing timely payout), but whether they actually hold in reality and whether they off-set the costs spelled out above, remains an open issue.

The pilot programmes should not be seen as a first step towards creating index-related insurance but as an assessment exercise that may well reveal that it is not a viable way forward. The thoughtful and cautious conclusions by the World Bank researchers working on it, especially their conclusion that private insurance is not always workable, should be taken extremely seriously in designing the World Bank's approach in the future. Furthermore, the Bank's assessment of index insurance should focus more on its developmental impact, rather than the feasibility of creating a market.

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The author takes responsibility for how the information has been used and incorporated into the paper.

Appendix

Overview of pilot programmes⁴¹

Country	Project	Lessons learned
Burkina Faso	<ul style="list-style-type: none"> - macro-level: develop national rainfall index for cotton production - micro-level: index-based weather insurance contracts for cotton producers 	<ul style="list-style-type: none"> - not provided
Central America	<ul style="list-style-type: none"> - technical support for public and private sector capacity regarding financial risk management in agriculture in Honduras, Guatemala and Nicaragua: weather insurance for medium and large size farmers - technical assistance for credit risk assessment and price risk management in agriculture in Honduras - now weather insurance commission (public-private partnership) to formulate national strategy 	<ul style="list-style-type: none"> - ministry of agriculture has successfully linked insurers with informal institutions and credit and loan associations to reach smallholders; public insurer of special importance - weather data pre-requisite - incentives set by public sector programmes and policies important
Ethiopia	<ul style="list-style-type: none"> - research - insurance corporation offered weather risk management contracts to individual farmers - now development of a strategy for weather risk management as part of the Financial Sector Capacity Project of the World Bank and the National Bank of Ethiopia 	<ul style="list-style-type: none"> - weak data infrastructure on weather - weak marketing channels - weak supply chain
Grenada, Haiti, Jamaica, Morocco	<ul style="list-style-type: none"> - macro-level agricultural risk management projects under planning 	
India	<ul style="list-style-type: none"> - private weather-indexed insurance for smallholders intermediated by a microfinance company - a pilot project for a drought safety net including insurance and technical support 	<ul style="list-style-type: none"> - not provided
Kenya	<ul style="list-style-type: none"> - services to insurance companies, microfinance institutions, research 	<ul style="list-style-type: none"> - field research critical - close cooperation and

⁴¹ Information based on Harold Alderman, Trina Haque, 2007, *Insurance Against Covariate Shocks. The Role of Index-Based Insurance in Social Protection in Low-Income Countries of Africa*, World Bank Working Paper No. 95, pp. 9-22; and World Bank, Agriculture and Rural Development, Commodity Risk Management, 2008, *The International Task Force on Commodity Risk Management in Developing Countries: Activities, Findings and the Way Forward*, p. 8-48, www.brettonwoodsproject.org/doc/private/CRMGsynthesis.pdf.

	<p>institutes etc.: technical assistance (contract design, training, best practices etc.), coordination, access to information about existing practices, monitoring and evaluation, support for regulation (in preparation stage)</p> <ul style="list-style-type: none"> - World Bank financed a drought-contingent social protection scheme: a community-based early warning system assesses drought risk and a steering group made up of representatives from ministries and NGOs decides on support for members of the community 	<p>communication with local project partners crucial; external consultants inefficient</p>
Malawi	<ul style="list-style-type: none"> - in 2008, World Bank offered index-based weather derivatives contract to Malawian government and reinsured on international markets; UK's Department for International Development (DFID) paying the premium; government planned to use payout to cap maize prices for import - combined with a project ongoing since 2005 in which WB offered technical assistance and training for the government to buy OTC traded financial instruments at the South Africa Exchange Market to cap costs on maize for import - now part of the Bank's Agriculture Development Program Support Project in Malawi to enhance the quality of weather data and modelling, and provide training and technical support 	<ul style="list-style-type: none"> - pilot project in index-based weather derivatives showed feasibility and revealed market price, so that government can now identify most cost effective tool
Malawi	<ul style="list-style-type: none"> - indexed-based weather insurance for 892-1,710 groundnut farmers to insure loan repayment; later expanded to the tobacco sector, with insurance to a portfolio of loans held by tobacco company and bank - now transition of pilot programmes into private sector driven businesses, transition financed by government with World Bank money 	<ul style="list-style-type: none"> - groundnut farmers engaged in side-selling, so loan repayment a problem even if insured → insurance only useful in a sector with well organised supply chain ensuring repayment - more weather stations needed - insurance sector needs to expand its technical expertise - insurance sector needs to grow to attract international reinsurance markets - capacity building of the regulator
Senegal	<ul style="list-style-type: none"> - feasibility study for weather-based and area yield index insurance: development and testing of a specific product, design organisation structure, form stakeholder group, extension services to farmers, testing insurance scheme for 3 years, 	<ul style="list-style-type: none"> - link of insurance to integrated programme addressing other obstacles such as access to quality seed, credit etc. - capacity building crucial, lack of operating insurance companies

	evaluation and adjustment, plan for national scale up	- regulatory issues
Thailand	- drought index insurance to farmers provided by insurance companies - now IFC will provide further technical assistance to partners	- development of index complex and technical difficulties need to be solved
Thailand	- feasibility study on flood risk insurance	- “challenging”, because flood very concentrated, probably leading to anti-selection and unsustainably high premiums - since flood is frequent and predictable, insurance not feasible
Vietnam	- Bank for Agriculture and Rural Development purchases insurance contract against flooding to offset the costs of restructuring loans of farmers hit by flooding → reducing costs of lending (not yet implemented)	- not provided
Similar projects		
Madagascar	- insurance against drought and cyclones (planning stage)	
Mongolia	- Bank finances index-based livestock insurance based on regional (not individual) mortality rates at market premium rates; above a certain trigger the private insurance company pays herders a specific sum of money; above a certain exhaustion point, the mortality rate is considered a catastrophic loss and a state social safety net is activated	- not provided
Tanzania	- insurance for coffee farmers (planning stage)	