

Research Terms of Reference

Shocks Monitoring Index

AFG2313

Afghanistan

March 2024

V1

REACH Informing more effective humanitarian action

1. Executive Summary

Country of intervention	Afghanistan					
Type of Emergency	<input checked="" type="checkbox"/>	Natural disaster	<input checked="" type="checkbox"/>	Conflict	<input type="checkbox"/>	Other (<i>specify</i>)
Type of Crisis	<input checked="" type="checkbox"/>	Sudden onset	<input checked="" type="checkbox"/>	Slow onset	<input checked="" type="checkbox"/>	Protracted
Mandating Body/ Agency	World Food Programme					
IMPACT Project Code	02AZZ					
Overall Research Timeframe (<i>from research design to final outputs / M&E</i>)	01/05/2023 for pilot / recurring on a monthly basis / this round 01/03/2025 – 20/04/2025					
Research Timeframe <i>Add planned deadlines (for first cycle if more than 1)</i>	1. Pilot/ training: __/__/__			6. Preliminary presentation: __/__/__		
	2. Start data consolidation: __/__/__			7. Outputs sent for validation: 20/04/2024		
	3. Data consolidated: _30/03/2024 _			8. Outputs published: 30/04/2024		
	4. Data analysed: 05/04/2024 _			9. Final presentation: __/__/__		
	5. Analysis sent for validation: 10/ 04/2024					
Note: The research cycle does not contain any primary data collection.						
Number of assessments	<input type="checkbox"/>	Single assessment (one cycle)				
	<input checked="" type="checkbox"/>	Multi assessment (more than one cycle) <i>Monthly 1. Shocks Occurrence Analysis and 2. Shocks Severity Analysis</i>				
Humanitarian milestones <i>Specify what will the assessment inform and when</i> <i>e.g. The shelter cluster will use this data to draft its Revised Flash Appeal;</i>	Milestone		Deadline (can be tentative)			
	<input checked="" type="checkbox"/>	Donor plan/strategy	__/__/__			
	<input checked="" type="checkbox"/>	Inter-cluster plan/strategy	__/__/__			
	<input type="checkbox"/>	Cluster plan/strategy	__/__/__			
	<input type="checkbox"/>	NGO platform plan/strategy	__/__/__			
<input type="checkbox"/>	Other (Specify):	__/__/__				
Audience type			Dissemination			

Audience Type & Dissemination <i>Specify who will the assessment inform and how you will disseminate to inform the audience</i>	<input type="checkbox"/> Strategic <input checked="" type="checkbox"/> Programmatic <input type="checkbox"/> Operational <input type="checkbox"/> [Other, Specify]		<input checked="" type="checkbox"/> General Product Mailing (e.g. mail to NGO consortium; HCT participants; Donors) <input type="checkbox"/> Cluster Mailing (Education, Shelter and WASH) and presentation of findings at next cluster meeting <input checked="" type="checkbox"/> Presentation of findings at AAWG meetings <input type="checkbox"/> Website Dissemination (Relief Web & REACH Resource Centre) <input type="checkbox"/> [Other, Specify]	
Stakeholder mapping <i>Has a detailed stakeholder mapping been conducted during research design to identify all actors that could contribute to and/or benefit from the research?</i>	<input checked="" type="checkbox"/>	Yes	<input type="checkbox"/>	No
General Objective	Use existing data collected by REACH and external partners to monitor shocks monthly, thereby improving the humanitarian community's ability to identify districts at risk of a deteriorating humanitarian situation, including food security outcomes. Outputs from the Shocks Monitoring Index will directly feed into WFP's monthly Food Security Monitoring and Early Warning system and are also intended to be utilized to inform the Assessment and Analysis Working Group (AAWG) and/or other relevant humanitarian bodies.			
Specific Objective(s)	<ol style="list-style-type: none"> 1. Assess the impact of diverse shocks by establishing a methodology for evaluating their frequency and severity on a monthly basis. This will include the development of an analytical framework capable of quantifying the compounded effects of multiple shocks over time. 2. Enhance the capabilities of real-time monitoring (RTM) by incorporating a "shocks and hazards layer" with the Needs Monitoring Framework, aimed at facilitating the near real-time assessment and prediction of needs in response to emerging shocks. 3. Guide the decision making of humanitarian fora such as the AAWG and ICCT, by providing a shocks monitoring index to serve as a proxy early warning system for deteriorating humanitarian situations. 4. Expand the current understanding of the interaction of various typologies of shocks (conflict, climatic, economic, policy, etc.) and the effects they have on household (HH) vulnerability, resilience, and needs. 			
Research Questions	<ol style="list-style-type: none"> 1. What is the frequency of different types of shocks in the context of Afghanistan that can be monitored on a monthly basis? (1. Occurrence) 2. How can the severity of common shocks be measured and contextualized in Afghanistan? (2. Severity) 3. How can the various components of shocks (typology, occurrence, intensity, recurrence and concurrence) and data sources (HSM, satellite imagery and others) be best aligned and weighted into a coherent, timely and applicable index? 4. What can we learn about the impacts of different shock typologies and their compounded effects when combined with longitudinal needs monitoring (NMF) data? 			

	a. How can this be used to rank severity according to inferred projected shock impacts?						
Geographic Coverage	All 401 districts in Afghanistan						
Secondary data sources	See Section 3.3 Secondary Literature Review						
Population(s) <i>Select all that apply</i>	<input checked="" type="checkbox"/>	IDPs in camp			<input checked="" type="checkbox"/>	IDPs in informal sites	
	<input checked="" type="checkbox"/>	IDPs in host communities			<input type="checkbox"/>	IDPs [Other, Specify]	
	<input checked="" type="checkbox"/>	Refugees in camp			<input checked="" type="checkbox"/>	Refugees in informal sites	
	<input checked="" type="checkbox"/>	Refugees in host communities			<input type="checkbox"/>	Refugees [Other, Specify]	
	<input checked="" type="checkbox"/>	Host communities			<input type="checkbox"/>	[Other, Specify]	
Stratification <i>Select type(s) and enter number of strata</i>	<input type="checkbox"/>	Geographical #: ___ Population size per strata is known? <input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/>	Group #: ___ Population size per strata is known? <input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/>	[Other Specify] #: ___ Population size per strata is known? <input type="checkbox"/> Yes <input type="checkbox"/> No	
Data collection tool(s)	<input type="checkbox"/>	Structured (Quantitative)			<input checked="" type="checkbox"/>	Other: consolidation of secondary data	
	Sampling method				Data collection method		
Structured data collection tool # 1 <i>Select sampling and data collection method and specify target # interviews</i>	<input type="checkbox"/> Purposive <input type="checkbox"/> Probability / Simple random <input type="checkbox"/> Probability / Stratified simple random <input type="checkbox"/> Probability / Cluster sampling <input type="checkbox"/> Probability / Stratified cluster sampling <input checked="" type="checkbox"/> Note: The research cycle does not contain any primary data collection. Nonetheless, guidance on determining the severity of shocks will be sought from the "Lived Experience of Severe and Extreme Food Insecurity Assessment" for recommendations, which has a separate ToR & DAP.				<input type="checkbox"/> Key informant interview (Target #): _____ <input type="checkbox"/> Group discussion (Target #): _____ <input type="checkbox"/> Household interview (Target #): _____ <input type="checkbox"/> Individual interview (Target #): _____ <input type="checkbox"/> Direct observations (Target #): _____ <input checked="" type="checkbox"/> No primary data collection		
Target level of precision if probability sampling	__% level of confidence				__+/- % margin of error		
Disaggregation by gender and age <i>Are you planning to conduct sex/age disaggregated analysis?</i>	Gender			Age			
	<input type="checkbox"/>	Yes			<input type="checkbox"/>	Yes	
	<input checked="" type="checkbox"/>	No			<input checked="" type="checkbox"/>	No	
Data management platform(s)	<input checked="" type="checkbox"/>	IMPACT			<input type="checkbox"/>	UNHCR	
	<input type="checkbox"/>	[Other, Specify]					
	<input type="checkbox"/>	Situation overview #: __	<input type="checkbox"/>	Report #: __	<input type="checkbox"/>	Profile #: __	

Expected output type(s)	<input type="checkbox"/>	Presentation (Preliminary findings) #: __	<input type="checkbox"/>	Presentation (Final) #: __	<input type="checkbox"/>	Factsheet #: __
	<input checked="" type="checkbox"/>	Interactive dashboard #: 1	<input type="checkbox"/>	Webmap #: __	<input checked="" type="checkbox"/>	Map #: 1 per month (occurrence analysis; output for the first 2 months, then dashboard)
	<input checked="" type="checkbox"/>	Tabulated dataset #: 1 per month (occurrence analysis)				
Access	<input type="checkbox"/>	Public (available on REACH resource center and other humanitarian platforms)				
	<input checked="" type="checkbox"/>	Restricted (bilateral dissemination only upon agreed dissemination list, no publication on REACH or other platforms)				
Visibility Specify which logos should be on outputs	REACH [By default unless specified otherwise]					
	Donor: WFP					
	Coordination Framework: Assessment and Analysis Working Group					
	Partners: To be determined based on partner engagement					

2. Rationale

2.1 Background

Afghanistan's humanitarian landscape is marked by an ongoing crisis, necessitating significant assistance across various sectors. The [2023 Humanitarian Needs Overview](#) highlights that approximately 28.3 million individuals in Afghan households are in dire need of humanitarian aid. Historically, conflict has been the primary catalyst for these needs. However, the change of authorities in August 2021 marked the beginning of a shift to more multi-dimensional drivers of needs, with shocks such as environmental and natural hazards; protection, economic shocks further eroding the already limited coping capacities of communities and households across the country.

The prevalence of such adversities is underscored by the 2023 Whole of Afghanistan assessment, which reveals that 92% of evaluated households encountered at least one disruptive event in the year prior to the survey. Droughts (74%), economic downturns (68%), and floods (20%) were identified as the most common shocks. This data evidences a critical and escalating requirement for comprehensive monitoring and analysis of shocks to effectively gauge and mitigate their impact on humanitarian conditions.

Although Afghanistan has made strides towards integrating shock data into humanitarian analysis—evidenced by the Inter Cluster Coordination Team's (ICCT) incorporation of natural hazard exposure data into its seasonal prioritization processes and the establishment of targeted monitoring systems such as the World Health Organization's [Afghanistan Health Information Hub](#) and FEWSNET & USGC's [Central Asia Early Warning Explorer](#)—there remains a significant gap. Current monitoring systems are often siloed, focusing on singular types of shocks without a cohesive analytical framework to convert data into actionable insights. This fragmentation hinders a unified understanding of shock impacts at a community level, emphasizing the need for a more consolidated and analytical approach.

2.2 Intended impact

In response to this critical gap, REACH, in collaboration with the World Food Programme (WFP), proposes the development of the 'Shocks Monitoring Index' (SMI). This innovative tool aims to systematically track and analyze the incidence, interplay, and severity of various shocks, such as conflict, natural disasters, and displacement, with a detailed focus on the district level. By leveraging advanced data analysis and remote sensing technologies, the SMI will provide monthly updates, enabling a nuanced understanding of the evolving risk landscape.

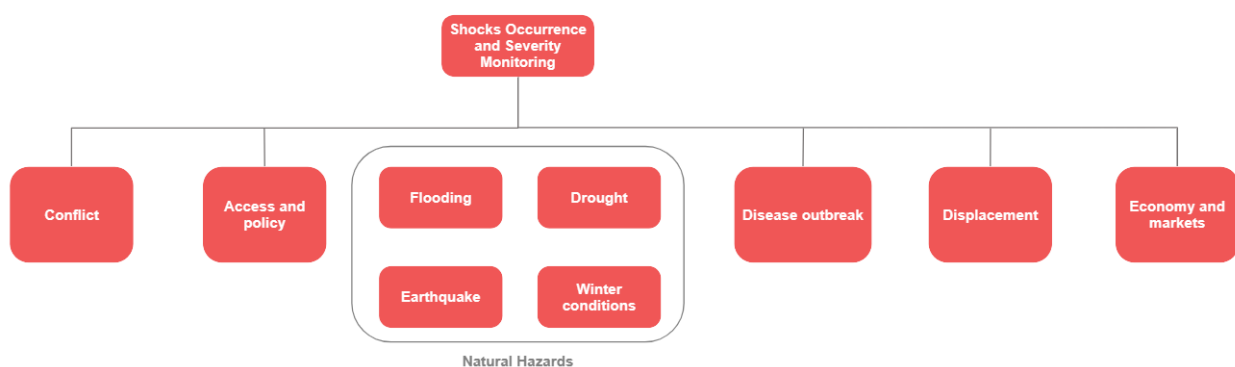
The introduction of the SMI is poised to augment existing monitoring mechanisms, offering nuanced insights that can guide strategic interventions—ranging from enhanced surveillance and targeted assessments to the allocation of resources. Functioning as an essential component of monitoring areas at risk of deteriorating needs, the SMI, through dissemination via forums such as the Assessment and Analysis Working Group (AAWG), is intended to improve the precision and responsiveness of humanitarian action, thereby facilitating more effective aid targeting and subsequent impact. Ultimately, the goal of the SMI is to foster a proactive and informed humanitarian approach, enhancing the capacity to anticipate and respond to emergent needs amidst a complex and shifting crisis landscape.

3. Methodology

3.1 Methodology overview

The SMI aims to monitor both the occurrence (and co-occurrence) of shocks, as well as their severity, on a monthly basis. This is intended to provide valuable insights on the potential impact of shocks on affected communities. For the purposes of the SMI, shocks are understood as mostly sudden events of exceptional intensity caused by geological, meteorological, epidemiological, or human factors. The characterization of shocks consists of a combined analysis of their occurrence or co-occurrence, and of their impact on affected populations. The projected impact of a shock on affected populations will be assessed through the severity of shocks, contextualised to account for resiliency and compounded impacts. The shock severity component will be incorporated after the development and finetuning of the occurrence monitor and the production of longitudinal shock data. To contextualize severity in Afghanistan, the process involves longitudinal shock monitoring, internal review, consultations with WFP and technical experts, an analysis of pre-existing vulnerabilities, and consideration of the findings from the "Lived Experience of Severe and Extreme Food Insecurity" assessment, as well as the Comparative Drought Analysis study. The SMI pillars are drawn from the [South Sudan Shock Monitoring Index](#). These indicators underwent thorough contextualization through internal review and consultation with WFP. Additionally, a review of the most frequent and impactful shocks in the Afghanistan context, along with an examination of available secondary data sources, led to the identification of the following shock pillars as the foundation for the SMI conceptual framework: conflict, humanitarian access and policy, natural hazards, disease outbreaks, displacement, economy, and markets.

Figure 1. SMI Shock pillars



3.2 Population of interest

The SMI aims to provide an overview of shock occurrence and severity for all 401 districts in Afghanistan. As such, the basic unit of analysis and measurement is the district. When, due to methodological reasons, the original data is not available at the district level, it will be digested and converted to obtain district-level results and allow for comparability with other

indicators¹. Results are intended to reflect the impact of shocks on all the districts' communities, regardless of their displacement status or other characteristics.

3.3 Secondary data review

The research is based on secondary sources of data that are listed below.

Secondary source	Purpose of source
REACH South Sudan Shocks Monitoring Index	Overall research design, definition of methodology, indicators and thresholds
Somalia FSNAU Early Warning Early Action Dashboard	Definition of Shocks Occurrence indicators and thresholds
WFP Afghanistan Food Security Monitoring Framework	Definition of Shocks Occurrence indicators and thresholds
REACH Afghanistan Qualitative Assessment of Lived Experiences of Food Insecurity	Definition of Shocks Severity indicators and thresholds
Humanitarian Situation Monitoring	Shocks Severity Analysis
NGO that focuses on independently collecting and analyzing security incident data for humanitarians	Shocks Occurrence Analysis – Conflict and Policy & Access pillars
ACLED	Shocks Occurrence Analysis – Conflict pillar
CHIRPS Satellite Data	Shocks Occurrence Analysis – Natural hazards pillar (drought & flooding)
FEWSNET FLDAS Model	Shocks Occurrence Analysis – Natural hazards pillar (drought)
FEWSNET Early Warning Explorer Snow Water Equivalence	Shocks Occurrence Analysis – Natural hazards pillar (drought)
ERA5 Surface Temperature Data	Shocks Occurrence Analysis – Natural hazards pillar (drought & winter conditions)
MODIS Satellite Data	Shocks Occurrence Analysis – Natural hazards pillar (drought)
Sentinel 2 Satellite Data	Shocks Occurrence Analysis – Natural hazards pillar (flooding)
Sentinel 2 Satellite Data	Shocks Occurrence Analysis – Natural hazards pillar (flooding)
United States Geological Survey	Shocks Occurrence Analysis – Natural hazards pillar (earthquakes)
WFP Program Data	Shocks Occurrence Analysis – Policy and access pillar
REACH Field feedback survey	Shocks Occurrence Analysis – Policy and access pillar
OCHA Conflict Displacement Dashboard	Shocks Occurrence Analysis – Displacement pillar
IOM - Multisectoral Rapid Assessment Form	Shocks Occurrence Analysis – Displacement pillar
CCCM Working Group Evictions Tracker	Shocks Occurrence Analysis – Displacement pillar
WHO Afghanistan Health Information Hub	Shocks Occurrence Analysis – Disease outbreaks pillar
REACH Joint Market Monitoring Initiative	Shocks Occurrence Analysis – Markets pillar
WFP Market Bulletin	Shocks Occurrence Analysis – Markets pillar

¹ This will for example be the case of analysis of snow water equivalence, which is conducted at a sub-river basin level, or for market monitoring data which can in some cases only be available at the province level.

3.4 Shock occurrence monitoring

The shock occurrence monitoring component of the SMI aims to flag whether any one of a range of shocks has occurred in a particular month, at the district level. This will support analysis of shock frequency and co-occurrence by illustrating district exposure to multiple shocks on a monthly basis. The system will assess different shock incidence indicators, identified based on secondary data analysis and further building on WFP's monthly monitoring dashboard. Indicator selection is conducted in consultation with WFP and will take into account availability of timely data and the feasibility of collecting / gathering, formatting, and aggregating the data on a monthly basis. The findings will be used to inform the severity monitoring outlined below.

The shock occurrence monitoring system will assign each district a shock occurrence value corresponding with the number of shocks that have occurred in the month of interest. This in itself will not provide a robust analytical tool to measure shock severity, which will be the focus of the shock severity monitoring system (see below). Until this severity monitoring system is developed (see component 4.2 and 4.3), the occurrence monitoring will use the "Alarm" thresholds for indicators that are used in the WFP monthly monitoring dashboard (when available), to be best fit and usable in the immediate term. To make sure the compounding effects of multiple shocks are captured, the table below outlines a classification of levels of concern based on occurrence:

Table 1: Shock occurrence value

Trigger	0 shocks	1 shock	2-3 shocks	4-5 shocks	>=6 shocks
Occurrence level	No occurrence	Low occurrence	Moderate occurrence	High occurrence	Very high occurrence

The above values are based on initial internal analysis of different shocks experienced in the Afghanistan context. The system will assess 32 different shock occurrence indicators, as outlined section 6 – Data Analysis Plan.

3.5 Shock severity monitoring

The aim of the severity monitoring component is to analyze pre-identified shock pillars and assign a level of severity to the shocks being encountered, reflecting their likely impact on communities. Through the analysis and weighting of composite indicators, a multifaceted understanding of shock severity will be presented on a district level and monthly basis for the aforementioned different shock pillars. These indicators, weights and thresholds will be selected based on internal review of longitudinal data, consultations with WFP, an analysis of pre-existing vulnerabilities, and the findings of "Lived Experience of Severe and Extreme Food Insecurity assessment" on the impact of shocks on severe food security outcomes that will tentatively be conducted by REACH in Q1 of 2024². Following this review, a list of severity thresholds and weights will be appended to the SMI Terms of Reference in the form of a methodology note. Notably, given the continuously evolving operating context in Afghanistan, the severity thresholds remain part of an iterative process of review, contextualization and consultation. Based on this, the severity thresholds, as well as the process for their refinement, will be added as a methodology note upon completion in Q2 2024.

While the conflict and insecurity, displacement, disease incidences, and market pillars are made up of a composite indicator, all hazards, while presented under an overarching natural shocks pillar, will also be seen as separate shock pillars, and therefore get an individual severity score. For each shock pillar, data will be drawn from a range of secondary data sources and analyzed to produce district-level statistic scores per indicator. These indicator scores are then aggregated based on

² This will be used to ground understandings of how HHs mitigate the effects of shocks and how said mitigating strategies change based on the typology, timing and intensity of the shock, in turn feeding into severity thresholds and needs evolution understandings.

defined thresholds, and then weighted based on significance of shock, accounting for data reliability, in order to build an overall severity score for each pillar. This will heavily build on the findings of the qualitative assessment on extreme food security outcomes, as well as expert knowledge on specific shocks facilitated through the AAWG. An additional “accumulating shock” score³ will be calculated by weighting severity scores for the past six months per district to build a shock accumulation (reoccurrence) severity score for each district, taking into account that, though diminishing, shocks will likely have a continued impact on communities following their occurrence. This shock decay was developed by REACH South Sudan in their SMI.

³Accumulated shock score analysis: Time series data analysis is conducted to determine a severity value for accumulated exposure to shocks over the past six months. Shock severity scores for the past six months are assigned a weight based on how recently they occurred. As with the above severity scores, these subsequent scores are scored between 0-4 and classified as above. After weighting, the values are summed to build an overall accumulated severity score as above. The weighting of each time series can be listed below:

- Shock score last month = 0.45
- Shock score 2 months ago = 0.25
- Shocks score 3 months ago = 0.175
- Mean shock score 4-6 months ago = 0.125

To allow comparability between different shock pillars, each shock pillar is given a score between 0 and 3, as below. In addition, these are mapped to ensure alignment to the Needs Monitoring Framework, JIAF 2.0 and food security (QFSM) RTM component. Pillar scores are therefore classified to severity scores as follows:

- a. $x > 0$ = No Shock
- b. $x > 1$ = Moderate Severity Shock
- c. $x > 2$ = High Severity Shock
- d. $x > 3$ = Extreme Severity Shock

The exact number of distinct thresholds may be revisited based on continued alignment, prioritization and data quality considerations.

Table 2: Example of severity framework for the earthquake hazard type (*thresholds to be reviewed and annexed*)

Hazard type	Weight	Indicator	Data source	Severity type	Severity threshold
Earthquake	0.7	Mercalli Intensity Scale	USGS	1. Moderate	VI – Strong
				2. High	VII – Very Strong
				3. Extreme	VIII – Severe
	0.3	% of settlements where KIs report being affected by an earthquake in the past three months	Humanitarian Situation Monitoring	1. Moderate	$5\% \leq x < 25\%$
				2. High	$25\% \leq x < 55\%$
				3. Extreme	$x \geq 55\%$

³ For the accumulated score, time series data analysis is conducted to determine a severity value for accumulated exposure to shocks over the past six months. Shock severity scores for the past six months are assigned a weight based on how recently they occurred.

3.6 Results reporting

Over the initial months and pilot, the focus will be on generating databases and maps for each month, specifically for occurrence analysis. After the initial two months, to accommodate variations in data availability timelines across different sources, the outcomes of the shock analysis will be presented through an online PowerBI dashboard. This dashboard will be consistently updated as new indicator data becomes available.

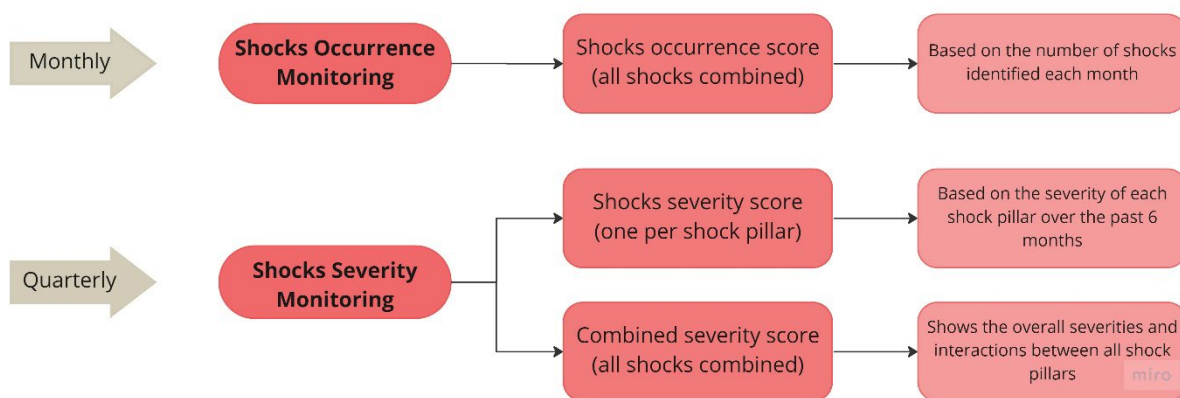
The PowerBI dashboard will feature a district-level mapping, eventually illustrating both the occurrence and severity of shocks. Additionally, it will include a tabulated analysis categorized by indicators, enabling a more in-depth examination. To uphold transparency, the most recent data collection dates will be prominently displayed on the dashboard.

The results presented will encompass population figures for each district, offering an estimate of the individuals affected by the shocks identified through our monthly analyses. This approach aims to facilitate the practical use of our results by operational stakeholders, providing them with valuable insights into the impact on communities.

As the severity component is developed based on longitudinal data, this will initially launch as a parallel layer of the dashboard. Once thresholds have been sufficiently finetuned through longitudinal data and consultations with technical experts, the severity dashboard will become the core product of the SMI, and as such become the first layer.

The SMI analysis is intended to be used in conjunction with the Needs Monitoring Framework to provide the foundation of a real-time monitoring system. The real-time monitoring framework will be finalized and expanded upon in a separate ToR.

Figure 2. SMI Components and Scores



3.7 Primary Data Collection

Note: The research cycle does not have any primary data collection

3.8 Data Processing & Analysis

The research cycle relies on different secondary data sources. A separate document has been developed which details the data pipeline and cleaning process (*available upon request*). The common step for all the sources is to harmonize the name of districts. The data will be analysed through an analytical framework which is explained in detail in Table 3.1 to Table 3.6. Furthermore, as the severity mapping process is defined, it will be annexed and updated to reflect iterative learnings.

3.9 Limitations

The research faces limitations primarily due to inconsistent and delayed availability of data. To this end, some data sources are not collected regularly or on a monthly basis. Additionally, data for certain indicators is gathered at the province level, making it necessary to estimate district-level indicators. These limitations result in a lack of district-level data for some indicators. Moreover, when data is disaggregated into urban and rural, the research uses urban data for districts in urban areas of the province and rural data for districts in rural areas. As such, data quality, granularity and timeliness remain the most pressing challenge for ensuring the functionality of the SMI, and its accuracy in indicative monitoring at the district-level hinges on this.

The shock severity component will be incorporated through the second quarter of 2024, owing to the necessity of gaining longitudinal data for accurate threshold mapping. Guidance on defining the severity of specific indicators will also be sought from the ongoing project, "Lived Experiences of Severe and Extreme Food Insecurity." This is expected to be reviewed iteratively, both as the thresholds are finetuned, as well as the contextual factors continue to evolve.

4. Key ethical considerations and related risks

The proposed research design meets / does not meet the following criteria:

<i>The proposed research design...</i>	Yes/ No	Details if no (including mitigation)
... Has been coordinated with relevant stakeholders to avoid unnecessary duplication of data collection efforts?	Yes	
... Respects respondents, their rights and dignity (<i>specifically by: seeking informed consent, designing length of survey/ discussion while being considerate of participants' time, ensuring accurate reporting of information provided</i>)?	N/A	No primary data collection
... Does not expose data collectors to any risks as a direct result of participation in data collection?	N/A	No primary data collection
... Does not expose respondents / their communities to any risks as a direct result of participation in data collection?	N/A	No primary data collection
... Does not involve collecting information on specific topics which may be stressful and/ or re-traumatising for research participants (both respondents and data collectors)?	N/A	No primary data collection
... Does not involve data collection with minors i.e. anyone less than 18 years old?	N/A	No primary data collection
... Does not involve data collection with other vulnerable groups e.g. persons with disabilities, victims/ survivors of protection incidents, etc.?	N/A	No primary data collection
... Follows IMPACT SOPs for management of personally identifiable information ?	Yes	

5. Roles and responsibilities

Task Description	Responsible	Accountable	Consulted	Informed
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Research design	AO / GIS Specialist	RM	WFP/DCC	WFP
Supervising data collection	NA	NA	NA	NA
Data processing (checking, cleaning)	DBO / GIS Specialist	AO	RM / Data Specialist	WFP/DCC
Data analysis	DBO / GIS Specialist	RM	Data Specialist / DCC	WFP/DCC
Output production	AO / GISO	RM	Data Specialist/ DCC	WFP
Dissemination	AO / GISO	RM	DCC / RMM/ Data Specialist	WFP
Monitoring & Evaluation	PDO	PDO	DCC / RM	WFP
Lessons learned	AO / GIS Specialist	RM	WFP / DCC	WFP

Responsible: the person(s) who executes the task

Accountable: the person who validates the completion of the task and is accountable of the final output or milestone

Consulted: the person(s) who must be consulted when the task is implemented

Informed: the person(s) who need to be informed when the task is completed

6. Data Analysis Plan

Table 3.1. Conflict Occurrence indicators

Indicator	Data source	Shock occurrence threshold	Rationale
Armed conflict between (non) state actors	NGO that focuses on independently collecting and analyzing security incident data for humanitarians	Conflict-affected districts with monthly conflict-related incidents > 20% of the yearly total (Source 1)	Armed conflict has a central role in the disruption of livelihoods and in reducing access to food, impeding access to services, and exacerbating a range of humanitarian needs. Multiple armed conflict events occurring in a month is a strong indicator of a conflict shock in a district.
Armed conflict between (non) state actors	ACLED	Conflict-affected districts with monthly conflict-related incidents > 20% of the yearly total (ACLED)	
Armed conflict between (non) state actors	ACLED	More than three recorded battles	
Attacks against civilians	ACLED	Monthly number of incidents targeting civilians > 20% of the yearly total	Multiple incidences of violence towards civilians are a strong indicator of a conflict shock in a district. This can include attacks and abduction / forced disappearance.
Insecurity leading to fatalities in	ACLED	Monthly number of casualties > 20% of the yearly total	Multiple fatalities attributed to insecurity and conflict are a strong indicator of a conflict shock in a district. Fatalities may be attributed to armed conflict, looting, protests, or riots.

the past month			
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Table 3.2. Natural Hazards Occurrence indicators

As some natural hazards are only particular to specific season throughout the year, some indicators will only be analysed during specific months and are denoted by a “*”

Sub-pillar	Indicator	Data source	Shock occurrence threshold	Rationale
Drought	Drought (meteorological) Standard Precipitation Index - 3 months	CHIRPS	3 months Standard Precipitation Index ≤ -0.8	By providing an overview of the deviation of precipitation over a period of 3 months from the long-term trends for the same time period, the SPI-3 provides a seasonal estimation of precipitation and reflects short and medium-terms moisture conditions.
	Drought (meteorological) Standard Precipitation Index - 12 months	CHIRPS	12 months Standard Precipitation Index ≤ -0.8	By providing an overview of the deviation of precipitation over a period of 12 months from the long-term trends for the same time period, the SPI-12 provides long-term indication on drought and is usually tied to streamflow, reservoir levels and groundwater levels.
	* Drought (meteorological) Monthly Snowpack	FEWSNET FLDAS Model	Lower than average monthly snowpack, with $\geq 25\%$ of the district's population living in a river basin where monthly Snow Water Equivalence $\leq 70\%$ of long-term average	At the river basin level, lower than average snowpack during the winter months can translate into limited run-off and negatively impact downstream water bodies as well as the availability of water for hygiene, consumption and/or irrigated agriculture.
	* Drought (meteorological) Snowpack depletion	FEWSNET Early Warning Explorer	Early snowpack depletion, with $\geq 25\%$ of district population living in a river basin where Snow Water Equivalence depletion occurred 7 or more weeks ahead of long-term average	At the river basin level, a rapidly depleting snowpack can lead to a lack of water to sustain irrigated agriculture in the months leading up to the harvest period.
	* Drought (meteorological) Heat Wave	ERA5	Heat Wave, with 3 or more consecutive days where the maximum temperature is higher than the long term maximum temperature for the same day and $\geq 30^{\circ}\text{C}$	In addition to potential direct loss of life due to extreme temperatures, period of extreme heat can put additional strain on water resources as well as lead to crops or livestock loss.
	Drought (Agricultural) Standard Vegetation Index	MODIS	Standard Vegetation Index ≤ -0.8	By analyzing the deviation from the long-term trends of the quantity of vegetation on weekly timesteps, the Standard vegetation index can provide indicate lower than average vegetation and crop growth, as a warning signs of livelihoods stress. In Afghanistan the cultivation and harvest season varies across the

				country, therefore this indicator will be calculated for all 12 rounds of the year.
Flooding	Excessive rainfall	CHIRPS	Monthly rainfall > 40% larger than long-term average (Excessive rainfall more than 140% measured in a district identifies as a shock, while long term average assigned to 100%)	Excessive rainfall can damage crops, and cause road closures, limiting supplies to remote locations.
	Flooding of vegetated areas	Sentinel 2	Flooding affecting > 3% a district's vegetated land OR flooding affecting ≥ 2km ² of vegetated land	As Afghanistan is commonly affected by flash flooding, analysis of rapid NDVI changes in croplands can be used to assess the impact of flooding on crops and their impact on livelihoods.
	>3% of a district's area affected by surface run-off	Sentinel 2	Surface runoff affecting > 3% of a district's area AND Surface runoff area ≥ 1km ²	In addition to flash flooding, some areas of Afghanistan can be affected by surface runoff of rivers due to the increase in river flow and land's inability to absorb excess water, with adverse impacts on crops and livelihoods.
Earthquakes	Mercalli Intensity Scale of VII or higher	United States Geological Survey	Earthquake with an Mercalli intensity of VI or higher affecting ≥ 10% of a district's population	Earthquakes can lead to significant number of deaths and damage, affecting housing, critical infrastructure and in some cases triggering landslides or avalanches further impacting communities' access to roads and services.
Winter Conditions	* Cold Wave	ERA5	Surface temperature reaching < (2* standard deviation) from historical mean and with a duration of 3 days or more	Low temperatures can have a negative impact on crops and directly endanger lives, especially when happening unexpectedly and in areas with high levels of ES-NFI needs.
	* Isolation of settlements due to snow	ERA5	Snow depth ≥ historical mean snow depth and snow accumulating 15 cm or more in depth in 24 hours	Heavy snowfall ⁴ can lead to physical isolation of communities, reducing their ability to reach markets and exchange goods

Table 3.3. Policy and humanitarian access shock occurrence indicators

Indicator	Data source	Shock occurrence threshold	Rationale
NGO incidents and administrative impediments	NGO that focuses on independently collecting and analyzing security incident data for humanitarians	Monthly number of incidents involving NGOs or International Organizations > 20% of the yearly total	Incidents involving aid actors play a central role in disruption of humanitarian aid and therefore reducing access to food / services for most vulnerable
Scale down of emergency food assistance	WFP Program Data	Individuals having effectively received assistance by a major aid provider < 60% of planned reach	Having assisted 23 million people in 2022, WFP is a large actor in food security across the country. Scale downs of aid delivery can further exacerbate food insecurity

⁴ NOAA, Heavy snowfall <https://forecast.weather.gov/glossary.php?word=heavy+snow>

Suspension of emergency food assistance	WFP Program Data	<i>Full suspension of assistance by a major aid provider or individuals having effectively received assistance < 1% of planned reach</i>	Having assisted 23 million people in 2022, WFP is a large actor in food security across the country. Any suspension of aid in alignment with the pre-allocation plan has the potential to significantly worsen food insecurity conditions.
Administrative decisions having an impact on livelihoods	REACH Field Feedback form	<i>Decisions made by authorities having an impact on households' ability to pursue their livelihoods or access food</i>	Administrative decisions such as bans on specific crops or the introduction of new taxes, if implemented, can impact households' livelihoods and further limit their access to food.

Table 3.4. Displacement shock occurrence indicators

Indicator	Data source	Shock occurrence threshold	Rationale
Population movement	OCHA Conflict Displacement Dashboard (currently unupdated but retained in case the situation changes)	<i>Conflict-induced displacement leading to ≥ 100 IDP households arrivals (OCHA)</i>	Significant numbers of arrivals of displaced persons to a community/area has the potential to exacerbate access to food and essential services, as well as having the potential to disrupt livelihood patterns
Population movement	IOM - Multisectoral Rapid Assessment Form	<i>Displacement leading to ≥ 100 IDP household arrivals (MSRAF)</i>	
Forced evictions	CCCM Working Group	<i>Eviction or threat of eviction affecting ≥ 100 households</i>	Forced evictions, particularly in Informal settlements (ISETS) and largely targeting displaced populations, can further damage their livelihoods.

Table 3.5. Disease outbreak shock occurrence indicators

Indicator	Data source	Shock occurrence threshold	Rationale
Cases of Acute Watery Diarrhea with Dehydration (All ages)	WHO	<i>Used to calculate an increase in monthly cases of Acute Watery Diarrhea with dehydration (all ages) of ≥ 66% compared with historic rates (since January 2020). Therefore, to find the historical rate we calculate the number of cases since Jan 2020 / number of months since Jan 2020 and calculate percentage change between the historical mean and the current month's cases.</i>	Diarrhoeal disease is the second leading cause of death in children under five years old. Where data is not available for cholera morbidity, or if cholera caseload is zero, AWD cases are used to calculate severity.
Measles Cases	WHO	<i>One or more suspected measles cases</i>	Measles is considered a severe disease that can lead to high mortality rates among children and actively drive global acute malnutrition (GAM) prevalence.
Crimean-Congo Hemorrhagic Fever Cases	WHO	<i>One or more Crimean-Congo Hemorrhagic Fever cases</i>	With a particularly high case fatality ratio, CCHF is present in multiple regions of Afghanistan and outbreak situations of the disease across the country are occasionally declared.

Table 3.6. Market shock occurrence indicators

Indicator	Data source	Shock occurrence threshold	Rationale
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Atypical or sudden change in costs of the food basket	VAM Market Bulletin & Joint Market Monitoring Initiative	<i>Month-to-month increase of > 60% of minimum food basket price</i>	Staple foods are specific components of the Minimum Expenditure Basket (MEB) which is defined as what a household requires in order to meet basic needs, on a regular or seasonal basis, and its average cost. A significant change in the staple foods value can be a useful proxy to flag potential shocks to the market system (as well as flag a change in people's ability to meet basic food needs).
Atypical / sudden change in costs of the food basket	VAM Market Bulletin & Joint Market Monitoring Initiative	<i>Increase of > 60% of minimum food basket price compared with two-years average</i>	
Terms of Trade of unskilled casual labourers (real)	VAM Market Bulletin	<i>Deterioration of labour terms of trade, with unskilled casual labour real wage < 40% of food basket</i>	The terms of trade of unskilled casual labourers is a key indicator to assess households purchasing power (how many kilograms of imported wheat flour they can obtain with the daily wage for unskilled casual labour). Any sudden changes in the ToT can indicate a larger shock to the market system and flag increasing vulnerabilities among already poorer populations.
Pastoralist Terms of trade	VAM Market Bulletin	<i>Measuring % change in the number of KGs of wheat which can be purchased with a 1-year-old female sheep, compared to two-year average. A deterioration of labour terms of trade shock is understood when there has been a > 25% decrease in the number of KGs</i>	The pastoralist terms of trade is a key indicator to assess households purchasing power (how many kilograms of imported wheat flour they can obtain by selling a one year old female sheep). Any sudden changes in the ToT can indicate a larger shock to the market system and flag increasing vulnerabilities among livestock owners.
Atypical / sudden change in market functionality	Joint Market Monitoring Initiative	<i>Poor Market Functionality Score</i>	In addition to informing transfer modality decisions for cash assistance, the Market functionality score is also a useful proxy to detect changes in market functionality over time, and with that any shocks to the market system (Assortment of essential goods, Availability, Price, Resilience of supply chains, Competition, Infrastructure, Service, Food quality, and Access & Protection).

7. Data Management Plan

The research cycle does not contain primary data collection.

Have you completed the Indicators Risk Assessment table below?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No, no information that potentially allows identification of individuals is to be collected.			
[Please complete the first 4 columns in the Indicators Risk Assessment table below]					
Risk indicator (including direct and indirect identifiers)	Type of identification risk	Disclosure implications	Benefits	Class	Required mitigation
<i>[Specify indicator, e.g.]</i>	<i>[Specify identification risk,</i>	<i>[Specify implications, e.g. loss of</i>	<i>[Specify benefits, e.g.]</i>	<i>[To be completed</i>	<i>[To be specified by IMPACT HQ]</i>

<i>KI_phone number]</i>	<i>e.g. Direct contact/identification of KI]</i>	<i>privacy/potential target of armed actors]</i>	<i>follow up for data cleaning]</i>	<i>by IMPACT HQ]</i>	
<i>[Add relevant number of rows for risk indicators]</i>					

8. Monitoring & Evaluation Plan

IMPACT Objective	External M&E Indicator	Internal M&E Indicator	Focal point	Tool	Will indicator be tracked?
Humanitarian stakeholders are accessing IMPACT products	Number of humanitarian organisations accessing IMPACT services/products Number of individuals accessing IMPACT services/products	# of downloads of x product from Resource Center	Country request to HQ	User_log	<input type="checkbox"/> Yes
		# of downloads of x product from Relief Web	Country request to HQ		<input type="checkbox"/> Yes
		# of downloads of x product from Country level platforms	Country team		<input type="checkbox"/> Yes
		# of page clicks on x product from REACH global newsletter	Country request to HQ		<input type="checkbox"/> Yes
		# of page clicks on x product from country newsletter, sendingBlue, bit.ly	Country team		<input type="checkbox"/> Yes
		# of visits to x webmap/x dashboard	Country request to HQ		<input checked="" type="checkbox"/> Yes
IMPACT activities contribute to better program implementation and coordination of the humanitarian response	Number of humanitarian organisations utilizing IMPACT services/products	# references in HPC documents (HNO, SRP, Flash appeals, Cluster/sector strategies)	Country team	Reference_log	<i>Afghanistan Flash Appeals, Emergency Responses, Seasonal prioritizations</i>
		# references in single agency documents			<i>WFP food assistance targeting</i>
Humanitarian stakeholders are using IMPACT products	Humanitarian actors use IMPACT evidence/products as a basis for decision making, aid planning and delivery Number of humanitarian	Perceived relevance of IMPACT country-programs	Country team	Usage_Feed back and Usage_Survey template	<i>User Survey to be conducted in Q1 of every year.</i>
		Perceived usefulness and influence of IMPACT outputs			
		Recommendations to strengthen IMPACT programs			
		Perceived capacity of IMPACT staff			
		Perceived quality of outputs/programs			

	documents (HNO, HRP, cluster/agency strategic plans, etc.) directly informed by IMPACT products	Recommendations to strengthen IMPACT programs			
Humanitarian stakeholders are engaged in IMPACT programs throughout the research cycle	Number and/or percentage of humanitarian organizations directly contributing to IMPACT programs (<i>providing resources, participating to presentations, etc.</i>)	# of organisations providing resources (i.e.staff, vehicles, meeting space, budget, etc.) for activity implementation	Country team	Engagement_log	<input type="checkbox"/> Yes
		# of organisations/clusters inputting in research design and joint analysis			X Yes
		# of organisations/clusters attending briefings on findings;			X Yes

