The potential role of Disaster Insurance for disaster risk reduction and climate change adaptation

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Abstract
The purpose of this paper is to explore the potential role of Index-based Disaster Insurance as a tool for climate change adaptation and social protection in developing countries. The paper will first provide an overview of recently piloted micro policies and macro policies. It will then outline several limitations of the micro approach as a tool for social protection, and move on to discuss the macro approach and its potential as a more sustainable instrument for humanitarian intervention. Using Ethiopia as a case study, it will be argued that the current appeal-based emergency model is unsustainable. The paper will then discuss the possible value of two key factors, "timeliness" and "reliability", that disaster insurance could bring to humanitarian intervention. The discussion will lead to the conclusion that rigorous and extensive research is necessary to assess the financial sustainability and feasibility of this approach as a viable tool for disaster risk reduction and climate change adaptation. Key challenges considered are the complexity of a sensible cost-benefit analysis as well as the issue of targeting and participation. Finally, specific recommendations will be provided for donors, governments and civil society.

Why insurance?

The poor in developing countries are the most exposed to and affected by natural hazards. They have limited or no access to insurance and financial services, and in most cases have to manage weather risks by their own means (Syroka and Wilcox, 2006; Pelling, 2007). This is often seen as a primary cause for what has been called the "poverty trap". In fact poor households, being exposed to uninsured risk, tend to adopt low-risk strategies that may be economically inefficient (for instance devoting most of their land to crop varieties that promise more reliable yet lower yields). Then, when disaster strikes they often lose their productive assets and are therefore cast into a spiral of destitution, from which it is hard to escape (Syroka and Wilcox, 2006).

A growing body of evidence shows that climate change is set to increase the frequency and intensity of natural hazards. A recent UN report asserts a global increase of 87 % in the number of hydro-meteorological hazards (as droughts, floods and hurricanes) in the last 20 years (UN, 2007). Old assumptions about the return period (the period of time between two climatic extreme events) and the severity of certain weather events are now unreliable. This is further eroding actual coping mechanisms and it is raising new challenges for the reduction of social and economic impacts of natural disasters on vulnerable populations. The amplified frequency and intensity of natural disasters is

recognised as one of the main factors challenging the achievement of the Millennium Development Goals, and it is also putting an increasing pressure on aid agencies, already overburdened by what has been referred to as "fatigue" in humanitarian response (Pelling, 2007; Morris, 2005; UN, 2007).

In this scenario some assumptions have started to be questioned: is reinforcement of old practices going to be sufficient or should we find a more effective and sustainable way to approach weather risk and humanitarian assistance? For that reason innovative responses have started to be considered and tested (Pelling, 2007; Morris, 2005).

The failure of traditional crop insurance

In developed countries traditional multi-peril crop insurance is widely used and heavily subsidized, since the government contributes 30-70 % to farmers' premium (up to 100 % for Catastrophic Crop Insurance, for instance in the USA where premium is entirely paid by the government). However many have questioned the actuarial soundness of such schemes to an extent that they have been defined a "global failure" (Skees, Hazel and Miranda, 1999). The main causes for this failure are considered very high monitoring and administrative costs, adverse selection and moral hazard. In fact, the unbalanced information (referred as "asymmetric information") insurer and insured have about the causes of a loss, are likely to determine "adverse selection", as farmers presenting a worse than average risk are often the only one to buy the insurance, and "moral hazard", since once insured farmers lose incentive in minimizing their loss (Morduch, 2001; Mapfumo, 2006).

Therefore traditional crop insurance has been seen as a poor model for export, particularly in developing countries, most of which are under serious fiscal constraints and have smallholder economies suffering from high exposure to covariate risk, the risk of simultaneous losses from a single event.

Recently, due to the introduction of a new approach to crop insurance with index based products, an opportunity for improving vulnerable communities' resilience has arisen: through close integration of disaster risk reduction with risk transfer tools there is a chance to create a viable insurance market in developing countries and to provide a mechanism for financing safety net and disaster relief programmes in countries where climate variability constitutes a major risk (Pelling, 2007; Barnett et al., 2006).

By bringing NGOs/Civil Society, private sector skills, expertise and institutions, to work alongside Governments, risk transfer programmes can be piloted and tested in their ability to become an integral component of countries broader strategy to reduce the devastating consequences of natural disasters.

Index-based risk transfer products

Index-based insurance started very recently and it is still at a pilot phase and more case studies and research are necessary to fully comprehend its potential and limitations. Unlike traditional insurance, contracts are written on an objective index (ex. rainfall measurements at a local weather station) that acts as a proxy for crop losses a farmer experiences on his field, rather using his actual losses to determine a claim. Since no field

inspections are required there is a drastic reduction of transaction costs and claims can be paid promptly. Moreover, as the index is based on objectively measurable data, there are few asymmetric information problems and the index can be transferred directly to international financial markets (Morris, 2005; Mechler et al., 2006).

The drawback is that significant investments in research and the start up phase are necessary to develop these schemes, and international reinsurance companies may be reluctant in covering these costs. Therefore, some aid agencies and governmental organizations (as WFP, DFID and World Bank) have started piloting these schemes (Barnett et al., 2006).

Index-based MI schemes can be implemented at different levels: micro level (Individual or Group policies) and macro level (Multi-countries and National policies). The micro model offers protection to weather risks that impact a farmer directly in terms of his agricultural production. The macro model focuses on risk at an aggregate level and when crop production is affected on a regional, national or multi-country level. Usually, these initiatives focus on different policy objectives and target different segments of the rural population with different risk profiles, who therefore have different risk management needs. The micro products focus on increasing the productivity and profitability of the less poor farmers, which is why they are often bundled with credit and input supplies; the macro seek to enhance systems that protect poor farmers and the poorest of the poor in the event of risk shocks. Direct insurance may not be the most appropriate solution for the second group, who need other direct investments to deal with chronic levels of risk they face before they can fully benefit from micro tools.

A micro approach to Index-based Insurance

To date, only a few micro level policies have been implemented; as for example the BASIX pilot in India, and NASFAM's scheme in Malawi). These models require a big initial investment for the starting up phase primarily to collect the necessary data, for example by installing rain gauges, but can become self sustainable when the project scales up and a big pool of insured people (more than 10,000 insured) is created. These micro policies can be sold to individual farmers or to groups (like a cooperative or an entire village) and the premium is paid by farmers or can be subsidized for the poorest. This micro approach could guarantee a higher degree of community participation and control (Mapfumo, 2006; Mechler et al., 2006).

BASIX in India

In 2003, with the World Bank's technical assistance an Indian insurance company, ICICI Lombard, designed a pilot weather-based insurance and BASIX, a microfinance institution, marketed it. Reinsurance was guaranteed by Swiss Re. In 2003 policies were sold to 148 farmers with an average of 2-10 acres of land. During this pilot project 2 major problems emerged:

- Cash availability during marketing days, since timing of sales coincided with seed purchasing.
- Complexity of the insurance, since most farmers did not understand "mm of rainfall".

Based on feedback from farmers, the insurance has then been improved and by the end of 2006, 150.000 farmers bought the insurance. According to ICICI Lombard, weather insurance needs extensive government support for product promotion, subsidy and service tax (Mechler et al., 2006).

However as highlighted at the last ProVention forum, major challenges to this approach are the affordability of commercial insurance for the poor, the threat large covariant losses can pose to the financial stability of insurers and the prevailing absence of an institutional architecture to pull risk transfer and risk reduction together (Pelling, 2007). One of the key lessons learnt to date is that investment in index-based weather insurance without complementary investment in financial intermediaries and effective marketing channels and supply chains, where linkages can be made, will limit the take-up and scalability of such initiatives (UN DESA 2007). At the macro level, an attempt at addressing some of these challenges has been developed through the Caribbean Catastrophe Risk Insurance Facility, where subsidies for premium have been linked to risk reduction measures to be put in place by participating governments (more detail below. See also Linnerooth-Bayer et al., 2007).

Experience from Malawi and India with micro-level weather insurance demonstrates that these micro policies can face severe constraints, reducing their effectiveness as a tool for social protection for very poor rural communities. For example:

1. The Malawi experience highlights that, in order for this insurance to work, other risks faced by farmers (like access to market, access to credit etc.) need to be addressed. Therefore micro finance products as well as non-financial services are necessary to sustain this model.
2. To date, the most financially sustainable examples of Weather Micro Insurance have been where insurance is offered as part of a broader portfolio of policies (as done in the BASIX scheme). This could constitute a limitation for countries where financial markets are weak and there is not a large number of insurers and service providers.
3. Technical issues can represent another limitation. Since this type of Insurance has to capture local weather events on a farmer's field, a large number of weather stations are necessary and this system can be difficult to create in many countries.
4. Moreover, micro policies are harder to develop for marketing reasons. In fact they need to be very simple to be relevant to farmers but at the same time they have to perform well from an insurance point of view, in order to limit the risk of a mismatch between actual losses and insurance payouts ("basis risk"). This occurs when the trigger is insufficiently correlated with the losses and no payout is given even though losses occurred.
5. Another limitation is that index-based schemes provide farmers with a payout as a consequence of a severe weather event rather than crop loss. Poor communities, for which premium's payment can already be a heavy burden, could loose any incentive after experiencing a loss which is not covered by the policy (for instance crop loss due to pest attack). They could perceive the insurance as a fraud and decide not to renew the policy for the future.

NASFAM in Malawi

Peanut farmers in Malawi traditionally use local seeds since they had no money or credit to buy high-quality seeds. In 2005, to make them more creditworthy NASFAM (a farmers' association) with technical assistance from the World Bank and Opportunity International, designed a pilot index-based insurance. Multiple underwriters were necessary since no single underwriter was willing to take the risk alone, given the huge payout in the event of a drought. OIBM agreed to provide loans to insured farmers. In the first season 892 farmers bought the insurance, they were small farmers with an average of 1 acre of land.

In the first phase, farmers had low harvest due to the seed quality they received. Seeds received from NASFAM were too old and this led to poor crop yield and to an inability by participating farmers to repay their loans. This experience shows that, in *bundled schemes*, micro insurance can be a tool in disaster mitigation only if the coupled services are functioning well (Mapfumo, 2006).

According to Joanna Syroka (World Bank) current experiences reveal that for poor farmers that face a multitude or chronic levels of risk, or where agricultural services (e.g. credit, extension services), supply chains, markets and infrastructure are weak, these micro policies might not be the right option. The ProVention Consortium has recently started a study about micro-level insurance schemes that will include a joint evaluation of 10 pilot schemes in Asia. It will focus on financial viability, contribution to risk reduction and on the impact on insurers' households. This study will certainly give an important contribution towards a better understanding of Micro Insurance's ability to reduce risks for people with different level of vulnerability.

A macro approach to index-based insurance

The first National Index-based Disaster Insurance was implemented in Ethiopia in 2006 while the first Multi-countries Disaster Insurance was implemented in the Caribbean in 2007. In these policies the contract is written between governments (and/or donors) and a reinsurance company. This policy would guarantee national governments with a reliable payout as soon as an insured natural disaster strikes. The World Bank, WFP and DFID have been involved in the promotion and pilot of Macro level policies, helping national stakeholders to build capacity that would enable them to link with international financial markets.

Caribbean Catastrophe Risk Insurance Facility

The first Multi-country catastrophe insurance pool is very recent (Feb 2007) and has been purchased, thanks to donors contributions, by a pool of 18 Caribbean countries. The Caribbean Catastrophe Risk Insurance Facility (CCRIF) will guarantee participating governments immediate access liquidity if hit by a natural disaster. According to the World Bank, pooling their risk is saving the eighteen participating countries approximately 40% in individual premium payments. Purchasing the insurance from the Facility, Caribbean Governments can contribute to their own protection proportionate to their risk of exposure to natural disasters and help safeguard their services. This in turn will help protect the poor who suffer disproportionately from such disasters, and raise investor confidence in any participating country's ability to recover from a disaster

Macro level Weather Insurance is easier to implement; since it involves only few insured entities (governments and development agencies) and covers only severe droughts. In relative terms it does not require as large a number of weather stations to be implemented successfully as micro insurance (only about 26 weather stations were sufficient to cover the whole Ethiopia). In addition government and donors can assume basis risk more easily than individual farmers.

During the last ProVention Forum, some key challenges have been identified for this macro approach: financial sustainability of insurance products, create incentives for risk

reduction, difficulty in finding a balance of public-private roles and in generating reliable historical as well as updated meteorological data (Pelling, 2007) while developing effective climate change scenarios to use as the basis for estimating future risk.

Why is the current humanitarian approach unsustainable?

A growing body of experiences and knowledge, as emphasized by the Hyogo Framework for Action (UNISDR, 2005), are now pointing to the effectiveness of long-term disaster management, including early warning systems, social protection promotion, economic policies and market solutions. However on the ground disaster management still tends to focus on short-term humanitarian approaches (Pelling, 2007; Morris, 2005). This model not only tends to create dependency from external aid, but also it is often used as a political tool by political groups in power (for instance favouring specific ethnic groups or geographical areas in aid distribution, in order to gain popularity and votes).

In addition, according to World Bank and WFP experts, this approach is economically unsustainable. The lack of sustainability of this ex-post emergency model is not only because imported food-aid generally costs twice as much as cash assistance or locally purchased food. It is also because of the long term cost of delivering "unreliable" and "delayed" support to vulnerable people (Hess et al., 2006).

In Sub-Saharan Africa about 140 million people live with the constant threat of droughts or floods. According to the literature this "uncertainty" prevents poor farmers from making higher risk, higher return investments. For instance crop diversification and buffer stock (stopping farmers from selling surplus at a market price) are often extremely costly in terms of efficiency. Then, when the rains fail to arrive, vulnerable households act fast. First strategies include selling non-productive assets or migration of family members. However if the situation does not improve, they are often forced to use more costly coping strategies, like removing children from school, reducing food consumption and health expenditures and selling productive assets (tools, livestock…) (Barnett, 2006).

According to WFP, subsistence farmers tend to sell their productive assets within six weeks from the rain failure. They need cash to buy food at harvest time and they know that if they wait too long prices will fall as other farmers will also be selling their assets. Humanitarian appeals are traditionally based on harvest' failure (which can be up to four or five months after rain's failure). By the time humanitarian aid reaches the poor, which can add an extra 8 months after the harvest has failed, they have already lost their livelihoods and therefore their ability to benefit from better weather the following year. According to the World Bank and WFP this "delay" under ex-post emergency model, accounts for huge numbers of new destitute people after a climate-related disaster, since after loosing their productive assets, they often become semi-permanent beneficiaries, trapped in a state of dependency from external aid for many years (Hess et al., 2006; Morris, 2005).

This was well illustrated during the last severe drought in Ethiopia in 2002: over 1.5 million tons of food aid had been shipped to the affected areas of the country and humanitarian assistance, through food and non-food relief, prevented a disastrous famine.

Millions of lives had been saved, however according to recent studies many factors in this humanitarian intervention did not prevent devastating loss in livelihoods with long term effects:

- The slowness of the international community in recognising the gravity of the situation. In fact, as often happens, relief appeal started when the situation was already at its worst, months after rain failure, and many farmers had already sold their productive assets
- The "Food First" culture, which seems now to dominate the emergency response, failed in meeting non-food needs, like seeds and veterinary drugs, causing a further depletion of the few assets left (Hess et al., 2006; DPPC, 2004).

In Ethiopia the emergency system has recently gone through a major reform. In 2005, the government introduced the Productive Safety Net Programme (PSNP), a predictable and increasingly cash-based model targeting the chronically food-insecure. However, the current partial reform of the emergency system does not appear to be financially sustainable, since it does not include an effective mechanism to protect livelihoods of the transiently food-insecure people[1]. They are in fact very likely to lose everything they own as a consequence of future shocks, resulting in an unsustainable growth of the chronically food-insecure community and therefore the PSNP. Therefore in 2006 the first National Disaster Insurance has been piloted in Ethiopia, targeting the transiently food-insecure community (Hess et al., 2006).

Drought Insurance in Ethiopia

The first National Index Insurance has been piloted in Ethiopia for the agriculture season 2006. The whole country has been insured against drought by AXA Re and WFP has paid for premiums. The pilot targeted households identified as transiently food-insecure included an estimated 5 million people. While the pilot provides only a small amount of contingency funding, covering 310,000 beneficiaries with a maximum payout of $7.1 million in case of extreme drought, the model is calibrated to potentially assist 17 million Ethiopian farmers who risk destitution as a consequence of a severe drought. Rainfall was above average throughout the country in 2006 therefore there was no payout but according to WFP, this pilot project has shown that catastrophic risk is suitable for transfer to global markets (WFP, 2006; WFP, 2007; Syroka and Wilcox, 2006).

The aim of the Ethiopia pilot was to prove that it is feasible to use market tools to finance drought risk and that accurate indicators can be developed to trigger drought assistance. While in that respect the pilot appears to have been successful, key challenges for its implementation remain targeting and participation. Looking for instance at the PSNP, which the Insurance is complementing, even though recent studies (Sharp et al., 2006) suggest its success in reaching the very poor, some issues have been highlighted about local participation. According to CA staff the top-down approach of national programmes, is creating conflict with the local civil society. In fact local NGOs are not involved in public work projects identification and planning while the large scale of these projects undermines the viabilities of their small projects

An additional challenge is the complexity of a sensible cost-benefit analysis. The question of cost-effectiveness is essential where both national governments and donor

[1] *Transiently food- insecure people:* they can be defined as people who, even though normally food-secure, are subject to acute but temporary food shortages due to climatic or other sudden shock.

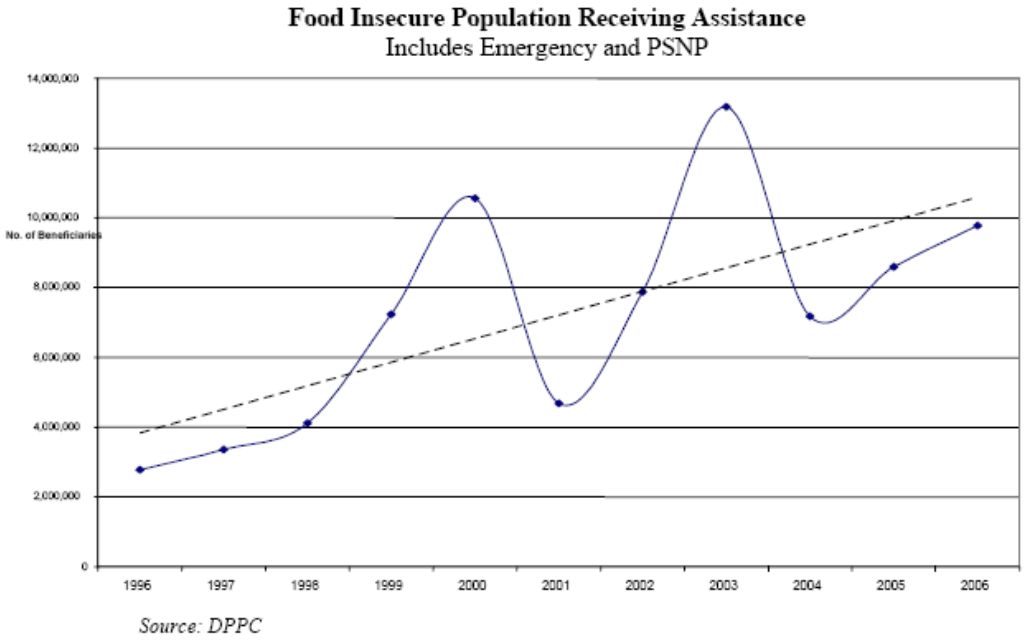
organizations are facing budget constraints and there is a growing concern that valuable aid money should not be diverted from vital development programmes, to be used in piloting innovative schemes.

Is Disaster Insurance financially sensible?

This is a very complex question, given the fact that in insurance business premiums will always be higher than expected payouts, and a basic cost-benefit analysis can lead to simplistic conclusions. For instance, in a hypothetical situation, where Ethiopia had been insured against droughts over the last 20 years, a simple calculation of premium that would have been paid and payout that would have been received, would lead to the conclusion that this insurance is economically unsustainable for governments and donors. In fact the payout of $7.1 million is only for severe droughts that occur on average every 10 to 20 years in Ethiopia Recent droughts that would have triggered the Insurance occurred in 1965, 1984 and 2002. If we consider a 20-year span (for instance 1984-2003) expenditure on premiums amounts to around $18,500,000 ($930,000 annually over 20 years) compared to a total payout of $14,200,000 (two payouts of $7,100,000 each). This would probably even be the case despite an expected increase in severe weather events in the future due to climate change, since this would be reflected in higher premium.

But a meaningful cost-benefit analysis has to consider other non-linear effects. For instance, we need to also take into account two further variables: **reliability** and **timeliness**. In other words we need to include also the value for beneficiaries and local economies of receiving reliable payouts soon after a disaster strikes. Experts at the WFP, the World Bank and DFID emphasize the importance of these two variables, since these would supply more effective contingency funding for the protection of livelihoods as compared to a conventional appeal process. In the context of disaster management these two variables have an actual monetary value[2]. If payouts are reliable and timely, contingency plans can be put in place and livelihoods can be saved. This could allow transiently food-insecure people in particular to build and protect their livelihoods in times of crises, reducing relief expenses year by year. However it is extremely difficult to specify the monetary value of these variables in any given context, since they are relatively arbitrary and subject to interpretation and attempts to create a standard model have, to date, failed.

[2] Joanna Syroka, 2007. Personal Communications, World Bank, Washington DC, USA.



Source: DPPC

This graph shows the rising trend in the number of people that require food assistance in Ethiopia. WFP estimated that the 2002 drought has pushed 1-2 million vulnerable people into destitution. According to the World Bank and WFP, Index-based Disaster Insurance, providing timely and predictable intervention in crisis time can prevent destructive risk-cooping mechanisms, saving livelihoods and reducing expensive intervention costs during the second phase, the "life-saving phase", of humanitarian response (Hess et al., 2006), if coupled with effective contingency planning,

Therefore, using similar information, an alternative cost-benefit analysis could instead calculate the economic burden which the lack of reliability and timeliness determines in the appeal-based humanitarian approach. In this way we could estimate the financial cost of "not having" a Disaster Insurance in a specific country.

At the same time humanitarian/sustainable development criteria, along with economic ones, should be used in evaluating existing and future pilot projects.

Meanwhile, the following advantages and challenges of Disaster Insurance can be identified:

Pros of Disaster Insurance

- It could save livelihoods, therefore it can be more financially sustainable than traditional humanitarian aid, which focus on saving lives.

- By making disaster risk reduction an integral part of national policies and guaranteeing a predictable and reliable payout in case of disaster, it will allow for longer term planning in development.

- By reducing the need for international involvement in emergencies, it can diminish the negative effect external relief and reconstruction interventions often have in eroding local markets and exacerbating social inequalities (Pelling, 2007).

- It will create or reinforce the idea that the state has responsibilities to ensure its citizens' safety and protection of their livelihoods (Pelling, 2007).

- It can increase governments self-determination.

- It can guarantee greater dignity for the beneficiaries than aid appeals (Syroka and Wilcox, 2006).

- If weather data collected are openly shared, they can be valuable for any Disaster Risk Reduction programme.

- Current experience is, according to the experts involved in its implementation, transferable to other countries with available historical and update weather data. The World Bank and WFP are also exploring the opportunity for Satellite Data to be considered acceptable by the reinsurance market as this would allow virtually insuring any country in the world against bad weather, even if weather stations are not available.

Challenges & Limitations of Disaster Insurance

- Payment of premium can be unsustainable for governments and donors.

- Difficulty of engagement with civil society, as already experienced by the implementation of the PSNP, which is targeting the chronically food-insecure in Ethiopia.

- There is the risk of conflict with existing response capacities, where existing systems can overlap with new programmes complementing the Insurance (see possible conflict between DPPC and Contingency Plan in Ethiopia[3])

- It seems quite clear from actual experience that Disaster Insurance can not be a stand alone tool and it needs to be part of a broader contingency plan, since it can not cover the risk of mild droughts or other chronic risks (as otherwise the premium would become too costly).

- It is not capable of addressing all types of humanitarian crisis (for instance crisis due to conflict or poor governance) and therefore, as a social protection tool, it needs to be part of a broader set of emergency response mechanisms (Barnett et al., 2006).

- It is also important to recognize that insurance can at the most replace losses but it is not oriented to create improvements in quality of life (Pelling, 2007).

[3] DPPC "Evaluation of the Response to the 2002-03 Emergency in Ethiopia", Oct 2004.

Insurance can not be a substitute for job creation, for market access, or education that did not exist in the first place.

Conclusions

This paper has discussed about the possibility that Weather Insurance could constitute a positive innovation in long term disaster management. According to WFP and World Bank, index-based insurance scheme can offer an opportunity for improving vulnerable communities' resilience, protecting people's livelihoods, so they are more unlikely to be become trapped by dependency and destitution (Pelling, 2007; Morris, 2005). However, our research has shown that more analysis needs to be done. Having in mind the above listed pros and limitations of this tool, a critical cost-benefit study should focus on the following main issues:

1. Does Disaster Insurance offer an economically sensible approach for governments and aid agencies?

The financial rationality behind Disaster Insurance relies on the concept that certain and well-timed funds, made available through this insurance, would prevent vulnerable people from falling into destitution. In order to answer the above question, therefore, the financial burden caused by lack of **reliability** and **timeliness** in present humanitarian intervention, should be investigated at a country and community level. The following questions need to be addressed:

- The graph by DPPC shows the rising trend of food-insecure people in Ethiopia since 1996. Which information is needed in order to verify if this trend is in relation to severe drought?
- Does similar information for other countries where weather is a major risk exist (for instance in the Caribbean or in Malawi, where the World Bank is planning to pilot a Macro Disaster Insurance)?
- Can relevant data be generated at community level? Where will gaps remain?

2. More research is required to critically analyse current experience and develop solid feasibility studies.

Disaster Insurance has been implemented only at a pilot level and many questions are still open. More research and comparison among different projects is necessary to understand the feasibility of this approach, its financial sustainability and the different options for its implementation. These are the main questions:

- Which disasters can be covered by Index-based Insurance? For instance the Commodity Risk Management Group is testing flood index insurance in Vietnam, based on satellite imaging.
- In the Ethiopia pilot, the insurance is part of an Early Livelihood Protection Facility (ELPF), which combines a Contingency Fund (up to $50 million) for very mild droughts, a Contingency Grant or Debt (up to $40 million to add up to the Fund) for mild droughts and the Disaster Insurance (up to $ 60 millions to add up to the Fund and the Grant) for severe droughts. Does this complex structure commune also to other pilots? Which are other options?

- In Ethiopia and in the Caribbean premiums for pilot Disaster Insurance are paid by governments and donors. Who can be expected to pay for the premium in the long term, local governments or international organizations? Are there enough funds available? Is such an annual disbursement ($5 million has been estimated the necessary annual premium to cover 1.5 million people in Ethiopia from severe droughts) a feasible approach to emergency management?
- Which are the first steps in developing appropriate models and who should bear the high cost of start-up phases?

3. How have participation issues been addressed and how can engagement with civil society be improved?

- What is the present experience on transparency and local participation on Disaster insurance?
- Given the problems highlighted by CA staff with the PSNP, how can civil society become more involved?
- For the future there is a need to understand power relations at the local level in order to have real participation and in order to avoid reinforcing social inequalities; these questions need to be considered: Who are the stakeholders involved in the process? Which are the power relations present among them? Has voice been given to all stakeholders involved? Whose risks and which risks are really being transferred?

Recommendations

Following the above conclusions, most recommendations relate to the need for more rigorous research and analysis. However, what needs to be emphasized equally strongly is that local participation at every stage of an insurance programme's design, implementation and monitoring remains a key challenge and yet is crucial to its success. To build on existing experience and further explore the potential of Disaster Insurance, stakeholders at all levels need to get involved:

Donors' need to:

1. Invest in knowledge generation and facilitate knowledge sharing and dialogue among all stakeholders involved.
2. Invest in the start-up phase of pilot projects and investigate financial viability, potential and the limits of these projects.
3. Ensure that the risk data collection and modelling activities they support are brought into the public domain as "open" resources, so that they can be applied elsewhere in order to reduce the start-up costs for future projects.
4. Survey local participation on current experience aiming to enhance the role of civil society in designing and monitoring the projects.

Governments' can:

1. Generate and make accessible the weather and other data necessary to develop insurance schemes.

2. Invest in developing and subsidizing National and Multi-countries schemes.
3. Together with donors, engage in the development of the institutional framework necessary to link risk reduction and risk transfer together.

Civil Society should:

1. Be actively involved in the research process, addressing specific preliminary questions:
    a. Does a distinction between chronically food-insecure versus transiently food-insecure people make sense in their context? If yes, how can they be defined?
    b. Are they experiencing a rising trend of food-insecure people within their communities? If yes, which are believed to be major causes for this trend?
    c. From their experience, at a community level, how many new destitute people does a severe weather event (that would be covered by the disaster insurance) create?
    d. For how long are these people then trapped into destitution?
    e. Would a reliable and timely cash flow in case of disaster be sufficient to avoid that?
2. Ensure that the target process is transparent and effective.
3. Monitor the impact Insurance schemes have on people with different levels of vulnerability.

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