Research Terms of Reference
Integrated Needs Tracking (INT) System
SSD1901
South Sudan

March 2021
Version 2

REACH Informing more effective humanitarian action

1. Executive Summary

Country of intervention	South Sudan				
Type of Emergency		Natural disaster	X	Conflict	
Type of Crisis	X	Sudden onset		Slow onset	X Protracted
Mandating Body/ Agency	*Needs Anlaysis Working Group (NAWG), Inter-Cluster Coordination Group (ICCG)*				
Project Code	*32iAIE*				
Overall Research Timeframe *(from research design to final outputs / M&E)*	01/01/2019 to 31/05/2021				

Research Timeframe[1]	1. Start collect data: Data backdated 01/03/2019	5. Preliminary presentation: N/A
Add planned deadlines (for first cycle if more than 1)	2. Data collected: Data backdated 01/03/2019	6. Outputs sent for validation: First Quarterly factsheet 23/03/2021
	3. Data analysed: Data analaysed from 01/03/2019 onwards	7. Outputs published: First Quarterly factsheet 30/03/2021
	4. Data sent for validation: 23/03/2021	8. Final presentation: Updated regularly

Number of assessments		Single assessment (one cycle)
	X	Multi assessment (more than one cycle) *The INT system/map will be updated every month*

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;	**Milestone**		**Deadline**
		Donor plan/strategy	_ _/_ _/_ _ _ _
	X	Inter-cluster plan/strategy	Bi-weekly
	X	Cluster plan/strategy	Bi-weekly
	□	NGO platform plan/strategy	_ _/_ _/_ _ _ _
	□	Other (Specify):	_ _/_ _/_ _ _ _
	Audience type		**Dissemination**

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[1] The INT is updated monthly. Data collection started in March 2019 and remains ongoing.

Audience Type & Dissemination *Specify who will the assessment inform and how you will disseminate to inform the audience*	X Strategic X Programmatic X Operational ☐ [Other, Specify]		**X** General Product Mailing (e.g. mail to NGO consortium; HCT participants; Donors)
			X Cluster Mailing (FSL, Nutrition, Health 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)
			X Dedicated web platform
Detailed dissemination plan required		Yes	X	No
General Objective	To inform timely and effective delivery of humanitarian response in South Sudan by designing and implementing a comprehensive needs tracking system that monitors and highlights humanitarian needs over time and on a monthly basis.[2] The INT will be based on a multi-tiered multi-dimension framework that uses secondary data to monitor the risk of increasing needs in relation to five conceptual indicators, food security and livelihoods (FSL), WASH, Health, Nutrition, and Mortaility, at the county level. As a result, the INT will feed into the wider South Sudan humanitarian response as well as the Needs Analysis Working Group (NAWG), where it is designed to monitor needs seveity and identify areas requiring further assessment and possible reponse scale-up.		
Specific Objective(s)	• Develop an analytical framework to assess the severtiy of needs, and flag the need for possible further humanitarian intervention, at the county level. • Continue to develop indicator thresholds based on global standards or technical input from experts. The current thresholds have been discussed with technical leads from various agencies and clusters. • Directly feed the analytical framework into a custom map for easier understanding of the severity of humanitarian conditions. • Successfully develop a needs tracking system that is updated on a monthly basis and consistently used by the NAWG partners and non-NAWG partners for identifying counties most at risk of increasing needs. • Produce quarterly factsheets highlighting expected seasonal needs trends, as well as other ad-hoc deliverables such as specific factsheets to support biannual Integrated Phase Classification (IPC). • Implement other core conceptual indicators, such as shocks monitoring, to increase the precision and accuracy of the INT. [3] • Track counties' needs severity over time to understand how conditions change based on different events.		
Research Questions	• What is the proximate level of food insecurity (based on food availability, markets, agriculture, livelihoods, and climatic conditions) at the county level? • What is the current level of access to clean water, sanitation, and hygiene (WASH) facilities and services? • How high are Health admissions levels at the county level?		

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[2] The current Integrated Needs Tracking (INT) system builds from lessons learned from the Somalia Early Warning system, the Household Economic Approach (HEA) framework, the IPC and other literature relating to early warning and needs tracking systems.
[3] See the Shocks Monitoring Index (SMI) ToR for further explanation of the index and how it is incorporated into the INT.

	• How can we assess malnutrition severity on a monthly basis at the county level? • Of the available data, which indicators would best answer these questions and/or be best suited as proxy indicators for these issues? • How do needs severity levels flucuate over time, particuarlly when looking across seasons?
Geographic Coverage	South Sudan, dissagregated by county.
Secondary data sources	• REACH Area of Knowledge (AoK) data • FSL, WASH, Health and Nutrition Clusters • World Health Organisation (WHO) Integrated Disease Surveilance Response (IDSR) • REACH – Cash Working Group (CWG) Joint Market Monitoring Initiative (JMMI) • Integrated Phase Classification (IPC) updates and reports • Food Security & Nutrition Monitoring System (FSNMS) • Standardised Monitoring & Assessment of Relief & Transitions (SMART) mortality and nutrition data • Climate Hazards Group Infrared Precipitation with Station data (CHIRPS) remote sensing • Nutrition Information System (NIS) admission data • Crop and food security assessment mission (CFSAM) • Crop and livestock monitoring information system (CLIMIS) • Ad-hoc assessments conducted by partners

Population(s) *Select all that apply*				
		IDPs in camp	X	IDPs in informal sites
	X	IDPs in host communities		IDPs [Other, Specify]
		Refugees in camp		Refugees in informal sites
		Refugees in host communities		Refugees [Other, Specify]
	X	Host communities	X	Other: Returnees

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)	X	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*	X Purposive (AoK) □ Probability / Simple random □ Probability / Stratified simple random □ Probability / Cluster sampling □ Probability / Stratified cluster sampling □ [Other, Specify]	X Key informant interview (Target #): 5% of known settlements □ Group discussion (Target #):_ _ _ _ _ □ Household interview (Target #):_ _ _ _ _ □ Individual interview (Target #):_ _ _ _ _ □ Direct observations (Target #):_ _ _ _ _ □ [Other, Specify] (Target #):_ _ _ _ _
Structured data collection tool # 2 *Select sampling and data collection method and specify target # interviews* ***If more than 2 structured tools please*	□ Purposive □ Probability / Simple random □ Probability / Stratified simple random X Probability / Cluster sampling □ Probability / Stratified cluster sampling	□ Key informant interview (Target #):_ _ _ _ _ □ Group discussion (Target #):_ _ _ _ _ X Household interview (Target #): 108 per county □ Individual interview (Target #):_ _ _ _ _

duplicate this row and complete for each tool.	□ [Other, Specify]		□ Direct observations (Target #):_ _ _ _ _ □ [Other, Specify] (Target #):_ _ _ _ _		
Target level of precision if probability sampling	_ _% level of confidence – **N/A**		_ _+/- % margin of error – **N/A**		
Data management platform(s)	□	IMPACT	□	UNHCR	
	X	Dropbox and in-house webplatform – specifics are in section "3.9 INT online dashboard"			
Expected ouput type(s)	□	Situation overview #: _ _	□ Report #: _ _		□ Profile #: _ _
	X	Presentation (Preliminary findings) #: 1 every month	X Presentation (Final) #: 1 every month		□ Factsheet #: _ _
	X	Interactive dashboard #: 1 every month	□ Webmap #: _ _		X Map #: 1 every month
	□	[Other, Specify] #: _ _			
Access	□	Public (available on REACH resource center and other humanitarian platforms)			
	X	Restricted (bilateral dissemination only upon agreed dissemination list, no publication on REACH or other platforms)			
Visibility *Specify which logos should be on outputs*	*REACH, DFID, FSL (tbd), WASH (tbd), Nutrition (tbd), Health (tbd)*				

2. Rationale

2.1 Rationale

The dynamic and multi-faceted nature of the South Sudanese displacement crisis has created significant challenges for humanitarian information management. As a result of the continued insecurity and overall unpredictability of a sudden increase in humanitarian needs, it is becoming increasingly important to quickly identify and fill information gaps relating to potential areas of severe humanitarian distress. Further, identifying the level of needs must be done in a systematic and timely manner to promote more effective humanitarian analysis, comparability, response and planning for immediate life-saving activities.

At the Famine Workshop, in February 2018, the cluster leads for FSL, WASH, Health, and Nutrition, as well as REACH, agreed that there was a need for a better system to track the needs of vulnerable populations in a timely manner. Despite multiple agencies regularly conducting assessments, there was no information management system to house key indicators collected by numerous agencies across the four identified life-saving clusters. Furthermore, there was a lack of a transparent system that the Needs Analysis Working Group (NAWG) could use to quickly identify potential hotspot counties and prioritise them for further discussion. As a result, the Integrated Needs Tracking (INT) system was designed, based on lessons learned from the [Somalia early warning system](#), the IPC, HEA framework, and literature on early warning systems.[4] The INT system feeds directly into the NAWG and is designed to assist the NAWG members in sifting through monthly data to identify areas requiring further assessment and response scale-up.The system is accessible at any time through an online portal that is

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[4] See IPC Global Platform (http://www.ipcinfo.org/) and the Practitioners Guide to the HEA (http://foodeconomy.com/wp-content/uploads/2015/09/The-Practitioners-Guide-to-HEA.pdf)

updated on a monthly basis and is available for stakeholders to view whole categories or filter to specific indicators and themes at the county level.

2.2 Objectives

- Develop an analytical framework to assess the severity of needs, and flag the need for possible further humanitarian intervention, at the county level.
- Continue to develop thresholds for indicators based on global standards or technical input from experts.[5]
- Directly feed the analytical framework into a custom map for easier understanding of the severity of humanitarian conditions.
- Successfully develop a needs tracking system that is updated on a monthly basis and consistently used by the NAWG partners and non-NAWG partners for identifying counties most at risk of increasing needs.
- Implement other core conceptual indicators, such as shocks monitoring, to increase the precision and accuracy of the INT.
- Track counties' needs severity levels over time to understand how conditions change based on different events and seasons.
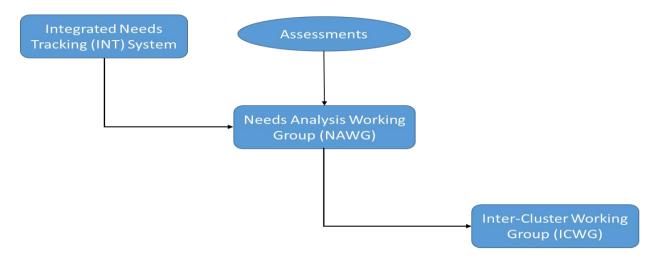
3. Methodology

3.1 Methodology overview

The continuous changes in the geographic locations, drivers, scope and severity of humanitarian needs reflect the need to develop a practical needs monitoring system that integrates multiple data sources. This needs monitoring system requires an analytical framework which can flag as well as predict the level of needs in-between IPC analysis. The INT system aims to meet these gaps by providing the NAWG and key decision makers with a system that consolidates multiple data sources and critical indicators into one monthly updated information management system which feeds into an analytical framework, which is endorsed by the NAWG and four life-saving clusters; FSL, WASH, Health, and Nutrition.

The INT system provides the NAWG with the ability to identify a county's relative needs severity ('Minimal Severity', 'Moderate Severity', 'High Severity', 'Very High Severity'). Through this analysis, the INT can inform the NAWG on areas requiring response scale-up and requiring further assistance, thus enabling the NAWG to provide appropriate recommendations to the Inter-Cluster Coordination Group (ICCG). This decision-making pathway is highlighted in figure 1. Further, the INT is envisioned to provide longitudinal analysis, increasing the understanding of needs severity across time. This analysis will enable identification of areas both experiencing protracted high needs severity and atypical needs severity, enabling the humanitarian response to be informed accordingly.

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[5] The current thresholds have been discussed with technical leads from various agencies and clusters.

Figure 1: Where the Integrated Needs Tracking (INT) system fits into humanitarian analysis and decision-making:

3.2 The Needs Analysis Working Group (NAWG)

The NAWG was established in 2018 and endorsed by the ICCG. The objective of the NAWG is to bring together a sub-group of analysts from various aspects of the response (programme, operational and technical analyst) to meet on a bi-weekly basis, analyse ongoing trends in South Sudan, and make recommendations to the ICCG. Lessons learned from the first year of the NAWG being operational and from the 2018 famine workshop, suggest that there needs to be a centralised information management system and analytical framework to assist the NAWG in determining the relative current risk of a NAWG trigger being present in a county. While the INT was initially conceptualised at the famine prevention workshop in February 2018, the NAWG provides the appropriate platform for both political buy-in and ensuring that the INT system does not supersede human contextual analysis, instead supports and guides the NAWG.

The NAWG has five triggers which are used to determine if a county can be recommended to the ICCG for four action points. Although the INT sits in isolation to these NAWG triggers, it is designed to provide a supplementary information system to identify areas of potential needs severity and also corroborate inter-sectoral understanding of conditions meeting NAWG triggers. NAWG triggers and subsequent ICCG recommendations are listed below:

NAWG Triggers[6]
1. IPC Phase 5 population present
2. Increasing mortality
3. Disease outbreak
4. Displacement over 5,000 persons
5. GAM prevalence over 15%

NAWG Recommendation Options
- Response scale up
- Follow up assessment
- Close monitoring
- Remove from list

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[6] Note: NAWG triggers are subject to change and are under constant review.

3.3 Integrated Needs Tracking (INT) Concept & Framework

The INT system is designed to assist NAWG and non-NAWG actors in identifying areas currently experiencing, or at risk of experiencing, severe humanitarian distress. By triangulating data on a monthly basis, the INT allows for regular and comparable updates between publications from the IPC, FSNMS, and SMART surveys.[7]

Table 1: Integrated Needs Tracking (INT) Components and Sub-components:

INT Components	INT Sub-component
Food Security & Livelihoods	Food Availability & Access
	Agriculture
	Livestock
	Markets
	Climate
Water, Sanitation, and Hygiene	N/A
Health	N/A
Nutrition	N/A

The INT system is designed from internationally recognised frameworks, protocols and lessons learned documents.[8] The INT system classifies the four clusters, FSL, WASH, Health, and Nutrition, as "Components". For FSL, this component is made of up five "sub-components" as shown in table 1 (please view figure 2 for a full analytical framework overview). Each of these components and sub-components is assigned a needs severity score of 'Low Severity', 'Moderate Severity', 'High Severity', and ' Very High Severity'. To build these severity scores multiple indicators from   different data sources are analysed. The value of each indicator is assigned a severity score based on pre-established thresholds such as the IPC acute malnutrition severity scores, or based on technical feedback from sector experts and previous trends.[9] These indicator severity threshold scores are then aggregated to build component and sub-component severity scores. This is coverd in more detail in section 3.4, and please view annexes 1-3 for a full indicator and threshold list.

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[7] Data collected monthly, such as REACH AoK data, is not considered as reliable as random HH surveys. However, the timeliness of the data allows for a proxy estimation of needs between HH surveys, which may only be collected 1-2 times a year; leaving a large information gap for most of the year.

[8] Frameworks and protocols include the FSNAU Early Warning Early Action dashboard, the IPC, the household economic approach (HEA), UNICEF Nutrition framework, sustainable livelihoods framework, INFORM. Literature includes Oxfam's review of FSNAU EWEA, Desk review of Somalia famine, Somalia Mortality Estimates May 2013.

[9] Technical experts include WFP vulnerability and mapping unit (VAM), World Health Organization, Nutrition Information Working Group, the Food Security Cluster, WASH cluster, United Nations Food and Agriculture Organization, along with academics from various universities. As the INT continues to grow, the engagement with technical experts will continue
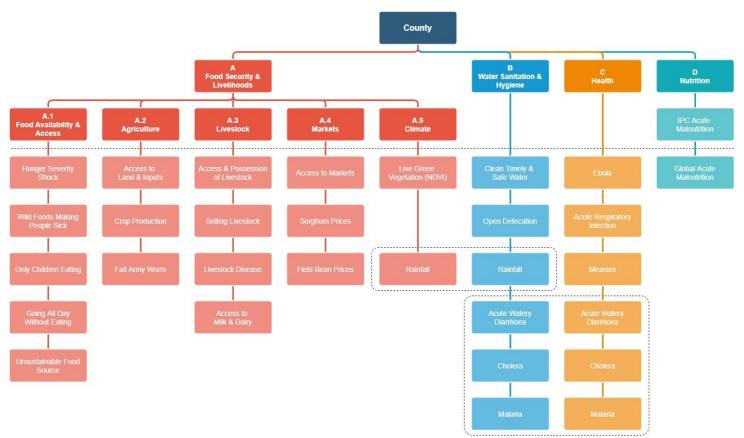
Figure 2: Integrated Needs Tracking (INT) Analytical Framework Overview; Components, Sub-components, and Indicators:

The four cluster components, FSL, WASH, Health, and Nutrition have been agreed upon with cluster representatives, and have been strongly influenced by the UNICEF conceptual framework.[10] The UNICEF framework uses four categories, basic causes, underlying causes, immediate causes and manifestation. As the situation deteriorates, basic causes influence underlying causes which in turn have immediate causes which finally manifest into malnutrition. The INT system follows a similar approach by examining 'drivers', such as limited financial access to markets and poor WASH infrastructure, which are considered to be root causes to outcome indicators, such as malnutrition and mortality. This is highlighted in figure 3 below. Note that, within the INT framework, malnutrition is treated as both an outcome and an influence, since a high prevalence of malnutrition increases morbidity, reduces food utilisation and decreases household productivity.

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[10] Developed in 1998 the UNICEF conceptual framework for malnutrition still plays a fundamental role in multiple frameworks and analysis protocols, including the IPC. (https://www.unicef.org/sowc98/silent4.htm)
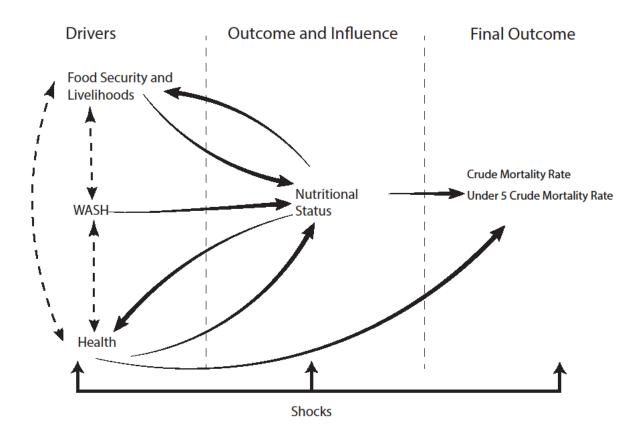
Figure 3: Integrated Needs Tracking (INT) Drivers, Influences, and Outcomes:

3.4 Integrated Needs Tracking (INT) Data Analysis Process

3.4.1 Overall County-level Needs Severity Categories:

As shown in table 2, there are four needs severity categories and an 'insufficient data' category. Each of the needs severity categories represents a degree of convergence between the four components, and the system is designed to prevent a lack of data from overclassifying a county. As a result, where there are fewer data sources to gauge severity for a component or sub-component, this county will be under-represented and naturally be assigned a lower severity score. While this may under-represent areas where data sources are difficult to obtain, and should be taken into consideration when interpreting the results, the benefits from not over classifying outweigh the negatives of this approach. Where possible, this is prevented by imputing analagous data sources to ensure severity scores can be calculated. For example, where AoK coverage is unavailable for a county, IPC scores and projected scores are used to impute an FSL needs severity score; thus facilitating the calculation of an overall needs severity score. Data imputation is only conducted as a last-resort, and clearly referenced in any publication.

Table 2 Overall County Level Needs Severity Categories and Proposed Action:

Category	Description	Action
Very High Needs Severity	Based on the available data, there is a strong convergence of proxy data suggesting that the severity of needs is very high. A classification of very high severity requires two or more components being classified as 'very high' needs severity.	The county is recommended for NAWG discussion and additional data is requested

High Needs Severity	One of the components is suggests a very high severity of needs, but other indicators diverge, showing high needs severity or lower.	The county is recommended for NAWG discussion and additional data is requested
Moderate Needs Severity	One component suggests a high severity of needs, but other indicators diverge, showing moderate needs severity or lower.	Monitored for further deterioration by INT internal team
Low Needs Severity	None of the component directly indicate a high severity of needs in the county.	Monitored for further deterioration by INT internal team
Insufficient data	There is insufficient data available to reliably provide a category to the county.	Request partners to provide updated data to guide categorisation.

3.4.2 Severity Score Data Processing & Analysis:

To build the needs severity scores, individual indicators are first analysed, aggregated, and then processed to build a severity score for the appropiate component/sub-component:

1. **Indicators – summary statistic analysis:** Indicators are derived from available external and internal data sources and a value is calculated for each county based on available information. To allow for aggregation between indicators, each indicator is first converted into a summary statistic at the county level; either a proportion, ratio, absolute number, or a percent change over time.

2. **Indicators – severity thresholds:** After indicators are converted to a summary statistic, the value of each indicator is then assigned a "weighted score" between one and four, based on pre-determined thresholds of severity. For an example of the threshold weighting process, please see table 3 below, and for a full outline of these thresholds please refer to annex 1. Thresholds were determined through internal, cluster, and NAWG member review, with support from extensive REACH secondary data review.

Table 3 Example of Indicator Severity Score Threshold: Only Children Eating Indicator

Data source: REACH Area of Knowledge (AoK) – settlement level

Indicator: Coping strategy – adults skipping meals to allow children to eat.

Needs Severity	Indicator Threshold
Very high needs severity (4)	Only children eat some days x>= 40%
High needs severity (3)	Only children eat some days 20%<x<= 40%
Moderate needs severity (2)	Only children eat some days 10%<x<= 20%
Low needs severity (1)	Above conditions are not met

3. **Component/Sub-component severity scores:** In order to calculate the component/sub-component severity scores, a value between 1 and 4 is assigned to each component/sub-component based on pre-estsablished convergence of the differing indicators/sub-components. Due to different components and sub-components having differing numbers of sub-components/indicators, the convergence of these scores varies depending on the component, and can be outlined in full in annexes 1 and 2 below.

4. **Overall needs severity score:** An overall needs severity score is calculated by taking the mean of each of the four component severity scores. If a component has insufficient data, it is excluded from the mean calculation.

3.5 Level of analysis

The primary unit of analysis is the county level. The data sources used for the INT system currently do not permit a lower geographic level of analysis. Therefore, an isolated incident, such as atypically high measles morbidity in a specific boma, would likely not be picked up by the INT. Instead, the system is designed to allow users to unpack county categorisation through examining the associated components and sub-components.[11] Digging deeper into the component severity scores and the associated indicators enables the user to identify the drivers of high levels of needs, ensuring that all actors have the opportunity to verify the accuracy of the information provided. For example, if a decision maker is only interested locations with high WASH needs, they can filter for only WASH indicators.

3.6 Criteria for data

INT indicators are chosen based on two key criteria:
- **Timeliness:** The fundamental mandate of the INT is to provide a countrywide analysis of the critical needs in South Sudan on a monthly basis. As a result, it is crucial that the indicators used are collected on a regular and predictable basis, allowing for timely updates to the INT system each month and enabling trend analysis.
- **Level of analysis/sampling methodology**: Data must be representative, or at best indicative, of a country or suitable for extrapolation to the county level. The INT system focuses primarily on county-level needs and data sources.

3.7 Data Sources

The INT system relies on several different data sources, each aligned with specific components that meet the criteria above. The indicators primarily come from REACH AoK data, which is collected at the settlement level on a monthly basis and is aggregated to be indicative at the county level. Additional monthly data sources include the Joint Market Monitoring Initiative (JMMI), coordinated by REACH and the Cash Working Group (CWG), WHO's Integrated disease surveillance and response (IDSR), the South Sudan livestock market information system (CLIMIS), and the Climate Hazards Group Infrared Precipitation with Station data (CHIRPS) Dataviz portal. Data from the biannual household-level Food Security and Nutrition Monitoring Survey (FSNMS) and Integrated Phase Classification (IPC) system are also included, as well as data from the annual crop and food security assessment mission (CFSAM). Datasets that are available on a biannual and an annual basis are only updated when available.

Data sources and indicators may change over time as technical feedback is considered and new data collection initiatives begin. Please see Annex 3 for a full breakdown of indicators and their respective data sources.

3.9 Integrated Needs Tracking (INT) Online Dashboard

To better visualize the outputs from the INT, a password-protected online Tableau dashboard will be availiable to humanitarian partners. The INT dashboard, as shown below in figure 4, will have a map to visualize multple components of the INT and provide the data for each indicator.[12] The maps include the overall county-level needs severity level, as well as maps specific to each component (FSL, WASH, Health, Nutrition) and each sub-component for FSL (Food

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[11] Users have the option to view FSL indicators only, allowing for FSL partners to see key FSL needs. Similar 'unpacking' can be done for all of the components and sub-components.

[12] Data will not be downloadable without consent from the partner who provided the data.

avialiability/access, livelihoods, agriculture, livestock, markets, climate), with a varied colour scheme used to indicate the severity of needs per county.
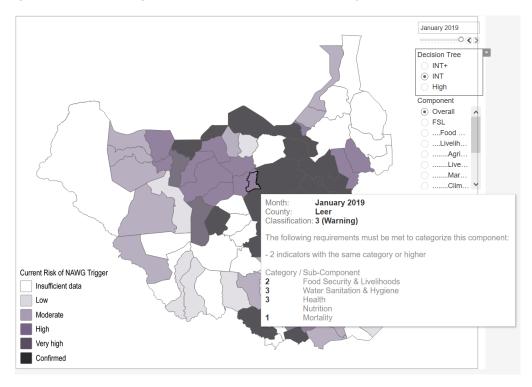
Figure 4: Integrated Needs Tracking (INT) Online Dashboard; Leer County

3.10 Updating and presenting the INT

The INT system will be updated on a monthly cycle by the INT technical focal points to allow for continuous monitoring. All indicators and data sources were chosen based on timely collection periods and reliability.

The INT will be presented at the NAWG meetings on a monthly basis as a guiding map for the discussion. Ideally, the counties in the very high to high needs severity category would be put forward for further discussion. Additionally, the INT map will be used as the base map, along with other relevant maps, during the NAWG workshops which occur 2 times a year, typically between IPCs and before the HNO. The INT will also be used to inform the biannual IPC classification processess.

4. Roles and responsibilities

The INT system will be incorporated into the NAWG and . The technical aspects of the system, website design, data storage, and coding will be managed by REACH.

Table 4: Description of roles and responsibilities

Task Description	Responsible	Accountable	Consulted	Informed
Development of methodology	REACH Climate and Needs Officer	Assessment manager	GIS Officer, FSL Officer, WASH Officer, Senior AOs, Headquarters in Geneva and AOs with area-specific knowledge	NAWG
Website Development	REACH GIS	Assessment manager	FSL assessment officer, County representative, cluster IMOs	NAWG
Establishing conceptual indicators	REACH Climate and Needs Officer	Assessment manager	NAWG, Cluster IMOs and technical leads	NAWG, cluster coordinators
Establishing thresholds	REACH Climate and Needs Officer	Assessment manager	Cluster technical experts	NAWG
Processing data (i.e. preparing data)	REACH Climate and Needs Officer	Assessment Manager	Assessment manager, cluster IMOs	REACH GIS officer

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*

5. Risk & Assumptions

Risk	*Mitigation Measure*
Lack of political buy-in	Ensure that clusters and decision makers feel that they are involved in the process. By asking them for input onthe product, they are more likely to use it regularly.
Lack of consistent, timely data	1) Ensuring that IMOs can easily submit data to the system without burdensome format requirements.
Collection of contradicting information during similar periods.	Review of methodology and data sources to ensure high-quality data is used
Duplicating efforts of other countrywide analysis processes (i.e. IPC)	Ensuring that the INT system remains multi-sectoral and that relevant actors are regularly consulted to ensure the INT system remains relevant. The INT is unique in the sense that it is updated regularly and can be used as a point for further discussion.

6. 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	□ Yes
		# of downloads of x product from Relief Web	Country request to HQ		□ 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	*HNO report 2019, HRP 2020, mid-year review, FSL strategy paper.* *NAWG minutes and workshop reports, partner rapid assessment reports.*
		# 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, cluster/agency strategic	Perceived relevance of IMPACT country-programs	Country team	Usage_Feedback *and* Usage_Survey template	*Feed back from NAWG members after NAWG workshops.* *Bi-annual feedback sessions with technical leads (WFP, FAO, FSL cluster, WASH cluster)*
		Perceived usefulness and influence of IMPACT outputs			
		Recommendations to strengthen IMPACT programs			
		Perceived capacity of IMPACT staff			

		Perceived quality of outputs/programs			
	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 *(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	*The INT will be presented regularly at the NAWG. Future iterations of the system will be driven by NAWG and cluster member technical and contextual input.*
		# of organisations/clusters inputting in research design and joint analysis			
		# of organisations/clusters attending briefings on findings;			

ANNEX 1: INTEGRATED NEEDS TRACKING (INT) COMPONENT SCORING

Component	Sub-Component	Severity	Indicator Threshold
Overall Severity Score	N/A		Each of the four components is assigned a score between 1-4 based on severity. This score is aggregated and the subsequent mean score determines overall needs severity:
		Very high	Average risk of sub-components x>= 4
		High	Average risk of sub-components 3<x<=4
		Moderate	Average risk of sub-components 2<x<=3
		Low	Above conditions are not met
Food security and livelihoods	N/A		Aggregate sub-component scores:
		Very high	2 sub-components or more very high
		High	2 sub-components or more high
		Moderate	2 sub-components or more moderate
		Low	2 sub-components or more low
WASH	N/A		Aggregate indicator scores:
		Very high	Confirmed Ebola case; Cholera risk very high; or 4 indicators very high; or 2 indicators very high and 2 high
		High	2 indicators very high; or 2 indicators high
		Moderate	1 indicator high; or 3 indicators moderate
		Low	3 indicators low
Health	N/A		Aggregate indicator scores:
		Very high	Cholera or Ebola risk very high; or 2 indicators very high
		High	1 indicator very high; or 2 indicators high
		Moderate	2 indicators moderate
		Low	2 indicators low

ANNEX 2: INTEGRATED NEEDS TRACKING (INT) SUB-COMPONENT SCORING

Component	Sub-Component	Severity	Indicator Threshold
Food security and livelihoods	Food Availability & Access		Aggregate indicator scores:
		Very high	2 indicators very high
		High	1 indicator very high; or 2 indicators high
		Moderate	1 indicator high; or 2 indicators moderate
		Low	2 indicators low
Food security and livelihoods	Agriculture		Aggregate indicator scores:
		Very high	2 indicators very high
		High	1 indicator very high; or 2 indicators high
		Moderate	1 indicator high; or 2 indicators moderate
		Low	2 indicators low
Food security and livelihoods	Livestock		Aggregate indicator scores:
		Very high	2 indicators very high
		High	2 indicators high
		Moderate	1 indicator very high; or 2 indicators moderate
		Low	2 indicators low
Food security and livelihoods	Markets		Aggregate indicator scores:
		Very high	2 indicators very high
		High	1 indicator very high; or 2 indicators high

		Moderate	1 indicator high; or 2 indicators moderate
		Low	2 indicators low
Food security and livelihoods	Climate		Aggregate indicator scores:
		Very high	1 indicator very high
		High	1 indicator high
		Moderate	1 indicator moderate
		Low	1 indicator low

ANNEX 3: INTEGRATED NEEDS TRACKING (INT) INDICATOR LIST

Indicator	Data Source	Severity (Ranking)	Indicator Threshold	Rationale
Hunger severity shock	REACH AOK		Proportion of settlements where KIs reported:	The hunger shock indicator is a reliable proxy for the perception of hunger on a monthly basis across a vast portion of the country. While it is not as comprehensive or globally tested as other food availability/access outcome indicators, such as the Food Consumption Score (FCS), Household Diet Diversity Score (HDDS) or Household Hunger Scale (HHS), it is more suited for frequent large-scale data collection, and has generally trended in the same direction as more complex indicators.
		Very high (4)	"Hunger is the worst" x >= 20%	
		High (3)	"Hunger is the worst" + "Hunger is bad" x <= 40%	
		Moderate (2)	"Hunger is the worst" or "hunger is bad" 20% <= x <40%	
		Low (1)	Above conditions are not met	
Wild foods making people sick	REACH AOK		Proportion of settlements where KIs reported:	Over-reliance on wild foods for the primary source of food is unsustainable and can lead to health issues. The consumption of wild foods that are known to make people sick is a reliable proxy for the level of food insecurity in the area. Spikes in the consumption of hazardous wild foods can be indicative of a reduction in food availability or access.
		Very high (4)	Wild foods consumed that make people sick x >= 30%	
		High (3)	Wild foods consumed that make people sick 20% <= x <30%	
		Moderate (2)	Wild foods consumed that make people sick 10% <= x <20%	
		Low (1)	Above conditions are not met	
Adults not eating	REACH AOK		Proportion of settlements where KIs reported:	The use of this coping strategy is a reliable proxy for the level of food access in the area. Spikes in coping strategies being used can be indicative of a reduction in food availability or access.
		Very high (4)	Adults skipping meals some days x >= 40%	
		High (3)	Adults skipping meals some days 20% <= x <40%	
		Moderate (2)	Adults skipping meals some days 10% <= x <20%	
		Low (1)	Above conditions are not met	
Only children eating	REACH AOK		Proportion of settlements where KIs reported:	Using this coping strategy is a reliable proxy for the level of food access in the area. Identifying spikes in the use of coping strategies can be indicative of a reduction in food availability or access.
		Very high (4)	Only children eat some days x >= 40%	
		High (3)	Only children eat some days 20% <= x <40%	
		Moderate (2)	Only children eat some days 10% <= x <20%	
		Low (1)	Above conditions are not met	
Unsustainable food source	REACH AOK		Proportion of settlements where KIs reported:	Food sources are instrumental in defining livelihood profiles, and to establish which households are more affected by a given shock (i.e. if prices increase, households depending on food purchases would be more affected). REACH's Area of Knowledge (AoK) survey asks key informants for the primary source of food in the settlement, which can be indicative of the use of sustainable versus unsustainable sources of food.
		Very high (4)	Primary food source is unsustainable x >= 45%	
		High (3)	Primary food source is unsustainable 30% <= x <45%	
		Moderate (2)	Primary food source is unsustainable 15% <= x <30%	

		Low (1)	Above conditions are not met	Unsustainable sources include: 1. Humanitarian assistance, including food for assets (FFA) or cash for assets (CFA) 2. Government food distribution 3. Foraging for wild foods 4. Given by family, friends or other local people
Access to land & inputs	REACH AOK		Proportion of settlements where KIs reported:	The majority of HHs in South Sudan practice some form of cultivation. It is essential to have some indication of whether HHs are cultivating, including whether they have agricultural inputs. CFSAM data is necessary for understanding crop production, but it is only released once a year, which is unreliable for real-time tracking system.
		Very high (4)	No access to land and agricultural inputs x >= 35%	
		High (3)	No access to land and agricultural inputs 25% <= x < 35%	
		Moderate (2)	No access to land and agricultural inputs 15% <= x < 25%	
		Low (1)	Above conditions are not met	
Crop production	CFSAM		Counties reporting:	The majority of HHs in South Sudan practice some form of cultivation. It is essential to have some indication of if HHs are cultivating, including if they have agricultural inputs. CFSAM data is necessary for understanding crop production, but it is only released once a year, which is unreliable for real-time tracking system.
		Very high (4)	Decrease from 5 year average x >= 30%	
		High (3)	Decrease from 5 year average 20% <= x < 30%	
		Moderate (2)	Decrease from 5 year average 10% <= x < 20%	
		Low (1)	Above conditions are not met	
Fall army worm	FSNMS		Percentage of assessed settlements reporting:	FAW can significantly disrupt crop production, mainly of maize and sorghum. Monitoring FAW infestations can help guide where interventions are needed and provide insight into the expected crop production.
		Very high (4)	Fall army worm infestation x >= 30%	
		High (3)	Fall army worm infestation 20% <= x < 30%	
		Moderate (2)	Fall army worm infestation 10% <= x < 20%	
		Low (1)	Above conditions are not met	
Access & possession of livestock	REACH AOK		Proportion of settlements where KIs reported:	Livestock is a crucial part of pastoral and agro-pastoralist livelihoods in South Sudan. Livestock is both a source of food and socio-economic standing in the community. A substantial reduction in access to livestock can limit an HHs ability to cope with shocks and access to food.
		Very high (4)	No access or possession of livestock x >= 60%	
		High (3)	No access or possession of livestock 40% <= x < 60%	
		Moderate (2)	No access or possession of livestock 20% <= x < 40%	
		Low (1)	Above conditions are not met	
Selling livestock	REACH AOK		Proportion of settlements where KIs reported:	Livestock is a crucial part of pastoral and agro-pastoralist livelihoods in South Sudan. Livestock is both a source of food and socio-economic standing in the community. A substantial reduction in livestock ownership can limit a household's ability to cope with shocks and access to food.
		Very high (4)	Households selling livestock x >= 70%	
		High (3)	Households selling livestock 50% <= x < 70%	
		Moderate (2)	Households selling livestock 30% <= x < 50%	
		Low (1)	Above conditions are not met	
Livestock disease	REACH AOK		Proportion of settlements where KIs reported:	Livestock is a crucial part of pastoral and agro-pastoralist livelihoods in South Sudan. Livestock is both a source of food and socio-economic standing in the community. An outbreak of disease can lead to an increase in livestock mortality, changing migration patterns, human disease, and reduction in household assets.
		Very high (4)	Livestock disease x >= 60%	
		High (3)	Livestock disease 40% <= x < 60%	
		Moderate (2)	Livestock disease 20% <= x < 40%	
		Low (1)	Above conditions are not met	
Access to markets	REACH AOK		Proportion of settlements where KIs reported:	Physical access to functioning markets allows people to satisfy some of their basic needs through trade, thereby improving their basic needs through trade, thus improving their living standards and food security.
		Very high (4)	No access to markets x >= 60%	
		High (3)	No access to markets 40% <= x < 60%	

		Moderate (2)	No access to markets 20% <= x < 40%	
		Low (1)	Above conditions are not met	
Sorghum / Maize prices (depending on cereal prefence in location)	JMMI / CLIMIS		Markets reporting:	Understanding financial access to markets is crucial. South Sudan has faced significant economic turmoil for the last five years, and inflation continues to be a severe concern. Cash programming is increasing but understanding where market needs are critical is essential for actors. Increasing prices may be indicative of reduced financial access to food.
		Very high (4)	Price increase from previous 3 month average x >= 15%	
		High (3)	Price increase from previous 3 month average 10% <= x <15%	
		Moderate (2)	Price increase from previous 3 month average 5% <= x < 10%	
		Low (1)	Above conditions are not met	
Fall bean prices	JMMI / CLIMIS		Markets reporting:	Understanding financial access to markets is crucial. South Sudan has faced significant economic turmoil for the last five years, and inflation continues to be a severe concern. Cash programming is increasing but understanding where market needs are critical is essential for actors. Increasing prices may be indicative of reduced financial access to food.
		Very high (4)	Price increase from previous 3 month average x >= 15%	
		High (3)	Price increase from previous 3 month average 10% <= x <15%	
		Moderate (2)	Price increase from previous 3 month average 5% <= x < 10%	
		Low (1)	Above conditions are not met	
Live Green Vegetation (NDVI)	WFP VAM / CHIRPS		Counties reporting:	Vegetation coverage is monitored by agencies as a key indicator of the effects of rainfall on crop production and available grazing resources for livestock. A large decrease in vegetation coverage, typically below 90% of the average, can be indicative of scarcer resources and/or lower crop production.
		Very high (4)	Current NDVI compared to historic average x <= 90%	
		High (3)	Current NDVI compared to historic average 90% > x >= 95%	
		Moderate (2)	Current NDVI compared to historic average 95% > x >= 100%	
		Low (1)	Above conditions are not met	
Rainfall (precipitation)	WFP VAM / CHIRPS		Counties reporting:	Rainfall is crucial for all livelihoods in South Sudan. Dry spells can limit crop production and force cattle to migrate further than usual to find water and grazing land. Excessive rainfall can lead to outbreaks of pests that damage crops, spread livestock disease, and cause road closures, limiting transportation of supplies to remote locations.
		Very high (4)	Increase or decrease from long term mean x >= 30%	
		High (3)	Increase or decrease from long term mean 20% <= x < 30%	
		Moderate (2)	Increase or decrease from long term mean 10% <= x < 20%	
		Low (1)	Above conditions are not met	
Clean, timely and safe water	REACH AOK		Proportion of settlements where KIs reported:	Access to clean water is crucial in understanding the risk of water-borne diseases and food utilisation. Accessing water can often be a time-intensive process in South Sudan, and thus ensuring access to water when required is key in understanding WASH needs severity.
		Very high (4)	No access to clean timely and safe water x >= 70%	
		High (3)	No access to clean timely and safe water 40% <= x < 70%	
		Moderate (2)	No access to clean timely and safe water > 20%	
		Low (1)	Above conditions are not met	
Open defecation	REACH AOK		Proportion of settlements where KIs reported::	Open defecation is strongly linked to disease outbreaks and water contamination, indirectly affecting the individual's ability to absorb critical nutrients.
		Very high (4)	N/A	
		High (3)	Practicing open defecation x >= 90%	
		Moderate (2)	Practicing open defecation 40% <= x < 90%	
		Low (1)	Above conditions are not met	
Acute watery diarrhoea (AWD)	WHO EWARS		Counties reporting:	Diarrhoeal disease is the second leading cause of death in children under five years old. Diarrhoea is defined as the passage of 3 or more loose or liquid stools per day. The indicator looks at both the number of cases and the death rate per caseload, which can also be viewed as a proxy for the health infrastructure (i.e. the higher the death rate, the
		Very high (4)	AWD Morbidity x >= 77% of historic national rates	
		High (3)	AWD Morbidity 66% <= x < 77% of historic national rates	
		Moderate (2)	AWD Morbidity 55% <= x < 66% of historic national rates	

		Low (1)	Above conditions are not met	more likely it is that the current health facility is incapable of handling the caseload). It can also be used as a proxy for WASH conditions and food utilisation.
Cholera	WHO EWARS		Counties reporting:	Cholera is considered an extremely severe disease that can lead to high mortality rates among children and actively drives GAM prevalence, forming a reliable proxy for poor WASH conditions.
		Very high (4)	Cholera Morbidity x >= 77% of historic national rates	
		High (3)	Cholera Morbidity 66% <= x < 77% of historic national rates	
		Moderate (2)	Cholera Morbidity 55% <= x < 66% of historic national rates	
		Low (1)	Above conditions are not met	
Malaria	WHO EWARS		Counties reporting:	The indicator looks at both the number of cases and death rate per caseload, which can also be seen as a proxy indicator for the presence of health infrastructure (i.e. the higher the death rate, the more likely the current health facility is incapable of handling the caseload). It can also be used as a proxy for WASH conditions and can be attributable to GAM prevalence.
		Very high (4)	Malaria Morbidity x >= 77% of historic national rates	
		High (3)	Malaria Morbidity 66% <= x < 77% of historic national rates	
		Moderate (2)	Malaria Morbidity 55% <= x < 66% of historic national rates	
		Low (1)	Above conditions are not met	
Ebola	WHO EWARS		Percentage of assessed settlements reporting:	Ebola is an extremely dangerous virus that will likely result in border closures and the breakdown of social structures in an area. As a result, it must be carefully monitored and given the highest priority for health implications.
		Very high (4)	Confirmed Ebola cases x> 1	
		Low (1)	Above conditions are not met	
Acute respiratory infection (ARI)	WHO EWARS		Counties reporting:	ARI cases and death rates are collected on a monthly basis through WHO's EWARS database. Health experts have established thresholds that are contextualised for South Sudan. Health indicators are incorporated relative to the county's population, to ensure that counties with smaller populations are not judged on the basis of absolute caseload numbers.
		Very high (4)	ARI Morbidity x >= 77% of historic national rates	
		High (3)	ARI Morbidity 66% <= x < 77% of historic national rates	
		Moderate (2)	ARI Morbidity 55% <= x < 66% of historic national rates	
		Low (1)	Above conditions are not met	
Measles	WHO EWARS		Counties reporting:	Measles is considered a severe disease that can lead to high mortality rates among children and actively drives GAM prevalence. It is a reliable proxy for poor or deteriorating food security and shelter conditions.
		Very high (4)	Measles Morbidity x >= 77% of historic national rates	
		High (3)	Measles Morbidity 66% <= x < 77% of historic national rates	
		Moderate (2)	Measles Morbidity 55% <= x < 66% of historic national rates	
		Low (1)	Above conditions are not met	
IPC Malnutrition Phase	IPC		Counties reporting:	The IPC conducts a biannual malnutrition analysis. After the results are published, the values the relevant time period are used (current or projection); each is valid for 4 months.
		Very high (4)	IPC Malnutrition Phase >= 4	
		High (3)	IPC Malnutrition Phase 3	
		Moderate (2)	IPC Malnutrition Phase 2	
		Low (1)	IPC Malnutrition Phase 1	
Global acute malnutrition	FSNMS / SMART		Counties reporting:	Due to the high level of error and statistical analysis, GAM (WHZ) is the most reliable indicator for measuring wasting and nutrition status for children 6-59 months of age. Since malnutrition is a lag indicator (it increases after other conditions have worsened), a high GAM prevalence is a strong signal that significant issues are affecting the population's nutritional intake, potentially through high morbidity, low food availability or poor utilisation.
		Very high (4)	Global acute malnutrition x >= 15%	
		High (3)	Global acute malnutrition 10% <= x < 15%	
		Moderate (2)	Global acute malnutrition 5% <= x < 10%	
		Low (1)	Above conditions are not met	