IGAD PROTOCOL FOR RESILIENCE MEASUREMENT (IPRM)

Technical Guidelines

May 2020

IGAD Food Security, Nutrition and Resilience Analysis Hub (IFRAH)

Assessment Team

Consultants:
Marko Lesukat
Dennis Nyakeya

IFRAH Team:

Dr. Abdi Jama
Doreen Ssemanda Nanyonga
Jasper Mwesigwa
Charity Mumbua Sammy

PEACE, PROSPERITY AND REGIONAL INTEGRATION

USAID FROM THE AMERICAN PEOPLE

Table of Contents

List of tables

List of figures

Acronyms

AU-IBAR	African Union Inter-African Bureau for Animal Resources
ASALs	Arid and Semi-Arid Lands
CEWARN	Conflict Early Warning and Response Mechanism
CF	Critical Infrastructure
DHS	Demographic and Health Surveys
DRM	Disaster Risk Management
DRR	Disaster Risk Reduction
EM-DAT	Emergency Events Database
FAO	Food and Agriculture Organization of the United Nations
FEWSNET	Famine Early Warning Systems Network
FSNWG	Food Security and Nutrition Working Group
GAM	Global Acute Malnutrition
GDI	Global Development Index
GIEWS	Global Information Early Warning System
GIS	Geographic Information System
ICPAC	IGAD Climate Prediction and Application Centre
ICPALD	IGAD Center for Pastoral Areas and Livestock Development
IDDRSI	IGAD Drought Disaster Resilience and Sustainability Initiative
IGAD	Inter-Governmental Authority on Development
ILRI	International Livestock Research Institute
IPC	The Integrated Food Security Phase classification
MICS	Multiple Indicator Cluster Surveys
MSs	Member States
NAPA	National Adaptation Programme of Action
NAP	National Adaptation Plan
NBS	National Bureau of Statistics
NDCs	Nationally Determined Contributions
NDMA	National Drought Management Authority
NDOC	National Disaster Operation Centre
OCHA	Office for the Coordination of Humanitarian Affairs
PDCNA	Post Disaster Conflict Needs Assessment
PDNA	Post Disaster Needs Assessment
PIA	Priority Interventions Areas
RIMA	Resilience Index Measurement and Analysis
SDGs	Sustainable Development Goals
SFDRR	Sendai Framework for Disaster Risk Reduction
SLM	Sustainable Land Management
SSN	Social Safety Nets
TLU	Tropical Livestock Unit

1. Introduction

1.1 The background

The last two decades have seen an increase in the frequency and severity of disasters in the Inter-Governmental Authority of Development (IGAD) Region, driven mainly by climatic shocks, conflict and adverse macro-economic factors; thus, rendering conventional reactive response approaches ineffective[1]. Incidentally, the same period has seen rapid growth and value of investments towards resilience building in the region. However, despite the many resilience building related investments, robust verifiable evidence of their impact remains scarce consequently limiting the opportunity to build connections between evidence and decision-making. This has led to an increased drive to justify investments and monitor the success of resilience programming by stakeholders.

Recognizing this, the concept of resilience has captured the interest of Member States (MSs), IGAD and other stakeholders. However, in spite of the overwhelming interest and investments in the subject, MSs and IGAD do not have a structured framework for measuring resilience in the region. This gap was highlighted in the review of the first phase of IDDRSI (2013-2018) and emphasized in the IGAD regional strategy (2016-2020), with renewed interest to have a regional and a common approach in resilience measurement and a call for the review of IGAD collective capacities for resilience building; that is, the predictive, preventive, responsive and adaptive capacities of IGAD countries expressed as a function of resilience in the face of vulnerabilities to internal and external factors and shocks, related to their respective development[2].

In January 2020, IGAD commissioned an assessment to identify the existing resilience measurement frameworks and approaches within the region to provide a foundation on which a common approach could be adopted. From the assessment it was impossible to propose any of the existing resilience measurement frameworks for adoption due to their limited scope of application (thematic and geographic), practicability and uniformity based on context as well as national and regional priorities. Therefore, the assessment team guided by technical experts from MSs and IGAD proposed the development of an IGAD region specific resilience measurement framework. This recommendation provided a first step in standardizing resilience measurement within the region. IGAD and MSs will continuously review the framework to ensure appropriateness and its applications to guide future improvements in targeted investments for resilience building as well as policy development. By visualizing the state of resilience within the region, MSs and IGAD will jointly assess country specific contexts disaggregated by shocks, sectors and geographical scale.

1.2 Objective of the IGAD Protocol for Resilience Measurement (IPRM)

The objective of the IGAD Protocol for Resilience Measurement (IPRM) is to provide a guideline for measuring resilience across the region. Once adopted, the proposed framework will be used to present the state of resilience per MS and across the region at a particular time.

[1] IGAD.2016. IGAD State of the Region Report. Medium Term Implementation Plan 2016-2020. Popular Version Report.
2 IGAD. 2016. The IGAD Regional Strategy 2016-2020.

2. Guidelines for Proposed IGAD Resilience Measurement Framework

2.1 Proposed high-level indicators

During consultations with MSs, IGAD specialized institutions and key stakeholders, it was proposed that in order to track resilience investments and periodically present the IGAD state of resilience, a set of high-level indicators be developed and agreed upon to guide the process. It was also noted that currently, all MSs have committed to and are already reporting on a number of resilience related indicators through their national development plans, the Africa 2063 Agenda under the Malabo Declaration Commitments, Sendai Framework for Disaster Risk Reduction (SFDRR) and Sustainable Development Goals (SDGs) even in the absence of specific resilience measurement frameworks.

The thirteen (13) high-level indicators below (Tables 1-13) are being proposed to measure resilience under IDDRSI. For ease of reference the indicators have been grouped in line with IDDRSI regional priorities, SFDRR and SDGs.

2.2 Technical guidelines for resilience measurement

The objective of this IPRM is to guide IGAD and MSs in monitoring, evaluating and reporting on the impact of resilience investment programmes in order to determine the state of resilience in the region. The IPRM is based on reporting progress on a set of agreed upon high-level indicators tracked over time and based on an agreed-upon methodology and data sources. The indicators will specifically be used to measure the progress and impact of IDDRSI and other resilience building investments towards achieving impact on building resilience in the region. The guidelines below have been simplified to support MSs and IGAD in their monitoring and reporting of the high-level indicators.

The proposed IPRM indicators are presented in the following format:

a) The indicator definition: a description of a measurable characteristic that shows change overtime for the IGAD IPRM.
b) Rationale: a set of logical reasons that qualifies the choice of indicator for inclusion in the framework.
c) Method of computation: the mathematical calculation that will be used to arrive at the indicator state/score.
d) Disaggregation: dividing data into detailed sub-categories such as gender. This is useful in revealing inequalities between different sub-categories that aggregated data cannot.
e) Scale: geographical coverage of the aggregation and measurement of a particular indicator.
f) Data requirements: prescriptions of content and structure that constitute quality data for a particular indicator.
g) Data sources: origins or places where data and information will be obtained for a particular indicator.
h) Frequency of reporting: regularity or rate at which the indicator will be tracked and reported.

2.2 Proposed Framework Limitations

There are a number of limitations to the proposed IPRM namely:

- Data requirements for this framework are relatively diverse for all proposed indicators. Therefore, proper arrangements should be put in place to improve data management capacity at MSs and IGAD levels and to make sure that data is availed as per scheduled frequency of reporting. Targeted capacity building of MSs and use of standardized data collection templates should be explored.
- Consensus should be sought on apportionment of factors/weights across all MSs in order to inform finalization and adoption of this framework. The proposed indicators will therefore need further review by technical experts from MSs, IGAD specialized institutions and key stakeholders in order to build consensus on wording, weighting and harmonizing data requirements and sources.
- MSs have different fiscal year planning and budgeting cycles and are at different stages with their development plans. There are also differences in the frequency of data collection cycles across MSs which is likely to affect comparability (i.e. MSs conduct Census, DHS, Household surveys, MCIS etc at different times and cycles.). IGAD will need to review how different MSs are reporting on the various indicators (some proposed) to regional and global commitments.

2.3 Proposed Indicator definitions

Table 1. Indicator 1: Extent of climate change adaptation integration in national development plans.

Indicator 1: Extent of climate change adaptation integration in national development plans	
DESCRIPTION	
Precise Definition(s):	This indicator will track progress among MSs in integrating climate change adaptation approaches into climate smart development. This will involve tracking budgetary allocations and investments and implementation of climate change adaptation interventions.
Rationale	Integrating gender responsive climate change adaptation measures into local and national development planning and delivery of climate compatible development will enhance resilience building and accelerate achievements of Sustainable Development Goals (SDGs).
Method of computation:	*Number of sectors that mainstream climate change adaptation (Nsc)* *Number of national development plans and strategies that mainstream climate change adaptation ($Nndps$)* $= Mean\left[\frac{Nsc}{Total\ Sectors} + \frac{Nndps}{Total\ Nndps}\right] X\ 100$
Disaggregated by:	Sectors, sub- national governance units
Scale	Community, sub-national and National
Data requirements	Climate change data and sectoral plans and reports
Data Source	Ministry of Environment, NAPAs, NAPs and NDCs.
Frequency of Reporting	Annual
IDDRISI PIA	PIA 1, PIA 3, PIA 4 and PIA 8
Regional/Global commitment	Sustainable Development Goals (SDG)/ Sendai Framework for Disaster Risk Reduction 2015-2030/Africa Agenda 2063

Table 2: Indicator 2: Domestic Food Price Volatility Index (VI)

Indicator 2: Domestic Food Price Volatility Index (VI)	
DESCRIPTION	
Precise Definition(s):	The Domestic Food Price Volatility Index measures the variability in the relative price of food in a country. It is a proxy for the quality functioning of food markets whereby barriers to trade, expanding volumes, reducing transaction costs, monopolies and prices should adopt more regular and flat patterns. Volatility is a natural phenomenon of the market economy where prices respond to changes in demand and supply[3]. The volatility of the food price indicator ''quantifies the intensity of fluctuations in food prices overtime. High volatility can increase vulnerability to food insecurity by increasing uncertainty, contributing to asset draw down during price peaks and a consequent reduction in real incomes and calories consumption by both rural and unburn consumers as poor households are unable to substitute cheaper foods in the face of price increases''[4].
Rationale	Climate change is strongly connected to food security and price volatility. The ability of households and individuals to cope with changes in domestic food price volatility during shocks is a measure of societal resilience and prospects for economic growth. Investments made by MSs in agricultural and non-agricultural interventions will improve the ability to build resilience of households and communities to withstand current and future price spikes. Volatility of food prices are closely linked with the stability dimension of food and nutrition security especially during shocks. Extreme price shocks will lead to insufficient micro and macronutrient intake, which negatively affects health and mortality; and impedes the physiological and cognitive development of children. A combination of better functioning markets for agricultural commodities and improved supply capacity could increase the resilience of households to cope with price and income shocks. A lower domestic food price volatility index means existence of policies and strategies that allows market systems to absorb changes in demand and supply[5], predicted positive responses and decisions by households, communities and governments adapting to changes in food prices in the short and long term[6] and improved subjective indicators of food security.
Method of computation:	*''The indicator is calculated from the monthly Domestic Food Price Level Index using monthly consumer and general food price indices by MSs National Bureau of Statistics (NBS)''[7].*

[3] Kalkuhl M., von Braun J., Torero M. (2016) Volatile and Extreme Food Prices, Food Security, and Policy: An Overview. In: Kalkuhl M., von Braun J., Torero M. (eds) Food Price Volatility and Its Implications for Food Security and Policy. Springer, Cham.
[4] von Braun, Joachim and Gebreyohanes, Getaw Tadesse. 2012. Global Food Price Volatility and Spikes: An Overview of Costs, Causes, and Solutions. ZEF- Discussion Papers on Development Policy No. 161. Available at https://ssrn.com/abstract=1992470.
[5] World Food Programme (WFP). 2009. Technical Guidance Sheet: The Basics of Market Analysis for Food Security.
[6] https://inddex.nutrition.tufts.edu/data4diets/indicator/volatility-food-prices
[7] https://inddex.nutrition.tufts.edu/data4diets/indicator/volatility-food-prices

Disaggregated by:	Shocks, seasonality, livelihoods
Scale	Community, sub-national and National
Data requirements	Food prices
Data Source	Global Information Early Warning System (GIEWS), Food price monitoring tool and National statistics, Resilience Index Measurement Analysis (RIMA)
Frequency of Reporting	Monthly, Quarterly, Semi-Annual and Annual
IDDRISI PIA	3 - Enhanced Production and Livelihoods Diversification
Regional/Global commitment	Commitment 6 of the Malabo declaration/SDG 2

Table 3: Indicator 3: Proportionate value ($) of economic loses attributed to shocks.

Indicator 3: Proportionate value ($) of economic loses attributed to shocks	
DESCRIPTION	
Precise Definition(s):	The term economic loss encompasses changes in wealth caused by damage to structures or other physical assets[8]. This can be direct (those resulting from building and infrastructure damage) or indirect (those that follow on from physical damage, destruction to markets and other social services). Direct economic loss refers to the monetary value of total or partial destruction of physical assets existing in the affected area while indirect economic loss refers to declines in output or revenue and impact on wellbeing of people that generally arise from disruptions to the flow of goods and services as a result of a disaster[9].
Rationale	Economic resilience is essential to better withstand adverse shocks and reduce the economic costs associated with them[10]. Disaster damages human and physical capital leading to short-term reduction in GDP.
Method of computation:	$= 1 - \left[\frac{Projected\ GDP - \ Actual\ GDP\ following\ a\ shock}{Projected\ GDP}\right] X\ 100$
Disaggregated by:	Hazard and shock, livelihood zones.
Scale	Community, sub-national and National
Data requirements	Damage and loss information, GDP estimates,
Data Source	National Disaster Loss Database, National Bureau of Statistics, World Bank, Emergency Events Database (EM-DAT), Disaster data (http://www.emdat.be), Post Disaster Needs Assessment(PDNA), Global climate risk Index reports, DesInventar (http://www.desinventar.net)
Frequency of Reporting	Annual
IDDRISI PIA	3 - Enhanced Production and Livelihoods Diversification
Regional/Global commitment	Sustainable Development Goals (SDG)/ Sendai Framework for Disaster Risk Reduction 2015-2030/Africa Agenda 2063

[8] Overseas Development Institute (ODI). 2015. Briefing Papers; Target 3: Economic losses from disasters. https://www.odi.org/sites/odi.org.uk/files/odi-assets/publications-opinion-files/9477.pdf
[9] UNDRR. 2015. Direct and Indirect Losses. https://www.preventionweb.net/risk/direct-indirect-losses
[10] David Sondermann. 2017. Towards More Resilient Economies: The role of well-functioning economic structures. http://aei.pitt.edu/83869/1/WD_2017_03_DSondermann_Resilient_Economies.pdf

Table 4: Indicator 4: Proportion value ($) of livestock lost during shocks

Indicator 4: Proportionate value ($) of livestock lost during shocks	
DESCRIPTION	
Precise Definition(s):	This indicator defines the value ($) of total Tropical Livestock Unit (TLU) lost following a drought and/or other shocks compared to the previous drought episodes and/or other shocks. Tropical Livestock Unit (TLU) is commonly taken to be an animal having a live weight of 250 kg[11].
Rationale	The livestock sub-sector forms a very important part of the economies of MSs with about 336 million total livestock units supporting the livelihoods of over 40 million people in the ASALs[12]. MSs and IGAD have, through national plans, prioritized collecting accurate data of their respective livestock production and productivity systems to develop, monitor and evaluate the short and long-term impacts of the polices and value of investments in the livestock sector (including livestock insurance). Reduction in livestock loses during and following shocks translates into improved absorptive capacity to cope and recover from shocks[13].
Method of computation:	$1 - \left[\frac{Value\ (\$)\ of\ TLUs\ lost}{Total\ Value\ (\$)\ of\ TLUs}\right] X\ 100$
Disaggregated by:	Livelihood zones (Pastoralists, agro-pastoralists), locations (sub national units)
Scale	Community, sub-national and National
Data required	Total number of livestock, Number of TLUs lost, Value of TLUs lost ($)
Data Source	Ministry of Livestock Census, Livestock Seasonal Assessments, Annual National livestock statistics, disease surveillance reports, PDNA, Specialized national institutions, ICPALD, AU-IBAR, ILRI, FAO
Frequency of Reporting	Seasonal, Ad hoc during shocks, annual.
IDDRISI PIA	3 - Enhanced Production and Livelihoods Diversification
Regional/Global commitment	Sustainable Development Goals (SDG)/ Sendai Framework for Disaster Risk Reduction 2015-2030/Africa Agenda 2063

[11] Global Strategy to improve Agriculture and Rural Statistics (GSARS). 2018. Guidelines on methods for estimating livestock production and productivity. http://gsars.org/wp-content/uploads/2018/06/GS-LIVESTOCK-GUIDELINES-completo-06.pdf

[12] IGAD Regional Framework 2016 – 2020.

[13] Oxfam. 2017. The Future is a Choice Absorb, adapt, transform Resilience Capacities - https://oxfamilibrary.openrepository.com/bitstream/handle/10546/620178/gd-resilience-capacities-absorb-adapt-transform-250117-en.pdf?sequence=4&isAllowed=y

Table 5: Indicator 5: Proportion of agricultural area under sustainable agriculture production

Indicator 5: Proportion of agricultural area under sustainable land management	
DESCRIPTION	
Precise Definition(s):	Sustainable Land Management (SLM) is the adoption of land use systems that, through appropriate management practices can enable pastoralists, farmers and other land users to have maximum economic and social benefits from the land while maintaining or enhancing the ecological functions of the land resources (Gachene, 2018)[14]. FAO defines SLM as the use of land resources, including soils, water, animals and plants, for the production of goods to meet changing human needs, while simultaneously ensuring the long-term productive potential of these resources and the maintenance of their environmental functions. Agricultural land/area is defined as the land area that is either arable, under permanent crops, or under permanent pastures (OECD[15], FAO)[16]. Arable land includes land under temporary crops such as cereals, temporary meadows for mowing or for pasture, land under market or kitchen gardens, and land temporarily fallow. Land abandoned as a result of shifting cultivation is excluded. Land under permanent crops is cultivated with crops that occupy the land for long periods and need not be replanted after each harvest, such as orchards and vineyards. This category excludes land under trees grown for wood or timber. Permanent pasture is land used for five or more years for forage, including natural and cultivated crops. Agricultural area under SLM is therefore defined as the proportion or amount of arable land, land under permanent crops, or that under permanent pastures used for the production of goods to meet changing human needs, while simultaneously ensuring the long-term productive potential of the land resources and the maintenance of their ecological and environmental functions.
Rationale	This indicator is related to the Malabo Declaration commitment number VI that aims at enhancing the resilience of livelihoods and production systems to climate variability and other related risks. Land degradation and desertification threaten the food security and livelihoods of millions of people, especially in drylands (FAO). Greater investments in SLM will increase agricultural productivity and resilience to climate change impacts in line with IDDRSI.

[14] Gachene, Charles. (2018). Sustainable Land Management in Dry Lands of Kenya.
[15] OECD (2020), Agricultural land (indicator). doi: 10.1787/9d1ffd68-en (Accessed on 01 July 2020)
[16] Food and Agriculture Organization of the United Nations (FAO) FAOSTAT - Statistical database on Land Use. http://faostat.fao.org/site/377/default.aspx#ancor

Method of computation:	$\left[\frac{Agriculture\ area\ under\ \ SLM}{Total\ \ Agricultural\ Land}\right] X\ 100$
Disaggregated by:	Livelihood zones, Ecological zones
Scale	Sub national and National.
Data requirements	Sustainable agricultural production measures i.e. agronomic, vegetative and management, livelihood zoning,
Data Source	TerrAfrica, MSs Ministries of Agriculture, FAO
Frequency of Reporting	Annual
IDDRISI PIA	3 - Enhanced Production and Livelihoods Diversification
Regional/Global commitment	Sustainable Development Goals (SDG)/ Sendai Framework for Disaster Risk Reduction 2015-2030/Africa Agenda 2063

Table 6: Indicator 6: Proportionate number of people in need of food assistance as a result of shocks

Indicator 6: Proportionate number of people in need of food assistance as a result of shocks	
DESCRIPTION	
Precise Definition(s):	This refers to the number of people in need of food assistance provided by the state and external sources expressed in terms of percentage of total number of people affected by shock. Food assistance includes food aid and cash transfers.
Rationale	Food security is a measure of resilience. It is therefore important to measure the capacity of individuals, households, communities and the State to prepare for and cope with food insecurity and malnutrition. Progressive reduction in the number of people in need of food assistance with little or no external support is a positive indicator of resilience. The objective of this is to measure food security at times of shocks and define the proportion of the population that needs food assistance. IGAD regional framework (2016-2020) emphasizes the need for improvements in food security and livelihood of communities in the ASALs and building their resilience to drought and other shocks[17]
Method of computation:	This relates to the percentage (%) change in the number of people in need of food assistance during droughts and other shocks. $1 - \left[\frac{Number\ of\ people\ in\ need\ of\ food\ assistance\ \ as\ a\ result\ of\ \ shocks}{Total\ number\ of\ people\ affected\ by\ \ shocks}\right] X\ 100$
Disaggregated by:	Gender, age and livelihood zones
Scale	Community, Sub-national and National
Data Required	Number of people affected by shocks; number of people in need of food assistance;
Data Sources	Post Disaster Needs Assessment (PDNA)s, Integrated Phase classification (IPC), Food Security and Nutrition Working Group Reports (FSNWG), Mid and Full season Assessments, RIMA
Frequency of Reporting	Annually
IDDRISI PIA	4 - Disaster Risk Management
Regional/Global commitment	Sustainable Development Goals (SDG)/ Sendai Framework for Disaster Risk Reduction 2015-2030/Africa Agenda 2063

[17] IGAD Regional Framework 2016-2020

Table 7: Indicator 7: Proportionate value ($) of admissible country humanitarian aid requests during shocks

Indicator 7: Proportionate value ($) of admissible country humanitarian aid requests during shocks	
DESCRIPTION	
Precise Definition(s):	This refers to the total amount of country humanitarian aid requirements expressed in the value ($) documented from appeals or external sources to cover for deficits during shocks.
Rationale	Strengthening political will and structuring development investments to avert humanitarian crisis is an indicator of MSs' increased capacity for resilience building. The capacity of a country to meet the total humanitarian requirements of its population in need with little or no external support is a measure of its resilience to shocks.
Method of computation:	$1 - \left[\frac{Value\ (\$) of\ external\ aid\ during\ shock(s)}{Total\ budget\ value\ (\$) of\ the\ response\ to\ shocks}\right] X\ 100$
Disaggregated by:	Shocks, Sector, Value ($), Gender, livelihood zones
Scale	Community, Sub-national, National
Data required	Total Value and sources of External Appeals ($), formal government/state appeal, Total budget value for shock response.
Data Source	PDNA, Ministry of finance and planning, relevant line ministries, mainstream institutional donors (USAID, EU, World Bank, UN, etc.), OCHA, Sector Response Plans, reputable national and international media sources.
Frequency of Reporting	Annually
IDDRISI PIA	4 - Disaster Risk Management
Regional/Global commitment	Sustainable Development Goals (SDG)/ Sendai Framework for Disaster Risk Reduction 2015-2030/Africa Agenda 2063

Table 8: Indicator 8: Functional legal frameworks for disaster risk management and resilience building

Indicator 8: Functional legal frameworks for disaster risk management and resilience building	
DESCRIPTION	
Precise Definition(s):	A legal framework is a broad system of rules, rights and obligations that govern and regulate decision-making, agreements and laws within a country[18]. Functional legal frameworks for disaster risk management (DRM) and resilience building refer to a broader set of rules including among others, policies, strategies, regulations, laws and sustained budget lines that are utilized or implemented to govern the organization of DRM and resilience building within MSs, both at national and sub national levels.
Rationale	UN member states adopted the Sendai framework for Disaster Risk Reduction (DRR) 2015 – 2030 Target (E) – to substantially increase the number of countries with national and local DRR strategies by 2020. Government spending on DRM and resilience building initiatives refers to the total spending for policy development processes as well as tangible DRM interventions at national and sub national levels. The indicator captures both the recurrent and capital budgets presented as a percent of GDP or national budget of the respective year and aggregated for all programs that contribute to DRM and resilience building.
Method of computation:	*1. Existence of functional legal frameworks for resilience and disaster risk management (**E_{lf}**)* *2. Existence of functional[19] institutions on resilience and disaster risk management (**E_{fi}**)* *3. Existence of DRM and resilience building budgets **(E_b)*** ***They are estimated as "0" if NO and "100%" if YES.*** ***$= [E_{lf} + E_{fi} + E_b]/3$***
Disaggregated by:	Number[20],
Scale	Community, sub national and National
Data requirement	DRM policies and Bills, institutions mandated for DRM/resilience, budget values ($)
Data Source	Ministry of Planning and Finance, Specialized national institutions
Frequency of Reporting	Annual

[18] https://www.translegal.com/dictionary/en/legal-framework/noun; https://resourcegovernance.org/sites/default/files/nrgi_Legal-Framework.pdf

[19] Existence of functional institutions means they are created by an Act of parliament, well-resourced and implemented.

[20] This refers to the number of legal frameworks (policies, bills, strategies) for resilience and DRM

IDDRISI PIA	4 - Disaster Risk Management
Regional/Global commitment	Sustainable Development Goals (SDG)/ Sendai Framework for Disaster Risk Reduction 2015-2030/Africa Agenda 2063

Table 9: Indicator 9: Number of timely early warning information disseminated that translates in to early action

Indicator 9: Number of timely early warning information disseminated that translates in to early action	
DESCRIPTION	
Precise Definition(s):	Early warning (EW) is "the provision of timely and effective information, through identified institutions, that allows individuals exposed to hazards to take action to avoid or reduce their risk and prepare for effective response."[21]. Having a timely early warning system means that those responsible for provision and dissemination of warnings are able to disseminate information to affected populations or to structures responsible for response with enough lead-time to prepare for and respond in order to minimize the impact of shocks.
Rationale:	Resilience capacity is time and event dependent. MSs national priorities are to reduce and manage potential disaster and risks associated with predictable or unpredictable extreme weather events before they turn into crises. Timely dissemination of early warning information for early action at national and subnational governments is therefore key to individuals, households, and communities' capacity[22] to anticipate, prepare for, respond to, cope and recover from shocks. When national governments have invested in robust early warning systems and are able to communicate early warning information on time, it will enable them to make informed decisions for early action and avert crises.
Method of computation:	The number of Early Warning information disseminated on time that translates into Early action i.e. Early warning information guidelines, bulletins, early action interventions etc.
Disaggregated by:	Shocks/hazards, livelihood zones, seasonality.
Scale	Community, Sub - National and National.
Data requirement	Availability of: Monitoring and Detection Platform, Forecast and Prediction Information, Decision-Making Support Platform, Warning Information Dissemination Platform, Multi-Hazard Information Database, Multi-agency coordination network system etc.
Data Source	Meteorological departments, FEWSNET, Sub-national/national early warning bulletins, ICPAC, Specialized national institutions (i.e. NDMA, NDOC)
Frequency of Reporting	Seasonal, Ad hoc based on context or shocks, annual.
IDDRISI PIA	4 - Disaster Risk Management
Regional/Global commitment	Sustainable Development Goals (SDG)/ Sendai Framework for Disaster Risk Reduction 2015-2030/Africa Agenda 2063

[21]

[22] Emergency Capacity Building Project (ECB). 2013. Toward Resilience: A Guide to Disaster Risk Reduction and Climate Change Adaptation. http://developmentbookshop.com/toward-resilience

Table 10: Indicator 10: Proportion of conflict and natural disaster-related deaths

Indicator 10: Proportion of conflict and natural disaster-related deaths	
DESCRIPTION	
Precise Definition(s):	This indicator measures the total number of conflict and disaster related deaths (during and directly after) and missing persons.
Rationale	Resilience of individuals, communities and systems is the ability to anticipate, prepare, respond and recover from external shocks. Significant reduction in the number of conflicts and natural disaster related deaths implies improved adaptive and absorptive capacities to shocks and disasters. This indicator is measured and reported in line with Target A and Target B of the Sendai framework for Disaster Risk Reduction (DRR) adopted by UN member states in match 2015 as global policy of DRR, Africa Agenda 2063.
Method of computation:	$1 - \left[\frac{Number\ of\ Conflict\ and\ natural\ disaster\ related\ deaths\ and\ missing\ persons}{Total\ number\ of\ people\ affected\ by\ conflicts\ and\ natural\ disasters}\right] X\ 100$
Disaggregated by:	Gender, age cohorts, cause, livelihood zones, ecosystems
Scale	Community, Sub and National
Data required	All data related to deaths and missing persons, number of deaths emanating from conflicts and natural disasters.
Data Source	CEWARN, PDNA, PDCNA, National specialized institutions on conflict and insecurity,
Frequency of Reporting	Annually, during shocks
IDDRISI PIA	6 - Peace Building, Conflict Prevention and Resolution 4 - Disaster Risk Management
Regional/Global commitment	Sustainable Development Goals (SDG)/ Sendai Framework for Disaster Risk Reduction 2015-2030/Africa Agenda 2063

Table 11: Indicator 11: Prevalence of acute malnutrition by children under 5

Indicator 11: Prevalence of Acute malnutrition by children under 5	
DESCRIPTION	
Precise Definition(s):	Child malnutrition, measured as the prevalence of underweight, stunted and wasted children - is an important component of the SDGs that is linked to poverty, low levels of education and poor access to health access. Malnutrition is routinely monitored and reported by IGAD MSs. The prevalence of acute malnutrition among children under 5 years is defined as the percentage and number of stunted, wasted and overweight children under 5 years of age. Global Acute Malnutrition (GAM) is a measure of acute malnutrition in children aged between 6 and 59 months. GAM provides information on the percentage of all children between 6 – 59 months range in a population. GAM above 10% is an emergency.
Rationale	Nutrition status of individuals and households is a measure of resilience. The measure of prevalence of acute malnutrition by children under 5 is important because acute malnutrition increases the risk of illness and death, and children of this age are particularly vulnerable to it. GAM is also considered an indicator of the overall food and nutrition situation of the general population. This indicator is based on World Health Organization (WHO) child growth standards that's is monitored and reported by all MSs.
Method of computation:	Global Acute Malnutrition (GAM) is obtained by combining the number of children in this age range who have moderate acute malnutrition and severe acute malnutrition. $1 - \left[\frac{Moderate\ Acute\ malnutrition + severe\ acute\ Malnutrition(5-59\ months)}{Total\ no.of\ observed\ children\ (5-59\ months)}\right] X\ 100$
Disaggregated by:	Gender, age, Socio economic groups, Geographical locations, Rural Urban livelihoods zones
Scale	Community and Sub-national National
Data required	Anthropometric data[23]
Data Source	Demographic and Health Surveys (DHS), Multiple Indicator Cluster Surveys (MICS), National nutritional surveys, WHO Global Database on Child growth and Malnutrition, https://www.who.int/nutgrowthdb//, UNICEF etc.
Frequency of Reporting	National nutritional surveys (Annual), DHS and MICS (3 – 5 years).
IDDRISI PIA	8 - Human Capital, Gender and Social Development
Regional/Global commitment	Sustainable Development Goals (SDG)/ Sendai Framework for Disaster Risk Reduction 2015-2030/Africa Agenda 2063

[23] Refers to the scientific study of the measurements and proportions of the human body

Table 12: Indicator 12: Proportion of vulnerable social groups with access to social safety nets

Indicator 12: Proportion of vulnerable social groups with access to social safety nets	
DESCRIPTION	
Precise Definition(s):	This refers to the total number of vulnerable populations with access to social safety nets provided by the state and non-state actors. Social safety nets (SSNs) are defined as programmes (State and non-state) involving non-contributory transfers targeting the poor and vulnerable during normalcy or as a cushion against shocks[24].
Rationale	Access to social safety nets cushions the vulnerable populations from the negative impacts of shocks and prevents them from adopting negative coping mechanisms. The need for SSNs is a priority concern and their provisions is embedded in the development plans of IGAD and MSs.
Method of computation:	$\frac{Number\ of\ the\ Poor, Elderly, Disabled\ and\ other\ vulnerable\ groups\ with\ access\ to\ social\ safety\ nets}{Total\ Number\ of\ the\ Poor, Elderly, Disabled\ and\ other\ vulnerable\ groups} X\ 100$
Disaggregated by:	Gender, Age cohorts, Disability type.
Scale	Community, Sub-national and National.
Data requirements	Number of people accessing different forms of social safety nets or social protection, social protection indicators.
Data Source	Post Disaster Needs Assessment (PDNA), Social Safety Net program reports, Country specific Global Development Index (GDI), National Bureau of Statistics.
Frequency of Reporting	Annually
IDDRISI PIA	8 - Human Capital, Gender and Social Development.
Regional/Global commitment	Sustainable Development Goals (SDG)/ Sendai Framework for Disaster Risk Reduction 2015-2030/Africa Agenda 2063.

[24]IEG (Independent Evaluation Group). 2011. Social Safety Nets: An Evaluation of World Bank Support, 2000–2010. Washington, DC: Independent Evaluation Group, the World Bank Group.

Table 13: Indicator 13: Proportionate access to critical infrastructure (i.e. health, water, roads, bridges, schools, markets) by population

Indicator 13: Proportionate access to critical infrastructure (i.e. health, water, roads, bridges, schools, markets) by population	
DESCRIPTION	
Precise Definition(s):	**Climate resilient Critical infrastructure (CF)** – is defined as the physical or intangible assets whose destruction or disruption would seriously undermine public safety, social order and the fulfilment of key government responsibilities.[25] Possible number of functional climate resilient critical infrastructure to be analyzed at the time of shocks include but are not limited to: i) Health Centers - **HC** ii) Water Hygiene and Sanitation - **WASH** iii) Roads - **R** iv) Bridges - **B** v) Markets - **M** vi) Education facilities - **ED** vii) Shelter and Housing - **SH** viii) Energy - **E** ix) Information Communication Technology - **ICT**
Rationale	Infrastructure resilience is the ability to reduce the magnitude and/or duration of disruptive events[26]. Functionality of critical infrastructure and provision of services during shocks is a measure of resilience. Infrastructure resilience is further defined by its: (1) Robustness—the ability to absorb shocks and continue operating; (2) Resourcefulness—the ability to skillfully manage a crisis as it unfolds; (3) Rapid Recovery—the ability to get services back as quickly as possible; (4) Adaptability—the ability to incorporate lessons learned from past events to improve resilience. This indicator is an IDDRSI and MS priority; Africa 2063 Agenda (Malabo declaration commitment 5.2i) and Sustainable Development Goals.
Method of computation:	$\frac{Number\ of\ functional\ climate\ resilient\ critical\ infrastructure}{Total\ number\ of\ critical\ infrastructure} X\ 10$ *% of functional CF =Average [* $\frac{HCf}{HCt} + \frac{WASHf}{WASHt} + \frac{Rf}{Rt} + \frac{Bf}{Bt} + \frac{Mf}{Mt} + \frac{EDf}{EDt} + \frac{SHf}{SHt} + \frac{Ef}{Et} + \frac{ICTf}{ICTt}$ *] X 100* Where f refers to functional CF and t refers to total number of CF

[25] Organization for Economic Co-operation and Development (OECD). 2008. Protection of 'Critical Infrastructure' and the Role of Investment Policies Relating to National Security - https://www.oecd.org/daf/inv/investment-policy/40700392.pdf

[26] Organization for Economic Co-operation and Development (OECD). 2008. Protection of 'Critical Infrastructure' and the Role of Investment Policies Relating to National Security - https://www.oecd.org/daf/inv/investment-policy/40700392.pdf

Disaggregated by:	Type, shock, ecosystem, livelihood zone
Scale	Community, Sub national and National.
Data required	Data specific to each critical infrastructure, distance to critical facilities, Average cost of repairs,
Data Source	DHS, NBS, GIS, PDNA, Specialized national institutions and Line Ministries
Frequency of Reporting	Annual, during shocks
IDDRISI PIA	8 - Human Capital, Gender and Social Development
Regional/Global commitment	Sustainable Development Goals (SDG)/ Sendai Framework for Disaster Risk Reduction 2015-2030/Africa Agenda 2063

3. The Proposed IGAD Protocol for Resilience Measurement (IPRM)

3.1 Computing the State of Resilience in the IGAD region

The IPRM will be grounded on selected indicators as detailed in the previous section. These indicators will be used to measure the progress of IDDRSI towards achieving impact on building resilience in the region and demonstrating value-for-money for regional investments. The indicators will be tracked by individual MSs and progress compared against targets by IGAD resulting into periodic state of resilience reports. The indicator definitions give clarity on required data parameters for MSs to ensure alignment and quality of data. After the firming up of the high-level indicators by IGAD and consensus building by MSs, the next step will be to pilot the framework (the actual data collection, collation and visualization of the progress) among one or two MSs followed by rollout within the entire region.

3.2 Data Collection

The assessment revealed that data collection for measuring resilience is a challenge among IGAD and MSs. Although there are governmental, non-governmental, national and international organizations that will be sources of data, consistent high-frequency and high-quality data for all indicators may still not be available for some of the MSs. Increased investments in data collection by IGAD and MSs is therefore needed to ensure a comprehensive information platform that harmonizes all information. Also, IGAD and MSs need to increase their commitment to sharing high-quality data on all the proposed indicators to harmonize resilience measurement across the region.

The majority of the proposed indicators (10) are quantitative while three (3) are qualitative. Most of these indicators were adopted from existing frameworks and/or commitments (IDDRISI, Sendai, Agenda 2063 (Malabo Declaration) and SDG's) thus MSs are already tracking them. It is therefore assumed that routine data collection by MSs through national bureau of statistics and other specialized national institutions is institutionalized and less resources will be spent on building their capacity to report on the framework. Guidelines on the data sources and the computation of the same will guide MSs in ensuring uniformity and validity of the metrics for comparability. An initial mapping exercise of data requirements and sources per indicator will be collated to identify the current capacity gaps to inform targeted capacity building to MSs for successful adoption and reporting across the region.

3.3 Data quality

IGAD is in the process of establishing a Statistics Unit and in this regard, a Statistics Officer has been recruited to fast-track the process. The unit is expected to consolidate formal institutional linkages and mechanisms for data and information sharing between the IGAD Secretariat and National Statistical Offices as well as national line ministries. It is therefore anticipated that this will aid IGAD in harnessing data and information produced by its MSs to facilitate implementation of regional policies and programmes.

The Statistics Unit will work with MSs to facilitate harmonisation, comparability and accessibility of data, build on existing good practices, and to strengthen the statistical capacity of the MSs where necessary. Within this, key areas that have been laid out to be supported include among others;

harmonisation of data sources, concepts, methods and standards, data management, information flows and data exchange mechanisms.

IFRAH is also in the process of developing an evidenced-based [informed by a capacity and needs assessment of relevant existing information systems at MSs] institutional food security, nutrition and resilience information framework to support systematic coordination and collaboration for implementing an IGAD integrated food security, nutrition and resilience information system. It is envisaged that this will facilitate harmonisation of practice and consistency in key areas including methodologies, data collection, analysis, reporting and dissemination; intra-regional data sharing; and technical and institutional capacity building to ensure effective operationalisation and sustenance of the information system.

3.4 Data Collation

The indicators in the framework will be manually coded to the IGAD Di Monitoring Tool[27] for tracking purposes. Di Monitoring is an IGAD owned web-based data management tool that facilitates tracking and visualization of investments. Eeach of the (13) selected high-level indicators will be coded into the tool to capture baseline values per MS and IDDRSI regional strategy targets. Real-time panel/longitudinal data guided by the indicator definition will be captured periodically and aggregated as appropriate.

The database as well as data processing pipeline will be managed by the IGAD existing in-house capacity. The Statistics Unit will take lead in the general creation and maintenance of the database while the IFRAH Data and Information Systems Analyst will lead in the development of the reporting templates, data management and reporting. MSs data focal points will work closely with the Statistics Unit and the IFRAH Data and Information Systems Analyst in data collection and collation.

3.5 Visualization

A dashboard module with real-time analytics off the web-based Di monitoring tool will provide a visualized state of resilience in the region as well as progress made over time for each indicator. This will enable IGAD to gain insight from the data collated from MSs on resilience status through drill downs for ease of comparisons. Real-time visualization for each indicator per MS and/or across MSs will be available from the Di Monitoring tool. Use of clickable maps and color-coding functionality will be incorporated to enhance the visualization experience.

3.6 Illustration using dummy data

This section illustrates the proposed functionality of the proposed resilience framework operationalization using dummy data for 2 indicators.

1. Proportionate number of people in need of food assistance as a result of shocks
2. Proportion of vulnerable social groups with access to social safety nets

[27] The di Monitoring tool, is a web-based project monitoring solution intended to facilitate the tracking of the IDDRSI development plans at regional, national and sub-national level https://igad.int/video/1460-dimonitoirng-tool-for-monitoring-drought-resilience-programs

Presentation of the overall state of resilience will be against provisions of the proposed IGAD Protocol for Resilience Measurement across the member states. This will be an aggregated resilience index compared across member states and will be arrived at as per the following steps.

STEP 1: Sourcing data from member states

The starting point will be to gather all the required data as per the reporting schedules guided by the indicator definitions.

STEP 2: Allocate Indicator weights

The next step is weighting of the indicators. Prior to adopting and piloting of the framework, IGAD and MSs will have to review and agree on the weighting of each indicator for purpose of computing the region's state of resilience. For the qualitative indicators, the existence of the measure denotes 100% while the absence denotes 0%.

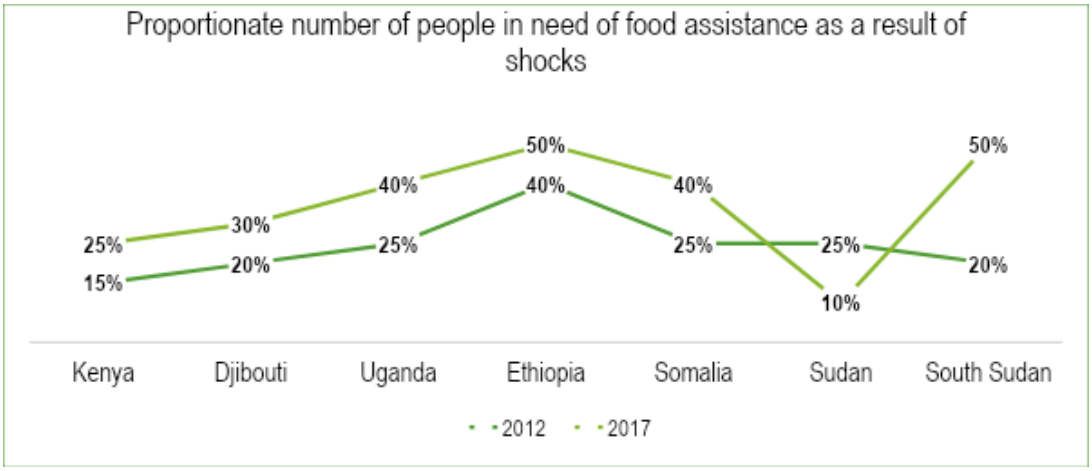
STEP 3: Visualization of indicators and interpretation

The ultimate aim of collecting scheduled longitudinal data from MSs is to make comparisons across periods as well as across member states. For demonstration purposes, the selected indicators are demonstrated below.

Figure 1 below summarizes the dummy progress made by MSs in tracking indicator:

"Proportionate number of people in need of food assistance as a result of shocks"

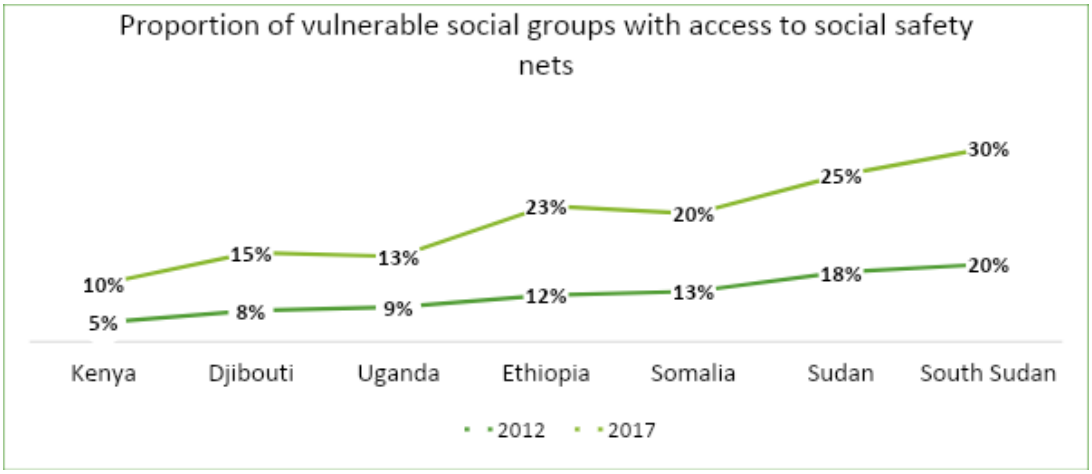
Figure 1: Indicator 1: Visualization pitting head to head 2012 and 2017 data to show progress



Sample interpretation: Figure 1

Therefore, from *Figure 1*: apart from Sudan, all other member states did not make progress in this indicator as indicated by the progressive increase in the proportionate number of people in need of food assistance. On average there was an 11 percent increase in the number of people in need of food assistance with South Sudan leading at 30%. The overall standard deviation of was 14%.

Figure 2: Indicator 2: Visualization pitting head to head 2012 and 2017 data to show progress



Sample interpretation: Figure 2

From figure 2. All member states made progress in this indicator as indicated by the progressive increase in access to social safety nets. On average there was an additional 7 percent increase in the number of people who accessed social safety nets with a standard deviation of 2.5%.

STEP 4: Computing the Resilience Index

The ultimate aim of this exercise is to come up with an index score that can compare resilience of member states across the IGAD region. After data from member states has been captured as guided by the indicator definition, the next step will be to compute the Resilience index. This will be achieved by calculating the product of the indicator scores against the weights before summation of all the indicators to give the resilience index of a member state. As demonstrated by table 15, the formula for calculating the resilience index is as below;

$$\textbf{\textit{Resilience Index (RI)}} = (p_1 * w_1) + (p_2 * w_2) + (p_3 * w_3) + (p_4 * w_4) + (p_5 * w_5) + (p_6 * w_6) + (p_7 * w_7) + (p_8 * w_8) + (p_9 * w_9)\ (p_{10} * w_{10}) + ((p_{11}) * w_{11}) + (p_{12} * w_{12}) + (p_{13} * w_{13}) \ldots (p_n * w_n)$$

Note:

1. "*p*" is used to denote an indicator (i.e. "$p_1 \ldots p_n$")
2. "*w*" is used to denote an Indicator weight (i.e. "$w_1 \ldots w_n$")
3. There will be "negative" and "positive" indicators.
4. Defining the "negative" or "positive" indicators is qualitative process that needs consensus.
5. For the "negative" indicators: (2, 3, 4, 6, 7,10, 11) where by the lower the score, the better; the indicator computation formula transposes them by subtracting the score from one (1).
6. For the positive indicators – the computation will be done using the scores captured against the weights without any transposition.
7. It is proposed that qualitative indicators be scored using the following criteria (based on consensus);
    - Existence – 1(100%)
    - Partial existence – 0.5 (50%)
    - Nonexistence – 0 (0%)

Table 14: Proposed IGAD Protocol for Resilience Measurement

Indicator	IDDRISI PIA	Denote	Indicator type	Weights	Perfect Score	Computation
1: Extent of climate change adaptation integration in national development plans	*All*	p_1	*Qualitative*	w_1	100%	(p_1*w_1)
2: Domestic Food Price Volatility Index (VI)	PIA 3	p_2	*Quantitative*	w_2	100%	(p_2*w_2)
3: Proportionate value($) of economic loses attributed to shocks	PIA 3	p_3	*Quantitative*	w_3	100%	$(p_3* w_3)$
4: Proportion value($) of livestock lost in during shocks	PIA 3	p_4	*Quantitative*	w_4	100%	$(p_4* w_4)$
5: Proportion of agricultural area under sustainable agriculture production	PIA 3	p_5	*Quantitative*	w_5	100%	(p_5*w_5)
6: Proportionate number of people in need of food assistance as a result of shocks	PIA 4	p_6	*Quantitative*	w_6	100%	(p_6*w_6)
7: Proportion value ($) of admissible country humanitarian AID requests during shocks	PIA 4	p_7	*Quantitative*	w_7	100%	$(p_7* w_7)$
8: Functional legal frameworks for disaster risk management and resilience building	PIA 4	p_8	*Qualitative*	w_8	100%	(p_8*w_8)
9: Number of timely early warning information disseminated that translate to early action	PIA 4	p_9	*Qualitative*	w_9	100%	(p_9*w_9)
10: Proportion of conflict and natural disaster-related deaths	PIA 6, 4	p_{10}	*Quantitative*	w_{10}	100%	$(p_{10}*w_{10})$
11: Prevalence of acute malnutrition by children under 5	PIA 8	p_{11}	*Quantitative*	w_{11}	100%	$(p_{11})*w_{11})$
12: Proportion of vulnerable social groups with access to social safety nets	PIA 8	p_{12}	*Quantitative*	w_{12}	100%	$(p_{12}*w_{12})$
13: Proportion access to critical infrastructure (i.e. health, water, roads, bridges, schools, markets) by population	PIA 8	P_{13}	*Quantitative*	W_{13}	100%	$(p_{13}*w_{13})$
					Resilience Index (RI)	**100%**

Table 15: The IGAD Protocol for Resilience Measurement (IPRM) using dummy scores for demonstration

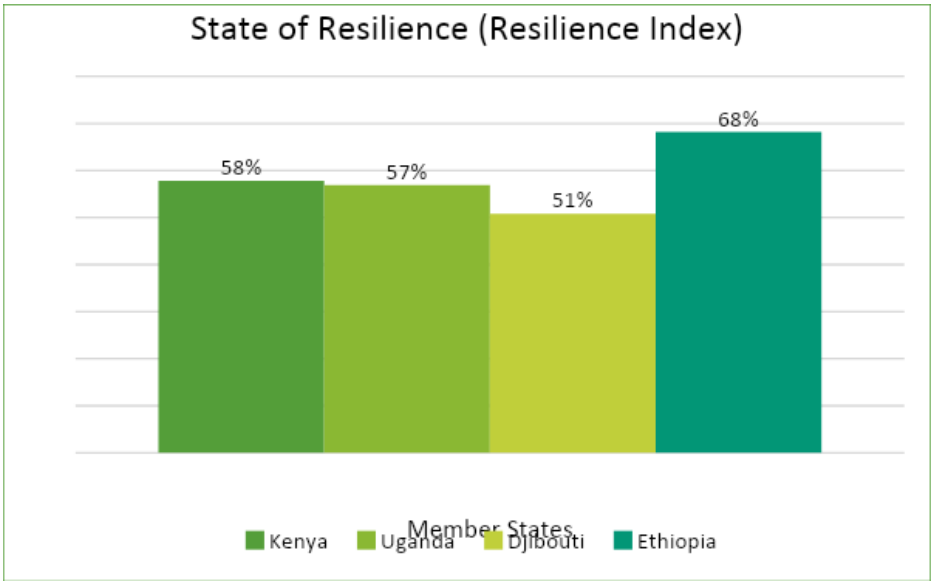
For the case of demonstration, all the 13 indicators have been equally assigned the same weight of 0.0769 which is as a result of dividing 100/13.

		Kenya		Uganda		Djibouti		Ethiopia	
Indicator	**Quant Weights**	**Dummy Score**	**Resilience Index**	**Dummy Score**	**Resilience Index**	**Dummy Score**	**Resilience Index**	**Dummy Score**	**Computation**
1: Extent of climate change adaptation integration in national development plans	*0.07692*	*100%*	*7.7%*	*100%*	*8%*	*0%*	*0*	*100%*	*8%*
2: Domestic Food Price Volatility Index (VI)	*0.07692*	*90%*	*0.8%*	*30%*	*5%*	*60%*	*3%*	*27%*	*6%*
3: Proportionate value($) of economic loses attributed to shocks	*0.07692*	*70%*	*2.3%*	*30%*	*5%*	*60%*	*3%*	*28%*	*6%*
4: Proportion value($) of livestock lost in during shocks	*0.07692*	*70%*	*2.3%*	*30%*	*5%*	*60%*	*3%*	*25%*	*6%*
5: Proportion of agricultural area under sustainable agriculture production	*0.07692*	*80%*	*6.2%*	*40%*	*3%*	*50%*	*4%*	*30%*	*2%*
6: Proportionate number of people in need of food assistance as a result of shocks	*0.07692*	*0%*	*7.7%*	*40%*	*5%*	*30%*	*5%*	*50%*	*4%*
7: Proportion value ($) of admissible country humanitarian AID requests during shocks	*0.07692*	*0%*	*7.7%*	*15%*	*7%*	*30%*	*5%*	*56%*	*3%*
8: Functional legal frameworks for disaster risk management and resilience building	*0.07692*	*0%*	*0.0%*	*0%*	*0%*	*0%*	*0%*	*100%*	*8%*
9: Number of timely early warning information disseminated that translate to early action	*0.07692*	*100%*	*7.7%*	*0%*	*0%*	*100%*	*8%*	*100%*	*8%*
10: Proportion of conflict and natural disaster-related deaths	*0.07692*	*35%*	*5.0%*	*30%*	*5%*	*30%*	*5%*	*30%*	*5%*
11: Prevalence of acute malnutrition by children under 5	*0.07692*	*40%*	*4.6%*	*15%*	*7%*	*10%*	*7%*	*17%*	*6%*
12: Proportion of vulnerable social groups with access to social safety nets	*0.07692*	*34%*	*2.6%*	*50%*	*4%*	*30%*	*2%*	*50%*	*4%*
13: Proportion access to critical infrastructure (i.e. health, water, roads, bridges, schools, markets) by population	*0.07692*	*43%*	*3.3%*	*40%*	*3%*	*60%*	*5%*	*40%*	*3%*
Resilience Index (RI)			***58%***		***57%***		***51%***		***68%***

STEP 5: Visualization of the Resilience Index

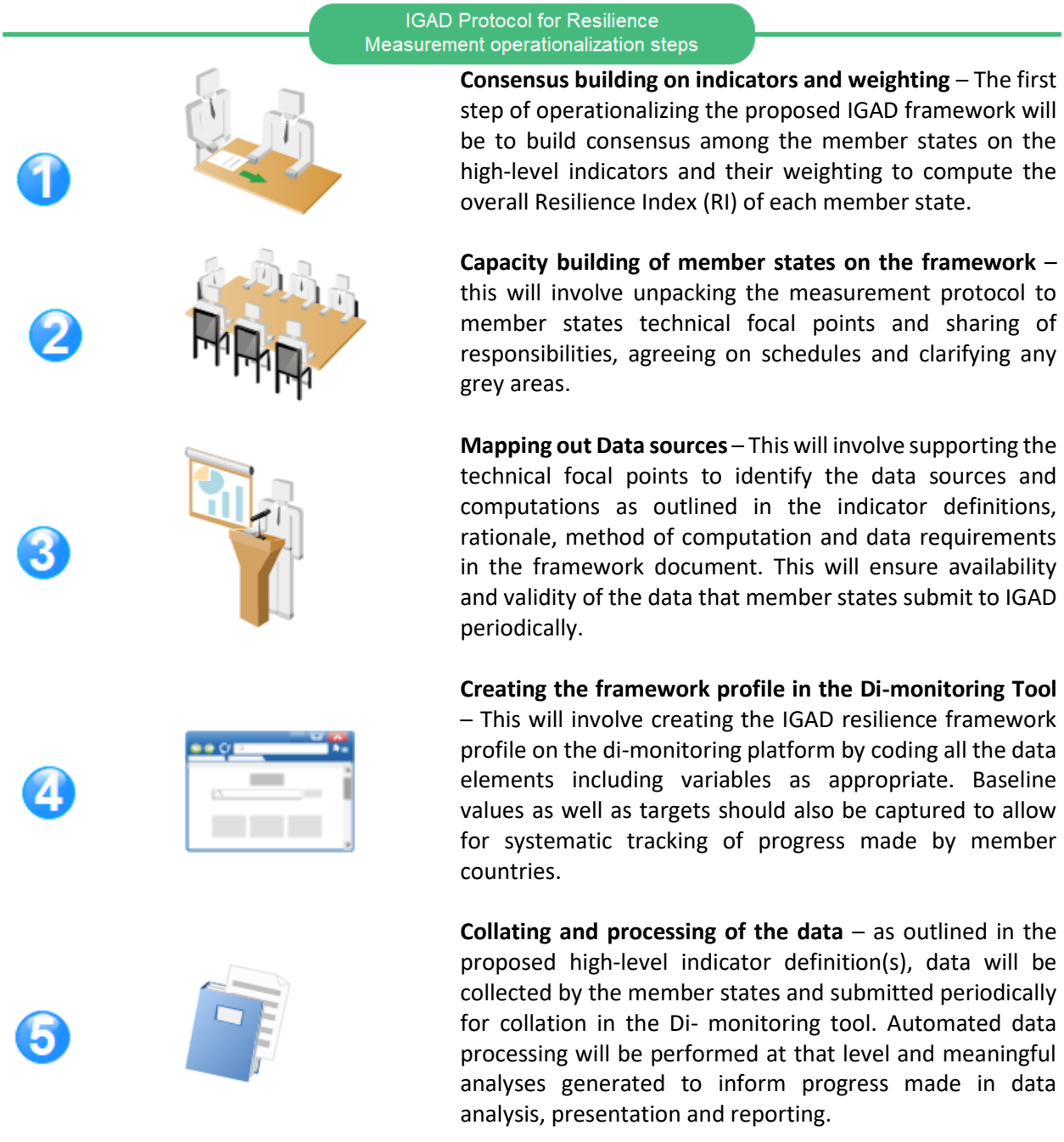
The Resilience Index score aggregated in the previous step gives a score for each member state using the captured data. The ultimate result for this will be to visualize the resilience index score and be able to compare member states' progress as per the illustrated dummy *figure 3* off the IGAD Di monitoring tool. This will ultimately be integrated with maps with a possible color coding according to measure.

Figure 3: Dummy State of Resilience in the IGAD Region



3.7 IGAD Protocol for Resilience Measurement Operationalization

Figure 4: IGAD Protocol for Resilience Measurement Operationalization Steps



Consensus building on indicators and weighting – The first step of operationalizing the proposed IGAD framework will be to build consensus among the member states on the high-level indicators and their weighting to compute the overall Resilience Index (RI) of each member state.

Capacity building of member states on the framework – this will involve unpacking the measurement protocol to member states technical focal points and sharing of responsibilities, agreeing on schedules and clarifying any grey areas.

Mapping out Data sources – This will involve supporting the technical focal points to identify the data sources and computations as outlined in the indicator definitions, rationale, method of computation and data requirements in the framework document. This will ensure availability and validity of the data that member states submit to IGAD periodically.

Creating the framework profile in the Di-monitoring Tool – This will involve creating the IGAD resilience framework profile on the di-monitoring platform by coding all the data elements including variables as appropriate. Baseline values as well as targets should also be captured to allow for systematic tracking of progress made by member countries.

Collating and processing of the data – as outlined in the proposed high-level indicator definition(s), data will be collected by the member states and submitted periodically for collation in the Di- monitoring tool. Automated data processing will be performed at that level and meaningful analyses generated to inform progress made in data analysis, presentation and reporting.

Generating Visualization – Data visualization is the graphical representation of information and data. This will be made possible through visual elements like charts, graphs, and color coded maps. This will make it possible for member states and IGAD to understand trends and patterns in the data they submit on resilience overtime.

The Di monitoring tool visualization module will provide a powerful real time visualization with data filters[28] and drill downs to enable IGAD and member states to gain more insights from the resilience data. This module will enable member states relate investments and results as well as communicate findings/information on an efficient way.

Generate periodic IGAD state of resilience report - The above process will culminate in the generation of a periodic IGAD region state of resilience report. This report will be informed by information generated by this framework as well case studies from other sources to further triangulate and qualify the findings.

3.8 Reporting and monitoring of indicators

A clear data collection plan from IGAD will help ensure that the institution obtain the necessary data needed for reporting and cycles in reference to the frequencies outlined in the indicator definition. It is advised that IGAD through IDDRSI coordinators have a focal point to coordinate the periodic data collection and collation process from the member states. This will ensure timely and accurate submission of data and quality control. Capacity building by the IGAD team coupled by the member states focal points will also weigh in on the quality of the data received. Progress made on the indicators will be tracked, visualized and triangulated from other sources such as existing resilience measurement frameworks to make sense of the trends.

3.8.1 Reporting and dissemination

Dissemination of the periodic state of resilience report will generate lots of interest to relevant stakeholders who include MSs, IGAD, specialized institutions, donors and communities. The periodic reporting will provide comprehensive updates on state of resilience in the region and inform investments priorities for member states and IGAD on matters resilience. IGAD will map out other relevant stakeholders to share the report with alongside member states.

[28] Data filtering is the process of choosing a smaller part of your data set and using that subset for analysis at a smaller scale

3.8.2 Roles and responsibilities for roll out

Both IGAD and member states will share roles and responsibilities throughout reporting and dissemination of the state of resilience report as illustrated in section 3.6. IGAD will coordinate the process, build capacity on the framework and consolidate the report while MSs will provide accurate and verified data.

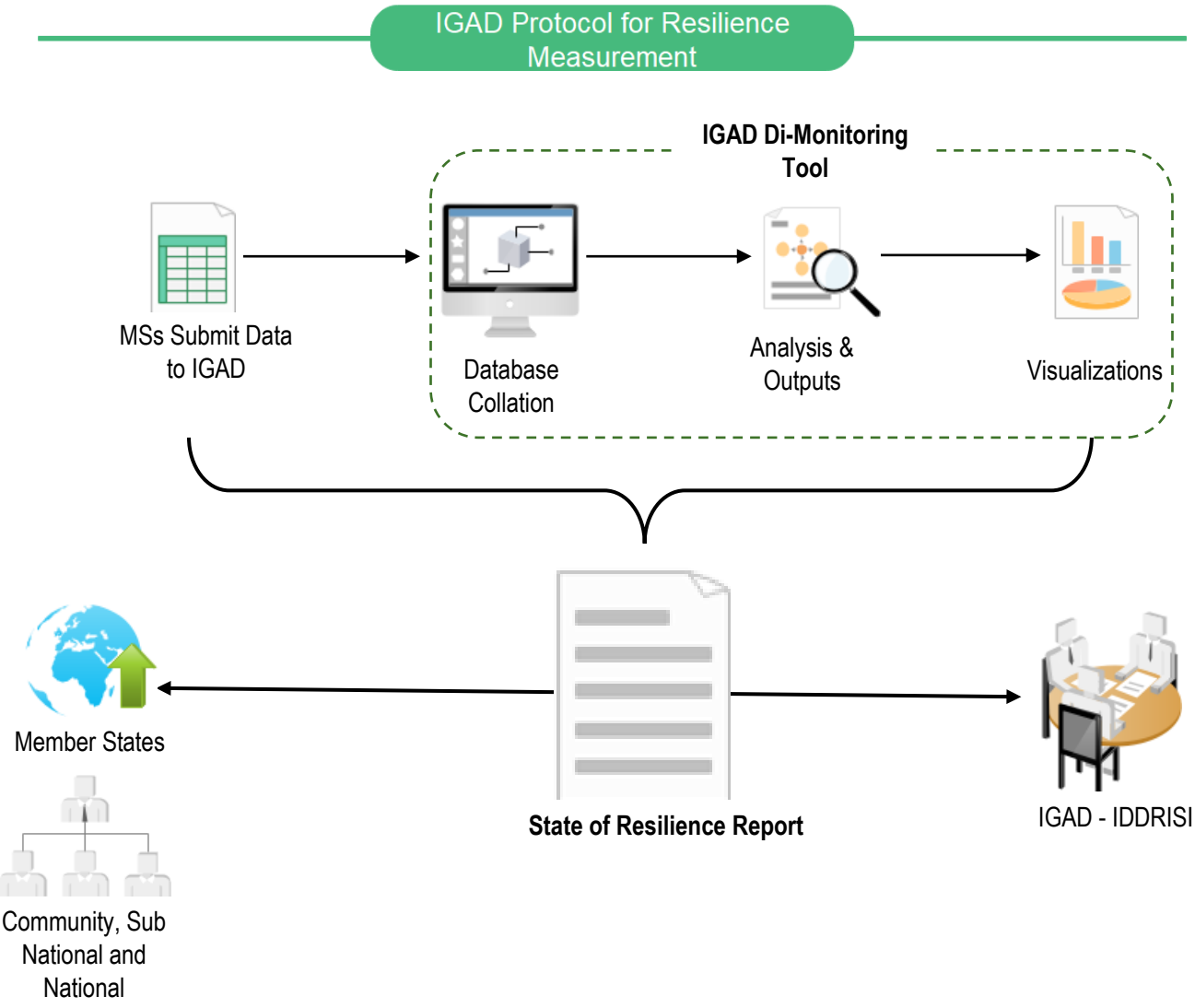
3.8.3 Monitoring, Reporting and dissemination

It may be beneficial to develop a monitoring, reporting and dissemination plan for the framework. Ideally, the plan will outline protocols to monitor, communicate results, roles and responsibilities for disseminating results, timeframes and levels of dissemination, successes and challenges to be addressed in between reports. This will also outline how results will feed into other national, regional and global reporting and future planning and decision-making processes.

Routine monitoring data will be generated from member states and submitted to IGAD from various scales (Community, sub National and National) collated from various data sources as guided by the specific indicator definitions. The same data will be captured in the Di monitoring tool under the framework's profile - this will involve importing the data from a pre-designed data sheet or manually keying it into the tool. Routine analysis of the data will be performed to show trends and progress achieved.

The visualization module of the Di monitoring will provide an interactive interface for IGAD and member states to perform drill downs and gain more insights to the processed data to enrich the report. IGAD-IDDRSI and the member states will be consumers of the state of resilience report to inform policy and investments going forward.

Figure 5: Data, Analysis and reporting flow



4. Conclusions and recommendations

4.1: Conclusion

The IPRM proposes high-level indicators, their definitions and computation to guide MSs and IGAD in ensuring uniformity in data collection, collation and computation of the resilience index as well as in determining the state of resilience in the region. Identification of the indicators was as a result of participatory engagement with MSs, IGAD specialized institutions and key stakeholders as well as review of existing documents in relation to IDDRSI priority intervention areas. The framework will be convenient in generating good practices that can be shared within member states to enable cross learning.

4.2: Recommendations

1. Consensus needs to be sought with MSs on the indicators and their weighting to inform computation. The frequency of data collection needs to be agreed upon in order to enhance comparability and alignment with Global and regional commitments.
2. IGAD should take lead in building capacity of MSs to be able to meet data reporting requirements for this framework. This should begin by conducting a rapid assessment on data and capacity gaps and moving swiftly to address them for the success of this framework.
3. IGAD should consider having focal point persons across MSs who will take lead in making available the data requirements as defined herein.
4. The framework implementation should be phased, starting with a pilot conducted with MSs that are in position to report then work with the rest on aligning their capacities to be able to report. Start small as targeted capacity will enhance uptake with time.