Research Terms of Reference

Comparative Drought Analysis
AFG2315
Afghanistan

November 2023
V1

REACH Informing more effective humanitarian action

1. Executive Summary

Country of intervention	*Afghanistan*					
Type of Emergency	X	Natural disaster	□	Conflict	□	Other *(specify)*
Type of Crisis	X	Sudden onset	X	Slow onset	X	Protracted
Mandating Body/ Agency	*WFP*					
IMPACT Project Code	02AZZ 2P1					
Overall Research Timeframe *(from research design to final outputs / M&E)*	25/06/2023 to 24/06/2024					
Research Timeframe	1. Pilot/ training: NA		6. Preliminary presentation: 14/03/2024			
	2. Start collect data: NA		7. Outputs sent for validation: 25/03/2024			
	3. Data collected: NA		8. Outputs published: 22/04/2024			
	4. Data analysed: 15 /01/2024		9. Final presentation: _ _/_ _/_ _ _ _			
	5. Data sent for validation: 01/03/2024					
Number of assessments	X	Single assessment (one cycle)				
	□	Multi assessment (more than one cycle) *[Describe here the frequency of the cycle]*				
	Milestone		**Deadline (can be tentative)**			

Humanitarian milestones *Specify **what** will the assessment inform and **when** e.g. The shelter cluster will use this data to draft its Revised Flash Appeal;*	X	Donor plan/strategy	24/06/2024
	□	Inter-cluster plan/strategy	_ _/_ _/_ _ _ _
	□	Cluster plan/strategy	_ _/_ _/_ _ _ _
	□	NGO platform plan/strategy	_ _/_ _/_ _ _ _
	□	Other (Specify):	_ _/_ _/_ _ _ _
Audience Type & Dissemination *Specify **who** will the assessment inform and **how** you will disseminate to inform the audience*	**Audience type**		**Dissemination**
	X Strategic X Programmatic X Operational □ [Other, Specify]		**X** General Product Mailing (e.g. mail to NGO consortium; HCT participants; Donors) X Cluster Mailing (Education, Shelter and WASH) and presentation of findings at next cluster meeting X Presentation of findings (e.g. at HCT meeting; Cluster meeting) X Website Dissemination (Relief Web & REACH Resource Centre) □ [Other, Specify]
Stakeholder mapping	X	Yes	□ No
General Objective	The overarching objective is to develop an analytical framework allowing to conduct automated remote-sensing analysis of drought severity at a granular level in Afghanistan, and to provide insights on droughts' impacts on communities' livelihoods and food security, using freely available data sources. This objective will be attained after having		

	conducted a comparative drought analysis, to better understand how available drought indicators can inform on drought and its impacts across different areas of Afghanistan. Results from the analysis will then support the development of a drought severity analytical framework, to support anticipatory action and emergency planning efforts.
Specific Objective(s)	1. By use of secondary sources understand how dry weather patterns lead to different types and severities of drought, depending on local specificities such as topography, hydrography and main sources of livelihood. (**Component 1**: Comparative Drought Analysis) 2. Using remote-sensing analysis and assessment data, understand the key drivers and patterns leading to socioeconomic drought, ie. disruption to the supply and demand of commodities[1] among different communities in Afghanistan. (**Component 1**: Comparative Drought Analysis) 3. Using secondary assessments data, understand how periods of drought affect communities' ability to access food and pursue their livelihoods, as well as their WASH (Water, Sanitation and Hygiene), health and nutrition situation. (**Component 1**: Comparative Drought Analysis) 4. Leverage findings from the comparative drought analysis to develop an automated analytical framework, to inform anticipatory action by enabling context-specific assessments of

[1] Commodities include Food, hygiene, Building Material, and fuel

	the severity and potential impacts of drought. (**Component 2**: Drought Severity Analytical Framework)
Research Questions	1. How have communities in Afghanistan been affected by dry weather patterns since 1999, and what have been the varying impacts of such patterns on drought types and severity depending on topography, hydrography and main sources of livelihood? 2. In areas affected by drought, how have dry weather patterns affected the supply and demand of commodities among communities? 3. How have periods of drought affected communities' ability to access food and pursue their livelihoods. 4. How have periods of drought affected communities' ability to access their WASH, health and nutrition situations? 5. How do climate and metrological patterns change in dry and wet years? 6. How do anomalies in weather conditions (dry and wet) impact vegetations, surface water, agriculture and livelihood? 7. What combination of remote sensing indicators can provide localized and context-specific information on the severity and potential impacts of drought?
Geographic Coverage	Nationwide
Secondary data sources	1. REACH, Humanitarian Situation Monitoring (HSM) 2. REACH, *Joint Market Monitoring Initiative (JMMI) Dashboard for Afghanistan*

	3. WFP, Vulnerability Analysis and Mapping (VAM) 4. FEWS NET, Afghanistan Livelihood Zone 5. NASA, Moderate Resolution Imaging Spectroradiometer (MODIS) 6. USGS/NASA Landsat, Landsat 5,7,8 7. ECMWF / Copernicus Climate Change Service, mean_2m_air_temperature 8. UCSB/CHG, Climate Hazards Group InfraRed Precipitation With Station Data (CHIRPS) 9. FAO, FAOSTAT Data 10. NASA FLDAS

Population(s)	X	IDPs in camp	X	IDPs in informal sites
	X	IDPs in host communities	X	IDPs [Other, Specify]
	X	Refugees in camp	X	Refugees in informal sites
	X	Refugees in host communities	X	Refugees [Other, Specify]
	X	Host communities	□	[Other, Specify]

Stratification *Select type(s) and enter number of strata*	□	Geographical #:_ _ _ Population size per strata is known? □ Yes □ No	□	Group #: _ _ _ Population size per strata is known? □ Yes □ No	□	*[Other Specify]* #: _ _ Population size per strata is known? □ Yes □ No

Data collection tool(s)	□	Structured (Quantitative)	□	Semi-structured (Qualitative)

	Sampling method	**Data collection method**
Structured data collection tool # 1 *Select sampling and data collection method and specify target # interviews*	□ Purposive □ Probability / Simple random □ Probability / Stratified simple random □ Probability / Cluster sampling □ Probability / Stratified cluster sampling X No primary data collection	□ Key informant interview (Target #):_ _ _ _ _ □ Group discussion (Target #):_ _ _ _ _ □ Household interview (Target #):_ _ _ _ _ □ Individual interview (Target #):_ _ _ _ _ □ Direct observations (Target #):_ _ _ _ _ X No primary data collection _ _ _ _

Target level of precision if probability sampling	_ _% level of confidence			_ _+/- % margin of error		
Disaggregation by gender and age *Are you planning to conduct sex/age disaggregated analysis?*	Gender			Age		
	□	Yes		□	Yes	
	□	No		□	No	
Data management platform(s)	X	IMPACT		□	WFP	
	□	[Other, Specify]				
Expected ouput type(s)	□	Situation overview #: _ _	X	Report #: _ _	□	Profile #: _ _
	X	Presentation (Preliminary findings) #: Analytical report of the Comparative drought analysis since 1999	X	Presentation (Final) #: _ _	□	Factsheet #: _ _
	□	Interactive dashboard #:_	□	Webmap #: _ _	X	Map #: _ _
	□	[Other, Specify] #: _ _				
Access	X	Public (available on REACH resource center and other humanitarian platforms)				
	□	Restricted (bilateral dissemination only upon agreed dissemination list, no publication on REACH or other platforms)				
Visibility *Specify which* ***logos*** *should be on outputs*	***REACH***					
	Donor: *WFP*					
	Coordination Framework: *N/A*					
	Partners: *N/A*					

2. Rationale

2.1 Background

Drought and its impacts have become a major driver of heightened humanitarian needs in Afghanistan, with the country's communities experiencing the effects of La Niña phenomenon,[2] that cause deficit in precipitation in Afghanistan, which is triggering drought. According to the 2022 Whole of Afghanistan assessment 73% of rural households reporting having been affected by drought in the 6 months preceding data collection - making it the most widely reported natural hazard by households. Although the confirmed transition to an El Niño climate regime [3]implies wetter conditions for most of Afghanistan.[4] Based on the research available in Water Resource Research it will take time to recover from a hydrological drought[5]. Therefore, the prolonged drought period and its impacts will continue to have implications for communities' ability to pursue their livelihoods, produce and access staple foods in sufficient quantity and quality and to meet their needs in other sectors. As such, it is essential that early warning signs and the development of drought severity across the country remain monitored.

Building upon existing studies on drought and its impacts, on remote sensing and climate data, and on assessment data, REACH will conduct a comparative drought analysis, the results of which will be used to inform the development of a drought analytical framework and corresponding analysis scripts allowing for regular drought analysis. The purpose of this activity is to identify areas experiencing (or at risk of experiencing) severe drought events and, in conjunction with other real-time monitoring activities developed by REACH on exposure to shocks and humanitarian needs, to inform on districts at risk of experiencing severe and extreme food insecurity.

2.2 Intended impact

This study aims to assess different weather elements and how their anomalies impact as a driver for dry weather. Study impact of drought on local communities' livelihoods and food security in Afghanistan. Based on the finding from first phase of the study, a framework will be

[2] FAO. 2020-2021 La Nina advisory https://www.fao.org/3/cb2954en/cb2954en.pdf
[3] FAO. 2023. Afghanistan: Impact of Anticipatory action – Curbing La Niña-induced drought. Rome. https://doi.org/10.4060/cc8141en.
[4] UNOCHA and FAO, July 2023, *Asia and the Pacific: El Niño Humanitarian Snapshot (As of 20 July 2023)*.
[5] Lags in hydrologic recovery following an extreme drought: Assessing the roles of climate and catchment characteristics https://agupubs.onlinelibrary.wiley.com/doi/epdf/10.1002/2017WR020683

developed to monitor drought severity in real-time in Afghanistan. The results and outputs of the study will be used by the World Food Program (WFP) for decision making.

The overall objectives of this work are:

- To improve understanding of different climate parameters and their impact on driving dry weather.
- To build an automatic drought framework to inform drought severity in a real-time manner.

3. Methodology

3.1 Methodology overview

This research will have two components.

3.1.1 Component 1: comparative drought analysis

The comparative drought analysis accomplish the following:

i) Provide an overview of weather patterns and drought events in Afghanistan over the past 25 years; 1999 has been chosen, as most of the data needed for the assessment is not available earlier than 2000. In addition, remote sensing data such as SPI will lose its precision as we get closer to the start date of the satellite mission due to lack of collected data.
ii) Explore the interaction between indicators characteristic of different types of drought (meteorological, agricultural, hydrological, ecological and socio-economic)[6];
iii) Gain a better understanding of the impact of drought on communities.

To achieve this, the analysis will rely on findings from a remote-sensing analysis of standard climate and drought indicators, on a secondary literature and press review, and on available assessment data, including a drought questions module which will be included in REACH's upcoming Humanitarian Situation Monitoring (HSM) data collection.

[6] **NDMC,** https://drought.unl.edu/Education/DroughtIn-depth/TypesofDrought.aspx

While the remote-sensing analysis will focus on exploring the drivers and impacts of meteorological, agricultural, hydrological, and ecological drought, data stemming from assessments will highlight communities' perception of drought and its impacts, thus providing insights on how the climatic and non-climatic drivers of drought lead to a situation of socio-economic drought.

The secondary literature review, in addition to providing an overview of the socio-economic and climatic context surrounding drought in Afghanistan, will inform the selection of remote-sensing indicators and development of drought-related assessment indicators.

3.1.2 Component 2 : Drought Severity Analytical Framework

Expanding upon the results from the comparative drought analysis, an analytical framework will then be developed to conduct regular and automated drought severity analysis. In support of early warning and anticipatory action efforts, the analytical framework will aim to identify districts and areas experiencing (or at risk of experiencing) severe drought events, and which communities risk being the most severely affected by drought's impacts. After having been jointly reviewed and agreed upon by REACH and WFP, the analytical framework will be piloted and lead to the production of drought severity maps. Finally, and taking stock from lessons learned through the pilot analysis, the drought severity analytical framework and analysis scripts will be automated and handed over to WFP to allow for regular and independent analysis.

3.1.2.1 Development of the drought analytical framework

The drought analytical framework will make use of the results from the comparative drought analysis and consist of a collection of remote-sensing climate indicators. The remote-sensing analysis plan of the comparative drought analysis will serve as a blueprint to link each indicator to the corresponding drought types, keeping in mind the timeline of drought events. Severity thresholds for each indicator will be defined based on globally accepted standards, as well as on local context and results from the comparative drought analysis. Results will be weighted to better reflect the impact of drought on communities depending on the main livelihood activities practiced in each area.

3.1.2.2 Analytical framework review and pilot analysis

Once the drought analytical framework (component 1) is completed, prior to running the pilot analysis of drought severity analytical framework (component 2), a finalized version of the drought analytical framework will be shared with WFP, for review and endorsement. Additionally, to make sure the analytical framework is well aligned with the Afghanistan context, and no important element is missed, consultations will be held with

relevant technical actors to peer-review the analytical framework. Prospective peer-reviewing institutions include iMMAP, Alcis, ICIMOD, FEWSNET and FAO. Although addressing all peer review concerns is preferred, only technical agreement between WFP and REACH is needed for publication of any output.

Once technical agreement on the analytical framework is reached, a pilot drought severity analysis will be carried out by REACH. The analysis will be conducted using the geospatial processing service Google Earth Engine, with additional data processing conducted in the R statistical software. The analysis will result in the production of two maps ranking areas by drought severity, at the district level to match with response-wide planning, as well as at a more granular level using hexagons[7].

3.1.2.3 Framework automatization and handover

Following the pilot analysis, the GEE and R analysis scripts will be cleaned, reviewed, and clearly documented to facilitate their handover and use in future rounds of analysis by external actors. The handover modality will be agreed upon jointly be WFP and REACH and can take the format of a dedicated training of WFP technical staff on the drought severity analytical framework and analysis scripts, so that independent analysis can be conducted.

3.2 Population of interest

This study will cover the whole country and the entire population will be included. Sub-River basins of Afghanistan from FAO will be used as the basic unit of analysis. For studying impact of dry weather on different areas with specific livelihoods, the livelihood zones boundaries from FEWS NET will be used as the unit of analysis.[8] Overall Afghanistan is divided into 21 Sub-River Basins based on FAO Sub-River basin data. According to FEWS NET Livelihood Zone data, 29 livelihood zones are specified across the country.

[7] The exact hexagon size will be determined depending on the granularity level of the remote-sensing data used to conduct the analysis.
[8]National Geographic https://education.nationalgeographic.org/resource/basin/; FEWS NET Livelihood Zone https://fews.net/data/livelihood-zones

3.3 Data and Tools

Google Earth Engine*:* For time series analysis on remote sensing product of climate data, precipitation, soil moisture extracting water bodies, vegetation cover, and snow cover from satellite data will be used.

ArcGIS Pro/QGIS*:* for creating maps and spatial analysis one the software's ArcGIS Pro or QGIS will be used.

R statistical Programme*:* The script for tuning drought severity analysis will be made in R

3.3.1 Data

Data for this assessment will be from two main sources: data from remote sensing sources and datasets from other assessments such as HSM, WFP-VAM, JMMI, etc.

The following summary contains the remote-sensing-driven datasets or other spatial datasets that will be used in this study together with some of their metadata.

Date	Format	Scale	Date Range Available	Source	Indicator
Standardized Precipitation-Evapotranspiration Index	Raster	5566 m	1982 - 2023	CHIRPS	Meteorological
Surface or 2m Temperature	Raster	27830 m	1979 - 2023	ERA5	Meteorological

Standard Vegetation Index	Raster	500 m	2000 - 2023	MODIS	Agricultural & Ecological
Vegetation Condition Index	Raster	500 m	2000 - 2023	MODIS	Agricultural & Ecological
Normalized Difference in Water Index (in main water reservoirs)	Raster	30 m	1984 - 2023	Landsat 5,7,8	Hydrological
Snowpack (Snow-water equivalence)	Raster	0.1 degree	1982 - 2023	FEWSNET FLDAS Model	Hydrological
Groundwater storage	Vector		2003 - 2023	DACAAR	Hydrological

3.3.2 Remote sensing analysis

The remote sensing analysis will leverage publicly available databases on different climate parameters through the last 25 years to understand how shifts and anomalies in climate patterns drive drought and how it affects the communities. These will be processed via the geospatial processing service, Google Earth Engine (GEE). Remote sensing analysis will be run for the entire country, and then it will be disaggregated in either sub-river basins, or livelihood zone , and for some of the analysis both of them will be used as unit of analysis. In order to link the remote sensing analysis result to other assessment datasets, the results extracted in each unit of analysis will be linked to other common admin units admin2, admin1, and regions.

3.4 Secondary data review

The secondary literature review, in addition to providing an overview of the socio-economic and climatic context surrounding drought in Afghanistan, will inform the selection of remote-sensing indicators and development of drought-related assessment indicators. The secondary

literature review includes similar assessments conducted by REACH in various contexts such as the Horn of Africa, Kenya and Syria, academic and grey literature on the drivers and impacts of drought in Afghanistan and media reports on water management and drought-related issues.

Secondary source	source	Product date
REACH	- Current Situation of the Water Crisis in Northeast Syria and its Humanitarian Impacts	Jun-2023
REACH	- Kenya Drought: Marsabit& Rukana Alert	Jan-2023
REACH	- Drought in the Horn of Africa	Feb - 2023
Afghanistan Analyst Network	- Global Warming and Afghanistan: Drought, hunger and thirst expected to worsen	Nov-2021
FAO	- Afghanistan Drought Risk Management Strategy	Feb-2020

3.5 Primary Data Collection

- No primary Data collection

3.6 Data Processing & Analysis

Analysis will be done separately for each year in the assessment time range of analysis (1999 – 2023). Climate data will be obtained from publicly available remote sensing data sources. In addition secondary data from REACH Assessments HSM, WoAA and data from other partners will be gathered. The following steps will be taken:

a. Climate data will be analysed separately for each year, and severity will be calculated in each river basin for that specific climate indicator. Livelihood zone data from FEWS NET will be used as an aggregation unit for some of the climate indicators.
b. After calculation of the severity of drought in each river basin or livelihood zone, the secondary data will be reviewed for that respected year. Based on the correlation extracted from drought severity and secondary data, the impact of drought will be interpreted.

c. For remote sensing climate data, the Google Earth Engine platform will be used. For further analysis, R statistical software, ArcGIS Pro, and QGIS will be used. Maps will be designed in either ArcGIS Pro or QGIS.

In this assessment as the data sources are different therefore, the availability of the data is not consistent, below table shows the data sources and other metadata including availability of the data through the time. Remote sensing Data and metadata is provided in the Data part.

Date	Disaggregation	Date Range Available	Source
VAM Dataset	Main Cities in Afghanistan	2007 - 2020	WFP
VAM Dataset	Admin1	May 2020- March 2023	WFP
FAOSTAT	Admin0	1961 - 2021	FAO
Crop Production Seasonal Callender	Admin1		FEWS NET
WoA	Admin2	2018 - 2023	REACH
HSM	Admin2	2022 - 2023	REACH
JMMI	Admin2	2020 - 2023	REACH

3.7 Limitations

As the comparative drought analysis time range is wide and covers 25 years (1999 – 2023), there are some data gaps during this time. Climate data recorded in gauge stations are very important for studying drought, but this data either is not well recorded through the years in Afghanistan or, if it is archived, it is not accessible. As a result, the source of almost all of the data comes from remote sensing sources, which is not as precise as ground gauge station data.

Secondary data is also not available for the entire assessment time range. The VAM dataset from WFP is available since 2007, although from 2007-2020, the dataset only contains necessary item prices in the main cities across the country and the data for rural areas is not available. In addition, REACH's WoAA, HSM/HTR and JMMI conducted since 2019 only account for the last five years of the assessment time range. Gaps in the availability of these datasets make it more difficult to make conclusions. For instance, the VAM dataset which provides data on prices of food items is not available earlier than 2007, therefore it is difficult to find the correlation between drought severity and food prices. In addition, WoAA and HSM datasets are available only for a few years. As a result, data on the impact of drought on other sectoral needs will be limited.

For mitigating the data gap impact on the analysis, remote sensing analysis will be used to monitor the crop production for the years where VAM datasets are not available. In order to assess the WASH conditions of communities, surface water data and ground water data will be analysed using satellite imageries for most of the years. For the years where the data is not available for the missing datasets, secondary data will be acquired through media or reports from those years.

4 Key ethical considerations and related risks

The proposed research design…	***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** (*specifically by: seeking informed consent, designing length of survey/ discussion while being considerate of participants' time, ensuring accurate reporting of information provided*)?	NA	No primary data collection
… Does not **expose data collectors to any risks as a direct result** of participation in data collection?	NA	No primary data collection

… Does not **expose respondents / their communities to any risks as a direct result** of participation in data collection?	NA	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)?	NA	No primary data collection
… Does not involve **data collection with minors** i.e. anyone less than 18 years old?	NA	No primary data collection
… Does not involve **data collection with other vulnerable groups** e.g. persons with disabilities, victims/ survivors of protection incidents, etc.?	NA	No primary data collection
… Follows IMPACT SOPs for management of **personally identifiable information**?	NA	

5 Roles and responsibilities

Task Description	*Responsible*	*Accountable*	*Consulted*	*Informed*
Research design	*GIS Specialist*	*DCC*	*DCC/RM/AO*	*CC*
Supervising data collection	NA	NA	NA	NA
Data processing (checking, cleaning)	GIS Specialist	Data Specialist	HQ-Senior Manager GIS/Remote sensing	CC
Data analysis	GIS Specialist	Data Specialist	HQ-Senior Manager GIS/Remote sensing	

Output production	GIS Specialist	DCC	HQ-Senior Manager GIS/Remote sensing	CC
Dissemination	GIS Specialist	DCC	DCC	CC
Monitoring & Evaluation	GIS Specialist	PDO	PDO	CC
Lessons learned	*GIS Specialist*	*DCC,WFP*	*Data Specialist/WFP*	*CC*

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*

Data Analysis Plan

Table 1. Remote Sensing indicators

Research Question	Indicator	Data Source	Disaggregation	Analysis Time Range /Rational
How do climate and meteorological patterns change in dry and wet years?	**Snow Water Equivalent**	FLDAS_Snow_Water_ EquavInt	**River Basin**	**Monthly (December -August)** **Snow fall start in most of the provinces in December, and snow melt usually continue till of end of summer. During this period deficit in snow water equivalent damage crops.**
	Snow Cover	FLDAS_Snow_Cover	**River Basin**	**Monthly (January-August)**

				Snow Cover retraction faster than normal is sign of unusual warm temperature that can cause drought
	SPI 3 - Seasonal	CHIRPS	River Basin / Livelihood Zone	Seasonal (3-month SPI)
	Monthly Precipitation	CHIRPS	River Basin / Livelihood Zone	Monthly (whole year) In some of the province in Afghanistan communities practicing rainfed agriculture, and delay in short time precipitation will damage rainfed products
	2m_surface_temperature	Era5	Livelihood Zone	
How Anomaly in weather condition (dry and wet) impact vegetations, Surface water, Agriculture and livelihood?	Vegetation condition index / VCI	MODIS	River Basin/ Livelihood Zone	Seasonal
	green vegetation coverage / NDVI	MODIS	River Basin	Monthly
	Dam and reservoir surface water area/ NDWI	Sentinel 2	River Bain	Monthly
	Soil Moisture / Monthly	FLDAS_Soil_Moisture	Livelihood Zone	Monthly

Table 2. Secondary Data/Assessments indicators

Research Question	Indicator	Data Source	Disaggregation
In areas affected by drought, how have dry weather patterns affected the supply and demand of commodities among communities?	Max/min price of Pulse over each season of the year - Afghani/kg	WFP - VAM	Main Urban Centers
	Max/min price of flour over each season of the year - Afghani/kg		
	Max/min Price of wheat over each season of the year - Afghani/kg		
	Max/min price of one year old, alive female sheep in each season of the year - Afghani		
	Max/min price of rice over each season of the year - Afghani/kg		
	Max/min price of the Minimum Expenditure Basket (MEB) over the season - Afghani/MEB	JMMI	Districts
How have periods of drought affected communities' ability to access food and pursue their livelihoods, as well as their WASH, health and nutrition situations?	% of KIs has access to Sufficient Quantity of water to meet satisfy their daily water needs (drinking,cooking, other domestic use and hygience)	HSM	Districts

	% of KIs reported food as one of their three priority needs		
	% of KIs reported food is the most common reason of their debt		
	% of KIs reported lack of enough water for farming as main reason of decrease in Harvesting their product		
	% of KIs reported to be in direct subject of Drought/Precipitation deficit in past six months		
	% of KIs reported Drought/Precipitation deficit (lack of rain) in previous community as PRIMARY factor causing displacement from their homes to this settlement		
	% of KIs reported Lack of food in previous community as case of displacement from their homes settlement?		

1. Data Management Plan

Data Management Plan available upon request

2. 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	X Yes
		# of downloads of x product from Relief Web	Country request to HQ		X Yes
		# of downloads of x product from Country level platforms	Country team		□ Yes
		# of page clicks on x product from REACH global newsletter	Country request to HQ		□ Yes
		# of page clicks on x product from country newsletter, sendingBlue, bit.ly	Country team		□ Yes
		# of visits to x webmap/x dashboard	Country request to HQ		□ 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	*WFP food assistance targeting*
		# references in single agency documents			
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 documents (HNO, HRP,	Perceived relevance of IMPACT country-programs	Country team	Usage_Feedback *and* Usage_Survey template	*[Outline here the usage survey to be implemented for this research cycle* *E.g. Usage survey to be conducted in November 2017, following the release of x outputs, targeting at least 10 partners*
		Perceived usefulness and influence of IMPACT outputs			
		Recommendations to strengthen IMPACT programs			
		Perceived capacity of IMPACT staff			

	cluster/agency strategic plans, etc.) directly informed by IMPACT products	Perceived quality of outputs/programs			*E.g. Usage survey to be conducted at the end of the research cycle related to all outputs, targeting at least 20 partners]*
		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 *(providing resources, participating to presentations, etc.)*	# of organisations providing resources (i.e.staff, vehicles, meeting space, budget, etc.) for activity implementation	Country team	Engagement _log	□ Yes
		# of organisations/clusters inputting in research design and joint analysis			□ Yes
		# of organisations/clusters attending briefings on findings;			X Yes