Reducing and managing risks in the context of resilient food systems – what role for insurance?

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Abbreviations

CBHI	Community-based Health Insurance
DFID	UK Department for International Development
ICRISAT	International Centre for Research into the Semi-Arid Tropics
IFAD	International Fund for Agricultural Development
ILO	International Labour Organisation
MoH	Ministry of Health
NGO	Non-Governmental Organisation
OECD	Organisation for Economic Cooperation and Development
PACC	*Programa de Atencion a Contingencias Climatologicas*
SHI	Social Health Insurance
WFP	World Food Programme
WHO	World Health Organisation

Executive summary

This paper assesses whether and how insurance can support resilient food systems. It examines the evidence first, in relation to crop insurance, and secondly in relation to social health insurance (SHI) and community-based health insurance (CBHI).

Crop insurance

In terms of making food systems more resilient, crop insurance can potentially affect ***food availability*** by reducing the perceived risk of new technologies and so helping farmers to move from low-risk, low return to higher productivity options. It can also release resources (usually cash) being held to help households cope in case of an adverse event, and help to free them from reliance on landlords or on other traditional reciprocal relations. In these ways, insurance can help farmers to focus more resources on farming and/or take up higher productivity options. Its potential is greatest in high-input crops, i.e. where risk would normally be highest, and when sold as part of an input package. In the same ways, it can influence food ***availability*** by generating more marketed surplus. Any downward pressure on prices resulting from increased production will make food more ***accessible***. However, ***access*** for those not insured may be reduced if insurance displaces traditional sharing mechanisms. Crop insurance is unlikely to impact one way or the other on the ***utilisation*** of food.

Agricultural production faces a high number of risks, including pests and diseases, market fluctuations and adverse weather. When potentially adverse events such as these actually happen, they cause losses to farmers and others. However, the *perception* of high risk can also exert negative influences by discouraging farmers from adopting new technologies and so slowing overall productivity growth.

A large number of mechanisms exist, many of them traditional, to reduce the risk of a loss, or to mitigate its impact. These include the selection of low-risk (but often low reward) farming systems; permanent or semi-permanent migration; other forms of multi-locational livelihoods; setting aside funds "just in case" of adverse events; reducing household expenditure; borrowing money, labour or assets within or beyond the household; drawing down or borrowing from village grain banks; using warehouse receipts; relying on government-funded safety nets, either in cash or kind; and selling one or more assets in times of hardship. One problem with these mechanisms is that they may function adequately where risks are idiosyncratic, such as the loss of a single cow, but not when they are covariate, such as wide-scale crop losses attributable to e.g. drought.

Efforts to identify how (especially covariate) risks can best be reduced and compensated for have had to look beyond conventional insurance for crops and livestock, since the costs of collecting premiums, and of assessing losses, have proven excessive, and it has been difficult to establish a relationship of trust between insurer and insured. Concepts of weather index-based insurance have been refined and piloted to overcome these problems, and much rhetoric has been generated on its prospects. This type of insurance is based on the correlation between records of a particular event (usually rainfall) and crop yields. This allows an index to be constructed so that divergences from normal patterns of the event in a given year trigger one or more compensation payments. More broadly, risks can be re-insured internationally so reducing the potential impact of covariate risk on any particular country. Similar indices based on vegetative cover are being piloted for livestock insurance. Index insurance of this kind can be taken out not just by farmers but by any having a commercial interest in the crop(s) being grown, such as input suppliers, those involved in marketing, processing and storage, and even government whose revenues might be affected in the event of a loss. One difficulty with the large-scale engagement of such organisations is that, in some cases, they effectively pay the full premium, the farmer paying nothing at all. In what follows, we term this "quasi-insurance" – i.e. it is not a full form of farmer insurance since decisions and premium payments are taken out of the hands of farmers.

Experience with index-based insurance in the North, and from pilots conducted in Latin America, India and elsewhere, have led to claims regarding the potential of index-based insurance which appear excessively optimistic. This is because:

- Much of the early experience has been obtained from pilots subsidised in one way or another;
- Weather recording stations are sparsely distributed, so that localised weather patterns may differ substantially from those recorded, causing losses which are not compensated;
- Index-based systems are generally linked to a single crop, but mixed cropping is typical among smallholders, so that only one of their several crops is likely to be insured;

- Many have difficulty in understanding why premiums need to be paid, year-in, year-out, when no claim is made, and/or why compensation is not always received when a loss is made.
- Commercial insurance companies have generally waited for government and/or NGOs to "test the water" and iron out preliminary problems.

Uptake by farmers, outside "single crop" areas, has been slow. Some of the strongest uptake has been by companies selling seed or agrochemicals, and by "contract farming" companies, as done by e.g. PepsiCo in India for its potato production. The advocates of weather index-based insurance have made recommendations to enhance the uptake of index-based insurance, such as increasing the density of weather-recording stations, funding information and education campaigns, expanding the uptake of re-insurance, and promoting legal and regulatory frameworks which are "enabling".

Assessing the prospects of index-based insurance from an entirely different angle, Binswanger-Mkhize (2012) draws on a re-analysis of the ICRISAT village studies. He finds that better-off farmers come close to being profit maximisers, and have numerous risk-reduction and coping mechanisms to fall back on. It is doubtful whether insurance could give them a better deal. By contrast, poorer farmers tend to pursue low-risk, low profitability approaches and their productivity and livelihoods could probably be enhanced by insurance, but they cannot afford the premiums, and in any case have very diverse livelihoods, only a few elements of which could be covered by insurance. If, as it seems, these patterns are general, then there is likely to be little demand for insurance outside areas where single, high-input enterprises dominate (as e.g. in a cotton-growing belt). In such circumstances, the best approach would be to have input suppliers sell insurance as part of the input package.

The bottom line is that the costs and benefits of index-based insurance have to be assessed against existing risk-reduction and coping mechanisms, and against the protection offered by formal safety nets and public works. Wide-scale promotion of index-based insurance would be inappropriate until much more evidence on its performance and acceptability is gathered.

Social health insurance (SHI) and Community based health insurance (CBHI)

These are likely to support sustainable food systems in broader ways than crop insurance alone will. By maintaining the health of the farming population they are certainly likely to have a positive impact on the ***availability*** of food. In addition, they aim to reduce the disbursements of both farm and non-farm populations on health. This will leave more resources available for investment in farming (affecting ***availability***) and for the purchase of food (affecting ***access***). Improved health will also however improve the ***utilisation*** of food by e.g. reduction in the severity of diarrhoea and of intestinal parasites.

Our review of the evidence suggests that SHI and CBHI, where managed well, have achieved substantial impact. They have: increased the overall ***resourcing*** for health services; improved the ***financial security*** of clients; improved the ***utilisation*** of health services and through monitoring and feedback, improved the ***quality of care and of services***; and have enhanced ***social inclusion and empowerment.***

Both SHI and CBHI face several, quite different, challenges. SHI requires substantial political commitment over decades for full implementation. It requires re-organisation of Ministries of Health (to work more as supervisors and commissioners of health services, and less as providers). It also requires the establishment of SHI institutions capable of maintaining financial separation from general government revenue, and of setting standards for health packages. Major efforts such as these can be justified only if SHI is to reach the poorer segments of the population who will be unable to afford fee-based health services. However, most SHIs will have to start with "easier" segments of the population, namely those employed in the formal sector, then expanding to those (such as small scale farmers) who are self-employed, and to labourers employed in the informal sector. SHI systems will require regular monitoring, and capacity to take rational decisions based on the results of monitoring. Given these challenges, it is unsurprising that no low-income countries, and only a handful of lower middle-income countries, have fully committed to SHI.

With CBHI, many of the costs of including poorer segments of the population, such as semi-subsistence farmers and labourers, are met by NGOs. Where these are already members of NGO programmes such as micro-savings or credit, it is relatively easy to add their details to a CBHI register. Two major challenges face CBHI: one is that they generally operate on a small scale, and so are financially vulnerable, since a small number of costly cases can bankrupt them. There are therefore compelling arguments for (a) amalgamating certain dimensions of their finances (without necessarily destroying their individual identity) so as to spread risks, and (b) arranging re-insurance of their risks. A second challenge is that there may be limited learning across CBHIs, and registration with central government, plus the acceptance of certain guidelines, may be

necessary to ensure that they do not fail at the expense of their clients. Where a SHI is being developed in the same country, then such guidelines can be geared towards eventual incorporation of the CBHI groups into the SHI.

1 Insurance, resilient food systems, and ways of managing risk

1.1 Background: Placing insurance in the context of a resilient food system

This paper assesses whether and how insurance can support resilient food systems. There are numerous types of insurance designed to cover all sorts of different risks but these paper focuses on two specific areas: crop insurance and social and community-based health insurance. This is done to capture a) the important and very direct links between risks in agriculture and the resilience of food systems and b) in order to learn from GIZ's strong experience in social health insurance (SHI) and community-based health insurance (CBHI).

Food systems are made more robust when improvements are made in the availability of food, people's access to it, and their utilisation of it. More specifically, ***availability*** is specified in terms of both production and what can be acquired through markets, whether national or international; ***access*** includes the ability purchase food, but also to obtain it as part of informal (e.g. within-household) or formal (e.g. food aid or regular food transfers) entitlements; and the improved ***utilisation*** of food depends on improvements in diet, but also on improved nutritional knowledge, good sanitation and the reduction of ailments such as intestinal parasites.

The purpose of this paper is to identify how and how far insurance can contribute to more resilient food systems. It acknowledges that people have long had their own *informal* means of managing risk or compensating for losses. It also acknowledges that insurance is only one of several *formal* means of social protection that might be available – others including social transfers and public works, for instance. This section of the paper is divided into two parts: the first asks how insurance relates conceptually to the three dimensions of resilient food systems outlined above; the second identifies how and how far insurance can reduce the vulnerability of poor households to losses, and what its role might be in relation to formal and informal types of social protection.

Food systems are made more resilient when improvements are made in the availability of, access to and utilisation of food. Table 1 sets out how insurance can influence the main dimensions of a resilient food system.

Different forms of insurance can have potentially positive impacts at different points in this sequence. For instance, where health insurance is effective, it can improve individuals' capacity to absorb and utilise food.

Agriculture-related insurance, where effective, can influence primarily the *availability* of food. This can be via several mechanisms: one is to release for investment in agriculture some of the strategic funds that households might otherwise build up. A second is, by reducing the perceived risk of new technology, to speed its adoption and therefore promote increased productivity in agriculture. A third effect, though more tenuous, may be to slow or reverse the "risk spreading" diversification of livelihoods, bringing more resources back into farming. The wider adoption of weather index types of insurance by e.g. traders or storage agencies can improve food availability by improving the efficiency of markets. Providing that claims are settled promptly, any fluctuation in local food prices resulting from e.g. drought is likely to be proportionally less than the reduction in yields, and funds will be available among marketing and storage agencies to bring in basic foods from outside the affected areas.

In the same way, compensation paid by insurers to producers as a result of an adverse event will (again, providing it is paid promptly) provide them with the funds to spend on buying in the food which they have been unable to produce.

Table 1: **Crop and health insurance in relation to resilient food systems**

Components of a resilient food system	Potential influence of insurance
Availability of food: • Production and productivity	By releasing "strategic funds" for investment in agriculture, and reducing the perceived risk of new technologies, crop insurance may make more profitable those crops requiring high levels of input, and/or grown on a contract farming basis. These are likely to include crops for industrial or export purposes, but may also include widely consumed crops such as chillies, and possibly those staples grown by semi-commercial farmers (some rice and wheat). SHI and CBHI are likely to improve the health of the farming population and to reduce (or compensate for) outgoings on healthcare, and so enhance productivity.
• Markets	Crop insurance may generate a higher marketed surplus; if index-based insurance is taken out by those in the marketing and storage chain, it may increase the efficiency of marketing
Access to food: • Entitlements	Informal entitlements (e.g. within the household) may be reduced if insurance displaces informal risk-sharing mechanisms; on the other hand, increased productivity may increase the food available to meet entitlements
• Access via the market	Higher marketed surplus of certain crops may reduce their prices and so make them more accessible; if index-based insurance is taken out by those in the marketing and storage chain, it may increase the efficiency of marketing
Utilisation of food: • Broadened diet	Crop insurance is unlikely to affect the production of high protein crops (lentils, pulses, vegetables etc) grown on a semi-subsistence basis
• Improved sanitation	Crop insurance is not likely to have an impact on sanitation, but increased awareness of sanitation issues as part of health insurance campaigns may do so
• Health in relation to absorption of food	Again, the impacts are likely to be via the improved health resulting from health insurance, and not via crop insurance.

1.2 Background: ways of managing risk

Traditional methods of managing risk, and coping with the outcomes of adverse events (termed "self-insurance" by e.g. Binswanger-Mkhize, 2012) have long existed. However, in some cases they are high-cost, and many offer incomplete coverage. The question is therefore whether insurance can perform better in terms of costs and/or coverage, without excessively reducing the ancillary benefits such as social cohesion that traditional methods bring.

To economists, ***risk*** is the likelihood of occurrence of an adverse event (such as crop failure), multiplied by some measure of the gravity of the event. "Likelihood" implies that there are some data on historical occurrence which can be projected forward and so form an ***actuarial*** basis for insurance parameters such as the premiums payable. Other types of adverse event (such as political disruption) fall more into the realm of uncertainty than of risk, and these tend to be uninsurable since the likelihood of future occurrence cannot be estimated.

Risk can be managed in two stages: most households take ***ex-ante*** measures either to reduce the levels of risk they face, or mitigate its potential impact. Examples are provided in Table 2 of the Synthesis Paper prepared for GIZ as part of this series (Slater et al, 2013). Many also work out how they can best cope ***ex-post*** with the impact of adverse events once they have occurred. Many types of adverse event occur in the form of "shocks" such as crop failure, and are external to the household. However, other types of shock (such as sudden illness) are internal to the household. They can be insured against in the same way as external events. Some events, both internal (such as weddings or old age) or external (such as long-term soil depletion) are better viewed as stresses since they do not have the "sudden onset" characteristics of shocks. With the exception of health[1], these cannot be insured against in the strict sense of the term, but other financial measures can be taken to mitigate them, such as savings schemes, or pensions. Any discussion of

[1] It is worth noting that health insurance provides for improved access to medicines or health-related services, by contrast with other forms of insurance which provide compensation for an adverse event.

shocks and stresses in relation to productive sectors, such as agriculture, cannot ignore other types of shock or stress such as those internal to the household, since financial and other resources (such as labour) flow from one context to the other. For example, in order to meet a domestic crisis such as illness, an agricultural asset, such as livestock, may have to be sold, or part of a land holding mortgaged in order to obtain a loan.

Risk can be classified in various ways. It can be ***idiosyncratic*** (such as when one farmer's cow dies) or ***covariate*** (large areas affected by one phenomenon such as drought); it can be acute (such as an epidemic) or chronic (such as the degeneration of resource productivity under increasing population pressure).

Vulnerability is the extent to which individuals or households are exposed to risk, and the extent to which they might be harmed by an adverse event. Vulnerability is associated with e.g. low asset status, low and variable income, disadvantageous location, a high proportion of dependents in household composition, and/or weak social networks[2]. There are important gender differences: certain types of shock or stress (usually, occupation-related) threaten men more than women, but others (such as caring for the sick or elderly) impact more on women. Women and children (in S. Asia, typically girl children) are known to suffer more from reduced food consumption in times of crisis. There is potentially a vicious cycle here: households that have been affected by an adverse event are likely to be more vulnerable next time round. Vulnerability is also influenced by location (e.g. in relation to flooding regimes), by the ownership of assets, and by access to resources (e.g. water, trees, pasture) which are not individually owned. There are also temporal dimensions to vulnerability. It can vary seasonally – a household will be affected more by sudden expenditure (e.g. for a funeral) *before* the harvest than *after* it.

Table 2 provides examples of risk reduction, mitigation and coping strategies at formal and informal levels. Insurance is clearly in the "mitigation" category – in other words, it reduces the potential impact of an adverse event. The more households and individuals can put into place formal and informal strategies of these kinds, the more ***resilient***[3] they are to risks and adverse events.

High levels of expected or actual shocks and stresses can impact in several ways. For instance:

- Shocks and stresses impacting on individual farm enterprises can cause them to fail, resulting in indebtedness, loss of productive assets and reduced income for present and future generations.
- Domestic shocks and stresses can likewise drive households and individuals into greater poverty and at the same time impact on entrepreneurship by causing funds to switch out of enterprise in order to meet the domestic crisis. This "fungibility" of funds means that domestic and entrepreneurial shocks and stresses have to be treated simultaneously. Poorer households, and women, children and the elderly within them, tend to be the most vulnerable and have access to fewer instruments to respond to shocks and stresses.
- For medium- and longer-term livelihood options, ***expectations*** of high entrepreneurial risk can discourage poor households from taking up new activities, often keeping them in low-productivity, and low-return but fairly secure livelihood activities, and/or encouraging the build-up of strategic ("just-in-case") savings, which can deprive productive sectors of investment. An important question for new approaches such as insurance is whether they reduce the need for risk-mitigating strategies of this kind, or for setting aside resources "just in case" of an adverse event.

Measures to reduce vulnerability and strengthen resilience in the face of risk, and in the context of shocks and stresses more generally, can be rooted in both livelihood ***promotion*** and livelihood ***protection***, and Table 2 contains examples of both. For instance, on the ***promotion*** side, agricultural research strategies concerned purely with raising incomes through increased per hectare crop yields are likely to require additional inputs of fertilizer and other agrochemicals, which exposes farmers to higher risk in the event of crop failure. A moderated strategy which sacrifices some growth in crop yield for greater stability (through e.g. drought tolerance, and resistance to pests and diseases) is likely to be less risky by both increasing incomes and reducing their variance. Technology improvement in this way results in a superior strategy to the "safe but low productivity" options to which farmers might otherwise withdraw in the face of risk.

On the ***protection*** side, many of the methods used by poor households of reducing risk or coping with the impact of adverse events are not new: depending on circumstances, households might, for instance,

[2] Some (e.g. Zimmerman and Carter, 2003) have formalised vulnerability in terms of asset portfolios and thresholds.
[3] Interpretations of "resilience" vary widely. For an overview, see Levine et al 2012.

diversify their sources of income; they might also set aside strategic funds "just in case" an adverse event occurs. Informal transfers within households, and extended families or communities have long existed, both to meet crises and to support those chronically unable (or only partly able) to engage in the productive economy. Within agriculture, responses include: sharecropping arrangements (which also share out risk); mixed or relay cropping; the planting of crops across the farm to take advantage of micro-climate variation such as humidity levels; or livelihood diversification within households, whether local or further afield. Sharecropping also helps to spread risk, but in some cases leads to arrangements which go well beyond an individual season. For instance, (as typically in S Asia) the landlord may not only take a share of the crop and provide part of the inputs, but may also become a "patron" who will provide credit in times of need (and thereby provide a degree of social protection) but in return demand priority access to the household's labour, the sole right to market its output, and the sole rights to provide seasonal credit. This "interlocking" of labour, product, input and credit markets is a type of market failure, and makes it extremely difficult for poor households to take up new economic opportunities of the kinds that market signals might indicate. Exchange labour arrangements can also help to share risk, grain banks allow crisis-hit households to withdraw stocks as needed, and there are voluntary mechanisms to provide funds to cover "stress" events, such as death donation societies. In addition, families can remove children from school and put them to work on the farm or in the household in response to perceptions of risk, and can temporarily reduce food consumption or sell assets to respond to the impact of adverse events. More formally, contributory pension schemes serve much of the same purpose. Formal mechanisms can be either market-based, such as insurance against a range of risks, or publicly-mandated, such as social insurance, transfer payments of various kinds, and public works, all with varying combinations of public or private implementation. Table 3 provides examples of the types of response relevant to different types of shock and stress in both domestic and production spheres. Annex 3 locates this paper in the wider context of microinsurance.

What makes these state-sponsored measures to manage shocks and stresses new is that they represent a public commitment to reduce risk and vulnerability, different from the social sectors (such as health and education). They also differ from social welfare programmes, since they are concerned at least in part with the interface between protective measures and engagement by the poor in productive, growth-oriented processes. With this comes a growing awareness of the scope for generating complementarities (or, at least, reducing inconsistencies) between policies designed to protect livelihoods and those designed to promote them. A novel intervention which successfully bridges livelihood protection and promotion is found in the DFID-supported Bangladesh Chars Livelihoods Programme. Households receive a cow as a centrepiece of livelihood support. To reduce the risk of having to sell such a large asset in order to meet what might be only minor shocks and stresses, they are also provided with a small monthly stipend over the first two years of the cow's life, i.e. before it starts to generate income streams in the form of calves and milk.

Drawing together the above threads of argument, it is clear that insurance, whether in domestic or productive spheres is only one of a wide range of options rooted in (a) traditional types of support within or across households, or within communities more widely, or (b) in social policy more widely, or (c) in sectoral (here, agricultural) or wider national policy, for reducing or mitigating risk, or coping with shocks and stresses once they have occurred. Keeping this perspective in mind, in the following sections we examine the opportunities and constraints for pursuing insurance-based options. Our focus is, first, on crop insurance, and then on insurance in the health sector.

Table 2: Matrix of social risk management (examples)

Arrangements/ Strategies	Informal/personal	Formal/financial market-based	Formal/publicly-mandated/provided
Risk reduction or mitigation (ex ante)			
Portfolio	Less risky production Migration Multiple jobs; Investment in human, physical and real assets	Investment in multiple financial assets	Labour standards Labour market policies Disability policies Multi-pillar pension systems; Social funds
Insurance	Marriage/family; Community arrangements; Share tenancy; Tied labour	Old-age annuities Disability Accident Crop or livestock insurance	Social insurance mandated/provided for: unemployment, old age, disability, sickness, widowhood etc

Arrangements/ Strategies	Informal/personal	Formal/financial market-based	Formal/publicly-mandated/provided
Hedging	Some labour contracts	Grain futures	
Risk coping (ex post)	Selling of assets; Borrowing locally; Intra-community transfers/charity; Children looked after by others; Sending children to work	Selling of assets; Borrowing from formal institutions	Transfers/social assistance; Subsidies Public works

Table 3: **Managing shocks and stresses in domestic and production-related spheres**

Types of rural household		Domestic (including health)	Production-related (including crop insurance)
Established farmers	Types of shock and stress	Illness Injury Disability Death Costs of weddings and other rituals	Wide fluctuations in prices resulting from globalisation; Extreme weather events; Degradation of soil, water and other NR; Inadequate access to inputs, finance and output markets owing in part to failed liberalisation
	Types of response	Promote private sector insurance schemes and savings	Promote private sector input supply and marketing, and insurance schemes (which may require public start-up and regulatory controls); public-private partnerships to reduce degradation
Marginal farmers	Types of shock and stress	Illness Injury Disability Death Costs of weddings and other rituals	Extreme weather events; Degradation of soil, water and other NR; Inadequate access to inputs, finance and output markets owing in part to failed liberalisation; Wide fluctuations in prices resulting from globalisation
	Types of response	Promote micro-savings, micro-credit, micro-insurance	Reduce segmentation and interlocking when promoting private sector input supply and marketing. Insurance and savings schemes likely to require strong public and/or community-based leadership
Labourers	Types of shock and stress	Illness Injury Disability Death Costs of weddings and other rituals	Loss of rural employment opportunities and/or reduction in real wages; Loss of opportunities for seasonal or permanent migration
	Types of response	Promote micro-savings, micro-credit, micro-insurance; Investigate possibilities of occupation-linked insurance and pensions	Public works programmes; Support for seasonal migration through improved information, accommodation, education provision for children, easier contact with families, easier means of making remittances etc
Those unable to engage fully in productive activity	Types of shock and stress	Illness Injury Disability Death Costs of weddings and other rituals	Reduction in informal intra-household transfers resulting from above shocks/stresses in agriculture. Reduction in opportunities for gathering fodder/fuel from commons owing to NR degradation
	Types of response	Social pensions for the elderly, widows and disabled; school feeding programmes; promotion of infant health and nutrition; distribution of free or subsidised food	Social pensions for the elderly, widows and disabled; school feeding programmes; promotion of infant health and nutrition; distribution of free of subsidised food. Schemes to rehabilitate the commons and ensure equitable access

2 Insuring against risk in agriculture

2.1 New forms of crop insurance

Risk in agriculture can manifest itself at different levels: in terms of ***markets***, farmers can be subject to wide fluctuations in input and output prices; in terms of ***crop production*** they can suffer drought and pest or disease attack; and pests and diseases can also strike during storage. Among the most important risks are adverse natural events such as droughts, hurricanes, earthquakes and floods. Linkages with the rest of the economy mean that agricultural crises can slow down economic development, hamper poverty reduction and contribute to humanitarian crises.

The traditional methods of hedging against risk, or of responding to the impact of adverse events, which are outlined above all focus on ***idiosyncratic*** risk. In principle, a particular advantage of insurance lies in its potential to manage ***covariate*** risk. However, conventional insurance is problematic, for three main reasons: first, the administration costs of selling to a large number of farmers, and of checking claims on the ground, are high; second, persons insured can take on activity once insured that makes their exposure to risk higher than the level agreed when premiums were set (moral hazard); and, third, the persons insured can understate the degree of their exposure to risk at the time insurance is taken out (adverse selection). Box 1 sets out the principles of insurance.

In recent years, an increasing number of pilot programmes have tested a novel approach, namely ***weather index-based insurance***, as a means of managing covariate risk in agriculture. These have been primarily concerned with the impacts of low rainfall, and consist of a financial product linked to a locally-determined weather index, which, in turn, correlates with local yields. Indemnifications are made according to pre-specified patterns of the index, and one or more payments can be triggered by a single or by multiple thresholds. Since an index is used rather than actual yields, this reduces the costs of administration and any tendency towards moral hazard or adverse selection. In addition, because the insurance product is based on an independently verifiable index, it can also be reinsured, thus allowing insurance companies to efficiently transfer part of their risk to international markets. This is particularly important where a covariate risk (such as drought) can spread over a wide area, raising the risk of bankruptcy among regional insurers if they cannot reinsure internationally.

An important variant on this basic model is to link insurance to the cost of credit or of other inputs such as seed or agrochemicals. Payment can be made either directly to the credit or input supply companies, or via the farmers. In principle, the knowledge that they will not lose money, no matter how adverse the weather, should make such companies more willing to provide credit or inputs to small farmers. Where inputs and/or credit are provided in a “contract farming” context, the most efficient way of providing insurance is via the contracting agency – the provision of insurance to its potato growers by PepsiCo in India provides an example.

2.2 Assessing the impacts of weather index based insurance programmes

As argued above, the capacity to reduce risk, whether via insurance or more conventional means, can bring benefits not only in terms of short-term consumption smoothing, but also in terms of livelihood promotion (here, by engaging in more productive agriculture) for the longer term. Box 2 sets out the main issues in assessing the impact of insurance.

Box 1: **Insurance defined**

Insurance is a form of risk management primarily used to hedge against the risk of a potential loss. In general terms, insurance can be defined as the equitable transfer of the risk of a loss from one entity to another, in exchange for payment. The transaction involves the insured assuming a guaranteed and known relatively small loss in the form of payment to the insurer (a premium) in exchange for the insurer's promise to compensate (indemnify) the insured in the case of a financial loss. Insurance companies will generally seek to re-insure on a wider scale the risks they have taken on. This is particularly useful in the case of covariate risk where a widespread event (e.g. drought, flooding, hurricane) may bankrupt regional insurers.

Conventionally, those designing an insurance product will first evaluate the insurability of the risks that the product is

intended to cover. Criteria for doing this will include (i) having a large number of similar units exposed to risk, (ii) being able to identify and measure losses and calculate the chances of their occurrence, (iii) being able to rely on information provided by potential clients – i.e. adverse selection (where potential clients understate their risk exposure to the insurer at the time of fixing premiums) is minimal, and (iv) being able to keep premiums affordable for the majority of potential clientele. In addition, there must be limited client manipulation of the insured event: levels of moral hazard (where clients engage in post-insurance activities that make their exposure to risk higher than when premiums were agreed) must be low. Insurers generally have to strike a balance between inclusion, premiums, policy coverage and financial sustainability.

Put simply, from the client's perspective, insurance has to be simple, affordable and valuable. However, even if all three qualities are in place, insurance uptake is unlikely to be universal. For instance, the uptake of health insurance in the USA is far from universal, despite the fact that insurance companies nuance their products to meet a range of needs and explain them carefully, and literacy levels among potential clients are high. It is considerably more difficult to promote insurance among e.g. rural populations in developing countries, where literacy is low and there is little familiarity with the concept of insurance.

Finally, the particular characteristics of "trust" in insurance may also help to explain limited uptake: in microcredit, money is offered first, and then lenders have to find ways of ensuring that clients repay the loan. By contrast, in insurance, clients first part with their money, and then they have to trust the insurer that they will indeed get money (or a service, such as health care) when problems arise. Lenders have to trust borrowers; while insurers have to be trusted by clients.

Box 2: **Assessing the impacts of insurance**

In the simplest terms, individuals' ability to claim the insured amount in the event of an adverse event will compensate them more fully for the costs of that loss than traditional self-insurance might. Or, in the case of health insurance, in the event of illness or accident, individuals will be able to access services and materials at lower cost than if they had to pay for them directly.

Inevitably, the full picture is much more complex:

First, insurance can help to reduce or remove many of the ex-ante costs of risk management that might otherwise be incurred: with insurance, households would have to allocate less to "just-in-case" savings, thereby allowing funds to be transferred to e.g. the productive sectors; insurance also allows farmers to break out of "safe" low-productivity, low-return activities, and adopt higher-productivity innovations. However, the other side of the coin is that the introduction of insurance may diminish mutual support mechanisms, such as communal grain banks, and with them the social cohesion on which they are based – as life insurance can with funeral donation societies.

Second, similar arguments apply to coping mechanisms, with the additional caveat that some of the cost of these may be spread over long periods. If, for instance, insurance allows children to be taken out of school for less time in response to a shock or stress, then the negative impacts of this on their livelihood prospects will have been reduced.

Third, the scale of any shock or stress is important: insurance can deal with covariate events in ways which traditional coping mechanisms cannot. For instance, the traditional coping mechanism of selling livestock ceased to function in the severe drought in Wollo province of Ethiopia in the 1980s when the rush to sell livestock caused their prices to collapse.

Fourth, the time period over which observations are made is crucial. Observation over too short a period (during which no insured adverse event occurs) may suggest that those opting not to insure are better off than those who did, since they have not paid premiums. Similarly, having insurance may allow households to sell assets at more leisure, instead of forced sales, thereby obtaining better prices.

Overall, the main issues in assessing the impact of insurance are, first, to consider both short- and long-term impacts, and to assess them against both livelihood protection and promotion objectives. Second, impacts beyond the individual – e.g. on qualities such as social cohesion – are also potentially important and need to be considered.

A comprehensive assessment of weather index insurance is provided by the Weather Risk Management Facility of IFAD and WFP (2010), which reports on a sample of 30 crop insurance schemes implemented in 2004-09. The report recognises that it is too early for a full-scale evaluation of these, but seeks to draw some preliminary lessons. Hazell and Hess (2010) refer to the same sample. Of the 30 schemes covered, 21 were based on regional rainfall indices. These had a total insured value of US$1billion in 2008-9, and reached 1.3 million farmers. Around 60% were in OECD countries, the remainder being in developing countries, mainly

India. Of the 21, 13 were tied to credit or input provision, and many were sold to the companies providing these, with only 3 of the 13 being subsidised. Seven of the remaining 8 were subsidised, suggesting that it is more difficult to sell insurance directly to farmers in ways which are not tied directly to the recovery of input costs.

Some of the schemes are better referred to as "quasi-insurance" since they do not involve the collection of premiums from farmers. Among these is PACC in Mexico, and similar schemes adapted for African countries (Box 3). Of course, quasi-insurance can spread virtually without limits, since the full costs of it are taken on by the state and/or by donors. Our focus in this paper, however, is on insurance which ***does*** require the payment of premiums, and this is much more difficult to implement and scale up.

Box 3: **PACC in Mexico – an example of quasi-insurance**

An example of quasi-insurance is provided by the PACC (Programa de Atencion a Contingencias Climatologicas – Climate Contingencies Programme) in Mexico. First piloted in 2002, this focuses on small-scale farmers, currently covering some 800,000 households over 1.9 million hectares, with a total sum insured of US$132 million. The scheme is based on weather indices, compensating for both drought and excess rain, and covers the main food crops of maize, beans, sorghum and barley. The Federal Government under PACC purchases the insurance (and re-insurance) and sells it on to state governments, with a subsidy of 70% - 90%, the remainder being paid by state governments. Farmers do not pay premiums, and are reported (Hazell and Hess, 2010) to be unaware that any compensation they receive comes from an insurance scheme and not from general tax revenue. They are said to re-invest around 70% of compensation back into agricultural production. Schemes operated in Ethiopia and Malawi, with financial support from the World Bank and a number of donors, have many characteristics similar to the PACC scheme.

On the positive side, index insurance can provide an additional effective, market-mediated solution to promote agricultural development. In areas particularly hard-hit by an adverse event, it can complement disaster relief efforts. Farmers are not the only ones who can take out insurance on a particular crop for a particular season. It can also be taken out by others whose economic activity is influenced by the weather, including governments, relief agencies, financial service providers, input suppliers, businesses, agricultural processors, food companies, farmers' organizations and producers' associations.

IFAD and WFP also note a number of problems, principally in relation to implementation:

- First, they note that administrative costs (principally those of "recruiting" new clients) can be high even with this type of insurance. Costs can be reduced where insurance is sold via credit or input-supply companies on behalf of farmers. They can also be reduced where "aggregators" such as farmers' organisations or NGOs are present and take on much of the cost of recruiting. Thus, an NGO, BASIX, provides inputs and (in collaboration with ICICI Lombard), index-based insurance to farmers in India which is geared to reimbursing the costs of inputs in the event of crop failure. Insurance sales reached 70,000 clients in the early years of operation, but uptake subsequently slowed: latterly only one household in 13 bought insurance in the villages covered.

- Second, the cost of premiums can put index insurance out of the reach of those who need it most. This is reflected in clients' choice of cover: where there is an option, they tend to select the lowest level of cover available.

Clarke and Dercon (2009) note a number of further problems: much microfinance (including insurance) in developing countries still relies on some combination of donor funding, hidden subsidies or cross-subsidies from other activities. They also note the low uptake of crop insurance among those eligible, even in pilot programmes. They argue that:

> "At least three serious problems have to be recognised. First, given that insurance products are relatively complicated to comprehend, underinsurance is likely to remain present in any voluntary system. Second, private insurance is only possible for defined perils but many perils are difficult to specify in advance. Third, many risks are not easily quantified, and data does not exist to allow policies to be priced adequately, hindering the development of effective insurance for those risks".

An additional problem is that premiums are normally calculated according to total area sown, but this works well only where a single crop is grown. Where (as is typically the case with small farmers) the farming systems are mixed, the value of what is on the ground, and therefore the potential losses in the case of an adverse event, can vary widely across farms, though compensation will be uniform. Indeed, potential losses can vary widely where productivity levels across farms vary, even with a single crop.

ILO (2008) present earlier evidence on the impacts of insurance programmes. They note that the effects on productivity-related decisions have been limited. For instance, in the piloting of weather index insurance in Malawi, there have been short-term consumption-smoothing effects, but no increased risk-taking in the form of modern input use.

Taking a forward perspective, and always supposing that to solve the difficulties outlined above will be sufficient to give index-based insurance a place among risk management instruments, the IFAD and WFP (2010) study distilled eight principles to help index insurance reach scale and sustainability:

- Create a proposal of real value to the insured, and offer insurance as part of a wider package of services;
- Increase client awareness of index insurance products;
- Graft the sale of insurance onto existing, efficient delivery channels, engaging the private sector from the beginning;
- Build the capacity and ownership of stakeholders and their organisations involved in implementation;
- Access international risk-transfer (i.e. re-insurance) markets;
- Improve the weather recording infrastructure and quality of weather data;
- Promote enabling legal and regulatory frameworks; and
- Monitor and evaluate products to promote continuous improvement.

However, even when producers want and can afford index insurance products, insurers are not always prepared to offer them. Hitherto, the public sector, international agencies and NGOs have taken the lead in pilot efforts. Private insurers will assess the results of these pilots, but even then may not follow. Risks may prove unmanageably high, there are too few functioning weather stations in many areas, and the costs of retailing the product direct to farmers are likely to be prohibitive. The cost problem can only be surmounted where aggregators such as farmers' organizations, financial service providers and food processors are present and willing to take on a selling role.

The many hurdles indicate that important public goods need to be in place, and a facilitating role played in most areas by non-profit organizations, donors, and others, if index insurance is to be scaled up by the private sector.

Finally, questions arise about which products provide the highest impact: what is the best product for particular risks in particular circumstances? This can be related to pricing of products (e.g. low premiums with low protection compared to high premium for higher protection). Or comparing the impact of single versus composite products (for example, combining health and agriculture insurance products, or mandatory versus voluntary products).

Product comparison should not limit itself to insurance alone: when studying the impact of insurance it will be crucial to have better understanding of the impact of insurance compared with that of other complementary financial services (such as savings, consumption or emergency credit) as well as safety nets and social protection (including social security and cash transfers).

Finally, the ILO review has thrown up a number of questions relating to the design and implementation of weather index and other forms of insurance for agriculture. These are summarised in Box 4.

Box 4: **Further questions for weather index and other crop insurance**

- How to build weather and other indexes to create transparent and efficient index insurance products?
- What are relevant triggers for crop products?
- How to reduce basis risk?
- What is the sufficient level of correlation between bad weather and bad crop yields?
- How to overcome the lack of historic weather data?
- What is the impact of climate change on the usefulness of historic data?
- What is necessary weather infrastructure to collect the right data for index insurance?
- To what extent can local communities be involved in designing weather maps?
- How to market index insurance products, and ensure transparency and understanding by the market?
- What is the impact of disaster relief or food aid on the market for index insurance?
- Can index insurance be extended beyond farmers to ensure its sustainability and share its benefits with other groups?
- What are proper reserves and reinsurance policies needed for index insurance?
- How to reduce fraud and moral hazard in delivering livestock insurance?
- What is the feasibility of other property insurance products for agriculture?

Source: ILO 2008

The arguments and recommendations so far are based on the notion that there are potentially broad and important roles for insurance in smallholder agriculture. In what follows, the arguments and evidence cast doubt on this notion, suggesting that, whilst there is a role for insurance, it is likely to be a narrow one. They also confirm that the role of insurance has to be viewed among those of the range of social protection measures that have to be strengthened in order to manage risk across the livelihood portfolios typical of small farm households.

Binswanger-Mkhize (2012) is one of the main proponents of this "narrow role" for insurance. He expands on the "mixed farming system" problem alluded to above, noting that households face risks in relation to the profit that they can make across their portfolio of enterprises. This includes the (changing) set of agricultural activities in which they engage, and, as we have seen, index insurance generally provides cover for only the main activity. But it also includes rural non-farm activity, and earnings from migration, whether short- or long-term. Studies of livelihood diversification in Africa (e.g. Ellis and Freeman (eds) 2005) and S. Asia (Farrington et al, (eds) 2006) have found that non-agricultural earnings typically amount to 25-50% of household income, for which crop insurance has no relevance. Even if all agricultural activities could be covered in some way by insurance, which is unlikely, there would still be a need for the kinds of social protection measures mentioned above, such as income or consumption support to tide farmers over extreme weather events, and employment generation programmes or other relief measures for labourers who can find only limited work in agriculture.

This suggests that it may be best to continue seeking insurance-based methods to cover some risks (such as the main crop) and to supplement this by other types of social protection (such as transfers and public works), or that it may be simpler and more effective to pursue these, along with policies that strengthen the capacity for "self-insurance", leaving formal insurance to (in most countries) a small niche of commercial farming.

Pursuing the question of whether it would be in the best economic interests of different categories of farmer to buy index-based insurance, in terms of their portfolio of activities and capacities for self-insurance, Binswanger-Mkhize (2012) returns to earlier analyses by ICRISAT of data collected from farm households in six villages of Andhra Pradesh and Madhya Pradesh in India over 10 years, some 3 to 4 decades ago. He finds that: "the larger farmers in the sample had profit-maximising portfolios … [and] these farmers' self-insurance mechanisms, including through their stocks, savings and wealth and credit, are good enough to diffuse all their profit risks … To sell them insurance, an insurance contract would have to diffuse risks as well or better and at a lower cost than the farmer's own insurance mechanisms….. On the other hand, the smaller and poorer farmers did not have profit-maximising portfolios. On average they could have achieved a 27 per cent higher profit rate on their investments if they had been able to invest in a profit-maximising way.

Instead, they had to invest a higher proportion of their assets into less risky or even risk-reducing assets that had a lower marginal return" (pp192).

In other words, year on year, larger farmers gained more by self-insuring than by buying insurance, and smaller farmers could have become more productive had they been able to buy insurance (and so take on riskier farming options) but could not afford to do so.

According to Binswanger-Mkhize (2012), any expansion of index-based insurance will not result from such "standard remedies" as improving farmer understanding of insurance, or improving weather data and reducing transactions cost. Instead, he argues that "The most promising way forward is to tie the insurance of contracts with aggregators, such as credit providers, input suppliers or purchasers in contract farming situations. Such pilots should be the primary focus of future work. Since index-based insurance will resolve only one of several problems of lending to poor farmers, impact evaluation is needed to measure how much additional credit can be unleashed by it" (p198).

2.3 Crop insurance – Conclusions

Clarke and Dercon (2009) usefully contextualise insurance within the spectrum of opportunities that rural people have for managing risk. They note that rural people are themselves best able to cope with the effects of minor, idiosyncratic, shocks and stresses by borrowing, by selling small assets, or by relying on formal or informal safety nets.

Binswanger-Mkhize (2012) argues that crop insurance can offer better-off farmers little or no advantage over the self-insurance insurance methods they already use. Poorer farmers, on the other hand, would be more productive with crop insurance, but, given the fragmented and dispersed nature of demand, premiums are high and they cannot afford them. A policy priority is to reduce the cost of premiums to small farmers.

Outside those agencies actively promoting new forms of insurance, there thus appears to be some scepticism over its potential. It is too early for full evaluations of the impacts of index-based insurance, but the early indications are of low uptake, even within pilot areas.

The implications for policy are twofold: one is to note that crop insurance is not a panacea, so that continuing effort is needed on the range of social protection measures relevant to the poor. These help them to self-insure, and formal insurance will take only a "niche" role among these. The other is to reduce the cost of insurance to small farmers. This cannot sustainably be done by subsidies, but is best done by marketing insurance through aggregators such as those providing credit or inputs, or via contract farming companies. An advantage of this approach is that it specifically covers the inability to pay for high-cost inputs (and farmers would be particularly vulnerable to losses affecting these). A different application of the same principle would be to market insurance via NGOs, cooperatives etc, all of which have registers of members' details, which can easily be drawn on for insurance purposes. Considerable public investment is likely to be needed in setting up the facilitating and regulatory frameworks and in the provision of information in order to generate trust.

3 Health Insurance

3.1 Health insurance – the issues

Wholly private health systems relying on user fees and/or private insurance schemes are out of reach of the poor in most contexts. Even where the poor could raise the money to pay user fees for moderate illness, this would often be at the expense of indebtedness or the sale of productive assets, both of which can send households on a downward economic spiral. However, at the opposite extreme, for governments to finance health services for all on the basis of general tax revenues is generally impossible, given the limited tax base

in low-income or lower middle-income countries, and a low organizational capacity to enforce tax compliance or to prevent extensive tax evasion. Many governments have seen the need for a more equitable and risk-spreading alternative such as social health insurance (SHI), but, as we see below, few so far have been able to put it into effect.

3.2 Categories of health insurance

Health insurance can be divided into three broad categories:

Social health insurance (SHI)

Carrin (2002) notes that those covered by SHI pay premiums to have their health risks pooled, and to have insured adverse events covered from the general fund. In most settings, this fund also receives contributions from employers and government. Importantly, therefore, SHI does not put the whole financing burden on government, but instead spreads the total cost of insured health care among these various partners. Contributions from households and enterprises are usually based on income, whereas government contributions are mostly financed from general taxes.

Among the potential benefits of SHI, and the preconditions for its success, are the following:

SHI aims to achieve ***universal coverage***, ensuring that a set of ***basic healthcare services is accessible to all***, and protecting them from potentially ***impoverishing health expenditures***, irrespective of income or social status. It therefore aims to mobilise and account separately for ***additional resources*** for healthcare (in the form of regular contributions from individuals, enterprises etc). ***Social inclusiveness*** is part of its mission, and in most cases it aims also to improve the ***quality of healthcare***.

An important precondition for successful SHI is compulsory membership. This is partly to ensure that certain population groups, such as the poorest and most vulnerable, are not excluded. Compulsory insurance also inhibits “adverse selection”. In other words it prevents those with only low health risk from opting out and buying private insurance, leaving SHI overburdened with those having moderate to high health risks. Compulsory membership and universal coverage do not, however, imply that an entire population must be covered from the outset. SHIs are complex and require considerable administrative resources. It is therefore logical that they should begin by enrolling those who are more accessible and then moving on to the less accessible. In most contexts, this “low hanging fruit” generally includes public sector employees and those in formal sector private enterprise. Those in informal employment and the low-income self-employed (such as semi-subsistence farmers) are the most difficult to include, given (often) low levels of literacy, remote location and the fact that their registration details would have to be gathered and entered from scratch, since they cannot usually be “borrowed” from other lists such as employee registers. To expand SHI requires considerable determination, but is achievable, as Box 5 demonstrates.

Box 5: **Progress with SHI in lower middle-income countries**

A commitment to SHI over the long term has seen success in expanding membership rather than see it simply stalling or leveling off. Thus in the Philippines, the formalization of SHI in 1995 resulted in a steady climb in the proportion of the population covered by insurance from about 50 percent to 78 percent by 2004; in Colombia, coverage grew from less than 30 percent in 1992 to more than 60 percent by 2003; and in Thailand, where 68 percent of the population had been covered under various risk-pooling schemes, the expansion and consolidation of SHI is what set the stage for almost complete universal coverage in 2004.

Community-based health insurance

As the name suggests, unlike SHI, this does not aspire to provide universal coverage, but instead focuses on local initiatives. However, it seeks to achieve many of the other objectives noted above for SHI. CBHI generally limits itself to non-profit health insurance focusing on particular groups of people. These can be defined geographically, by social or economic status, by occupation, or by membership of related schemes such as micro-finance. These typically are at the lower end of the income spectrum, and generally in non-formal employment or self-employment. They therefore present many of the same difficulties for inclusion in health insurance as noted above under SHIs. What gives CBHI a particular advantage is that non-Governmental Organisations (NGOs) are typically involved. These take on the administrative costs of

informing and recruiting potential clients, registering those to be insured, adjudicating claims etc. Where, as often happens, those to be insured are members of other schemes operated by the NGO (e.g. microcredit) individuals' details can be borrowed to allow easier registration for insurance.

Private health insurance

This is defined as private-for-profit provision of insurance. It is generally only affordable by the middle classes in developing countries and so lies outside our interests in the present paper.

3.3 Potential advantages of SHI and CBHI

The main advantage of SHI (and, by extension, of CBHI) is claimed (Carrin, 2002) to be that it is "a very powerful method for granting the population access to health services in an equitable way". It does so, first, by raising the resources accumulated to prevent unforeseen health shocks from becoming financially ruinous (bringing in resources from government and employers to supplement individual premiums), and, second, by pooling these resources for individuals to draw upon in case of need. The aims elucidated by Spaan et al (2012) allow us to expand on this rather sweeping assertion. They include: (i) mobilize resources, sufficient to make a substantial contribution to the functioning of health services; (ii) provide financial protection to clients against potentially ruinous health expenditures; (iii) improve utilization of health-care services by all socioeconomic groups; (iv) improve health care quality; (v) improve social inclusion, i.e. the provision of health services in alignment with the needs of various population groups, especially the poor and vulnerable; and (vi) improve community empowerment, i.e. involvement of the community in the organization of health services.

3.4 Evidence of impact

It should be noted that evidence of the impact of SHI is relatively recent, and far from complete. As of 1998, around half of the industrialised countries had chosen SHI as their health financing system, but no low income developing countries and only one lower middle income country – Costa Rica – had a fully-fledged SHI. Since then, SHI has progressed in a number of other lower middle income countries, and an important source of impact evidence for this paper is the Hsaio and Shaw's (2007) study of 5 countries, chosen for their different types and levels of implementation. Kenya was selected for illustration of the design stage, Ghana for initiation, the Philippines for extension of population coverage, Colombia for fuller implementation of SHI and managed care, and Thailand for universal coverage.

A second principal source of evidence is a systematic literature review focusing on the impact of SHI and CBHI in Africa and Asia by Spaan et al (2012) which examines a total of 8689 papers, of which 8459 were excluded and 230 retained for further assessment, which were then narrowed down to 159. Studies were retained if they: (i) were randomized controlled trials, cohort, case-control or cross-sectional studies, or qualitative descriptive case studies; (ii) studied the impact of health insurance on resource mobilization, service utilization, quality of care, financial protection, social inclusion or community empowerment; (iii) were carried out in a low- or lower-middle-income country and allowed for changes in countries' income status over time; and (iv) were written in English, French, Spanish or Portuguese. Studies were excluded if they were policy reviews, opinion pieces, editorials, letters to the editor, commentaries or conference abstracts. For the studies retained, a weighting was applied to reflect the quality of the papers.

The review was undertaken to fill a major perceived gap in our knowledge of the impact of health insurance. The authors note that several countries have been promoting SHI, including the Philippines, Thailand and Viet Nam. Community-based health insurance (CBHI) is being promoted in the Democratic Republic of the Congo, Ghana, Rwanda and Senegal, among many others. However, the impact of SHI and CBHI in low-and-middle-income countries has been documented only partially. The authors concluded that the picture in Africa and Asia is very patchy, with large heterogeneity in institutional designs and organizational models and enormous variation in costs, population coverage, services covered and services provided. Also, health insurance is known to have effects on domains beyond those reported in existing reviews, such as social inclusion.

Spaan et al sought to cover all low- and lower-middle-income countries in Africa and Asia. However, the bulk of evidence comes from a very limited number of countries, including seven in Africa (the Democratic Republic of the Congo, Ghana, Kenya, Rwanda, Senegal, Uganda and Tanzania) and five in Asia (China,

India, the Philippines, Thailand and Vietnam). This reflects the difficulty of focusing political will and administrative capacity on SHI and CBHI over a long enough period to make an impact.

In what follows, we take the five sets of impact criteria set out by Spaan et al, as indicated above, and subsume the Hsaio and Shaw (2007) findings within these. Spaan et al find that impacts on ***resource mobilisation*** are broadly positive. For example, studies in Bangladesh, Cambodia, the Democratic Republic of the Congo and India reported improved cost recovery ratios after implementation of CBHI. But low renewal rates, high claims-to-revenue ratios and high operational costs limited resource mobilisation and cost recovery in Rwanda and Uganda. For SHI, Spaan et al found no evidence that it impacts positively or negatively on resource mobilization for health. Hsaio and Shaw (2007) are much more positive on this (see Box 6).

Box 6: **The role of SHI in raising funds for health**

Hsaio and Shaw (2007) show that the implementation of SHI has succeeded in raising more revenues for health in addition to existing revenues raised by general taxation. In the Philippines, for example, the share of SHI in total public health expenditures grew from 8.9 percent in 1998 to 23.4 percent by 2002 and from 3.8 percent of total health expenditures in 1998 to 9.1 percent by 2002. In Colombia, health expenditures increased from 6.2 percent of gross national product in 1993 to 8.1 percent by 2002, with the share of SHI rising from 1.7 percent of GDP in 1993 to 4 percent by 2002. This is no small accomplishment in countries struggling to meet the general target set by WHO that countries spend at least 5 percent of their gross national product on health

Source: Hsaio and Shaw 2007

Both Spaan et al and Hsaio and Shaw find strong evidence that CBHI and SHI provide ***financial protection*** for their members in terms of reducing their out-of-pocket expenditures. Hsaio and Shaw note that the implementation of SHI constituted a formal mechanism for pooling revenues and spreading risks across population groups, from rich to poor and across the life cycle. In some countries such as the Philippines, this was visible in a reduction in out-of-pocket expenditures for health from 50.4 percent in 1995 to 40.5 percent by 2000. In Colombia, it is visible in the transfer of approximately 10 percent of SHI revenues to subsidize the poor, which reduced financial barriers to health care. Moreover, only 4 percent of the population covered by SHI fell below the poverty line in Colombia as a result of an ambulatory or hospital shock, compared with up to 14 percent of non-SHI members. While acknowledging that progress on improving financial fairness and risk pooling has been slow in many countries, SHI clearly represents a promising response to the challenge.

Spaan et al find that SHI and CBHI ***improve utilization*** of inpatient and outpatient services. Weak evidence suggests that both SHI and CBHI have a positive impact on the ***quality of care***. To illustrate this, CBHI schemes in Kenya, Uganda and the United Republic of Tanzania were found to improve ***service quality*** in health facilities, increase essential drug availability and shorten waiting times. By contrast, a study of a CBHI scheme in Burundi reported that health workers discriminated against card holders and provided preferential treatment to patients paying in cash.

There is weak evidence that both SHI and CBHI have a positive impact on ***social inclusion*** as indicated by enrolment and utilization patterns among vulnerable groups. Health insurance schemes undertake various initiatives to reach the vulnerable segments of the populations, such as discount cards, exemption schemes or free enrolment for vulnerable populations. For example, targeted policies of the National Health Insurance Program in the Philippines and the Thai universal coverage scheme increased the number of insured poor. In other countries, social inclusion is not achieved to the same extent, the main reason for this being unaffordable premiums in e.g. Cameroon, Guinea and Senegal. Spaan et al find that both SHI and CBHI yield inconclusive findings on ***community empowerment***, arguing that very few studies have been carried out. However, empowerment, especially in the case of CBHI, forms a major rationale for NGO involvement, and numerous positive examples can be found in the NGO literature (see, for instance, the cases reported by SEWA – www.sewa.org).

Hsaio and Shaw note evidence in support of social inclusion and empowerment objectives. For instance, in most countries the social contract between contributing members and the SHI system provides for grievance procedures if benefit entitlements have not been honoured. Such provisions that aim to make SHI more responsive to clients are among the criteria WHO (2000) uses to assess the performance of national health systems. In other words, SHI has given new meaning to the term “accountability” in several developing countries in ways not previously seen in publicly financed and provided health care. Under SHI, any lack of

coverage of the poor and near-poor is visible and quantifiable and creates political pressure for remedial action. Thus SHI in Ghana aims to expand membership incrementally so that 30 to 40 percent of the population is covered in the first 5 years and 50 to 60 percent in next 5 to 10 years. SHI in the Philippines recently stepped up subsidies to the poor to the extent that indigents as a percentage of the membership increased from 16 percent of the total in 2003 to 30 percent by 2005. SHI in Colombia doubled subsidies to poor households to the extent that 28 percent of poor households were covered in 2003, compared with 14 percent in 1991. By 2003, 50 percent of the poorest income quintile were included in SHI, compared with fewer than 10 percent in 1991. These trends and commitments demonstrate that SHI can enhance equity.

Our conclusion in terms of the above criteria is that SHI and CBHI, where managed well, have achieved substantial impact. They have: increased the overall ***resourcing*** for health services, allowing individual and enterprise subscriptions to be accounted for separately from allocations made from general taxation; improved the ***financial security*** of clients; improved the ***utilisation*** of health services, and through monitoring and feedback, improved the ***quality of care and of services***, and have enhanced ***social inclusion and empowerment.***

3.5 Potential difficulties with SHI and CBHI

SHI offers substantial potential advantages, but its implementation requires consistent effort over a long period. This helps to explain why a large number of countries have not pursued it, and, among those that have, the experience has been mixed. The types of difficulty faced are outlined by, among others, Carrin (2002) and Hsaio and Shaw (2007). They include:

First*,* it may be particularly difficult to generate wide political consensus on the basic risk-spreading rule of SHI, i.e. to guarantee similar health service benefits to those with similar healthcare needs, regardless of the level of contributions made. This problem is particularly acute in countries having wide inequality of incomes and assets. In addition, consensus will have to be achieved on the nature, provisions and costs of SHI, on important details such as levels of contribution, on the level and targeting of government co-funding, and on what course-corrections should be made in response to performance monitoring. This will require both detailed technical proposals, and vigorous political debate, yet this remains difficult in countries where democracy is in its infancy.

According to Hsaio and Shaw (2007), all stages of SHI face major problems in relation to defining, certifying, and subsidizing the poor. The poorer the country, the worse the problem, because the number of poor will be large and the capacity to monitor and evaluate them will be limited. Moreover, actually getting public subsidies to the poor will be a major hurdle, requiring proper cross-subsidization and pooling of risks between rich and poor regions if SHI contributions are held at the regional or district level. Once achieved, such consensus may be threatened unless SHI schemes constantly demonstrate to their members that they will in fact receive the promised health insurance benefits. Real problems of fatigue and drop-out are also becoming evident (certainly in CBHI) as individuals continue to be asked for premiums year-in, year-out.

Second, major organisational change is necessary with the introduction of SHI, but once achieved, this can bring substantial benefits (Hsaio and Shaw (2007)). For instance, the creation of a new organization responsible for raising earmarked revenues for health and contracting with providers has resulted in a clarification and redefinition of the roles of ministries of health. In Ghana, for example, the Ministry of Health aims to become a policy maker and regulator of health care rather than a provider of services. Accreditation of providers is a new and an especially important role that needs to be filled through a government regulatory body.

Third, governments need substantial managerial or administrative capacity to design a health insurance scheme, to implement it, and to make course-corrections (e.g. to levels of contribution and benefit) in the light of experience. The implementation of SHI has prompted more careful and rational planning regarding the imperative of equating SHI revenues with SHI expenditures. This is both a problem and an opportunity. Further, in the context of SHI, vague, overly generous, and unaffordable benefit entitlements are more readily viewed as a pathway to bankruptcy. In Kenya, this influenced the President to refuse to sign into law the legislation to implement the program in 2004. Moreover, SHI management is increasingly using unit costing to determine the actual costs of different benefits packages and to ascertain their affordability. Tough choices have been required regarding services to be included versus those to be excluded.

Where contributions are wage-indexed, and where wage information is available, the processes of client registration are greatly simplified. However, even then, there can be underreporting of wage levels, so that contributions are under-paid. Enrolment of the population in the agricultural and informal sectors, where

there are unlikely to be wage records, is likely to be even more difficult. According to Hsaio and Shaw (2007), in the Philippines, two-thirds of voluntary enrollees did not pay their premiums on a regular basis, motivating the SHI fund to give religious and cooperative organizations group discounts as a way of enrolling their entire membership, which helped somewhat, but did not solve the problem. In Thailand, coverage and collection problems were such that the government decided to use general revenues to pay for all informal sector and self-employed workers.

Mechanisms also need to be in place to guard against corruption. In Kenya, compulsory SHI for hospital services suffered greatly from poor management and corruption, with only 22 percent of the fund actually used to pay for benefits and a large portion of the accumulated reserve lost through corruption. As a result, Kenya's plans to launch a new national SHI system include rules to constrain the board's behaviour, including a 5 percent limit on administrative costs, a 3 percent limit on reserves, and a requirement for board members to abstain from voting on investments or contracts if they have any financial links to them. Fraudulent claims will hound SHI, as in the Philippines, where the Office of the Actuary estimates that 10 – 20 percent of claims are fraudulent.

Even some of the more routine decisions are complex. One set of decisions concerns whether only individual workers or also their families should be included. In Costa Rica and Thailand these were initially excluded, keeping premiums low, but the political acceptability of SHI was subsequently strained when premiums had to be doubled in order to allow families to be included (Hsaio and Shaw, 2007). In other cases, health services had been improved under SHI, and financial limits to access removed, resulting in a large increase in numbers of consultations. This meant that initial premiums were too low and – against some popular resistance – had to be raised. Hsaio and Shaw (2007) note that implementation difficulties were faced in many parts of Ghana because initial premiums were too low. Hsaio and Shaw (2007) note that "the benefits package is determined by means of a cycle: designing the benefits package, estimating its costs, undertaking political consultation, then adjusting the benefits package and [re-]estimating its costs, and so on. This process requires technical skills and data. In countries with a per capita annual income of US$2,000 or less, these problems will be a major challenge; in countries with a per capita annual income of US$500 or less, they will be monumental".

Fourth, services will have to be built up progressively if clients in peri-urban and rural areas are to have access to adequate health care. Moreover, improving performance through contracting (on the supply side) and through choice of providers (on the demand side) is likely to be desirable, but it will take time for sufficient providers to be built up in order to allow some form of competition.

As with SHI, CBHI seeks to provide populations with equitable access to health insurance, though to particular groups, and on a much smaller scale. NGOs generally absorb much of the administrative cost of registering low-income households or individuals for insurance, collecting premiums, assessing claims, and so on. These costs are reduced where people are already members of some other NGO initiative such as micro-credit. For these reasons, the involvement of NGOs often means that insurance can be offered to groups who are geographically remote and/or socially marginalised, and so would be difficult to incorporate into SHI initiatives. The structures and systems set up by NGOs also offer a basis for support from government: as we note below, practically none of the CBHIs are fully self-financed: many receive subsidies from government. In addition, a major difficulty with CBHI relates to the small scale of individual schemes. One or two large claims may bankrupt them, and in many contexts there is a pressing need to encourage mergers and to devise ways of providing re-insurance for them.

3.6 SHI and CBHI: Policy Implications and Conclusions

The Hsaio and Shaw (2007) study suggests that a number of policy implications derive from the above arguments[4].

SHI is complicated: effective and efficient implementation will take many years and few low/lower middle income countries have yet made this commitment

The countries that have made a strong commitment to national systems of SHI include lower middle-income countries such as Colombia, Kenya, Ghana, The Philippines, Thailand, Vietnam and China. No low-income country has yet committed fully to SHI. Some other countries (e.g. South Africa; Brazil) are characterised by largely private insurance schemes. In almost all countries, including low-income, there is an array of CBHI

[4] These are set out in more detail in Annex 2

schemes, which are important for particular client groups, but generally small, uncoordinated, and having little impact at national scale.

To achieve universal coverage through SHI took from 70 to 100 or more years in several Western European countries and 30 to 50 years for Costa Rica, Japan, and Korea. Enrolling families instead of individuals may accelerate this for "newcomer" countries, as will the creation and incorporation of numerous CBHI schemes. However, the cost implications of these steps will be challenging. The most severe constraints to achieving universality in low- and middle-income countries are low tax revenues and the high portion of workers employed in the informal sector.

SHI enrolment will become easier with economic growth as more are employed in the formal sector, tax revenues are increased, and administrative capacity grows. Thailand took more than 25 years to reach universality, by which point annual per capita income had reached US$2,400.

Benefits packages may have to vary initially if SHI or CBHI are to be affordable by the poor

This raises the difficulty of determining what type and level of benefits should be available to those who cannot afford full subscriptions. To work out the real cost of providing different types of benefit package will be complicated, as will decisions on the level, type and targeting of government co-funding (which will be essential to draw in clients from the informal and self-employed sectors). Yet this information is an essential underpinning to sound decision-taking.

Large general revenues are needed to cover the poor

All low- and lower middle-income countries have large poor populations who are able at best to pay only limited premiums. The appropriate strategy here is to maintain the principle of premiums, and use government revenue to supplement them. For example, Ghana imposed a new 2.5 percent value added tax to help finance its subsidies on premiums. The Philippines used revenues from a national sweepstakes lottery to help finance premiums for the poor.

Stakeholders must be convinced of the actuarial soundness of SHI

SHI expenditures must not exceed revenue, and finances must be transparent and accountable. Solvency cannot be adequately assessed without actuarial calculations based on future birth rates, death rates, labour force participation rates, economic development rates, and wage increases. The absence of actuarial studies will leave SHI policies and implementation plans vulnerable to intense public scrutiny and criticism in relation to solvency.

Supply-side subsidies must be reduced

In most low-income countries, public health facilities are financed directly by government. Under SHI, public health facilities will receive their revenues from SHI payments. The supply-side subsidy should be reduced in synchronization with the implementation of SHI, with the savings used to expand e.g. the subsidy for the poor.

The SHI agency should be insulated from political interference

The SHI agency needs to be independent from the government, with adequate representation of the interests of the premium-payers. Where it is retained under the Ministry of Health, the danger is that medical professionals will seek to protect supply-side interests, including the salaries and the profits of providers.

The SHI agency should be a prudent purchaser of medical services and goods

The SHI will have to distance itself from the corporate MoH culture, i.e. that of a funder and operator of public services, and instead become an active, prudent purchaser of services for the insured. SHI can also be an instrument for helping to horizontally integrate the many vertical externally funded programs typically found in low- and middle-income countries.

Be aware of the hazards of setting up several funds

With SHI, it is preferable to support the establishment of a single insurance fund instead of many funds. To manage several funds places excessive demands on skills and increases administration costs, and may undermine the principle of universal SHI with equal access. By contrast, with CBHI the mediating role of NGOs means that large numbers of small funds can be set up to cater for particular groups of clients. However, the disadvantage of this is that small funds are not robust: they can be bankrupted by one or two high-cost claims. Where small funds can merge in order to provide mutual protection, they should do so. In all cases, re-insurance is important to prevent bankruptcy, and should be strongly encouraged by governments.

Donors can play a valuable role in supporting the implementation of SHI

Donors are keen to fund improvements in the health of the poor. They have conventionally done this by supporting publicly financed and provided health goods and services. However, these have been captured disproportionately by the better-off. By contrast, supporting a SHI shifts the emphasis from improving health status alone to improving both health status and financial risk protection.

4 Crop and health insurance – areas of potential future interest for GIZ and implications for skills of Technical Advisers

1 Insurance is a technically complex field, and advisers will need a "working knowledge" of concepts such as underwriting, actuarial assessments, claims assessment and re-insurance. On the health side, they will need to know how complex budgets are managed, how services are commissioned, costed and quality-controlled, and how, where this is deemed necessary, packages of services can be matched to levels of premium paid.

2 Insurance is only one means of reducing risk, whether in health or farming. Advisers need to be familiar with other means, which in many contexts are likely to be traditional (such as mutual support schemes of various kinds), and be sensitive to how insurance will relate to these, particularly the question of whether the social relations that underpin them may be eroded by insurance.

3 Other means of strengthening individuals' capacity to withstand risk, or of compensating for unfavourable events, lie in the spheres of social protection and relief operations. Advisers need to be familiar with how insurance relates to these, and what the optimum combination of instruments will be in particular contexts.

4 Much of the future scope for crop insurance will lie with commercial companies which provide inputs (including credit) or provide marketing and processing services. Outgrower schemes also fall into this category. Advisers will need to become familiar with the "conditions for success" of these, understanding the possibilities and constraints among these and among farmers, and identifying approaches which provide equitable outcomes for farmers.

5 As far as small farmers are concerned, an enduring problem with crop insurance is that it is generally tied to a single crop, whereas farmers tend to diversify both to spread risk and to increase food availability (in both quantity and variety). Advisers need to be on the lookout for cases in which insurance has been successfully extended to cover mixed-farming situations.

6 On the health side, particularly with Community-Based Health Insurance, there are a large number of small schemes which are at risk of being bankrupted by a few large claims. Skills will be needed in the mechanisms for encouraging the merger of these, and for obtaining re-insurance.

7 Social Health Insurance is highly complex and requires long-term commitment. Advisers need to be familiar with the conditions for its success in lower middle-income countries, so that they can support processes of policy and strategy development.

8 Quasi-insurance schemes, in which some combination of governments, donors, NGOs, and the private sector pay the full crop insurance premium on behalf of farmers, have enjoyed some success in e.g. Mexico and Ethiopia. Advisers should become familiar with these, drawing out the main lessons so that they can support replication elsewhere.

9 Fraud, usually by those paying premiums, is common in insurance schemes. Advisers need to be familiar with all relevant types of fraud, and with workable safeguards which can be taken against it.

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Appendix

Annex 1 Insurance delivery models

McCord (2001) contrasts four classical service delivery models: the partner-agent model, community-based model, the full-service model, and the provider model.

In the *partner-agent model*, the insurer teams up with a local agent, for example, a microfinance institution, informal savings institution or other grass-root organizations. For example, in Uganda, FINCA Uganda cooperated with Nsambya Hospital Healthcare Plan (NHHP), a health financing entity, to provide health insurance to its clients (McCord, 2000). Under this setup, the comparative advantage of the insurer in developing and pricing policies is combined with the comparative advantage of the local agent by having experience in reaching the poor, with networks already in place, and enjoying the trust of large numbers of clients. However, McCord (2006) also discusses a number of disadvantages for insurers, agents and clients. For the partner-agent model to work for the poor, he stresses that (i) the insurance product and its distribution has to be driven by clients' needs, (ii) the regulatory framework should facilitate simple procedures while at the same time protecting customers' rights, and (iii) micro-finance institutions (MFIs) should involve clients in product development and obtain feed-back, to use this information in negotiations with the insurer. In India, Tata-AIG has developed a model of micro-agents in addition to MFIs as agents. NGOs are contracted to recommend individuals in communities to form a so-called community rural insurance group (CRIG) which then performs an agent's role.

In the *community-based model* the insurance is entirely owned and managed by the community members (the policy holders). It is not-for-profit, and characterized by its participatory processes and the important role of social cohesion. Community-based insurances, or mutual insurances, can be found in a variety of setups, including: (i) standalone mutual (or cooperative) insurance providers (for example, CARD MBA in the Philippines), (ii) insurance companies affiliated to a network of financial cooperatives such as savings and credit cooperatives (for example, MUSCCO in Malawi and ServiPeru in Peru) and (iii) networks of mutual insurance associations (for example, the Union Technique de la Mutualité Malienne).

Under the *full-service model*, the insurance provider assumes all functions, from product development to marketing, sales, premium collection and claims processing. An example for the full-service model is insurance provided by the Self-Employed Women's Association (SEWA) in India.

Extending this model to also include the provision of, for example, health care, yields the *provider model*. GRET Cambodia provides an example of health microinsurance following the provider model (McCord, 2001b).

In conclusion, many of the models discussed above are under development and there are no blueprints for establishing the most effective delivery channels for different risk categories. Further knowledge is also required regarding effective marketing and selling, and underlying incentive contracts of agents. Overriding importance attaches to customer retention for building trust and for an insurance to function. To provide adequate incentives, agents can be paid higher commission for renewals than new sales.

Annex 2 Social Health Insurance and Community-based Health Insurance – Policy recommendations from a World Bank study

The Hsaio and Shaw (2007) study suggests a number of policy implications.

SHI is complicated: effective and efficient implementation will take many years and few low/lower middle income countries have yet made this commitment

The countries that have made a strong commitment to national systems of SHI include lower middle-income countries such as Colombia, Kenya, Ghana, The Philippines, Thailand, Vietnam and China. No low-income country has yet committed fully to SHI. Some other countries (e.g. S Africa; Brazil) are characterised by largely private insurance schemes. In almost all countries, including low-income, there is an array of CBHI schemes, which are important for particular client groups, but generally small, uncoordinated, and having little impact at national scale.

Reluctance on the part of many governments to commit to SHI is unsurprising. It demands major political mobilisation, strategic commitment on a large scale (and over several decades for universal coverage), massive reorganisation of ministries of health, establishing a new SHI agency, and constant monitoring of a large number of variables with the need for discussion, debate and frequent course-corrections in response to feedback.

The ministry of health will have to be transformed from being a funder, manager, and operator of public health services to being a policy maker, a regulator, and an overseer. The SHI agency will need to recruit doctors, actuaries, accountants, financial managers, information technology specialists, policy analysts, and planners and its executives and managers have to be educated in the nature and functions of SHI. In managing health services, the SHI agency needs to select and contract health care providers and monitor their services, which requires hospitals to develop modern accounting, financial, and medical record-keeping systems. Most low-income countries simply do not have the required human resources and knowledge for a fully-fledged SHI and, with NGO assistance, may instead elect for a number of CBHI initiatives.

To achieve universal coverage through SHI took from 70 to 100 or more years in several Western European countries and 30 to 50 years for Costa Rica, Japan, and Korea. Enrolling families instead of individuals may accelerate this for “newcomer” countries, as will the creation and incorporation of numerous CBHI schemes. However, the cost implications of these steps will be challenging. The most severe constraints to achieving universality in low- and middle-income countries are low tax revenues and the high portion of workers employed in the informal sector.

SHI enrolment will become easier with economic growth as more are employed in the formal sector, tax revenues are increased, and administrative capacity grows. Thailand took more than 25 years to reach universality, by which point annual per capita income had reached US$2,400.

Benefits packages may have to vary initially if SHI or CBHI are to be affordable by the poor

All countries would like to offer a comprehensive benefits package to all citizens.

However, this is likely to be unaffordable. Formal sector employees demand comprehensive benefits and might be able to pay for them. However, there may be insufficient funds (though SHI or more widely) to offer the same package to all. Colombia initially had to limit the benefits package for the poor to only half the cost of that for formal sector employees so it could be affordable. To work out the real cost of providing different types of benefit package will be complicated, as will decisions on the level, type and targeting of government co-funding (which will be essential to draw in clients from the informal and self-employed sectors). Yet this information is an essential underpinning to sound decision-taking.

User fees must be in place to motivate people to join

If no user fees are in place, and government services are available at no or little cost, people will have no incentives to pay SHI premiums. People will be motivated to pay for SHI if user fees are relatively high, if patients have to purchase drugs and supplies, or if public services are so poor that many patients pay out-of-pocket for private providers and are susceptible to catastrophic financial loss at times of serious illness or injury. In addition, SHI has to create incentives for workers to enrol by requiring employers to pay a share of the SHI premium. Thus Colombia, Ghana, Kenya, the Philippines and Thailand all require employers pay at least half of the premium.

Large general revenues are needed to cover the poor

All low- and lower middle-income countries have large poor populations who are able at best to pay only limited premiums. The appropriate strategy here is to maintain the principle of premiums, and use government revenue to supplement them. For example, Ghana imposed a new 2.5 percent value added tax to help finance its subsidies on premiums. The Philippines used revenues from a national sweepstakes lottery to help finance premiums for the poor.

Stakeholders must be convinced of the actuarial soundness of SHI

SHI expenditures must not exceed revenue, and finances must be transparent and accountable. Solvency cannot be adequately assessed without actuarial calculations based on future birth rates, death rates, labour force participation rates, economic development rates, and wage increases. In the United States, for example, actuarial calculations must show predicted revenues and expenditures for 25 years into the future for Medicare, a program fi nanced primarily by a payroll tax that covers 38 million elderly and disabled Americans. The absence of actuarial studies will leave SHI policies and implementation plans vulnerable to intense public scrutiny and criticism in relation to solvency.

Supply-side subsidies must be reduced

In most low-income countries, public health facilities are financed directly by government. Under SHI, public health facilities will receive their revenues from SHI payments. The supply-side subsidy should be reduced in synchronization with the implementation of SHI, with the savings used to expand e.g.the subsidy for the poor. Otherwise, the public health facilities will be overpaid, a poor use of scarce resources. However, this is not always easy: the political power of health workers' unions substantially delayed Colombia in reducing its supply-side subsidy as SHI expanded.

The SHI agency should be insulated from political interference

To defend the interests of the insured and prevent corruption, SHI needs to be independent from the government. The new independent agency must be transparent in relation to its finances, which requires independent audits. Many countries establish their SHI agency under the ministry of health without adequate representation by the insured and by premium payers. Typically, the ministry of health is dominated by medical professionals who tend to protect supply-side interests, as was the case in Colombia and the Philippines. Under such governance, much of the new revenue went to increasing the salaries and profits of providers.

The SHI agency should be a prudent purchaser of medical services and goods

For the ministry of health to manage SHI is hard, because doing so requires a transformation of its corporate culture from that of a funder and operator of public services to that of an active, prudent purchaser of services for the insured. The contrasting experiences of the Philippines and Thailand provides a good example. The SHI agency in the Philippines has acted like a traditional, passive, private insurance company, that is, as just a financial intermediary. It enrols members, collects premiums, and pays claims. By contrast, the NHSO in Thailand selectively contracts with provider networks and pays them a capitation rate, a payment system designed to discourage overuse. As a result, Thailand has not had the same problems the Philippines has of new funds being used to benefit suppliers instead of the insured. The "Prudent Purchaser" principle also requires the SHI agency to minimize the opportunities for excess profit among private providers, and these must be registered at an early opportunity. Finally, the potential or intended role of SHI as an instrument of health sector reform should be specified. SHI can be a powerful instrument for reforming the health care delivery system to improve the efficiency and quality of health care by being an active and prudent purchaser of health goods and services. SHI can also be an instrument for helping to horizontally integrate the many vertical externally funded programs typically found in low- and middle-income countries.

Be aware of the hazards of setting up several funds

With SHI, three main arguments support the establishment of a single insurance fund instead of many funds. First, low-income countries lack human resources, experience, and information technology systems and so these should be concentrated rather than dispersed. Second, having multiple funds would increase administrative costs for both insurers and providers. Third, a system with multiple funds develops political and bureaucratic barriers to universal SHI with equal access. Thailand's major hurdle to equalizing access is to merge its various funds. Colombia, Ghana, Kenya, and the Philippines learned from the struggles of more advanced economies and established a single SHI fund. With CBHI the mediating role of NGOs means that large numbers of small funds can be set up to cater for particular groups of clients. Whilst this is highly positive in terms of meeting local needs, the disadvantage (apart from the high administration costs met by NGOs) is that small funds are not robust: they can be bankrupted by one or two high-cost claims. Where small funds can merge in order to provide mutual protection, they should do so. In all cases, re-insurance is important to prevent bankruptcy, and should be strongly encouraged by governments.

Donors can play a valuable role in supporting the implementation of SHI

Donors are keen to target international or national public subsidies to improve the health of the poor. Their traditional approach has been to channel donor assistance to publicly financed and provided health goods and services on the presumption that these funds actually benefit the poor. However, as studies of public funding typically show, households in the richest quintiles are the ones that typically benefit the most by "capturing" the public subsidy by e.g. having public hospitals built in urban areas where the rich can easily access them. In addition to multilateral and bilateral donors, international NGOs channel large infusions of funds to supply-side provision of public health goods and services, such as much needed vaccinations supported by the Global Alliance for Vaccines and Immunizations, which directly affect health status outcomes. Donor support of SHI is needed to complement traditional development assistance, because SHI shifts the emphasis from improving health status alone to improving both health status and financial risk protection. Avenues of support include the following:

- using funds from debt forgiveness in developing countries that are undertaking
- SHI as a way to subsidize membership by the poor, as in Ghana;
- providing direct grants to SHI that are earmarked for enrolling the poor and the indigent and/or expanding special entitlements to targeted groups;
- increasing technical assistance to manage and operate SHI in the form of resident, seconded staff who have experience in planning, budgeting, undertaking actuarial analysis, contracting, and monitoring performance.

Annex 3 The scope of micro-insurance and the focus of this paper

The Eight International Micro-insurance Conference, held from 6 – 8 November 2012 in Dar-es-Salaam, provides a snapshot of the wide range of issues falling under this umbrella.

In terms of the types of insurance, these include:

- life assurance, which is largely but not exclusively the focus of private insurance companies (see e.g. the CIC programme in Kenya and the MICROENSURE programme across several African countries;
- agricultural insurance, usually with strong public sector involvement (see e.g. National Bank for Agricultural and Rural Development in India), but also in some cases driven by NGOs such as BASIX
- health insurance, which may be part of a wider national push towards Social Health Insurance, or part of small-scale initiatives focusing on Community-Based Health Insurance (CBHI) and often promoted by NGOs – examples are found in the longstanding efforts of the Self-Employed Women's Programme (SEWA) in India and the Gonoshasthaya Kendra Trust (GKT) in Bangladesh.

These incorporate a wide range of operational modalities, too broad to discuss in detail here, but including innovations such as weather index-based crop insurance in many countries, and the use of mobile phones to sell (usually life) insurance (see CIC and MICROENSURE), and of mobile money accounts to make payments. The ILO Micro-Insurance Innovation Facility (Matul) is an important source of innovative ideas. M-CRIL (Micro-Credit Ratings International Ltd) is an important source of expertise on risk in relation to insurance (and microfinance more widely) in India and elsewhere in Asia. Protecting the Poor – a Microinsurance Compendium Vols I and II is an important source of ideas, co-published by the ILO and Munich Re Foundation.

The focus of this paper is on micro-insurance in relation to food security for the poor. Its focus is therefore on low and lower-middle income countries[5], and on households in the lower half of the income distribution

[5] According to 2011 World Bank definitions:

- Low income countries had GNI per capita of US$1,026 or less.
- Lower middle income countries had GNI per capita between US$1,026 and US$4,036.

profile in these countries. Life assurance sold by the private commercial sector caters mainly for middle-class households and so is excluded from this analysis. Countries in the upper middle income category which have committed to such major policy steps as national Social Health Insurance (e.g. Taiwan) are also excluded.

The focus then is on:

- agricultural insurance, particularly for small-scale farmers and particularly innovated approaches such as weather index-based insurance;
- efforts towards national Social Health Insurance in low- and lower-middle income countries
- work on Community-based Health Insurance in low- and lower-middle income countries

- Upper middle income countries had GNI per capita between US$4,036 and US$12,476.
- High income countries had GNI above US$12,476.