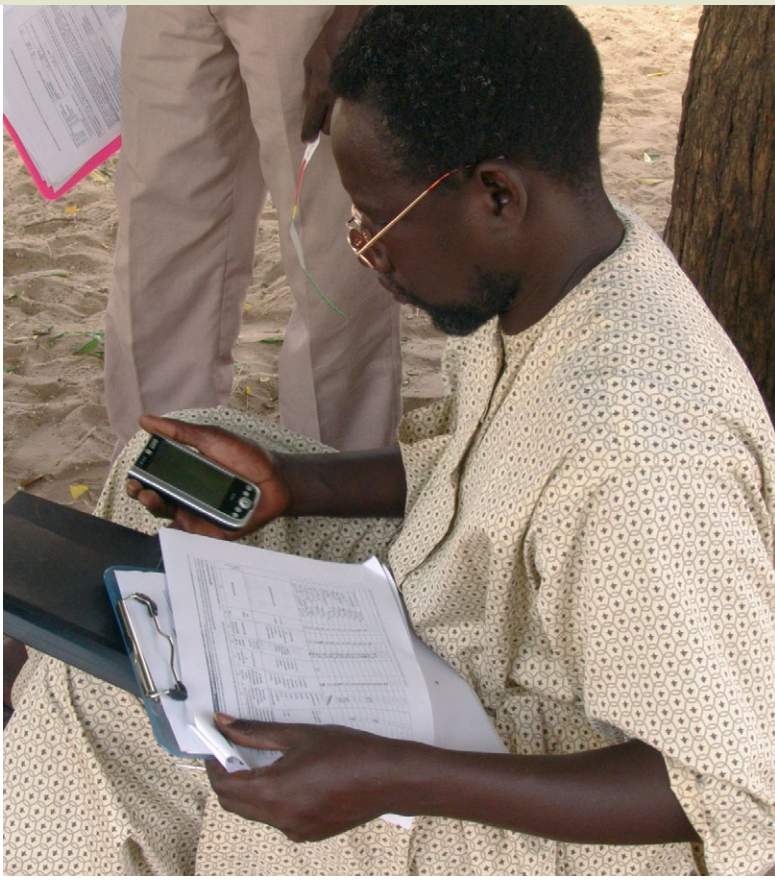
FSIN
Food Security Information Network

Technical Series No. **3**

Resilience **M**easurement **T**echnical **W**orking **G**roup

Household Data Sources for Measuring and Understanding Resilience



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September 2015

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Please cite: Carletto, C., Banerjee, R. & Zezza, A. 2015. *Household Data Sources for Measuring and Understanding Resilience*. Resilience Measurement Technical Working Group. Technical Series No. 3. Rome: Food Security Information Network. Available at: http://www.fsincop.net/fileadmin/user_upload/fsin/docs/resources/FSIN_TechnicalSeries_3.pdf

This publication has received funding from the European Union through the "Improved Global Governance for Hunger Reduction Programme" and from USAID. The views expressed herein can in no way be taken to reflect the official opinion of the European Union or USAID. All requests for translation and adaptation rights and for resale and other commercial use rights should be addressed to the FSIN secretariat at fsin-secretariat@wfp.org.

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Food Security Information Network

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Acknowledgements

As part of the overall effort to advance resilience measurement, this paper on the use of existing data sets is one of a series of technical products developed under the auspices of the Food Security Information Network's (FSIN) Resilience Measurement Technical Working Group (RM TWG), with overall coordination provided by RM TWG Chair, Mark Constas. It was prepared jointly by Gero Carletto (World Bank) as lead author, with contributions from Raj Banerjee (World Bank) and Alberto Zezza (World Bank).

This paper, which reflects the deliberations of the RM TWG as a whole, elaborates on the concepts presented in Technical Series Nos. 1 and 2 regarding the definition, principles and proposed common analytical model for resilience measurement. Selected members of the RM TWG served as internal reviewers of earlier drafts of the paper, and feedback was also provided during a one-day meeting in April 2015 in Rome, where Technical Series lead authors presented drafts of their respective papers to leaders from World Food Programme (WFP) and the Food and Agriculture Organization (FAO) jointly responsible for creating and coordinating the RM TWG. It is in this regard that the RM TWG recognize the contributions of Arif Husain (Chief Economist and Deputy Director, Policy, Programme and Innovation Division, WFP) and Luca Russo (Senior Economist, Agriculture Development Economics Division, FAO). The RM TWG also wish to thank the individuals in the field who provided compelling questions and informal contributions. Ultimately, the demand for high quality and useful measures of resilience for food security has been the most fundamental motivation behind the group's activities.

These Technical Series papers would not have been possible without the overall support to the RM TWG's activities and production assistance provided by the FSIN Secretariat staff: Alexis Hoskins (WFP, Secretariat Coordinator), Anuj Anand (WFP) and Lavinia Antonaci (FAO). Editorial review was provided by Zoë Hallington, and graphic design and layout services were provided by Energylink.

Abbreviations

CFSVA	Comprehensive Food Security and Vulnerability Analysis
CWIQ	Core Welfare Indicator Questionnaires
DHS	Demographic and Health Surveys
FAO	Food and Agriculture Organization of the United Nations
FSIN	Food Security Information Network
GPS	Global Positioning System
HBS	Household Budget Surveys
HIES	Household Income Expenditure Surveys
HIV/AIDS	Human immunodeficiency virus/acquired immune deficiency syndrome
IHS	Integrated Household Surveys
IHSN	International Household Survey Network
LSMS	Living Standards Measurement Study
LSMS-ISA	Living Standards Measurement Study – Integrated Surveys on Agriculture
MICS	Multiple Indicator Cluster Surveys
RM TWG	FSIN's Resilience Measurement Technical Working Group
UNICEF	United Nations Children's Fund
USAID	United States Agency for International Development
WFP	World Food Programme
WMS	Welfare Monitoring Surveys

I. Introduction

As recent years have witnessed a string of devastating climatic shocks, food price spikes and financial blows to economies worldwide, the concept of resilience has gained increasing traction within the development community. Most bilateral and multilateral donors have adopted resilience as an organizing principle to bridge their development and humanitarian/emergency programming, and major regional initiatives have been established that have resilience at their core.

Resilience is a complex, multi-faceted concept, comprising the full range of reactive behaviours available to individuals and/or households in the face of an event or series of events that compromises their wellbeing. Boto et al. (2013) establish that while the concept of resilience is rooted in material sciences and ecology, it has been applied to a range of social sciences, perhaps based on the appeal of its systems-based, multi-faceted, long-term approach. Yet the concept of resilience must be clearly defined and operationalized to ensure it does not become the next empty development buzzword, or simply a repackaging of established concepts such as vulnerability and risk management. A clear definition is a prerequisite for measurement, which in turn requires the availability and/or collection of suitable data.

While definitions of resilience abound, for the purposes of this paper we will use the definition articulated in the first publication of the Resilience Measurement Technical Working Group of the Food Security Information Network (FSIN) (Constas et al., 2014a):

> *"Resilience is defined as a capacity that ensures stressors and shocks do not have long-lasting adverse development consequences."*

Given that resilience is a relatively new construct within the field of development, it poses a set of new and complex data requirements, many of which cannot be fulfilled through current sources. This paper therefore seeks to: 1) set out some of the data requirements involved in assessing and operationalizing the concept of resilience, 2) provide an overview of available data sources, and 3) explore how far existing data sources can be repurposed to capture information on resilience.

As an example of the type of data needed to measure and understand resilience, we highlight a new generation of surveys conducted under the Living Standards Measurement Study – Integrated Surveys on Agriculture (LSMS-ISA) initiative. In doing so, we emphasize the power of integration, both within a single multi-topic survey instrument and across data sources through georeferencing, thematic overlapping for survey-to-survey and small area estimation imputation, and 'smart' sampling. We conclude with a set of recommendations to improve the use of existing data and instruments so that they are better able to capture the complex, multi-faceted concept of resilience worldwide.

II. Data Requirements

To identify the best instruments for capturing resilience, we first need to clarify the characteristics of resilience and the resulting data requirements. The report of the international conference on resilience held in Addis Ababa in May 2014 recognized that efforts to measure resilience remain in their infancy: "questions of what to measure, whom to measure, how often to measure, what methods to use, and at what scale are still being debated" (Fritschel et al., 2014). Settling this debate requires reaching a consensus on commonly shared definitions, metrics and indicators.

In the second publication of FSIN's Technical Series on Resilience Measurement, the authors describe a resilience capacities data structure (Constas et al., 2014b). The paper sets out various data elements[1] in the context of their relationship to resilience functions that respond to shocks, such as the capacity to absorb, adapt and transform. Methodological aspects of data collection are also considered in terms of their ability to affect the accuracy of resilience measurement: objective versus subjective measurement, qualitative versus quantitative measurement, the level of measurement (household, individual, etc.), and the time horizon/frequency.

In general, there is a severe lack of standardization across existing modules for collecting information on **shocks**. For example, shock modules from various types of surveys cite different reference periods for shocks, use widely divergent wording for questions, contain different lists of shocks, disregard information on secondary or tertiary shocks, and collect solely self-reported information. The lack of standardized data collection for shocks leads to poor harmonization across surveys, reducing the comparability of data across countries and populations. Table 1 summarizes the diversity of features available in shock modules from living standard household surveys around the world (Heltberg et al., 2015).

1. Assets, livelihood and risk strategies, social protection, governance, and agro-ecological.

Table 1. Typology of questions asked in shock and coping modules

	Experienced Shock	Shock Timing	Multiple Shocks	Costs (type of loss)	Costs (currency)	Did others experience it	Severity	Individual who was affected	Has the household recovered	Copying type	Copying ranking
Afghanistan	X						X		X	X	
Bangladesh	X									X	
China	X			X	X				X	X	
Iraq	X									X	
Lao PDR	X	X		X	X				X	X	X
Malawi	X			X	X		X			X	X
Maldives	X	X	X	X	X					X	
Mexico	X	X	X					X		X	
Nigeria	X	X	X				X	X		X	
Peru	X			X	X				X	X	
Sudan	X			X			X			X	
Tajikistan										X	
Tanzania	X	X		X	X	X	X				
Uganda	X	X		X	X					X	
Uzbekistan	X	X					X		X	X	X
Vietnam	X	X			X			X	X	X	

Source: Heltberg et al., 2015.

Survey designs are so diverse that "not only objective variation in risk levels, but also survey design, survey implementation, and respondents' subjective interpretation of shocks affect the observed cross-country patterns" (Heltberg et al., 2015). As more surveys georeference households and plots, it becomes increasingly possible to develop and use objective measures of shocks, at least as far as climatic shocks are concerned. Spatial data on rainfall or temperature can be used to measure the occurrence of specific extreme climatic events, and this can then be linked to household data using common geographic information.

Encouragingly, information on **assets** is available in most surveys, including population censuses; even Demographic and Health Surveys (DHS) and Multiple Indicator Cluster Surveys (MICS) collect asset information to build an asset-based welfare index. However, in the vast majority of cases, data on asset ownership is only collected at household level; thus, it is not possible to differentiate asset ownership between individuals within a household. In some cases, surveys collect the estimated value and age of the asset, primarily as an input to the imputation of user values of durable goods to construct a consumption aggregate to measure poverty. Some recent surveys have attempted to collect such information at individual level, which is a requisite for gender-disaggregated analysis.

Livelihoods and income-generation strategies are more demanding propositions for data collection, and only a relatively small subset of survey data accounts for the full range of activities in which households engage. Similarly, only a small subset of survey data accounts for the full range of social protection, governance and institutions data, all of which is also relevant to resilience measurement. Agro-ecological data can be linked to household data for most surveys, although this usually relies on the administrative location (region/district) of the household, thus resulting in less precise estimations. Georeferenced surveys allow much more refined spatial information to be linked to survey information, which better reflects variability across households. One limitation to this approach is posed by the need for confidentiality: survey data dissemination must assure the full anonymity of the households and communities participating in the survey, thus limiting the public distribution of georeferenced data. The LSMS-ISA survey initiative dealt with this issue by creating and disseminating geo variables that contain key geospatial household-level information, such as climate information, distance to nearest market and soil quality characteristics, as an alternative to disseminating precise household location data (which is also disseminated with random offsets).

Additionally, resilience needs to be studied with respect not only to a specific shock, but also to a specific development or **welfare outcome**, be it poverty, food security, nutritional status, non-monetary or subjective dimensions of poverty and well-being, or any other key outcome. Resilience is not an end in itself, but a means towards preserving the household capacity to maintain or improve upon a certain level of the outcome of interest when a shock occurs. Thus, some measure of the outcome of interest must also be available to the analyst.

Finally, longitudinal or **panel data** is a crucial element of measuring and understanding resilience, as resilience is by definition understood in terms of the capacity to cope with and adjust to shocks *over time*. Panel data therefore provides the much-needed time dimension for resilience measurement, allowing for a narrative of individuals, households and populations as they experience, adapt to and overcome shocks over extended time periods. If panel data is not available for a population of interest, occasionally synthetic panels can be constructed. However, synthetic panels are dependent on modelling and can be far more complicated and opaque than using a well-constructed, well-tracked set of panel respondents.[2] As synthetic panels are still experimental, more research is needed before broader use. Additionally, most countries currently lack the analytical capacity to adopt such methods.

III. Types of Data Sources

While the above data requirements may seem demanding, it is not necessary to begin data collection efforts with a blank slate. Many data sources that are currently publicly available can serve as promising foundations. This paper does not provide a comprehensive list of available data sources; instead, it introduces some of the main types of surveys that are relevant to resilience measurement. These survey types include population censuses as well as an array of household surveys – our primary topic of focus – which differ significantly in content, sampling methodology, thematic focus and quality. Complementary data sources include the following:

1. Censuses – population censuses, agriculture censuses and livestock censuses – extensive in breadth but limited in terms of information and frequency (every 10 years at best);

2. Administrative data – extensive and frequent, but often of poor quality and limited access;

3. Market data/value chains – important for collecting price data, but often lacking uniform standards and definitions;

4. Project data, impact evaluations and case studies – often indicative and insightful, but limited in terms of generalizability or representativeness;

5. Spatial data – increasingly available but still insufficiently cost-effective and/or accessible for general analytical use; and

6. Household surveys – large variations across surveys, but often able to balance the need for representativeness with the need for multi-topic subject matter.

2. At the same time, the difficulties involved in collecting high-quality panel data, particularly in disaster- or conflict-prone areas, must not be underestimated.

Among the most popular household surveys of particular relevance to resilience are the following:

a) Demographic and Health Surveys (DHS): supported by the United States Agency for International Development (USAID) through Macro International, and designed to collect data on health and other basic demographic and socioeconomic variables for children and women of reproductive age. The first DHS was conducted in 1984 and since then, over 210 surveys have been implemented in more than 80 countries.

b) Living Standards Measurement Study (LSMS) surveys: created in the early 1980s to measure poverty and study household behaviour, welfare and interaction with government policies. The key objective of LSMS is to capture the determinants of outcomes and links between assets, household characteristics, livelihood sources and government interventions. The World Bank's LSMS team has implemented over 100 LSMS surveys around the world, and many more have been carried out with technical assistance from the LSMS team or using LSMS methodologies.

c) Multiple Indicator Cluster Surveys (MICS): supported by the United Nations Children's Fund (UNICEF), and originally designed to monitor progress on the goals established at the 1990 World Summit for Children. MICS assess progress on reducing HIV/AIDS and malaria, and they have been conducted in 62 countries to date. Data is usually collected every three to five years in line with different waves of the programme.

d) Household Budget Surveys (HBS) and Household Income Expenditure Surveys (HIES): designed and implemented with varying frequency by national statistics offices in most countries around the world, with the primary purpose of collecting expenditure shares information to update the weights of the basket used to calculate consumer price indices. Although initially designed for this purpose, HBS have often been expanded to include additional modules to capture other aspects of the household socioeconomic environment.

e) Integrated Household Surveys (IHS): designed and implemented with varying frequency by national statistics offices to collect integrated, multi-topic information on issues of importance to the implementing country. Aside from collecting basic household characteristics, IHS can contain modules on information ranging from shocks to access to credit to food security.

f) Comprehensive Food Security and Vulnerability Analysis (CFSVA): supported by WFP to provide a snapshot of household food security and vulnerability in a given country. The first CFSVA was conducted in 2003, and to date, more than 80 surveys have been conducted worldwide. Primary CFSVA topics include the socioeconomic and environmental context of households, food supplies, markets, livelihoods, coping strategies, nutrition, health and education.

g) Core Welfare Indicator Questionnaires (CWIQ): originally created by the World Bank together with the United Nations Development Programme and UNICEF as a way to frequently monitor socioeconomic indicators for a large sample of households, and to allow for more disaggregated analysis at sub-national levels and for welfare quintiles. Information on poverty proxies is generally collected as an alternative to collecting consumption expenditure information.

h) Welfare Monitoring Surveys (WMS): supported by Statistics Norway in a number of countries and designed to monitor welfare conditions frequently by collecting the minimum amount of information needed to identify and classify vulnerable groups of households within a country. The WMS seek to provide policymakers with annual household- and community-level information from a relatively large sample of households.

Of these, spatial data and household surveys can be more efficiently and comprehensively exploited when overlaid upon or linked to one another, allowing for deeper and more detailed analyses. Different types of datasets can be linked through survey-to-survey imputation, through georeferencing, or by a common sampling frame or other sampling techniques.

IV. Availability of Household Surveys

Of the surveys listed above, many are made public through a variety of data platforms. One of the largest databases is the **International Household Survey Network (IHSN)**, which at the time of writing contained 4,876 household surveys. Unfortunately, 50 percent (2,441) of these surveys were marked as "Data not available" and were therefore unusable. Encouragingly, however, 30 percent of the surveys focused on sub-Saharan Africa, one of the most data-poor regions of the world, which indicates that Africa's "statistical tragedy" is in the process of being reversed (Devarajan, 2013). See Table 2 for a breakdown of IHSN surveys by region.

Table 2. IHSN surveys by region

Region	Number of surveys	Percentage
East Asia and Pacific	643	14%
Europe and Central Asia	990	21%
Latin America and the Caribbean	901	20%
Middle East and North Africa	233	5%
South Asia	446	10%
Sub-Saharan Africa	1392	30%
Total	**4605**	**100%**

Source: IHSN, http://www.ihsn.org

IHSN has also created a Gender Data Navigator (currently in its beta version), which is a searchable inventory of gender-related questions found in survey and census questionnaires from low- and middle-income countries. The Gender Data Navigator does not provide data itself; instead, it connects users to the IHSN Survey Catalog, which contains the data and detailed metadata. The tool is particularly useful for information on the incidence of surveys that collect gender-disaggregated data on particular topics (see below).

Table 3. Gender-disaggregated data collected in IHSN surveys

Data Topic	# of surveys	# of surveys at individual level
Mobile phone ownership	645	39
Wage	761	706
Consumption expenditure (recall & diary)	96	15
Dwelling ownership & occupancy status	778	11
Household debt	414	168
Household savings	212	140
Recipient of remittances	395	146

Source: IHSN, Gender Data Navigator, http://ihsn.org/home/gender-data-navigator

Another good public source of household survey data is the World Bank's Microdata Catalog. The Microdata Catalog facilitates access to data collected through sample-based surveys of households, businesses and facilities, as well as through population, housing or agricultural censuses and/or administrative data collection processes. At the time of writing, the Microdata Catalog contained 1,826 surveys, of which all but two are freely available to the public either through direct download, or through a log-in and approval-based system. The regional focus on sub-Saharan Africa is even more pronounced in the Microdata Catalog than in the IHSN database: 44 percent of surveys focus on the region. The platform offers numerous data 'collections' based on survey type: a full list of the collections and their relevant characteristics is offered below.

Table 4. World Bank Microdata Catalog survey availability

Survey types	Organization	Total number	Earliest	Most recent
Living Standards Measurement Study	World Bank	62 [3]	1985	2013
Demographic and Health Surveys	USAID	261	1985	2014
Multiple Indicator Cluster Surveys	UNICEF	102	1999	2012
Impact Evaluation Surveys	World Bank	68	2002	2014
Global Financial Inclusion Database	World Bank	145	2011	2011
WB Service Delivery Surveys	World Bank	13	2000	2007
WB STEP Skills Measurement Program	World Bank	10	2012	2013
WB Country Opinion Surveys	World Bank	103	2011	2014
WB Development Research Microdata	World Bank	65	1950	2012
WB Enterprise Surveys	World Bank	392	2002	2014
WB Migration and Remittances Surveys	World Bank	9	2009	2010
Global Health Data Exchange	University of Washington	21	1989	2009
Integrated Public Use Microdata Series	Minnesota Population Center	257	1960	2011
Multi-Country Studies	World Health Organization	72	2003	2008
DataFirst	University of Cape Town	179	1965	2014

Source: World Bank Microdata Catalog, http://microdata.worldbank.org

One of the most encouraging aspects of both the IHSN and the Microdata Catalog is that their number of surveys is steadily increasing over time. Table 5 shows the number of surveys available across a range of time periods.

3. Until 2014, LSMS surveys were primarily distributed through the LSMS website (and national statistics offices), through which information on 105 surveys is currently available. At the time of writing, the Microdata Catalog is still in the process of publishing the full collection of these datasets on its website.

Table 5. Microdata Catalog and IHSN survey availability over time

Year range	Microdata	IHSN
Before 1970	45	110
1971 to 1980	61	117
1981 to 1990	125	251
1991 to 1995	135	323
1996 to 2000	222	645
2001 to 2005	404	1199
2006 to 2010	530	1711
2011 to 2014	517	936

Source: World Bank Microdata Catalog, http://microdata.worldbank.org

One other public database is the LSMS Survey Finder tool, which allows users to search for datasets by topic/subject, country and/or survey year. Information is currently available for 105 surveys, of which 80 datasets can be downloaded directly through the LSMS website or national statistics office websites. All LSMS data is accompanied by full documentation, including a Basic Information Document describing survey design and coverage, as well as crucial information on the data file structure and variable construction.[4]

V. Pursuing Data Integration for Resilience Measurement

To capture the complexity of resilience and meet its attendant measurement challenges, new and better-integrated data is needed. Integration can be achieved *across* instruments as well as within the same survey instrument: both types of integration are needed to understand the spatial and temporal context of resilience.

Integration across different instruments can be achieved by collecting geographic location information in household surveys through Global Positioning System (GPS) units. This geographic information can then be linked directly to spatial data, as mentioned above, which means spatial characteristics can be used as variables to explain aspects of household well-being. This is of particular relevance to resilience analysis, given the need to establish links between eco-system variables and individual, household and community socioeconomic variables from household surveys. GPS technologies

4. See: http://www.worldbank.org/lsms for more information.

have become cheaper, so household surveys are now routinely georeferenced, allowing easy overlay with other spatial information. At the same time, care should be taken when establishing linkages between datasets that contain data at different resolutions, as this could lead analysts to attribute characteristics incorrectly across a region.

Additionally, if there is overlap in a specific set of variables, new datasets can be integrated with a pre-existing census or household survey, which enables small area estimation as well as survey-to-survey imputation techniques. Finally, common sampling frames and more complex sampling techniques allow information to be integrated across multiple survey instruments, enhancing their analytical potential.

Box 1. Measuring resilience in Africa's Drylands using LSMS-ISA data

Zezza and d'Errico (2015) use LSMS-ISA data from six countries for resilience analysis in their background paper "Livelihood, Vulnerability and Resilience in Africa's Drylands: A Profile Based on the Living Standards Measurement Study – Integrated Surveys on Agriculture", prepared for a World Bank report on resilience in Africa's drylands (World Bank, 2015). The paper uses LSMS-ISA data to explore the poverty and nutrition profiles of African drylands, shocks (both self-reported and computed from georeferenced variables), and resilience based on the Resilience Index Measurement and Analysis methodology developed by FAO. While this work offers a descriptive analysis of cross-sectional data, its dynamic framework could be extended using panel data.

The ultimate form of data integration is collecting as much information as possible within the same instrument. A prime example of this type of integration is found in the LSMS survey design, which integrates a wide variety of information on household characteristics with a range of topics such as shocks, food security, risk and social protection. Multiple rounds of panel data are collected in each country. Moreover, the publicly available surveys conducted under the recent LSMS-ISA initiative also incorporate a strong agricultural component, allowing for richly detailed analyses of the linkages between agricultural practices and improved livelihoods (see Box 1 for an analytical application of LSMS-ISA data).

Most importantly in terms of resilience, the panel data from LSMS-ISA surveys can be used to understand resilience pathways by enabling analyses of the trajectory of individuals and households over time across multiple dimensions of wellbeing. Because of the breadth and depth of LSMS datasets, LSMS samples tend to be smaller (in most cases between 3,000 and 5,000 households). The resulting data is usually representative of urban and rural populations and of a few regional aggregates within a country, but it does not offer greater levels of granularity. Additionally, the structure of LSMS surveys does not lend itself to the detailed measurement of some issues relevant for resilience, such as social capital, although limited information on social networks is generally collected. However, the panel and multi-topic nature of LSMS-ISA surveys means they are an ideal instrument for resilience analysis.

VI. Conclusion

To measure resilience, we need multi-dimensional, high-frequency, longitudinal data that allows for the integration of geospatial information and facilitates analysis of an array of contextual factors. The surveys produced under the LSMS-ISA initiative currently provide this data for six countries in sub-Saharan Africa, representing 40 percent of the population in the region. However, more high-quality data of this type is needed, particularly longitudinal data that enables us to analyse resilience trajectories for individuals and households over time, either through panels or by creating synthetic panels using existing and experimental techniques.

To collect the data needed for accurate and comprehensive resilience measurement, one option is to repurpose existing or pipeline surveys. However, the feasibility of this depends greatly on the flexibility of data producers. Some types of household surveys are more flexible, such as MICS and LSMS, rendering them good candidates to be repurposed for resilience measurement. It could be more difficult to adjust DHS surveys, as the DHS survey design in all countries is based on a fully standardized model. However, even for DHS and other types of surveys, a short rider module on certain missing aspects of resilience could be appended to the survey; this option should be explored. At the same time, some level of uniformity and standardization is needed: the lack of standards and commonly accepted definitions for a wide range of survey topics (such as price data collection) may ultimately pose a serious stumbling block for efforts to measure resilience. Similarly, data producers must pay greater attention to ensuring public access and proper documentation of their data; as mentioned earlier, half of the surveys in the IHSN database are not available for download, eliminating any potential for learning from them.

Multi-topic integrated panel data allows for a deeper analysis of resilience dynamics, but this type of data collection requires significant financial and human resources and is therefore difficult to carry out frequently. Thus, sentinel sites and lighter instruments may be more useful for collecting the high-frequency data needed to understand how resilience changes over short periods of time and in response to shocks. Sentinel site data could be linked to household survey data by nesting them into the cluster sample design of many surveys. This would allow linkages and inferences to be drawn between the richly detailed information contained in an integrated household survey and the dynamic, high-frequency data collected from a sentinel site or a lighter survey.

Most importantly, repurposing established surveys would be another way to make available data more relevant to resilience measurement. This would require institutional coordination, ideally by an institution with an established statistical mandate and leverage over data producers. The road towards collecting the much-needed data for resilience measurement must begin with an institutional call to action, which should include collecting more and better data as well as making better use of existing data systems through repurposing and improved integration across data sources.

VII. Glossary

Adaptive capacity - The ability to make proactive and informed choices about alternative livelihood strategies based on changing environmental, climatic, social, political and economic conditions.

Absorptive capacity - The ability of individuals, households, communities or higher-level systems to minimize their exposure to shocks and stressors and to recover quickly when exposed.

Georeferencing - This refers to linking objects or structures to locations in physical space by relating them to a ground system of geographic coordinates. In the context of household surveys, georeferencing generally refers to obtaining the geographical coordinates of a household or plot, so that they can be easily linked to other sets of geospatial data that also contain geographical coordinates.

Geo variables - These variables are created by combining georeferenced plot and household locations with various geospatial databases in order to provide information such as the distance from the household to key locations (roads, markets, etc.), climatology, landscape typology, soil and terrain, and crop season parameters. Geo variables preserve confidentiality and can be disseminated publicly, as they provide information relevant to the household location without necessitating the direct release of the geographic coordinates.

Imputation - The process of substituting values for data that is missing within a dataset.

Panel data - Also known as longitudinal data, panel data is obtained when multiple cases (households, plots, etc.) are observed at multiple (two or more) points in time, allowing for analysis of the change over time of a given case.

Resilience - "T]he capacity that ensures adverse stressors and shocks do not have long-lasting adverse development consequences" (Costas et al., 2014a, p. 6). Resilience can be viewed as "a capacity that prevents individuals, households and communities from falling below a normatively defined level for a given developmental outcome (e.g., food security, poverty level, well-being)" following a shock or stress (Ibid., p. 7).

Sentinel sites - Small communities that are representative of a larger population from which data are gathered at higher-frequency intervals than would be possible with a larger and more geographically diverse sample. The use of sentinel sites for data collection allows for analysis that can inform policies across a larger area.

Social capital - The institutions, relationships and norms that shape the quality and quantity of a society's social interactions. Increasing evidence shows that social cohesion is critical for societies to prosper economically and for development to be sustainable. Social capital is not just the sum of the institutions that underpin a society – it is the glue that holds them together (World Bank, 2015).

Shocks - External short-term deviations from long-term trends that have substantial negative effects on people's current state of well-being, level of assets, livelihoods, or safety, or their ability to withstand future shocks (Zseleczky and Yosef, 2014).

Small area estimation - The statistical methods used to generate precise estimates for domains with small or zero sample sizes. These techniques are often used when the sample size for a given geographic area or population of interest is not large enough to generate accurate estimates from an existing dataset.

Transformative capacity - The ability to create an enabling environment through investment in good governance, infrastructure, formal and informal social protection mechanisms, basic service delivery and policies/regulations that constitute the conditions necessary for systemic change.

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FSIN
Food Security Information Network

Technical Series No. **3**

Resilience **M**easurement **T**echnical **W**orking **G**roup




FSIN was launched in October 2012 under the leadership of FAO, IFPRI and WFP to help build sustainable food and nutrition security information systems. One major objective is to provide access to standards, methods and tools on food and nutrition security (FNS) information systems.

Resilience has recently garnered intense, wide spread interest among FNS practitioners and policy makers because it focuses attention on people's and communities' capacities to reduce their exposure and cope with and/or adapt to shocks and stressors. However, a common understanding of how to identify and measure the factors that predict various dimensions of well-being, such as food security, in the face of shock and stressors is lacking. The ability to evaluate the impact of resilience programmes and the opportunity to track progress depend on effective measurement and clear understanding of plausible cause-effect relationships related to resilience. In this context, the *Resilience Measurement Technical Working Group* (RM-TWG) was established by FSIN to identify and promote means of operationalizing the concept of resilience in humanitarian and development practice.

Operationalizing resilience as a focus of measurement requires the provision of credible, data-based insights into the attributes, capacities and processes observed at various scales (e.g., individual, household, community and national). Therefore, the RM-TWG promotes the adoption of best practice in resilience measurement through collaborative development of three primary outputs published as a Technical Series:

- A report that provides a definition of resilience along with resilience measurement principles;
- A report that provides a common analytical model and causal framework for resilience measurement; and
- A set of technical briefings that provide guidance on specific aspects of resilience measurement.

These outputs provide practical guidance for those working in field settings and serve as a reference for continued discussions on how to collect measurement data on resilience that is accurate and useful.

For more information and to join the network: www.fsincop.net

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