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Guidelines for Assessing the Sources of Risk and Vulnerability

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Social Protection Unit
Human Development Network
The World Bank

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SOCIAL PROTECTION DISCUSSION PAPER 0218
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Guidelines for Assessing the Sources of Risk and Vulnerability

by

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ABSTRACT

Social risk management (SRM) is a new means of looking at poverty, risk, and risk management that was recently presented in the World Bank's Social Protection Strategy Paper. The SRM perspective addresses how vulnerable households can be helped to better manage risks and become less susceptible to potentially damaging welfare losses. This paper provides some basic concepts and guidelines for organizing ideas and information that are relevant to risk and vulnerability assessments. Several templates are provided in the Annex, along with a list of completed and ongoing World Bank reports that investigate risk and vulnerability.

EXECUTIVE SUMMARY

In many developing countries, profound economic, political and social changes have taken place during the 1990s. These changes include market and political liberalization, privatization and decentralization, technological change and globalization, economic and social restructuring. In addition, many developing countries have experienced serious economic and nature-related shocks. These changes and shocks have placed stress on social arrangements that traditionally served as informal safety nets. At the same time, fiscal constraints have tended to lead to cutbacks in public expenditures for social services and formal safety net programs. Due to the increased risks and decreased ability to manage risks, many poor households are expressing increased anxiety about their perceived *vulnerability* – as evidenced by the participatory assessments undertaken for the *Voices of the Poor*.

The recent World Development Report (WDR) 2000/1 highlights the interface between empowerment, security, opportunity - and poverty. This approach to thinking about poverty brings the concepts of risk and its management to the center of the policy dialogue. At the same time, use of the term "vulnerability" has proliferated. This term refers to the relationship between poverty, risk, and efforts to manage risk. Social risk management (SRM) is a new means of looking at poverty, risk, and risk management that was recently presented in the World Bank's Social Protection Strategy Paper. The SRM perspective addresses how vulnerable households can be helped to better manage risks and become less susceptible to potentially damaging welfare losses.

Although there is some broad overall consensus about the general principles related to vulnerability, analysts from different disciplines tend to use different meanings and concepts of vulnerability, which, in turn, has led to diverse methods of defining and measuring risk and vulnerability. The World Bank is moving forward in developing conceptual and operational definitions of vulnerability. However, it is not the intent of this paper to arrive at some new consensus on the meaning and measurement of vulnerability, or to propose new analytical approaches. Instead, the objective of this paper to is provide some basic concepts and guidelines for organizing ideas and information that are relevant to risk and vulnerability assessments. Several templates are provided in the Annex, along with a list of completed and ongoing World Bank reports that investigate risk and vulnerability. This paper should be considered a "work in progress" that will evolve as the thinking and applications on risk and vulnerability evolve. It is hoped that this paper will stimulate thinking and discussions about risk and vulnerability, and help lead towards the formulation of clearer definitions and measures that can be useful for policy analysis and subsequently for policy design, monitoring and evaluation.

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INTRODUCTION

Background

In many developing countries, profound economic, political and social changes have taken place during the 1990s. These changes include market and political liberalization, privatization and decentralization, technological change and globalization, economic and social restructuring. In addition, many developing countries have experienced serious economic and nature-related shocks. These changes and shocks have placed stress on traditional social arrangements that traditionally served as informal safety nets. At the same time, fiscal constraints have tended to lead to cutbacks in public expenditures for social services and formal safety net programs. Thus, due to the increased risks and decreased ability to manage risks[1], many poor households are expressing increased anxiety about their perceived *vulnerability* – as evidenced by the participatory assessments undertaken for *Voices of the Poor* (Narayan, 2000).

The recent World Development Report (WDR) 2000/1 (World Bank, 2000c) highlights the interface between empowerment, security, opportunity - and poverty. This approach to thinking about poverty brings the concepts of risk and its management to the center of the policy dialogue. At the same time, use of the term "vulnerability" has proliferated. This term refers to the relationship between poverty, risk, and efforts to manage risk. Social risk management (SRM) is a new means of looking at poverty, risk, and risk management that was recently presented in the World Bank's Social Protection Strategy Paper (World Bank 2001a). The SRM perspective addresses how vulnerable households can be helped to better manage risks and become less susceptible to potentially damaging welfare losses.

Social Risk Management (SRM)

Holzmann and Jorgensen (1999) use the term "social risk management" to refer to the social management of risks - how society manages risks (not how to manage social risks). SRM includes the broad range of formal and informal proactive and reactive risk management strategies used by individuals, communities, nations and communities of nations, including actions by the public, private, and informal sectors. From a SRM perspective, social protection addresses the issue of how vulnerable households can be helped to better manage risks and become less susceptible to damaging welfare losses.

Some general principles related to vulnerability as a concept include: (a) it is forward-looking and defined as the probability of experiencing a loss in the future relative to some benchmark of welfare, (b) a household can be said to be vulnerable to future loss of welfare and this vulnerability is caused by uncertain events, (c) the degree of vulnerability depends on the characteristics of the risk and the household's ability to respond to the risk, (d)

[1] In the literature some authors point out differences between risk and uncertainty, while others argue that they are interchangeable. In this paper, it is assumed that they are interchangeable, and that risks are "uncertain events" that can lead to welfare losses. When a risk materializes, it can become a shock, whereby a shock refers to a risk that causes a "significant" negative welfare effect (e.g., major income loss, or major illness related costs).

vulnerability depends on the time horizon, in that a household may be vulnerable to risks over the next month, year, etc. and responses to risk take place over time, and e) that the poor and near-poor tend to be vulnerable because of their exposure to risks and limited access to assets (broadly defined) and limited abilities to respond to risk (Alwang, Siegel, and Jorgensen, 2001).

Working Concept of Household Vulnerability

A household is said to be vulnerable to future loss of welfare below some socially accepted norm(s) caused by risky events. The degree of vulnerability depends on the characteristics of the risk and the household's ability to respond to risk. Ability to respond to risk depends on household characteristics, notably their asset-base. The expected future outcome is defined with respect to some specified benchmark—a socially accepted minimum reference level of welfare (e.g., a poverty line, nutritional standards). Measurement of vulnerability also depends on the time horizon: a household may be vulnerable to risks over the next month, year, etc. Thus, households are vulnerable *to* suffering an undesirable outcome, and this vulnerability comes *from* exposure to risk.

Although there might be some broad overall consensus about the general principles related to vulnerability, analysts from different disciplines tend to use different meanings and concepts of vulnerability, which, in turn, has led to diverse methods of defining and measuring vulnerability (Alwang, Siegel and Jorgensen, 2001; Dercon, 2001).[2] The World Bank is moving forward in developing conceptual and operational definitions of vulnerability (e.g., Pritchett, Suryahadi, and Subbaro, 2000; Christiaensen, Boisvert, and Hoddinott, 2000; Cunningham and Mahoney, 2000a, 2000b; Mansuri and Healy, 2000; Coudouel, Hentschel, and Wodon, 2001; Coudouel, Ezemenari, Grosh, and Sherberne-Benz, 2001; World Bank, 2001b). However, it is not the intent of this paper to arrive at some new consensus on the meaning and measurement of vulnerability, or to propose new analytical approaches. Instead, it is the objective of this paper to provide some basic concepts and ***guidelines*** for organizing ideas and information that are relevant to risk and vulnerability assessments.

Objective the Paper

Most of the work on this guideline was completed in the summer of 2001, and an October 2001 draft (Heitzmann, Canagarajah, and Siegel, 2001) has been circulated to World Bank staff and been distributed outside the Bank. As such, it was decided to make some minor edits and updates and to produce a formal Social Protection Discussion Paper. This paper should be considered a "work in progress" that will evolve as the thinking and applications on risk and vulnerability evolve. In addition, a follow-up report that focuses on analytical approaches and empirical applications is planned by the World Bank's Social Protection Unit. It is hoped that this paper will stimulate thinking and discussions about risk and vulnerability, and help lead towards the formulation of clearer definitions and measures that

[2] Alwang, Siegel and Jorgensen (2001) compare approaches to defining and measuring risk and vulnerability among several disciplines including poverty dynamics, sustainable livelihoods, food security, disaster management, environment, and health/nutrition. Although these disciplines have different reasons for defining and measuring risk and vulnerability, they can provide guidance on the identification of risks and vulnerable groups.

can be useful for policy analysis and subsequently for policy design, monitoring and evaluation.

Organization of the Paper

A conceptual framework on the sources of vulnerability, using the notion of a *"risk chain"* is presented and discussed in the first part of the paper. The second part of the paper provides some simple guidelines for considering the identification of risks and at risk groups, and an assessment of the sources of vulnerability. There are several examples presented to illustrate the approach. In addition, there is a set of templates attached in Annex I that help identify the types of quantitative and qualitative data and general information that would be useful, and Annex II presents some actual country applications. The third part of the paper includes a brief discussion of how analysts and/or policymakers can use the information collected to review existing risk management instruments and propose changes and reforms that could help the poor better manage risk. Annex III presents a brief overview of some recently completed and ongoing work at the World Bank on risk and vulnerability assessments.

Existing Information on Risk and Vulnerability

There is a significant amount of information available on many aspects of risk and vulnerability in some standard World Bank analyses. For example, the World Bank has a broad range of Analytic and Advisory Activities (AAA) to support its development goals. Among others, country clients benefit from a tailored program of economic and sector work (ESW) geared to their specific development challenges. ESW examines a country's economic prospects, including, for example, its banking or financial sectors, trade, poverty, and safety net issues. Among the most important reports are: poverty assessments (which examine the poverty profile, and the policies and institutions of a country in terms of poverty reduction), public expenditure reviews (which assess the role of the public sector in terms of financing, providing or regulating services), or social sector reviews (which essentially identify strategic policy priorities for poverty reduction and human development based on an assessment of social sector policy and structure).

Other information can be found in surveys, such as data from a Living Standards Measuring Study (LSMS), and national census or household survey data. The results of these reports form the basis for country assistance strategies (CAS), government investment programs, and projects supported by IBRD and IDA lending. In addition, the new initiative to prepare Poverty Reduction Strategies Papers (PRSPs) for highly indebted poor countries (HIPC) has generated some guidelines and toolkits (e.g., the PRSP Sourcebook) that assist both in organizing information on risk and vulnerability, and to design appropriate policies and programs to help better manage risk and reduce vulnerability. These reports can provide a wealth of information that can be used for a risk and vulnerability assessment. A major objective of this paper to help identify the types of information needed from existing reports and to provide a framework for organizing and analyzing this information on risk and vulnerability sources.

1. The conceptual framework: The sources of vulnerability

What are the sources of vulnerability? In this paper it is assumed that vulnerability of households[3] can be decomposed into several components of a *"risk chain"*: (a) the *risk*, or uncertain events, (b) the options for managing risk, or the *risk responses*, and (c) the *outcome* in terms of welfare loss. Box 1 and Figure 1 illustrate the risk chain.

Households face risks. If these are realized they can generate adverse outcomes, leaving households more vulnerable than before to manage future risks. Whether or not this happens depends on the assets of households, on the risks they face, the characteristics of the risks, once they are realized, and the households' responses to these challenges. Vulnerability reduction thus requires a better understanding of risks and risk exposure, the outcomes that are likely to be generated by shocks, and the most efficient means (and tradeoffs) of managing risks, which are not least contingent on a household's assets (Alwang, Siegel, and Jorgensen, 2001, p.2).[4] In turn, vulnerability also depends on the existence (or absence) of markets for assets, since they are of limited use if they can not be efficiently mobilized to manage risks.

Vulnerability begins with a notion of *risk*. Risk is characterized by a known or unknown probability distribution of events. All individuals, households, communities or nations face multiple risks from different sources, whether they are natural (e.g., earthquakes, illness) or man-made (e.g., unemployment, environmental degradation, war). These risks cannot be prevented, and if they materialize they can negatively impact individuals, households, communities and/or regions in an unpredictable manner. These uncertain events are themselves characterized by their magnitude (including size and spread), their frequency and duration, and their history – all of which affect household's vulnerability from the risk. A shock is a risky event that can cause significant negative impacts.[5] Social actions can reduce risk or exposure to risk, and thereby potentially lessen the damage associated with shocks.

Households can *respond to*, or manage, risks in several ways. Households use formal and informal risk management instruments depending on their access to these instruments. Risk management involves *ex ante and ex post* actions. Ex ante actions are taken before a risky event takes place, and ex post management takes place after its realization. Ex ante risk reduction can reduce risk (e.g., eradication of malaria-bearing mosquitos) or lower exposure to risks (e.g., malaria pills, mosquito nets). It is also possible for a household to take ex ante

[3] The focus of this paper is household vulnerability. Clearly, the vulnerability of individuals within a household and intra-household dynamics might be critical to understanding household vulnerability. In addition, risks do not only threaten individuals and households, but also communities, regions, or nations. The focus will be how risks at other levels impact households.

[4] How a shock is transmitted to households – and how households are able to respond to it, depends in addition to the assets of households also on the assets of communities, regions and nations and the country's institutions, laws and regulations, and policies (see Moser, 1998; Siegel and Alwang, 1999; Rakodi, 1999).

[5] When talking about shocks, what is a "significant negative impact"? This really needs to be decided by the analysts and policymakers. But, clearly, a risky event that can causes a 50% loss in welfare could be considered a "shock", and for many households straddling the poverty line, a 20-50% negative welfare impact could be considered a shock.

risk mitigation actions that provide for compensation in the case of loss such as purchase of insurance. Risk mitigation includes formal and informal responses to expected losses such as self-insurance (e.g., precautionary savings), building social networks, and formal insurance based on expansion of the risk pool. Ex post risk coping activities are responses that take place after a risky event is realized and involve activities to deal with realized losses such as selling assets, removing children from school, migration of selected family members, seeking temporary employment. Some governments provide formal safety nets, such as public works programs and food aid, that help households cope with risk.

Households often face constraints to adopting efficient risk management practices. These constraints are related to problems of asymmetric information, incomplete or missing financial and insurance markets, cognitive failures in the assessment of risks, the inability of informal mitigation efforts due to covariate risks,[6] and exclusion from social networks (Holzmann and Jorgensen, 1999; 2000). Policy can reduce or eliminate some constraints, but others may require alternative means of risk management because the cost of the policy exceeds its benefits. For a specific household, the set of available risk management options is determined by its assets, broadly defined (see Moser, 1998, Siegel and Alwang, 1999; Rakodi, 1999; Dercon, 2001).

Risk, combined with the household responses, lead to the *outcome.* Thus, the household is said to be *vulnerable from* the risk or *vulnerable to* an outcome. The magnitude, timing and history of risks and risk responses help determine the outcome. A household might be able to mitigate or cope with a risk or set of risks in a given period (e.g., a seasonal decline in income), but the process can result in limited ability to manage risk in subsequent periods – especially when assets are degraded (see Holzmann and Jorgensen, 1999; 2000; Siegel and Alwang, 1999).

The *outcome* of the risk and risk response process, in terms of welfare loss relative to a given benchmark, is a major interest of social policy. To make the concept vulnerability useful, a socially accepted minimum indicator should be agreed upon for each outcome.For vulnerability to consumption poverty, for example, we might use a poverty line. Vulnerability to malnutrition might be defined in terms of a minimum nutritional standard or an anthropometric index value. While it is possible to measure losses ex post – such as welfare lost, levels of consumption below a poverty line, loss of assets and their value, increased malnutrition, suffering from physical violence, etc. – these are only the static outcomes of a continuous process of risks and responses. Vulnerability is the continuous forward-looking state of expected outcomes – the probability of falling below some benchmark indicator of well-being in the future.[7] That is, ex post welfare losses are neither necessary nor sufficient for the existence of vulnerability, because vulnerability is only associated with those welfare losses that leave a household below a socially defined minimum level. Thus, both poor and non-poor households might be vulnerable at a given

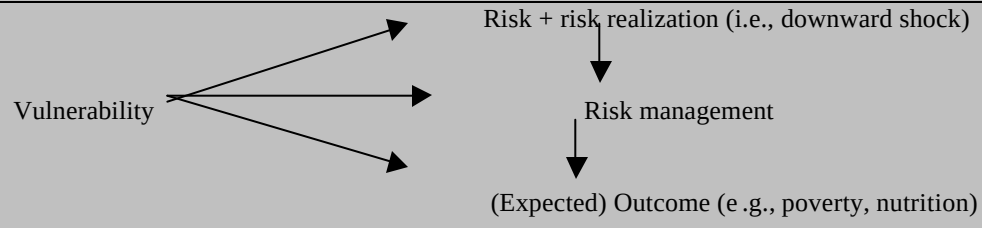
[6] *Covariate* risks are risks that impact many individuals or households simultaneously (e.g., natural disasters), as opposed to *idiosyncratic risks* which are individual or household specific (e.g., illness).

[7] As mentioned previously, different benchmark indicators can be used. The poverty line, based on income or consumption status is a logical example (see Dercon, 2001 for other examples).

point in time.[8] Vulnerability is the forward-looking state of expected outcomes, which are in themselves determined by the assets of a household, the correlation, frequency and timing, and severity of shocks and by the risk management instruments applied.

Different disciplines tend to focus attention on different parts of the risk chain, usually either the risks or the outcomes, with less focus on the risk response (Alwang, Siegel, and Jorgensen, 2001). This is because risk response is the most difficult part of the risk chain to identify and quantify, and is very household-specific. In contrast, there is often data and statistics on different types of risks (and possibly exposure to risks), and outcomes. The greater availability of information on risks and outcomes can be somewhat useful for trying to carry out parts of a risk or vulnerability assessment, but the lack of detailed information on risk responses constrains the ability to carry out a comprehensive risk and vulnerability assessment.

Box 1: Risk and vulnerability: The "risk chain"



Vulnerability can be decomposed into three parts of a "risk chain":

(a) Risk and risk realization: Risk is a probability distribution of events which – if they materialize (i.e., become downward shocks) – might cause a welfare loss. This welfare loss can, for example, be substantial enough to push non-poor households below the poverty line, or poor households deeper into poverty.

(b) Risk management: Risk management, or risk response, comprises all actions taken to respond to risks, shocks and adverse outcomes generated. Risk management can be applied before a risk materializes (*ex ante* risk management), or after it has been materialized (*ex post* risk management).

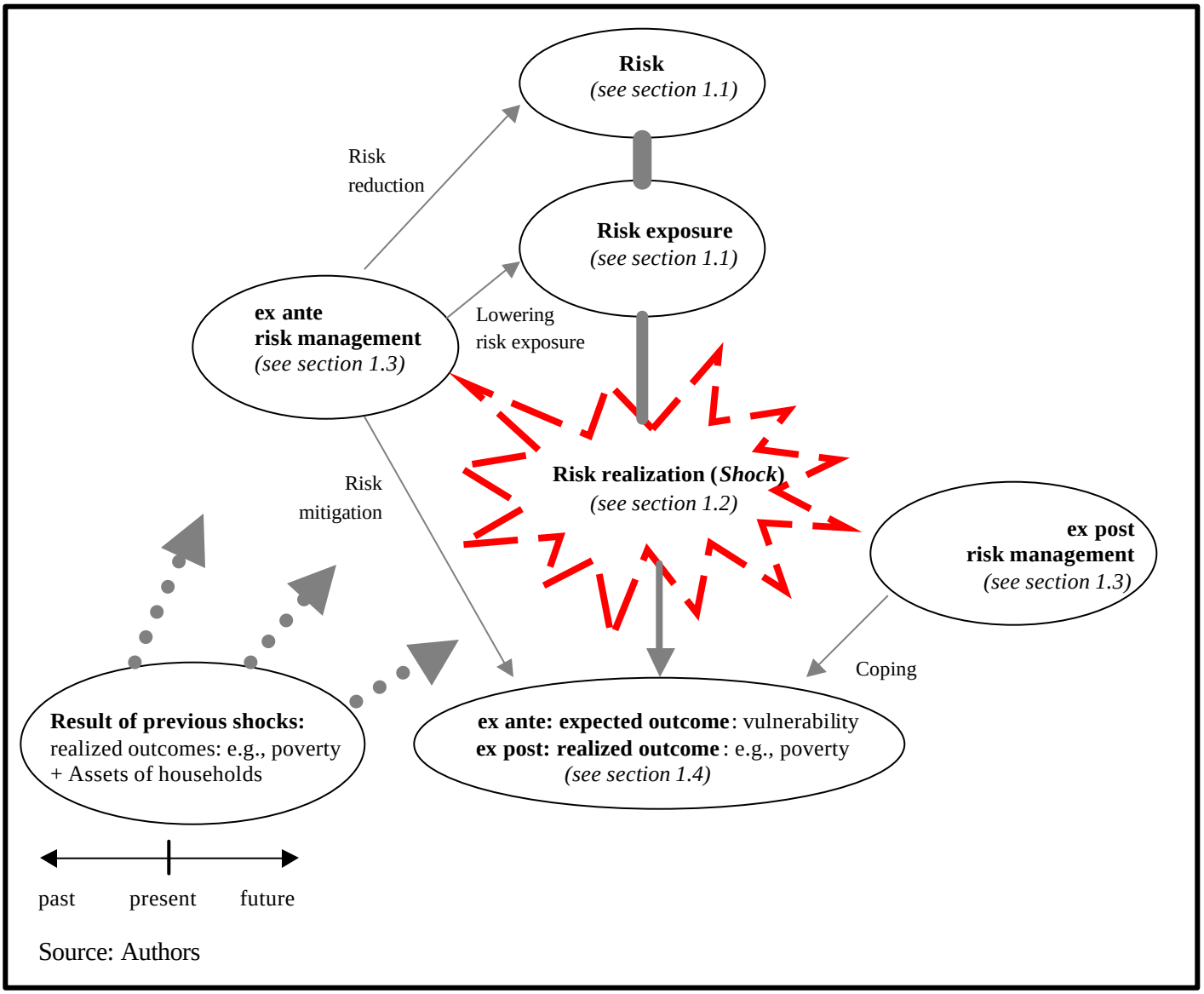
(c) Outcome: The shock together with the risk responses lead to the outcome. The outcome is the change in welfare that results from the realization of risk – the shock – and from the success or failure of the risk management instruments applied.

Vulnerability is the forward-looking state of *expected* outcomes, which are in themselves determined by the correlation, frequency and timing of realized risks and the risk responses. Households are *vulnerable* if a shock is likely to push them below (or deeper below) a predefined welfare threshold (e.g., poverty).

Source: Authors

[8] Indeed, there is evidence that many households move in and out of poverty within and between years. It is likely that chronic poor households might be more vulnerable (having a higher probability of falling below the poverty line) than a transient poor household or a non-poor household.

Figure 1: The "risk chain"



Source: Authors

1.1 Risk and risk exposure

Vulnerability begins with a notion of *risk*. Risk is characterized by some probability distribution of uncertain events. Main examples of risks (see Box 2) are natural risks, health risks, economic risks, life-cycle risks, social risks, political risks, and environmental risks.

Whether individuals, households, communities, regions, nations or larger entities are actually *exposed to risks* (or, *susceptible to risks*) depends on various factors. For example, the existing health and nutritional status of individuals, their physical assets such as housing, infrastructure and household location, as well as on their educational levels and available

information, and their cultural and behavioral practices, and other factors determine a household's exposure to health risks.

Box 2: Examples of risks by categories	
Categories of risks	**Examples of risks**
Natural Risks	e.g., heavy rainfall, landslides, volcanic eruptions, earthquakes, floods, hurricanes, droughts, strong winds, etc.
Health Risks	e.g., illness, injury, accidents, disability, epidemics (e.g., malaria), famines, etc.
Life-cycle Risks	e.g., birth, maternity, old-age, family break-up, death, etc.
Social Risks	e.g., crime, domestic, violence, terrorism, gangs, war, social upheaval, etc.
Economic Risks	e.g., unemployment, harvest failure, business failure, resettlement, output collapse, balance of payments shock, financial crisis, currency crisis, technological or trade-induced terms of trade shocks, etc.
Political Risks	e.g., discrimination, riots, political unrest, coup d'état, etc.
Environmental Risks	e.g., pollution, deforestation, land degradation, nuclear disaster, etc.

Source: Authors, based on Holzmann and Jørgensen, 2000.

1.2 Risk realization

The mere existence of risk does not generate adverse outcomes. Only if the risk is realized, does it potentially affect the welfare of households. Risks can be characterized by their correlation, frequency and timing, and severity – all of which affect the vulnerability of households. It is important to emphasize that, in this paper, we are only interested in *downside shocks, those risks* that are likely to cause "significant" negative impacts or damage well-being. In this context, risks and shocks therefore denote threats, rather than opportunities, to households. For example, we might are concerned with the risks associated with business failure, but not with the risks associated with business success. This distinction is important, because one of the important aspects of economic development is to encourage risk-taking behavior to break out of poverty traps (see Holzmann and Jorgensen, 2000; Siegel and Alwang, 1999).

1.3 Risk management

Individuals and households play an active and vital part when it comes to managing risks. Clearly their choices are restricted if: (a) risk management instruments are not available (e.g., if functioning insurance or financial markets do not exist), (b) they are denied access to existing insurance and/or financial instruments, or (c) they do not utilize existing instruments for other reasons such as their high cost (e.g., high insurance premiums or interest rates), or if they lack information and knowledge about the value of a specific instrument.

It is possible to separate risk management into *ex ante* and *ex post* strategies (Holzmann and Jørgensen, 2000; Siegel and Alwang, 1999). *Ex ante* actions are taken before a risky event occurs, and *ex post* management takes place after its realization (Box 3).

Box 3: Risk management strategies: aims and focal points	
Ex ante risk management, i.e., actions taken before *the risk is realized*	
Risk reduction	Prevents or reduces **risk**
Lowering risk exposure	Lowers **exposure to risk**
Risk mitigation	Provides compensation against the **expected loss**
Ex post risk management, i.e., actions taken after *the risk is realized*	
Risk coping	Copes with the **realized losses** caused by shocks

Source: Authors

1.3.1 Ex ante risk management

Ex ante risk management consists of three types of strategies:

(a) Risk Prevention or Reduction – actions taken to eliminate or reduce risky events from occurring;

(b) Prevention or Reduction of Exposure to Risk – given the existence of risks, there are actionsto prevent or reduce exposure to such risks, and

(c) Risk Mitigation – actions that can be taken ex ante to provide compensation in the case of a risk-generated loss (e.g., social contracts, holding of savings, purchase of insurance).[9]

Take the case of malaria as an example to illustrate these different strategies (see Box 4). Various actions can be taken to eliminate mosquitoes that are carriers of malaria, or to destroy their breeding grounds (risk reduction). Moreover, individuals can take malaria pills, use netting, coils, or migrate to drier areas in order to reduce their exposure to mosquito-borne malaria. Risk mitigation (e.g., health insurance) could provide compensation for the expected welfare losses associated with getting malaria. For example, a household could purchase health insurance that would cover various health-related costs such as medicines.

[9] Risk mitigation can be considered an ex ante contractual arrangement (either formal or informal) that specifies some compensation for losses, while risk coping includes actions by households in response to a risky event. Since risk mitigation usually only provides partial compensation for losses, households need to cope with means to compensate for the remaining losses.

Box 4: Risk management strategies by different levels of intervention to manage health risks related to mosquito-born malaria

Ex ante risk management → reduce the risk of getting malaria

Option* (a): Eliminate mosquitoes that are carriers of malaria or destroy their breeding grounds.
Levels of intervention:

Micro level: apply insecticides, remove standing water, and improve water and sanitation treatment. These measures have limited effectiveness, partly due to externalities ass. with individual actions.
Meso level: like household level, but group action is potentially more effective due to internalization of externalities.
Macro level: provide information about the risk and means of addressing the problem. Organize and finance an information or spraying campaign.
Global level: like regional and national level, provide knowledge and funding. Note: also international policies, e.g., banning insecticides may affect the ability at lower levels to reduce the risk.

Option* (b): Reduce exposure (or susceptibility) to mosquito-borne malaria.
Levels of intervention:

Micro level: take malaria pills, use netting, coils, etc. Alternatively, household can migrate to upland or drier areas to reduce exposure.
Meso level: build infrastructure for pill distribution; provide information.
Macro level: info campaign to encourage use of malaria pills, mosquito netting, etc. Subsidize household and community actions.
Global level: like regional and national level.

Ex ante risk management → mitigate the welfare losses of getting malaria

Option* (c): Take actions to mitigate the negative impacts (i.e., provide compensation for expected welfare losses, e.g., income losses) associated with getting malaria.
Levels of intervention:

Micro level: obtain health insurance that includes malaria treatment, obtain insurance against employment loss due to malaria, hold savings to cover income losses, cultivate social capital for assistance, teach children to help in household chores and employment in case breadwinner gets malaria or household members need to provide care.
Meso level: social assistance based on "social contract" to help malaria-afflicted household; build and support health clinic.
Macro level: provide legal and institutional framework to support household mitigation actions (e.g., finance and insurance institutions).
Global level: provide international finance and insurance services to provide compensation for malaria related income losses.

Ex post risk management → cope with the welfare losses after getting malaria

Option* (d): Take actions to cope with the negative impacts associated with actually getting malaria, i.e., provide compensation for realized welfare losses (e.g., income losses)
Levels of intervention:

Micro level: purchase anti-malaria medicine and treatments. Home rest and assistance from household members; have other household members work extra (remove children from school); after recovery from illness, increase work effort to replenish lost income; possible asset sales to maintain consumption levels.
Meso level: ad hoc social assistance for health related costs and income loss.
Macro level: social assistance for health-related costs and income loss.
Global level: social assistance for health-related costs and income loss.

*Options for responses to mosquito-borne malaria will depend on numerous factors, notably the household and community asset base.

Source: Adopted from Siegel, Alwang, and Canagarajah, 2001, p.45.

1.3.2 Ex post risk management

Ex post risk coping includes responses that are taken *after* a risk has been realized. For example once an individual is actually infected with malaria. Risk coping involves activities to deal with realized (or actual) losses, such as the selling of assets, seeking "emergency" loans (from relatives, friends, banks), removing children from school, migration, seeking temporary employment. To help some individuals and households cope, governments sometimes provide formal safety nets such as public works programs, food aid, and other types of transfers. ***There are no general rules that determine a priori which risk management strategies are preferable over others.***[10] *Ex ante* measures allow households to eliminate or reduce risks, lower risk exposure, and/or mitigate against the losses associated with risky events (see Figure 1). In contrast, *ex post* risk management actions and instruments only respond to realized risk-related losses. This suggests that *ex ante* measures would seem to be preferable, for example risk reduction measures. Whatever strategy is taken to respond to risky events, a variety of different instruments is available within each strategy, and all have different private costs and benefits and social welfare effects, and they might either increase or decrease vulnerability over time. Moreover, when selecting a mix of risk responses one has to take account of the many inter-linkages between different types of risk management strategies and instruments. For example, one possibility for households to cope with an income loss is to engage in child labor to enhance household income. This might, however, increase the future vulnerability of children, while a different coping strategy, such as public assistance, together with a forward-looking risk reduction strategy might have less adverse effects on their vulnerability.

However, in the long run, households should be encouraged to take risks, rather than to prevent them. Taking risks, and indeed, higher risks are often associated with high returns, is a necessary condition for growth (World Bank, 2000c). But, potential problems with moral hazard[11] need to recognized as risk management capabilities are improved. Williamson, Smith and Young (1995) suggest that moral hazard behavior can be a problem when compensation, such as insurance benefits, is granted in the case of a risk-related loss. While risk mitigation instruments can potentially reduce the vulnerability to adverse outcomes, this type of risk management practice might actually increase household's risk exposure (and thus cause an "insurance failure"). For example, individuals who obtain health insurance, might tend to become less careful with regard to health related risks, and indeed increase their exposure *because* they will be – at least in part – compensated against the expected loss.

1.3.3 Actors in risk management: levels of formality and intervention

Actors in risk management are individuals and households, communities, social networks, NGOs, the public sector at the local, regional and national level, private sector companies, donors or international organizations (for more information about the range of potential

[10] There is, however, some evidence that ex ante strategies to manage risks are indeed preferable solutions (see DeFerranti, et. al., 2000).

[11] Moral hazard describes the effects of an insurance on an individual's incentives to prevent loss which are reduced when insurance is present to cover the loss.

actors, see Holzmann and Jørgensen, 2000). All of them play a dual role: (a) they are exposed to risks and have to manage them, so they demand risk management instruments, and (b) they provide (and/or finance) risk management strategies, so they supply risk management instruments.[12]

To highlight the differences and the interlinkages between the various actors, they can be classified by: (a) their level of formality, and (b) their level of intervention (see Boxes 5 and 6).

Box 5: Actors in risk management by levels of formality and intervention

		Levels of formality	
Levels of intervention	*Private informal*	*Private formal*	*Public*
micro	Individuals, households	Market-based companies	--
meso	Communities, NGOs	Market-based companies, donors, international organizations, NGOs	Local or regional governments
macro	NGOs	Market-based companies, donors, international organizations, NGOs	National government
global	NGOs	Market-based companies, donors, international organizations, NGOs	Supranational government (e.g., EU, ILO, UNO)

Source: Authors

Private informal arrangements (such as marriage, mutual support, savings in real assets, etc.) are risk responses that reflect self-protection by individuals, households or communities through informal/personal arrangements.[13] *Private formal arrangements* (such as financial assets or insurance contracts) require functioning market institutions (including a central bank, banking system, securities markets and insurance companies) or other private formal organizations (e.g., NGOs, donor organizations, international organizations). *Publicly mandated or provided arrangements*, such as social insurance, transfers or public works, are sometimes provided in cases where private informal or formal arrangements have broken down, are dysfunctional or simply do not exist.

In addition to the level of formality, risk management actors can be differentiated according to the levels at which they operate[14] (see Boxes 6 and 7). Households usually manage risks at

[12] The rationales to supply risk management instruments differ between actors. Private households and communities supply risk management instruments in general out of self-interest, while market-based organizations want to make a profit. Public organizations are engaged to make up for (risk) market failures (e.g., they provide insurance, if private insurance markets don't exist or do not operate properly), or to achieve distributional objectives (Devarajan and Hammer, 1998).

[13] The significance of this type of informal arrangement is prevalent in developing countries because less than a quarter of the world's population has access to formal social protection programs (World Bank, 2001, p.9).

[14] This distinction becomes relevant, as risk management actions taken at higher institutional levels may lower or increase risk, or strengthen or weaken risk management capabilities at lower levels. For example, choices on economic policy by the government can increase or decrease the unemployment risk of individuals. Similarly, if

a micro level, communities at a meso level, governments at a macro level. Several actors may, however, manage risks at different levels. For example, public institutions can intervene at a meso (through its local governments) or a macro level (through its national government).

In general, all actions applied by different actors at different levels affect risk and vulnerability at other levels or actions taken by other actors (see Holzmann and Jørgensen 2000; Siegel and Alwang, 1999). In many instances, the preferred risk management practice might be a combination of several instruments, provided by several actors at different levels of intervention. For example, the management of health risks should be enhanced by health insurance, and/or by expanded sanitation coverage, improved immunization, community health education, etc.

The role of the *public sector* in risk management is key. Governments can, for example, provide very cost-effective risk reduction options, e.g., through laws and regulations (e.g., laws against child labor, discrimination), or through information and education campaigns (e.g., HIV/AIDS awareness programs). The role of governments is, however, often ambiguous, as public interventions might crowd out private risk management practices (Devarajan and Hammer, 1998). Thus, interventions from the public sector have to follow some rationale (e.g., absent or lacking market existences of externalities, desire for redistribution). Many vulnerable households are not able to afford the "luxury" of devoting scarce resources to ex ante risk reduction or mitigation – and depend on the interventions of the public sector to help them cope with risks ex post.

a country's government organizes a country-wide spraying campaign to eliminate mosquitoes, households will manage this risk differently than if no such intervention exists.

Box 6: Examples of risk management instruments classified by risk management strategies and the level of formality of risk management actors

	Private informal (main actors: individuals, households, communities, NGOs)	**Private formal** (insurance companies, financial market institutions)	**Public** (governments, donors, international org.)
Risk reduction	• Less risky production • Migration • Proper feeding and weaning practices • Engaging in hygiene and other disease preventing activities	• In-service training • Financial market literacy • Company-based and market-driven labor standards	• Good macroecon. policies • Pre-service training • Labor market policies • Labor standards • Child labor reduction • Disability policies • AIDS / disease prevention
Risk mitigation	• Multiple jobs • Investment in assets • Investment in social capital • Marriage/family • Community arrangements • Share tenancy • Tied labor • Extended family • Labor contracts	• Investment in multiple financial assets • Microfinance • Old-age annuities • Disability, accident and other insurance (e.g., crop insurance)	• Pension systems • Asset transfers • Protection of property rights (esp. for women) • Support for financial markets for the poor • Mandated/provided insurance for unemployment, old-age, disability, sickness,
Risk coping	• Selling of real assets • Borrowing from neighbors • Intra-community transfers/charity • Sending children to work • Dis-saving of human capital • Seasonal/temporary migration	• Selling of financial assets • Borrowing from banks	• Disaster relief • Transfers/social assistance • Subsidies • Public works

Source: Adopted from Holzmann and Jørgensen, 2000, Table 3.1, p. 17.

Box 7: Examples of risk management instruments classified by strategies and the level of intervention of risk management actors

Micro level (main actors: individuals, households, informal networks)	**Meso level** (main actors: communities, NGOs, insurance companies, financial market comp., legal & regulations, government)	**Macro level** (national governments, NGOs, donors)	**Global level** (international organizations, donor organizations, etc.)
Ex ante: prevent or reduce risk or reduce exposure to risk			
• Less risky production • Adoption of new technologies in production • Migration • Proper feeding and weaning practices • Engaging in hygiene and other disease preventing activities • Immunization	• In-service training • Financial market literacy • Company-based and market-driven labor standards • Pre-service training • Immunization	• Good macroeconomic policies • Stable political system • Rules and regulations • Guaranteed rights and security • Labor m. policies & standards • Child labor reduction • Disability policies • AIDS & disease prevention • Regulation against discrimin. • Investment in public goods & infrastructure • Compulsory education	• Rights and security • Donor assistance
Ex ante: mitigate against possible welfare loss were the risk to occur			
• Multiple jobs • Investment in assets, social capital • Marriage/family/Extended family • Formal insurance (e.g., crop insurance) • Informal insurance (social capital) • Micro-insurance • Old-age annuities • Share tenancy • Tied labor • Formal and informal credit • Labor contracts	• Investment in multiple financial assets • Microfinance • Physical and social infrastructure • Community arrangements • Informal insurance based on community claims • Risk pooling • Community credit unions/ savings clubs • "banks" • (farmers') co-operatives	• Pension systems • Asset transfers • Protection of property rights • Support for extending financial markets for the poor • Mandated/provided insurance for unemployment, old-age, disability, survivorship, sickness, etc. • Financial system • Inter-community credit • Association and "banks" for stocks	• Formal insurance • Financial systems • Credit
Ex post: cope with the adverse outcome of risky events			
• Selling real assets • Selling of financial assets • Borrowing from neighbors • Borrowing from banks • Intra-community transfers • Sending children to work • Dis-saving of human capital • Seasonal/ temp. migration • Illegal activities • Rely on public assistance	• Draw down on community assets (e.g., natural resources) • Depend on charity/aid from outside the community	• Disaster relief • Targeted transfers/social assistance/safety nets • Subsidies • Public works • Social investment projects (social funds) • Depend of charity and aid	• International financial assistance • Emergency plans • International food aid • Donor assistance

Source: Adopted from Holzmann and Jørgensen, 2000, p. 17; Siegel and Alwang, 1999: Table 3.3 p.22.

1.4 Outcomes

Shocks, combined with household responses lead to an outcome, which is some measure of welfare. Welfare losses, in and of themselves, are not sufficient to determine vulnerability – this is only the case if the welfare loss is so substantial that it shifts the household below some benchmark outcome, which is a socially accepted minimum reference level of welfare (e.g., the poverty line, a minimum anthropometric index value, etc.).[15] Vulnerability can therefore be considered the forward-looking state of expected outcomes, which arein themselves determined by the assets of a household, the correlation, frequency and timing, and severity of shocks and the risk management instruments applied.

Box 8: Household-owned assets and links to community and extra-community assets

Asset Type	Individual / household level	Community level	Extra-community level
Natural	"Private" land, pasture, forests, fisheries, water: quality and quantity	"Common" land, pasture, forests, fisheries, water	National and Global commons, rivers and watersheds, lakes, seas, oceans, air
Human	Household composition and size Health and nutritional status Education and skills	Labor pool	Labor markets
Physical	Productive assets (tools, equipment, work animals); Household assets (e.g. housing, household goods and utensils); Stocks (e.g., livestock, food, jewelry)	Productive assets (communal and private); Stocks (e.g., livestock, food)	Productive assets (rental markets); Stocks (e.g., buffer stocks)
Financial	Cash, savings, access to credit, and insurance markets	Cash, savings, access to credit and insurance markets	Finance and insurance systems Access to international finance
Social	Household social ties, networks; Intra-household dynamics	Community social ties and networks	Extra-community social ties and networks
Location and Infrastructure	Proximity and access to water and sanitation, education and health, marketplace, storage, roads	Water and sanitation, schools, health centers, marketplace, storage facilities, roads Proximity to transport and communication infrastructure	Distance to markets, transportation, communication, information systems; Health and education infrastructure
Political and Institutional	Participation in household decision-making (including power relationships related to gender and age)	Participation in community decision-making; Govemance; Security of person and property	Political stability and participation; Effectiveness of collective action; Governance; Human rights, security

Sources: , Moser (1998); Siegel and Alwang (1999), Table 3.1, p.11; Rakodi (1999).

[15] The most common threshold that is used in this respect is the poverty threshold. This implies that if the relative welfare loss is large enough to shift households into (or deeper into) poverty, these households are considered to be vulnerable to the outcome.

Clearly, given the different distribution of assets between households (see Box 8), one and the same event can have different welfare effects. For example, a drought can destroy most of the few assets of a very poor household, and push it below the poverty threshold, while it might not have the same consequence for a household with a stronger portfolio of assets (Siegel and Alwang, 1999). Similarly, households with similar assets but different risk responses might experience different outcomes. For example, a drought and the resulting income losses might lead to poverty of one farmer's household. If the same household had obtained a crop insurance, it would not have been vulnerable to the negative outcome. Thus, risk management options, capabilities and actions depend largely on the assets of households (Alwang, Siegel, and Jorgensen, 2001).

2. Guidelines for assessing the sources of risk and vulnerability

In this second part of the paper a guideline is presented that can help analysts carry out an assessment of the sources of risk and vulnerability in a country. Vulnerability is related to risks and risk responses (see section 1.1). Moreover, the current situation of households is critical, since the choice of risk management instruments – and the expected outcome – are largely contingent on household assets (and other determinants of welfare).

In what follows in this part of the paper, the first section (2.1) deals with examining welfare indicators of households, including information on their asset-base. The second section (2.2), on risk assessment contains guidelines for the identification of risks households face, and characteristics of these risks. In the third section (2.3), the risk management assessment, then deals with the identification of existing risk management instruments, including an evaluation of the access to and the utilization of these instruments by different socio-economic groups.

Several examples are presented to demonstrate the approach proposed in the paper. In Annex 1, templates are provided which help to identify risks, risk exposure, characteristics of risks, and information on risk management instruments.[16] In terms of data requirements, both quantitative and qualitative information should be taken into account to better understand the sources of vulnerability in a country. As has been mentioned earlier, this guideline is generic, and there is a need to conduct pilot case studies in a few countries.[17] Given the relative newness of this approach, a major constraint that will probably be encountered is the lack of reliable quantitative information. In fact, the lack of relevant data for in-depth risk and vulnerability assessments are lacking in many cases (see Dercon, 2001). When following the proposed guidelines for assessing sources of risk and vulnerability, analysts should try to identify information needs and gaps, which can provide the basis for future requests for the collection of additional data within countries. It should be emphasized that some risks are more important than others (especially for certain groups), and it is important that the assessment of risks and vulnerability provide a sense of which risks matter more than others and which groups are at risk, and which risk management instruments are most appropriate (and which ones are actually available and accessible).

2.1 A snapshot of the welfare of households: Identifying disadvantaged socio-economic groups within a country

Examining risks and risk management strategies which are sources of vulnerability, we should take account of differences in the distribution of welfare in a country – both with regard to available assets and other welfare indicators. Differences in these factors determine differences in expected outcomes that are generated by shocks. For example, a household

[16] Analysts are encouraged to adopt and/or extend these templates to improve their usefulness for future assessments.

[17] Currently, some risk and/or vulnerability assessments are being undertaken at the World Bank. Information on some of the completed and ongoing studies on vulnerability, risk and risk management is provided in Annex III.

with some asset wealth, and with unemployment insurance and other household members gainfully employed will have different relative welfare impacts compared to the case of unemployment for another household with a low asset base, in which the unemployed household member was the only person generating income. To account for these differences across households types or socio-economic groups, analysts should try to provide some information on: (a) the availability of assets, and their distribution across socio-economic groups (section 2.1.1), and (b) the distribution of other determinants that contribute to welfare (section 2.1.2).

Relevant information on welfare indicators is partly available in existing poverty assessments, social assessments, economic profiles of countries, etc. Analysts might want to consult these publications, and – if time and resources allow – also identify data from primary data sources (e.g., by interviewing country experts, examining household surveys, etc). In many cases, desired data will probably not exist, and analysts are required to rely on second-best indicators or even guesstimates of country- and sector-experts.

2.1.1 Information on household assets

Household assets are the stock of wealth used to generate well-being (see Box 8 for examples of household assets). Assets can be *tangible* such as land, labor, capital, savings (e.g., natural, human, physical and financial assets), or *intangible* such as social capital, the proximity to markets, health and education facilities, and empowerment (e.g., social, location and infrastructure, political and institutional assets). Both types of assets are important in the context of risk management. For example, intangible assets such as social capital or networks can help households manage risks if public assistance is missing (Moser, 1998; Siegel and Alwang, 1999; Rakodi, 1999).

To account for household differences in terms of assets, analysts should try to obtain some indication of the distribution of assets between different socio-economic groups (see Template 1 in Annex 1). The selection of relevant groups for this exercise (e.g. women/men, poor/non-poor, urban/rural population, formal/informal workers, population by language group, by region, etc.) is country-specific, and analysts need to identify those groups that are likely to be disadvantaged in terms of the assets they possess – as this determines their future well-being, and thereby determines their vulnerability.

2.1.2 Information on welfare indicators

In addition to household assets, information on other welfare indicators – including information on their distribution within a country – will allow analysts to understand the relative position of socio-economic groups with regard to their vulnerability. One example of such indicators are the "Core Outcome Indicators" of the international development goals, which are derived from a series of UN conferences held in the 1990s. They reflect key aspects of economic and social well-being and environmental sustainability (see Box 9, and Template 2 in Annex 1, for a checklist). The advantage of these indicators is that they are

internationally accepted, and the data are usually readily available for most countries (e.g., in the World Development Indicators (WDI) database).

Clearly, the list of indicators provided in Box 9 is by no means comprehensive, and needs to be adopted according to country specific conditions (as well as to constraints in terms of data availability[18]). Ideally, major stakeholders in the country should agree upon the country-specific indicators selected, as these can provide the basis for a broadly accepted benchmark against which vulnerability and the effectiveness of risk management interventions in a country can be examined over time.

Box 9: Core outcome indicators derived from the international development goals

Economic well-being

1. Incidence of extreme poverty: Population below $1 per day
2. Poverty gap ratio: Incidence times depth of poverty
3. Inequality: Poorest fifth's share of national consumption
4. Child malnutrition: Prevalence of underweight under 5s

Social development

5. Net enrolment in primary education
6. Completion of 4th grade of primary education
7. Literacy rate of 15 to 24 year-olds
8. Ratio of girls to boys in primary and secondary education
9. Ratio of literate females to males (15 to 24 year-olds)
10. Infant mortality rate
11. Under 5 mortality rate
12. Maternal mortality rate
13. Births attended by skilled health personnel
14. Contraceptive prevalence rate
15. HIV prevalence in 15 to 24 year-old pregnant women

Environmental sustainability and regeneration

16. Countries with effective processes for sustainable development
17. Population with (sustainable) access to safe water
18. Forest area as a % of national surface area
19. Biodiversity: Land area protected
20. Energy efficiency: GDP per unit of energy use
21. Carbon dioxide emissions (kg per PPP % of GDP)

General indicators

GNP per capita
Adult literacy rate
Total fertility rate
Life expectancy at birth
Aid as % of GNP
External debt as % of GNP
Investment as % of GDP
Trade as % of GDP

Source: based on the working set of core indicators derived from the international development goals, selected from the series of UN conferences held in the 1990s.

[18] Moreover, analysts have to make sure that the indicators chosen are meaningful with regard to country-specifics. For example, unemployment rate usually only covers those employed in the formal sector, which is, a small minority of workers in many developing countries, and thus limits the significance of this indicator considerably.

2.2 The risk assessment

The second part of the guideline is concerned with the assessment of risks. This involves efforts to identify and categorize risks that are prevalent within a country (see section 2.2.1), and to identify socio-economic groups exposed to these risks (section 2.2.2). Moreover, main characteristics of risky events, such as their correlation (section 2.2.3), frequency and timing (section 2.2.4), and severity (section 2.2.5) should be identified.

Following the proposed risk assessment, it should be possible to provide a snapshot of major risks and shocks. Clearly, applying a dynamic time-period approach can extends the value of this exercise. For example, in Ethiopia even the most optimistic scenario for declining fertility implies a substantial increase in its population base over the next 25 years, from the current estimate of 54 million to approximately 92 million in 2020 (World Bank, 1998). This demographic projection suggests that new risks and/or risk exposure are likely to increase over time. Forecasts, even rough estimates can provide information to understand the potential development of risks within a country, which determine the vulnerability and future needs of the population for risk management.

2.2.1 Identifying and categorizing risks

As a first step of a risk assessment, risks should be identified (see Template 3 in Annex 1, for a quick checklist). Different types of risks require different types of risk management strategies. For example, environmental risks are distinctly different from political risks, or risks related to old-age – and have to be managed differently. To account for these differences, it is important to classify risks accordingly (see section 1.1, and Box 2[19]). Analysts should identify the risks that are prevalent in a country, and are likely to generate adverse outcomes if they materialize (i.e., downside shocks, see section 1.2). Various country reports and country experts, are potential sources for this part of the assessment, and analysts should examine these and other sources (e.g., poverty assessments, sector reports on the political and economic developments in a country, social sector reports, environmental reports, previous risk reports, etc.). If time and resources allow, additional data could be collected (e.g., by organizing focus group discussions at grassroots level, or by conducting interviews with key informants).

It is important that the inventory of risks – which is country-specific – is as complete as possible, and also includes risks that might receive little attention within the country itself[20]. For example, Bendokat and Tovo (1999) identify several risks that are "blind spots" in Togo,

[19] Many of the generic risks cited in Box 2 can be broken down into a myriad of more specific risks. For example, life-cycle risks related to old-age can include shocks that lead to a loss of employment income (e.g., if the elderly are no longer integrated in the labor market), or shocks that lead to a loss of good health (e.g., old-age related illnesses). Similarly, illness as a generic term for health risks comprises quite different risky events, e.g., the risk of getting a flu, malaria, smallpox, or sleeping sickness, the consequences of which affect one household (e.g., in the case of a flu) or maybe a whole region (e.g., as with malaria).

[20] It is likely that the first inventory of risks will not be as comprehensive as one might wish. Future assessments can gradually extend (and adopt) this inventory. The exercise of carrying out a risk assessment thus is a continuing process that will enhance information on risks over time.

among them gender discrimination, which is perceived (or received) as the "way things are," and not explicitly recognized as risks that potentially increase the vulnerability of women and children. Similarly, neither the Togolese civil society nor the relevant authorities seem to realize the importance of the HIV/AIDS epidemic, and its threat for the vulnerability of the population.

2.2.2 Exposure to risks

As has been discussed in the first part of the paper, the existence of risky events as such does not imply that households are exposed to them (see section 1.1). Rather, there is a distinct difference between risk and risk exposure, which is especially true with regard to idiosyncratic events (see section 2.2.3). For example, the risk of property theft is faced by all households, but households with no property are not be exposed to property theft (since they have no property to steal). This requires analysts to examine which socio-economic groups (e.g., women, minority groups, population in rural areas, etc.) are actually exposed to the various risks identified. In what follows we provide three possible ways of measuring/estimating risk exposure[21]: (a) based on age groups, (b) on socio-economic groups, (c) and on realized outcomes. Missing data, (and indeed a lack of "good" indicators on risk exposure) makes it useful to utilize all three methods to approximate risk exposure.

(a) *Measuring risk exposure by age groups*

A classification of risks by age groups can help to determine risk exposure. Risks should be classified into those age groups in which they are most likely to occur. For example, unemployment usually affects adults of working age. An additional classification by gender can enhance the analysis. For example, analysts might want to classify childbirth-related risks to the group of young female adults.

Box 10: Main risks (and outcomes) by age groups in Argentina

Age group	Main risks/Outcomes
0-5 years	• Stunted development
6-14 years	• Poor education quality (low human capital development)
15-24 years	• Low human capital development (education quality / attainment) • Unemployment / low wages • Inactivity (violence, substance abuse, etc.)
25-64 years	• Low income
Over 65 years	• Low income
Risks prevalent in the general population	• Poor health care • Poor housing / lack of basic infrastructure

Source: World Bank, 2000a, p.8.

Box 10 contains an example from Argentina (World Bank, 2000a), where major risks and outcomes were classified according to age groups, and – where such a classification was not

[21] Template 4 in Annex 1 includes a checklist for the classification of risks by age groups and by socio-economic groups.

feasible – a large "other risk" group. Annex 2c includes a similar example carried out for a study on social risks in the Dominican Republic.

While the classification of risks by age groups has been empirically applied in several countries (e.g., Argentina (World Bank, 2000a), The Dominican Republic (World Bank, 2000b), Mexico (Hall and Arriagada, 2000) and Jamaica (Blank, 2001)) and adopted as part of the health, nutrition and population sector strategy (World Bank, 1997), it has several shortcomings with regard to a risk assessment. For example, a classification of risks by age groups suggests that risks within an age group have similar consequences for all people affected. However, the management of risks depends very much on factors other than the age of the person at risk. Factors such as the family background, available assets, the existence of formal and informal risk management strategies, the gender of the person, etc. should be taken into consideration. Also, risks might indirectly have consequences for others besides the person exposed to risk. For example, the unemployment of one household member will impact the welfare of other household members, too. Moreover, while a classification of idiosyncratic shocks into age groups is helpful to obtain some indication of which risk (directly) affects which age groups, many events do not neatly fit into this simple framework. Above all, covariate shocks (e.g., floods, wars, earthquakes, etc.) affect many individuals simultaneously independent of their age (even though different age groups might be affected differently).

(b) Measuring risk exposure by socio-economic groups

Risks are often also specific to socio-economic groups, so analysts might want to classify risks accordingly (e.g., by ethnic minorities, by urban/rural population, by the poor, etc.). Ideally, the socio-economic groups selected can also match those identified in section 2.1. This will allow for comparisons of risks among socio-economic groups in terms of their assets (section 2.1.1) or other welfare indicators (section 2.1.2), and the risks they are exposed to, (section 2.1.2) and their relative capacity for risk management (see also section 3.3).

(c) Using outcome indicators as proxies for risk exposure

A classification of risks by age and/or socio-economic characteristics will provide some insight on who is exposed to different risks. An alternative way of approximating risk exposure rates is by utilizing information on realized outcomes (see also section 2.1.2). For example, exposure to HIV/AIDS can be estimated based on the proportion of people currently affected by HIV/AIDS. While such outcome indicators usually specify the proportion of people already *affected* rather than *exposed* to risks, they can nonetheless provide some valuable indication, especially, if the composition of those affected by the adverse outcome is known. For example, in Argentina, 5% of the population aged between 25 and 64 years are indigenous, while they make up 36% of all the unemployed (World Bank, 2000a). This suggests that they are affected over-proportionally by unemployment.

Consequently, one might assume that they are likely to also be over-proportionately exposed to (future) risks leading to a job loss.[22]

In addition to merely identifying risks and risk exposure in a country, it is important to gather some information on basic characteristics of the respective risks (or downside shocks), most notably, their correlation (section 2.2.3), frequency and timing (section 2.2.4), and the severity of shocks (section 2.2.5) These risk characteristics determine the potential impacts of a shock, which has implications for considering alternative risk management options and strategies.

2.2.3 Correlation of risks: idiosyncratic versus covariate events

One important characteristic of a risky event (or downside shock) is the degree of its correlation among individuals, households, communities and regions. Shocks can be uncorrelated among individuals and/or regions, and only affect specific individuals or households (e.g., death of the household breadwinner). These are referred to as *idiosyncratic* risks. Shocks that affect a group of households, an entire community (e.g., earthquakes, floods), the whole nation (e.g., economic crisis) or even several nations (e.g., a nuclear disaster, epidemic diseases) are called *covariate* risks, because they are correlated among individuals and/or regions (that is, they affect many people simultaneously). Depending on their degree of correlation, it is possible to distinguish between regional covariate, national covariate and international covariate shocks (see Holzmann and Jørgensen, 2000, and Box 11). In Annex 2a, an example of risks by their degree of correlation is included for Togo, which was carried out as part of an analysis to help design a social protection strategy for the country (Bendokat and Tovo, 1999).

Classifying shocks by their degree of correlation is not always a simple clear-cut exercise. For example, job loss can be an idiosyncratic event affecting an individual. However, if the job loss is the result of a major macroeconomic crisis, it can be common to most workers in a specific region, and thereby be a covariate risk (World Bank 2000c, Chapter 8).Thus, whether a shock is idiosyncratic or covariate depends on its underlying sources and impacts. This implies that analysts carrying out this part of the assessment have to identify and try to understand the sources and impacts of shocks in order to provide information on their correlation.

Why does the degree of correlation matter? Because, it will affect the risk management capacity of individuals, households, communities and governments and determine which risk management instruments might be an appropriate response to the shock. For example, a shock that affects an entire region cannot be effectively managed through insurance only within the region (because of a lack of risk pooling). It would require risk pooling with areas which are not subject to the shock at the same time. The degree of correlation will also allow

[22] Clearly, drawing conclusions from realized outcomes can be misleading without considering the risk responses of households. To continue with the example of the Argentine unemployed, there is a chance that indigenous people are as likely as the rest of the population to be exposed to risks causing unemployment, however, fail to properly manage these risks – and thus be more likely to actually lose their jobs.

analysts to determine which actors are (or could be) involved in the management of a specific risk or shock. For example, idiosyncratic events, such as a broken leg, can usually be managed by private informal or formal risk management arrangements. Highly correlated shocks, however, such as malaria or HIV/AIDS, tend to require the involvement of governments or international organizations, as informal or formal market-based instruments are likely to break down when facing such risky events (Holzmann, 2001, p.4).

Box 11: Examples of risky events by categories, classified by their degree of correlation

	Idiosyncratic events	**Regional covariant events**	**Nation-wide and international covariant events**
Natural Risks		Rainfall Landslides Volcanic eruptions	Earthquakes Floods Droughts Strong Winds
Health Risks	Illness Injury / Accident Disability	Epidemic Famines	
Life-cycle Risks	Birth / Maternity Family break-up Old-age Death		
Social Risks	Crime Domestic violence	Terrorism Gangs	Civil strife War Social upheaval
Economic Risks	Business Failure	Unemployment Harvest failure Resettlement	Output collapse Balance of payments shocks Financial crisis Currency crisis Technology- or trade-induced terms of trade shocks
Political Risks		Ethnic discrimination Gender discrimination Religious discrimination Riots	Political default on social programs Coup d'état
Environmental Risks		Pollution Deforestation	Nuclear Disaster

Source: Adopted from Holzmann and Jørgensen, 2000, p.12.

2.2.4 Frequency and timing of risks: Repeated versus single events

In addition to the correlation of risks, their frequency and timing are relevant to understand the vulnerability of households. Thus, analysts should try to gather information on whether a shock has a low, medium, or high frequency. That is, whether it is a repeated event (high frequency, e.g., a regular drought), whether it appears every now and then (medium frequency) or extremely seldom (low frequency; i.e., a single, unusual event). For example, is an earthquake in Nicaragua likely to be a single event (that only happens maybe once within twenty or more years, i.e., low frequency), or does it strike the country regularly (and thus has a medium or high frequency)?

Ideally, in addition to the frequency of a shock, analysts might want to get some indication of when a risk is likely to occur again, i.e., the *timing* of a shock (e.g., if there are droughts every summer, earthquakes on average every other year, etc.). For example, Malawi is vulnerable to periodic droughts at a certain time of the year leading to seasonal food shortages and related price increases of maize (Smith, 2001). Information such as this could allow analysts to identify how "low", "medium" and "high" frequency manifest themselves in the country (see Annex I, Template 3).[23]

Why is it important to collect information on the frequency and timing of shocks? Because differences in terms of these risk characteristics have repercussions on the choice of risk management strategies. For example, a single event, such as a flood in a country where floods rarely occur, can largely be managed through risk coping (e.g., emergency assistance). On the other hand, if the flood is a regular or repeated event, *ex ante* risk responses (e.g., building dams in Bangladesh to lower risk exposure) might be a more effective way of responding to the shock. In-depth information on the frequency and timing of shocks therefore helps to understand what type of risk response might be more effective, and in a dynamic perspective also more sustainable.

Furthermore, when considering the timing of risky events, it is important to try to map out the occurrence of different risks – because there is a tendency for different risks to affect households over the same time period. For example, persistent drought can be associated with increased health risks, or increased susceptibility to forest fires. Or, consider the current coffee price crisis in Central America, it is coming at a time that countries are still recovering from Hurricane Mitch in 1998, and persistent drought since 1999. Clearly, the risk management capacity of many poor and non-poor households in Central America have changed over the past few years, as has their vulnerability to future shocks.

2.2.5 Severity of shocks: catastrophic versus non-catastrophic shocks

The severity of a shock denotes the impact it is likely to have with regard to the expected welfare loss of a household (see section 1.4). It is a function of the risky event itself, along with the asset base of a household (see Box 8, and section 2.1.1), and the instruments taken to respond to a risk (see section 1.3). Household differences in assets and risk management capacity explain differences in outcomes. For example, the death of a breadwinner in one household with a high level of assets, and relevant life insurance will have different relative welfare effects as compared to another household with a low asset base, in which the dead breadwinner was the only person generating household income and had no life insurance. While one household experiences a catastrophic shock, the same event is – with regard to a change in welfare – not necessarily catastrophic for the other household.

The information gathered on the asset-base (section 2.1) and other indicators of welfare (section 2.2) provides some indication on the relative position of specific socio-economic

[23] Relevant information on the frequency and timing of shocks can be derived from country reports (e.g., data on weather patterns, morbidity rates, unemployment statistics, etc.), and/or be based on information from country experts. However, information might not exist for very rare events.

groups. Contrasting this information with information on the risk responses utilized by members of this group (see section 2.3.2), will make it possible to make inferences on the *expected severity* of a shock for this group: i.e., whether a shock will lead to a catastrophic or a non-catastrophic outcome.[24] A catastrophic outcome would be one that pushes a household below (or deeper below) the poverty line, a non-catastrophic shock would not have such consequences.[25]

Clearly, it is important to consider the severity of a shock together with other risk characteristics described in section 2.1.1. to 2.1.4, because potentially severe shocks are definitely a high-profile policy concern in most countries. Information on the expected severity of a shock should help analysts critically review the risk responses chosen – both in terms of the strategies applied and the actors involved, and to consider whether a different combination of risk management instruments by different actors might be more successful to reduce vulnerability from the high severity risk.

2.3 The risk management assessment

As has been mentioned earlier, vulnerability of households can be decomposed into several parts of a "risk-chain." After carrying out an assessment of household assets and other determinants of welfare (section 2.1) and a risk assessment (section 2.2), analysts would have a better idea about: (a) the distribution of assets between socio-economic groups, (b) the risks they are exposed to, and (c) the characteristics of these risks. In addition to this information on the risk chain, the responses of a household to risks and/or adverse outcomes also affect its vulnerability. For example, while a whole region might be susceptible to an earthquake, those who have invested in reinforced earthquake-proof houses are less likely to experience a welfare loss that pushes them below the poverty line (or deeper into poverty) than those without earthquake-proof buildings. The different ways of responding to risks and/or outcomes (which depend largely on the risks faced and assets on hand), thus co-determine differences with regard to the vulnerability of individuals, households, communities or countries.

After obtaining information on risks and groups likely to be exposed to these risks, the next questions that follow are: (a) which mix of instruments are available, and (b) which instruments can a household access in order to manage risks and/or potentially negative outcomes associated with given shocks? In what follows, this part of the guideline is concerned with the identification and assessment of risk management instruments that are available in a country, and the extent to which different socio-economic groups have access to them and/or utilize them. This requires information on: (a) the availability of risk

[24] It is important to emphasize that one particular risk can have direct and indirect effects that determine its severity. For example, in Togo, the death of a family member does not only have direct economic consequences in terms of an income loss (above all if the deceased was one of the income providers) but also indirect consequences (e.g., there are high costs imposed by cultural norms that require costly funerals, and rituals on the surviving wives; see Bendokat and Tovo, 1999, p.9).

[25] Estimates on the level of severity can be derived from previous experiences with shocks (which are sometimes included in qualitative studies on the perceptions of inhabitants towards risks, etc.).

management instruments, and (b) differences between socio-economic groups in terms of access to, and utilization of, these instruments.[26] In Annex 1, some templates are provided that will assist in the systematic collection of relevant information (see Templates 5-9).

2.3.1 Availability of risk management instruments

First, analysts need to identify the supply of existing risk management instruments. Given the differences of the instruments with regard to their aims and focal points (see Box 3), and the actors who supply them (see Box 5), analysts should classify risk management instruments by their strategy (i.e., by *ex ante* or *ex post* actions Template 4), as well as by the level of formality (Template 5) and intervention of the actors engaged (see Template 6). Country reports (e.g., public expenditure reviews, poverty assessments, social and structural assessments) often include some information to carry out this type of exercise (Coudouel, Ezemenari, Grosh, and Sherberne-Benz, 2001). To close information gaps, primary data sources could be analyzed. If time and resources allow, analysts might also want to engage in field research, e.g., organize participatory studies to identify available (formal and informal) risk management responses within a country.[27]

2.3.2 Access to and utilization of risk management instruments by socio-economic groups

In many instances, *availability* of risk management instruments does not imply that households have *access* to them. For example, many countries confine rights to men only, while women are, for example, denied property rights, which restrict their possibilities to mitigate against risk through accumulating real assets.

Moreover, even if people have access to available risk management instruments, they might not *utilize* them for various reasons, most notably because of lacking assets (see section 2.1.1). For example, one possibility to mitigate against risk is to buy insurance. Many households, however, can not afford to pay insurance premiums, and thus are not able to utilize this instrument. In addition to financial assets, there are also different kinds of assets that might play an important role in determining utilization of risk management instruments. Information is an example. Individuals who do not know how to protect themselves against HIV/AIDS will not utilize relevant preventative measures.

Utilization can also be restricted if instruments are not available throughout the country, but confined to specific regions. Hospitals, health centers or high schools are often only available in major urban centers – a geographic constraint that makes it difficult for the rural population to access these services. Similarly, if the quantity demanded exceeds the quantity supplied (as is sometimes the situation for subsidized goods and services), the result is a

[26] The effectiveness and efficiency of the instruments provided also determines the "success" or "failure" of existing instruments. The assessment proposed here, however, is not concerned with this type of analysis, which is often carried out for public interventions in PERs (see Canagarajah, Heitzman, and Holzmann, 2001, and section 3.2).

[27] Clearly, identifying informal risk management strategies is a very difficult task that really requires household and community level studies.

shortage and some form of rationing. In such cases, not all the people who want to utilize risk management instruments can actually do so.

Analysts need to examine, which socio-economic groups are denied access to which risk management instruments, and/or which groups do not utilize them for other reasons. Analysts might want to focus on those groups they have identified earlier as particularly disadvantaged in terms of their asset base or other dimensions of welfare (section 2.1), and/or who have been identified as particularly exposed to specific risks (see section 2.2.2). Templates 7-9 in Annex 1 include simple checklists that should assist analysts in carrying out this part of the exercise.

3. Assessing the Sources of Vulnerability: The way forward

As has been emphasized, the aim of this paper is not to *measure* vulnerability, but to *identify* and *examine* the sources of risk and vulnerability in a country. The actual measurement of vulnerability requires better data and analytical methods (see Alwang, Siegel, and Jorgensen, 2001; Dercon, 2001) for information on challenges faced in the measurement of vulnerability and suggestions on how to overcome these challenges). The type of assessment proposed here provides a first step to achieve the long-term objective of better measuring vulnerability. So, what is the value-added of these guidelines? Based on the types of information collected, as suggested in the guidelines presented in this paper, and follow-up studies, governments (as well as other stakeholders in risk management) will have a useful stock of information to assist them in: (a) rethinking their overall approaches to risk management, and given the likely disproportion between needs and (public) resources, (b) their decision making-processes, as to where to concentrate their activities (e.g., investments, policy reforms) to reduce vulnerability. Most importantly, this type of assessment *enhances transparency* about risks and risk management capabilities of households, which is a prerequisite to elaborate strategies to reduce vulnerability.

Information on the sources of risk and vulnerability is key, as reducing vulnerability of households by improving risk management can not follow a generic blueprint. Rather, risk responses have to be judged against the risks, and/or expected outcomes they attempt to address. Moreover, given the unequal distribution of assets and other welfare indicators between different socio-economic groups in a country, risk management has to be judged against the possibilities and constraints.

Based on the type of information collected in section 2, it will be possible to understand the types of assets, characteristics of risks, and risk management instruments for specific socio-economic groups, and hence obtain information on their vulnerability. Moreover, the information gathered on risk management instruments, will allow to identify gaps and shortcomings with regard to the existing supply of risk management instruments (see section 3.1). This will enable analysts to prioritize risks and/or socio-economic groups which should receive primary consideration in terms of improving risk management (section 3.2).

3.1 Gaps and shortcomings of existing risk management instruments

The risk management assessment (section 2.3) will enable analysts to identify which risk management instruments are available in a country, and – ideally – which socio-economic groups have access to and utilize which type of risk response. Based on this information existing instruments can be reviewed, and changes/reforms be proposed.

For example, successful instruments are often not utilized by specific socio-economic groups, for various reasons. Follow-up analysis should identify the reasons (e.g., lack of instruments, ignorance, utilization is too costly, inappropriate instruments, etc.) for this under-utilization, and propose actions to increase utilization. In addition to coverage gaps, the shortcomings of existing instruments will should also be identified, and proposals can be

made to improve access and coverage. These proposals could benefit from "good-practice" and "best-practice" examples of comparable countries, and coordination with Public Expenditure Reviews (and/or Social Expenditure Reviews).[28] Annex 2c includes a country example of the Dominican Republic (World Bank, 2000b), where gaps in risk management have been identified, and measures to close these gaps have been proposed.

Certainly, the mere availability of risk management instruments does not imply that they work efficiently. Thus, follow-up studies on the efficiency and cost-effectiveness of available instruments will have to be conducted (Heitzmann, Canagarajah, Holzmann, 2001; Pradhan, 1996). Similarly, information on the (technical as well as human) capabilities of the institutions administering risk management instruments has to be gathered to understand their effectiveness and potential constraints (see also Canagarajah, Heitzmann, and Holzmann, 2001).

3.2 Prioritization of risks and/or socio-economic groups

The information gathered by following the assessments proposed in this paper should enable analysts to identify risks and/or socio-economic groups that should receive prioritized policy attention and also provide some insights into the general "success" or "failure" of existing risk management instruments. Information on risk exposure (section 2.2.2), and the correlation (section 2.2.3), frequency (section 2.2.4), and severity of shocks (section 2.2.5), will allow analysts to *prioritize risks* in terms of: (a) which risks affect large parts of the population at any given time, (b) which risks have a high frequency, (c) which risks affect many people simultaneously, and (d) which risks are likely to result in high loss catastrophic outcomes. And, how is risk exposure and risk management affected by having different portfolios of assets.

Similarly, country comparisons will be helpful to identify risks (and/or adverse outcomes) which are more prevalent in one country than in others. For example, Kenya, as compared to Eritrea, Ethiopia, Tanzania and Uganda, has the lowest under-5-mortality rate. This suggests that health risks leading to this adverse outcome are either less prevalent in Kenya, or it has been more successful in managing these risks than the other countries. Thus, such health risks (and the relevant risk responses) could be in the focus of a risk and vulnerability assessment in Eritrea, Ethiopia, Tanzania or Uganda.

Information on the distribution of assets (section 2.1.2) and other welfare indicators (section 2.1.2) within a country will make it possible to *identify disadvantaged socio-economic groups*.[29] Contrasting these findings with information on the risks they are exposed to, the

[28] While "good-practices" and "best-practices" generated from country comparisons provide useful information on how to manage a particular shock, these practices are country-specific, and it needs to be critically reviewed whether they also will be successful under different circumstances.

[29] Information on groups which should receive primary attention in terms of improving their risk management is also often included in political declarations. For example, if a government stipulates to improve the position of women in a country, analysts might want to focus on gender-specific risks (e.g., female discrimination, health

characteristics and expected severity of these shocks, and the risk management instruments they utilize will make it possible to identify particularly vulnerable groups, and to help design public risk management instruments accordingly, in order to assist them in better managing risks they face.

risks related to maternity, domestic violence, prostitution, economic risks, such as expropriation, risks related to longevity, etc.).

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ANNEX 1: Templates

Template 1: Checklist for the identification of household-owned assets

Asset Type	Individual and household level*	Data Available?	Data Sources, Time Periods	Type of Data Available (e.g., secondary data, survey data)	Data Available by Socio-Economic Groups (which?)
		Yes No			
Natural	"Private" land				
	Pasture				
	Forests				
	Fisheries				
	Water: quality and quantity				
Human	Household composition				
	Household size				
	Health status				
	Nutritional status				
	Education				
	Skills				
Physical	Productive assets: e.g., tools				
	Productive assets: e.g., equipment				
	Productive assets: e.g., work animals				
	Household assets: e.g., housing				
	Household assets: e.g., household goods				
	Household assets: e.g., utensils				
	Stocks: e.g., livestock				
	Stocks: e.g., food				
	Stocks: e.g., jewelry				
Financial	Cash				
	Savings				
	Access to credit				
	Access to insurance markets				
Social	Household social ties and networks Intra-household dynamics				
Location and Infrastructure	Proximity and access to water and sanitation				
	Proximity and access to education and health				
	Proximity and access to marketplace				
	Proximity and access to storage				
	Proximity and access to roads				
Political and Institutional	Participation in household decision-making (including power relationships related to gender and age)				

Sources: Siegel and Alwang, 1999: Table 3.1, p.11, Moser, 1999, Rakodi, 1999. Analysts might want to carry out the same type of analysis for community and extra-community assets as well, see Box 8.

Note: The choice of socio-economic groups is country-specific (see section 2.1.1). Possibilities of socio-economic groups that might be examined are: men/women, poor/non-poor, different ethnic groups, formal/informal workers, language groups, rural/urban population, population by regions, etc. For each group, analysts would have to identify whether the asset in question is in any way valuable for the vulnerability of the group, whether the group obtains the asset, and/or what proportion it contains.

Template 2: Checklist for the identification of outcome indicators

Indicators	Proportion of total population in category	Proportion of socio-economic groups in category*
Economic well-being		
Incidence of extreme poverty: Population below $1 per day		
Poverty gap ratio: Incidence times depth of poverty		
Inequality: Poorest fifth's share of national consumption		
Child malnutrition: Prevalence of underweight under 5s		
Social development		
Net enrolment in primary education		
Completion of 4th grade of primary education		
Literacy rate of 15 to 24 year-olds		
Ratio of girls to boys in primary and secondary education		
Ratio of literate females to males (15 to 24 year-olds)		
Infant mortality rate		
Under 5 mortality rate		
Maternal mortality rate		
Births attended by skilled health personnel		
Contraceptive prevalence rate		
HIV prevalence in 15 to 24 year-old pregnant women		
Environmental sustainability and regeneration		
Countries with effective processes for sustainable development		
Population with (sustainable) access to safe water		
Forest area as a % of national surface area		
Biodiversity: Land area protected		
Energy efficiency: GDP per unit of energy use		
Carbon dioxide emissions (kg per PPP % of GDP)		
General indicators		
GNP per capita		
Adult literacy rate		
Total fertility rate		
Life expectancy at birth		
Aid as % of GNP		
External debt as % of GNP		
Investment as % of GDP		
Trade as % of GDP		

Source: based on the working set of core indicators derived from the international development goals, selected from the series of UN conferences held in the 1990s.

* The choice of socio-economic groups is country-specific (see note to Template 1).

Template 3: Checklist for the identification of risks, and basic characteristics of shocks

		Correlation			Frequency**			Timing
	Prevalent?	Idiosyn-cratic	Regional covariant*	National (or international) covariant	Low	Medium	High	Provision – as far as meaningful – of some indication on when the next shock is expected
Natural Risks	**Yes No**							
Heavy Rainfall								
Landslides								
Volcanic eruptions								
Earthquakes								
Floods								
Droughts								
Strong Winds								
Hurricanes								
Other natural risks								
Health Risks	**Yes No**							
Illness								
Injury								
Disability								
Epidemic (e.g., Malaria)								
Famines								
Other health risks								
Life-cycle Risks	**Yes No**							
Birth / Maternity								
Family break-up								
Old-age								
Death								
Other life-cycle risks								
Social Risks	**Yes No**							
Crime								
Domestic violence								
Terrorism								

Gangs								
Civil strife								
War								
Social upheaval								
Other social risks								
Economic Risks	**Yes No**							
Unemployment								
Harvest failure								
Business Failure								
Resettlement								
Output collapse								
Balance of payment shock								
Financial crisis								
Currency crisis								
Terms of trade shocks								
Other economic risks								
Political Risks	**Yes No**							
Discrimination								
Riots								
Political default								
Coup d'état								
Other political risks								
Environmental Risks	**Yes No**							
Pollution								
Deforestation								
Nuclear Disaster								
Other environmental risks								

* For regional covariate risks, analysts might want to identify the region/regions exposed to the risk.

** "low frequency": shocks with a frequency of less than once in ten years; "medium frequency": shocks with a frequency of more than once in ten years, and less than once in one year; "high frequency": shocks with a frequency of more than once in one years.

Template 4: Checklist for the identification of risks by age groups and by socio-economic groups

	Age groups								Socio-economic groups*							
	Till birth	0-3	4-5	6-11	12-18	19-24	25-64	65+	all	e.g., poor	e.g., non-poor	e.g., women	e.g., men	e.g., urban	e.g., local	other
Natural Risks																
Heavy Rainfall																
Landslides																
Volcanic eruptions																
Earthquakes																
Floods																
Droughts																
Strong Winds																
Other natural risks																
Health Risks																
Illness (e.g., AIDS)																
Injury																
Disability																
Epidemic (e.g., Malaria)																
Famines																
Other health risks																
Life-cycle Risks																
Birth / Maternity																
Old-age																
Death																
Other life-cycle risks																
Social Risks																
Crime																
Domestic violence																
Terrorism																
Gangs																
Civil strife																
War																

Social upheaval																
Other social risks																
Economic Risks																
Unemployment																
Harvest failure																
Business Failure																
Resettlement																
Output collapse																
Balance of payments																
Financial crisis																
Currency crisis																
Techn.- or trade-induc. terms of trade shocks																
Other economic risks																
Political Risks																
Discrimination																
Riots																
Political default																
Coup d'état																
Other political risks																
Environmental Risks																
Pollution																
Deforestation																
Nuclear Disaster																
Other environmental risks																

* The selection of socio-economic groups is country-specific (see note to Template 1).

Template 5: Checklist for the identification of available risk management instruments classified by risk management strategies and the level of formality of risk management actors

	Private informal (individuals, households, communities, NGOs,)	**Private formal** (companies, insurance companies, financial market institutions, global organizations donors, international NGOs)	**Public** (local, regional and national governments, donors, international organizations)
Risk reduction	❑ Less risky production ❑ Migration ❑ Proper feeding and weaning practices ❑ Engaging in hygiene and other disease preventing activities ❑ Other: _____	❑ In-service training ❑ Financial market literacy ❑ Company-based and market-driven labor standards ❑ Other: _____	❑ Good macroeconomic policies ❑ Pre-service training ❑ Labor market policies and standards ❑ Child labor reduction interventions ❑ Disability policies ❑ AIDS and other disease prevention ❑ Other: _____
Risk mitigation	❑ Multiple jobs ❑ Investment in human assets ❑ Investment in physical & real assets ❑ Investment in social capital (rituals, reciprocal gift-giving) ❑ Marriage/family ❑ Community arrangements ❑ Share tenancy ❑ Tied labor ❑ Extended family ❑ Labor contracts ❑ Other: _____	❑ Investment in multiple financial assets ❑ Microfinance ❑ Old-age annuities ❑ Disability, accident and other insurance (e.g., crop insurance, life insurance) ❑ Other: _____	❑ Pension systems ❑ Asset transfers ❑ Protection of property rights ❑ Support for extending financial markets for the poor ❑ Mandated/provided insurance for unemployment, old-age, disability, survivorship, sickness, etc. ❑ Other: _____
Risk coping	❑ Selling of real assets ❑ Borrowing from neighbors ❑ Intra-community transfers/charity ❑ Sending children to work ❑ Dis-saving of human capital ❑ Seasonal/temporary migration ❑ Other: _____	❑ Selling of financial assets ❑ Borrowing from banks ❑ Other: _____	❑ Disaster relief ❑ Transfers/social assistance ❑ Subsidies ❑ Public works ❑ Other: _____

Source: Adopted from Holzmann and Jørgensen, 2000, Table 3.1, p. 17.

Template 6: Checklist for the identification of available risk management instruments classified by risk management strategies and the level of intervention of risk management actors

	Micro level (main actors: individuals, households, informal networks)	**Meso level** (main actors: communities, NGOs, insurance companies, financial market comp., local & reg. gov.)	**Macro level** (main actors: national governments, NGOs, donors)	**Global level** (main actors: international organizations, donor organizations, etc.)
Ex ante: measures to prevent or reduce risk or reduce exposure to risk				
	❑ Less risky production ❑ Adoption of new technologies in production ❑ Migration ❑ Proper feeding and weaning practices ❑ Engaging in hygiene and other disease preventing activities ❑ Immunization ❑ Other: _____	❑ In-service training ❑ Financial market literacy ❑ Company-based and market-driven labor standards ❑ Pre-service training ❑ Immunization ❑ Other: _____	❑ Good macroeconomic policies ❑ Stable political system ❑ Rules and regulations ❑ Guaranteed rights and security ❑ Labor m. policies & standards ❑ Child labor reduction ❑ Disability policies ❑ AIDS & disease prevention ❑ Regulation against discrimin. ❑ Investment in public goods, physical &social infrastructure ❑ Compulsory education ❑ Other: _____	❑ Rights and security ❑ Donor assistance ❑ Other: _____
Ex ante: measures to mitigate against possible welfare loss were the risk to occur				
	❑ Multiple jobs ❑ Investment in human, physical and real assets ❑ Investment in social capital (rituals, reciprocal gift-giving) ❑ Marriage/family ❑ Disability, accident and	❑ Investment in multiple financial assets ❑ Microfinance ❑ Physical and social infrastructure ❑ Community arrangements ❑ Informal insurance based on community claims	❑ Pension systems ❑ Asset transfers ❑ Protection of property rights ❑ Support for extending financial markets for the poor ❑ Mandated/provided insurance for	❑ Formal insurance ❑ Financial systems ❑ Credit ❑ Other: _____

	other formal insurance (e.g., crop insurance) ❑ Informal ins. (social capital) ❑ Micro-insurance ❑ Old-age annuities ❑ Share tenancy ❑ Tied labor ❑ Extended family ❑ Formal and informal credit ❑ Labor contracts ❑ Other: _____	❑ Risk pooling ❑ Community credit unions/ savings clubs ❑ "banks" ❑ (farmers') co-operatives ❑ Other: _____	unemployment, old-age, disability, survivorship, sickness, etc. ❑ Financial system ❑ Inter-community credit ❑ Association and "banks" for stocks ❑ Other: _____	
Ex post: measures to cope with the adverse outcome of risky events				
	❑ Selling real assets ❑ Selling financial assets ❑ Borrowing from neighbors ❑ Borrowing from banks ❑ Intra-community transfers/charity ❑ Sending children to work ❑ Dis-saving of human capital (e.g., skip meals) ❑ Seasonal/ temp. migration ❑ Illegal activities ❑ Rely on public assistance ❑ Other: _____	❑ Draw down on community assets (e.g., natural resources) ❑ Depend on charity/aid from outside the community ❑ Other: _____	❑ Disaster relief ❑ Targeted transfers/social assistance/safety nets ❑ Subsidies ❑ Public works ❑ Social investment projects (social funds) ❑ Depend of charity and aid ❑ Other: _____	❑ International financial assistance ❑ Emergency plans ❑ International food aid ❑ Donor assistance ❑ Other: _____

Attention:

- Fill in one template each for every (prioritized) risk (see section 3.2), and – if feasible – separated by socio-economic groups (the selection of socio-economic groups is country-specific, see note to Template 1).
- If available, analysts might want to provide additional information for each of the instruments (e.g., in terms of their cost-effectiveness, the efficiency of their administration, etc.).

Template 7: Checklist for the identification of the availability of, access to and utilization of informal risk management instruments by risk management strategies and socio-economic groups

		Socio-economic groups*							
Informal risk management instruments		e.g., poor/non-poor		e.g., men/women		e.g., urban/rural		Other	
	Available ?	Access?**	Utilization?	Access?	Utilization?	Access?	Utilization?	Access?	Utilization?
Risk reduction	**Yes No**	**Yes No**	**Yes No**	**Yes No**	**Yes No**	**Yes No**	**Yes No**	**Yes No**	**Yes No**
Less risky production									
Adoption of new technologies									
Migration									
Proper feeding & weaning									
Hygiene, disease prev. activity									
Other: _____									
Risk mitigation	**Yes No**	**Yes No**	**Yes No**	**Yes No**	**Yes No**	**Yes No**	**Yes No**	**Yes No**	**Yes No**
Multiple jobs									
Investment in assets									
Investment in social capital									
Marriage/family/extended family									
Community arrangements									
Share tenancy									
Tied labor									
Labor contracts									
Other: _____									
Risk coping	**Yes No**	**Yes No**	**Yes No**	**Yes No**	**Yes No**	**Yes No**	**Yes No**	**Yes No**	**Yes No**
Selling of real assets									
Borrowing from neighbors									
Intra-comm. transfers/charity									
Sending children to work									
Dis-saving of human capital									
Seasonal/temporary migration									
Other: _____									

*The selection of socio-economic groups is country-specific (see note to Template 1).

** Access to an instrument is granted if the group analyzed is not formally excluded from the entitlement to an instrument (see section 2.3.2). Utilization of an instrument is granted, if persons in the groups analyzed are actually using the instrument (see also section 2.3.2).

Template 8: Checklist for the identification of the availability of, access to and utilization of private formal risk management instruments by risk management strategies and socio-economic groups

		Socio-economic groups*							
		poor/non-poor		men/women		urban/rural		Other: e.g., ethnic groups	
Private formal risk management instruments	Available ?	Access?**	Utilization?	Access?	Utilization?	Access?	Utilization?	Access?	Utilization?
Risk reduction	**Yes No**	**Yes No**	**Yes No**	**Yes No**	**Yes No**	**Yes No**	**Yes No**	**Yes No**	**Yes No**
In-service training									
Financial market literacy									
Company-based and market-driven labor standards									
Other: _____									
Risk mitigation	**Yes No**	**Yes No**	**Yes No**	**Yes No**	**Yes No**	**Yes No**	**Yes No**	**Yes No**	**Yes No**
Investment in fin. assets									
Microfinance									
Old-age annuities									
Disability insurance									
Accident insurance									
Life insurance									
Old-age insurance									
Crop insurance									
Other: _____									
Risk coping	**Yes No**	**Yes No**	**Yes No**	**Yes No**	**Yes No**	**Yes No**	**Yes No**	**Yes No**	**Yes No**
Selling of financial assets									
Borrowing from banks									
Other: _____									

* The selection of socio-economic groups is country-specific (see note to Template 1).

** Access to an instrument is granted if the group analyzed is not formally exc luded from the entitlement to an instrument (see section 2.3.2). Utilization of an instrument is granted, if persons in the groups analyzed are actually using the instrument (see also section 2.3.2).

Template 9: Checklist for the identification of the availability of, access to and utilization of public risk management instruments by risk management strategies and socio-economic groups

		Socio-economic groups*							
Formal public risk management instruments		poor/non-poor		men/women		urban/rural		Other: e.g., ethnic groups	
	Available ?	Access?*	Utilization?	Access?	Utilization?	Access?	Utilization?	Access?	Utilization?
Risk reduction	**Yes No**	**Yes No**	**Yes No**	**Yes No**	**Yes No**	**Yes No**	**Yes No**	**Yes No**	**Yes No**
Good macroeconomic policies									
Pre-service training									
Labor market policies									
Labor standards									
Child labor reducing intervention									
Disability policies									
AIDS & other disease prevent									
Other: _____									
Risk mitigation	**Yes No**	**Yes No**	**Yes No**	**Yes No**	**Yes No**	**Yes No**	**Yes No**	**Yes No**	**Yes No**
Pension systems									
Asset transfers									
Protection of property rights									
Support for financial markets									
Insurance for unemployment									
Insurance for old age									
Insurance for disability									
Insurance for survivorship									
Insurance for sickness									
Other: _____									
Risk coping	**Yes No**	**Yes No**	**Yes No**	**Yes No**	**Yes No**	**Yes No**	**Yes No**	**Yes No**	**Yes No**
Disaster relief									
Transfers/social assistance									
Subsidies									
Public works									
Other: _____									

* Access to an instrument is granted if the group analyzed is not formally excluded from the entitlement to an instrument (see section 2.3.2).

** Selection of socio-economic groups is country-specific (see note to Template 1).

ANNEX 2: Country Examples

Annex 2a: An example of a risk assessment exercise: Risk factors in Togo

	Individual and household level	Community level	National level
Natural factors	• Agricultural productivity (soil erosion, low fertility) • Health (poor sanitation, smoke exposure)	• Agricultural productivity (environmental degradation, natural disasters) • Health (unhealthy habitat, unsafe water	• Primary sector services (natural disasters, limited natural resources) • Demographic pressure • Epidemics (AIDS)
Social factors	• Health (disease, old age, handicap) • Education/Information (illiteracy, low education, isolation) • Social capital (high dependency ratio, intra-household inequality, household break-up)	• Human capital (limited access to social services (health, education, family planning) • Social capital (discrimination, harmful traditional practices)	• Human capital (insufficient and inefficient sectoral policies and programs • Inequality (discrimination, inequitable and inadequate budget allocation)
Economic and political factors	• Income (low returns to labor, unemployment, irregular salaries, no access to credit) • Inter-household inequality (in access to land, rights and duties related to social standing) • gender discrimination (unequal access to productive assets)	• Income (limited access to land, economic infrastructure, and employment opportunities) • Isolation, remoteness • Inefficient production systems	• Assets and income (limited land, economic infrastructure and employment opportunities) • Structural inequalities (poorly integrated market for food products, poor rural infrastructure) • Governance (fiscal problems, land tenure, clientelism, corruption)

Source: adopted from Bendokat and Tovo, 1999, p.6.

Bendokat and Tovo (1999) attempted to identify risks to which the Togolose are exposed to. They recognize that the distinctions between categories of risks (natural, social, economic and political) and the correlation of shocks (individual and household, community and nations) are not always clear-cut. In this table, shocks are named in brackets. For example, low agricultural productivity and health are outcomes of the risks of soil erosion, low fertility, poor sanitation and smoke exposure.

Annex 2b: An example of a risk management assessment exercise: Arrangements for risk management in Togo

ARRANGEMENTS	Informal/endogenous*	Informal/exogenous*	Formal/private	Formal/public
Prevention				
	• Strengthen human capital (community-paid teachers/schools) • Strengthen/protect revenues (anti-erosion measures, migration) • Occult/traditional rites/ traditional ceremonies	• Strengthen human capital (apprenticeship)		• Strengthen/protect human capital (education health, VET, agricultural extension, regional social funds) • Regulate against accidents & inequality (traffic code, construction code, environ. regul., labor m. pol. • Provide services and infrastructure (vaccination, dams)
Mitigation				
Portfolio Management	• Diversify (crops, jobs) • Invest (human, physical real assets)		• Invest in multiple financial assets	
Insurance	• Reciprocate (*mutuelles*, *tontines*, professional associations) • Strengthen social capital (marriage, folk groups, ceremonies, trad. practice) • Child fostering	• Pool risks (cereal banks, village banks) • Itinerant bankers	• Buy private insurance	• Provide social security (CNSS and CRT)
Hedging	• Extended family			
Coping				
	• Diminish human capital (reduce meals, take children out of school) • Diminish economic capital (borrow, sell) • Diminish social capital (child labor, borrow, plead)	• Diminish social capital (child trade) • Diminish economic capital (borrow from usurers • Charity	• Diminish economic capital (borrow from bank and MFI) • NGO programs	• Protect economic capital (AGETUR, regional social funds, emergency aid) • Protect human capital (food aid, emergency aid)

Source: Adopted from Bendokat and Tovo, 1999, p.15.

*Endogenous arrangements are organized by the prospective beneficiaries, exogenous arrangements are organized by agents generally not belonging to the community.

Annex 2c: An example of a risk and risk management assessment exercise: The Dominican Republic – Risks by age group, leading indicators of risks with current values, uncovered poor and possible measure to manage risks

Age Group	Main Risks	Leading Indicators of Selected Risks	Indicator Value (1998)		Number of Poorest 10% and 30% Uncovered, 1998		Covering the Gap with Measures of:	
			Poorest 10%	*Poorest 30%*	*Poorest 10%*	*Poorest 30%*	*Risk Prevention*	*Risk Coping*
0-4 years	Stunted child development	- Malnutrition - Pre-school coverage	--- 4.0	11.0 6.1	--- 140,000 (67% rural)	--- 350,000 (65% rural)	- Reduce poverty - Increase coverage of ECD programs	- Care of malnourished
5 years	Stunted child development	- Pre-primary coverage	36.5	41.1	17,000 (65% rural)	43,000 (6% rural)	- Reduce poverty - Increase cov. ECD pro.	- Care of malnourished
6-13 years	Low human capital development	- Gross enrollment	65.7	73.6	70,000 (63% rural)	162,000 (56% rural)	- Increase coverage primary & secondary education	- Scholarships - Income support tied to school attendance
		- Grade repetition	---	5.7	---	---		
		- Late entry	---	---	---	---	- Reduce late entrance, repetition, raise quality	- Remedial education
14-17 years	Low human capital development	- Gross enrollment	59.9	66.8	27,000 (63% rural)	70,000 (56% rural)	- Raise secondary school enrollment	- Scholarships - Income support
		- Grade repetition	---	5.7	---	---		
		- Late entry	---	---	---	---	- Reduce late entrance, repetition, raise quality	- Remedial education
	Unemployment, low wages	- Youth Unemployment	53.6*	49.0*	11,800 (55% urban)	35,000 (54% urban)	- Employment	
18-24 years	Low human capital development	- Gross enrollment	12.0	20.3	76,000 (70% rural)	212,000 (57% rural)	- Raise secondary school enrollment, and reduce high drop-out rates	- Scholarship, - Income support tied to school attendance and/or training activ.
	Unemployment, low wages	- Youth unemployment	41.8*	38.0*	21,000 (58% urban)	62,000 (61% urban)	- Raise school enroll. by improv. access & quality - Improve access of poorest to tertiary education	

* Young people actively looking for a job, plus young people who did not get a job and did not continue looking for one or were waiting for results of application for employment.

Age Group	Main Risks	Leading Indicators of Selected Risks	Indicator Value		Number of Poorest 10% and 30% Uncovered, 1998		Covering the Gap with Measures of:	
			Poorest 10%	*Poorest 30%*	*Poorest 10%*	*Poorest 30%*	*Risk Prevention*	*Risk Coping*
	- Inactivity (violence, substance abuse, etc.)	- Inactivity	---	---	---	---	- Employment	- Remedial education - Youth programs
25-64 years	- Low income	- Unemployment	21.5	16.0	31,000 (59% urban)	81,500 (63% urban)	- Labor intensive growth	- Income support - Remedial education - Targeted training/job search assistance
		- Below poverty earnings (underemployment)	---	---	---	---	- Flexible labor market	
Over 65 years	- Chronic diseases	- Health insurance coverage	---	4.0**	50,000	135,000	- Increase coverage of health insurance	- Increase coverage of health care for the elderly
	- Low income	- Pension coverage	---	2.3**	50,000	135,000	- Increase coverage of pension system	- Increase coverage of non-contributory pensions
General Population								
- *Health*	- Poor health care	- Health insurance coverage	3.0**	4.5***	800,000	2,350,000	- Health insurance	- Public health care
- Housing	- Poor housing conditions	- Housing deficit	---	---	---	---	- Promote savings and mortgages	- Housing subsidies - Relocation of families - Land titling
- Basic Services	- Lack of basic infrastructure	- Indoor running water	23.0	30.0	630,000	1,700,000	- Investment in water	- Subsidies for water & sanitation connection for the poorest
		- Indoor sanitation	15.0	22.0	700,000	1,900,000	- Investment in sanitation	
- Natural Disasters	- High frequency of hurricanes, floods	- Damages of hurricanes, floods, etc.	---	170,000 houses affected by Hurr. Georges	---	320,000 (Ozama River margins)	- Relocation of families to safe places - Improve housing	- Temporary shelter provision - Food / medicines

Source: World Bank (2000b).

ANNEX 3: Current and Ongoing Work on Risk and Vulnerability Assessments at the World Bank[30]

As conceptualized in the World Development Report (WDR) 2000 absence of poverty is achieved when households have enough to consume both *now* and *in the future*. In practice, most Poverty Assessments (PA) provide a satisfactory answer to the first of these two conditions, and tends to ignore the second. A Risk and Vulnerability Assessment (R&VA) is a complementary analytical product that enhances static poverty analysis, by adopting an ex-ante perspective on household welfare based on the concept of vulnerability, and analyzing the sources of household vulnerability, as the combined effect of: (a) exposure to risks, and the (b) ability to manage these risks. The inability to manage these risks and shocks is likely due to inadequate assets and social risk management instruments (RMI), including social protection mechanisms.[31] As such, R&VAs operationalize the Social Risk Management (SRM) framework by: (a) recognizing explicitly the multiplicity of strategies for managing social risks (such as risk reduction, mitigation and coping); (b) emphasizing the substitutability, complementarity and synergies of different risk management strategies; and (c) underlining the multiplicity of arrangements that are implemented to better manage social risks (at household, community, market, or public level). In fact, there is already some work being carried out at the World Bank and referred to as risk and/or vulnerability assessments (a list of studies and reports can be found at the end of this Annex). However, to date, there is no standard definition or measurement of vulnerability.

Due to the high immediate demand for implementing R&VAs, this guideline was prepared to provide some general directions in these efforts. This guideline identifies the sources of vulnerability, and suggests a process for prioritizing the public interventions to address them. The R&VA guideline proceeds in three inter-related steps, analyzing:

(a) the most prevalent and severe shock that trigger welfare losses;
(b) the socio-demographic groups at high risk of poverty, due to lack of availability of or access to risk management instruments;
(c) the gap in the supply of RMI, and the identification of instruments can be best used to cover this gap, including here social protection (SP).

By design, this guideline is a low data-intensity product. It is possible to implement such R&VA by exploiting the information that is typically generated by a PA, a Participatory PA (PPA) or a Public Expenditure Review (PER). Such assessment is a useful exercise to determine policy priorities. Thus defined, the R&VA is a flexible product that can be developed (a) as a part/theme of a PA, to introduce a dynamic view on poverty (e.g. the

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[30] This annex was prepared by Emil D. Tesliuc, Social Protection Unit, May 21, 2002. Contact: etesliuc@worldbank.org.

[31] The concept of vulnerability used in R&VAs comes from the notion that certain groups in society are more vulnerable to shocks that threaten their livelihood and/or survival. Other groups are so vulnerable that they live in a chronic state of impoverishment where their livelihood remains in a constant state of risk. SRM involves policies aimed at reducing the impact of key risks and breaking inter-generational cycles of poverty and vulnerability.

chapter on vulnerability in the Guatemala PA); or (b) as a stand-alone ESW (e.g. assessment of risks and vulnerabilities in Kenya). The findings from R&VAs can further guide the intersectoral allocation of public expenditures in a Social Sector Expenditure Review or PER, the PRSPs and the CASs.

For FY03, the Social Protection Unit intends to shift its focus toward more formal assessments of risk and vulnerability, with the aim of providing the operational teams with toolkits for the implementation of these concepts.

Ideally, the implementation of a R&VA requires **panel data**, and information on (a) the risks and shocks that affect the households, and on (b) the household ability to withstand those shocks. Such data are typically not available, especially in developing countries.[32] However, explicit information on risks and shocks is crucial to understand the sources of vulnerability. The Social Protection Unit has planned, during FY03, to work with other relevant units within the World Bank (the Living Standards Measurement Study (LSMS) group, and regional statistical capacity building teams), research and academia to develop:

(a) an inventory of the information on risks and shocks that can be extracted from a typical LSMS;
(b) an inventory of the policy questions related to vulnerability that can be investigated with the available information;
(c) a template module on *risks, shocks and household responses to shocks* for multi-topic household surveys;
(d) an inventory of secondary sources of information on *risks, shocks and household responses to shocks* that can be merged with multi- topic household surveys to study vulnerability.

In countries that do not collect panel data, but have a series of cross-section surveys available, vulnerability analysis can be undertaken by exploiting the pseudo-panel structure of the data, through **cohort analysis**. Surveys that follow different households from the same clusters across time are best to analyze community-level vulnerability by such techniques. The findings are particularly relevant for community-driven interventions, implemented through social funds or CDD approaches.

Approaches have been devised to estimate vulnerability with **cross-sectional data**. This is a third-best solution. The approach substitutes the need for better data with stronger assumptions about the process that generates vulnerability. Probably the most important and strongest identifying assumption is that cross-sectional variance can be used to estimate inter-temporal variance. Most likely, cross-sectional variance will be able to explain a part of inter-temporal variance, the one due to idiosyncratic or cluster-specific shocks. However, the

[32] The few exceptions of datasets that recorded information on risks and shocks include: (a) a panel in Ethiopia (1994/5), and (b) the Measurement of Living Conditions in Latin America and the Caribbean (MECOVI) Household Surveys Initiative for several Latin and South American countries (Argentina, Bolivia, El Salvador, Guatemala, Nicaragua, Paraguay, Peru), which include a cross-sectional survey with a module of retrospective questions on a risk and shocks.

impact of inter-temporal or aggregate (household invariant but time variant) shocks will be missed by such models. In other words, the model will likely produce good estimates of vulnerability for the situations where the distributions of risks, and the risk-management instruments, are similar from one period to another.

Another approach to R&VA is the use of qualitative data. A recent report: Mongolia Participatory Living Standards Assessment" (World Bank, 2001c) used **participatory methods** to elicit information on sources of risk, insecurity and vulnerability, along with coping strategies. Participatory approaches to finding out what people consider to be their greatest risks can enrich and complement quantitative analyses.

To date, the policy applications of the vulnerability measure derived from quantitative approaches are comparatively limited. The few examples are still scattered in the emerging literature, and lack of information or data limitations precluded their implementation in a standard fashion in the policy research. Systematization and standardization of the accumulated experience may contribute to a more thorough application of these approaches. Furthermore, microeconometric studies of vulnerability are highly dependent on the data availability for both their analyses and policy recommendations. Integration of survey data with information from secondary sources (i.e. census, GIS information on rainfall, vegetation, incidence or prevalence of particular diseases) may relieve this constraint. The Social Protection Unit plans during FY03, with the help from academics and researchers, to develop templates for microeconometric assessments of risk and vulnerability, with an emphasis on increasing their relevance for policy formulation.

To date, most studies of vulnerability have analyzed vulnerability to consumption poverty. However, this should not necessarily be the case. The same techniques can be used to analyze vulnerability to other dimension of well-being, such as malnutrition, health, education, access to adequate housing or basic services. In the near future, the work on developing guides or toolkit for the implementation of R&VAs will investigate vulnerabilities in health, education or other dimensions of well-being. The richness of the vulnerability analysis can further be strengthened by merging quantitative and qualitative approaches (e.g. Colombia, 2002 and Guatemala, 2002).

During FY2003, Social Protection Unit will continue to support the conceptual and analytical development of the notion of vulnerability, in cooperation with persons from research and academia, and along with other donors and bilaterals (e.g., it will sponsor conferences, seminars, other learning and knowledge-sharing events that provide a forum for the debate on this topic). Attention will be centered on: (a) ways to increase the policy relevance of the R&VAs, and (b) developing templates for identifying risks and risk responses in survey, (c) identify information on shocks from secondary sources that can be merged with household survey information to study vulnerability; and (d) produce a microeconometric toolkit for the assessment of vulnerability with household data. In March 2003, the Unit will launch a new SRM Core Course, where one of the topics offered would the implementation of a R&VAs. Other activities planned for FY03 include the development of: (a) a web-based, searchable database on R&VAs, (b) a consultant roster; and (c) a series of papers (a Primer series in SRM).

List of R&VA in World Bank's Work

Region	Country	Type	TTL	Mixed Methods	Quantitative Data	Approach	Status
LAC	Argentina	SSNA/RVA	Hall/Arriegada	Quant	Secondary Sources	Life-cycle	C
	Argentina	RVA/Labor	Maloney/Cunnigham	Quant	Panel	Cs Volatility	C
	Colombia	SSNA/RVA	Rawling	Qual-Quant	Rapid Survey	Life-cycle	C
	Dominican Republic	RVA/SSNA	Castaneda/Victoria	Quant	LSMS	Life-cycle	C
	El Salvador	RVA/SSNA	Ribe/Gillespie	Quant	LSMS	Life-cycle	
	Guatemala	PA/RVA	Lindert/Tesliuc	Qual-Quant	LSMS	Prob(Poor), Life-cycle, Impact Shocks	C
	Honduras	RVA/SSNA	Warren	Quant	LSMS	Life-cycle	P
	Jamaica	RVA/SSNA	Blank/Minowa	Quant	Secondary Sources	Life-cycle	C
	Jamaica	RVA/SSNA	Blank	Quant	Secondary Sources	Life-cycle	C
	Mexico	SSNA/RVA	Hall/Arriegada	Quant	Secondary Sources	Life-cycle	C
	Mexico	RVA/Labor	Maloney/Cunnigham	Quant	Panel	Cs Volatility	C
	Mexico	RVA	Skoufias/IFPRI	Quant	Panel	Cs Volatility	
	Regional Study	RVA/SSNA	Ribe	Quant	Rapid Survey		P
	Uruguay	RVA/SSNA	Murrugarra	Quant	LSMS	Life-cycle	C
Africa	Burkina Faso	RVA/SSNA	Rosenberg	Qual-Quant	LSMS	Prob(Poor)	P
	Ethiopia	RVA/SSNA	Poupart/Debalen	Quant	Cohort Analysis	Cs Volatility	P
	Kenya	RVA	Christiaensen/Subbarao	Quant	Cohort Analysis	Prob(Poor)	C
	Mali	RVA	Christiaensen/Boisvert/Hoddinot	Quant	Panel	Prob(Poor)	C
	Mali	RVA	Harrower/Hoddinot	Quant	Panel	Cs Volatility	C
	Nigeria	RVA		Quant	LSMS	Cs Volatility	P
	8 new RVAs for FY03						
ECA	Kirghiz Republic	PA/RVA	Shaban/Tesliuc	Qual-Quant	Panel	Cs Volatility	P
	Regional Study	RVA	Rashid	Qual-Quant	Secondary Sources		P
	Russia	RVA	Skoufias/IFPRI	Quant	Panel	Cs Volatility	C
	Turkey	RVA	Braithwaite	Qual-Quant	Cross-Section	Cs Volatility	P
	2 new RVAs for FY03 (Kazahstan and Russia)						
Asia	Bangladesh	RVA	Quisumbing/IFPRI	Quant	Panel	Cs Volatility	C
	China	RVA	Chaudhuri/Jalan	Quant	Panel	Prob(Poor)	C
	Indonesia	RVA	Chaudhuri/Jalan/Suryahadi	Quant	Cross-Section	Prob(Poor)	C
	Indonesia	RVA	Pritchett/Suryahadi/Sumarto	Quant	Panel	Prob(Poor)	C
	Korea	RVA	Goh/Kang/Sawada	Quant	Panel	Prob(Poor)	C
	Pakistan	RVA	Healy/Mansury	Quant	Cohort Analysis	Prob(Poor)	P
	Philipines	RVA	Chaudhuri/Datt	Quant	Cross-Section	Prob(Poor)	P
	Philipines	RVA	Datt/Hoogeveen	Quant	Cross-Section	Impact Shocks	P
	Thailand	RVA	Bidani/Richter	Quant	Cross-Section	Prob(Poor)	C
	volume by Shubham	RVA	Chauduri et all	Quant		Prob(Poor)	P

Notes:
RVA/SSNA stands for RVA/Social Safety Net Assessment; C = Completed; P = Work in Progress

Additional Notes:

1. Prob(poor): vulnerability viewed as a high probability of becoming poor or poorer in a future period.
2. Cs Volatility: vulnerability viewed as the household ability to smooth consumption when faced with volatility in its income stream. Under this approach, vulnerability is correlated with consumption volatility.
3. Life-cycle: based on a loose definition of vulnerability based on outcomes of different socio-economic groups. For example, income levels, nutritional status, gender serve as proxies for identifying groups at risk and vulnerable groups.