Humanitarian Needs Monitoring for Evidence-Based Service Delivery in Afghanistan

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ABSTRACT

This study sought to identify possible solutions for more effective translation of data into actionable humanitarian response in Afghanistan. While the Humanitarian Needs Overview is the primary document highlighting multisectoral needs in Afghanistan, it does not reflect the variation in needs within a humanitarian response year and at the sub-provincial level, thereby limiting the extent to which implementing actors' responses are guided by evidence. Analysis of IOM's community needs assessment data showed that up to 40% of districts returned different vulnerability categorizations when aggregated at district level, compared to when aggregation was done at province level, reflecting the importance of spatial aggregation on needs analysis. A time series visualization of ACLED data for Afghanistan showed notable spikes and dips that were seasonal or triggered by major events, such as the spring offensive and significant reduction in conflicts after the Taliban became the De facto Authority in Afghanistan. Analysis of primary qualitative data derived through Key Informant Interviews with Afghanistan humanitarian response stakeholders suggests that effective translation of data to response in Afghanistan will be achieved if it is based on a SMART (Specific, Measurable, Assignable, Reliable, and Time-bound) framework that is integrated with additional elements of accountability, resource allocation, and capacity mapping. A SMART+ model, which integrates the SMART components with the additional elements, was recommended and an example of how to operationalize this model in Afghanistan was presented.

LIST OF ACRONYMS

5Ws	WHO does WHAT WHERE WHEN and for WHOM
AAWG	Assessment and Analysis Working Group
ACLED	Armed Conflict Location & Event Data
ADM	Administrative Level
BMA	Baseline Mobility Assessment
CBNA	Community Based Needs Assessment
CHE	Complex Humanitarian Emergencies
EWS	Early Warning Systems
FAO	Food Aid Organization
HCT	Humanitarian Programme Cycle
HDX	Humanitarian Data Exchange
HIS	Humanitarian Information Systems
HIS	Humanitarian Information Systems
HNO	Humanitarian Needs Overview
HPC	Humanitarian Programme Cycle
HRP	Humanitarian Response Plan
ICCT	Inter-Cluster Coordination Team
IMWG	Information Management Working Group
IOM	International Orgaization for Migration
JIAF	Joint Intersector Analysis Framework
OCHA	Office for Coordination of Humanitarian Affairs
PDF	Portable Document Format
SBI	SMART Baseline Index
SMART	Specific, Measurable, Attainable, Reliable and Time-Bound
SMR	Standard Mortality Ratio
UN	United Nations
UNDP	United Nations Development Programme
UNICEF	United Nations Children's Fund
WASH	Water, Sanitation and Hygiene
WFP	World Food Programme
WHO	World Health Organization

EXECUTIVE SUMMARY

➢ *Background*

The Humanitarian Needs Overview (HNO) is the primary document highlighting multisectoral needs in Afghanistan however, it does not reflect the variation in needs within the humanitarian response year and at the sub-provincial level, limiting the extent to which implementing actors' responses are guided by evidence. Considering the complex nature of Afghanistan's humanitarian situation, where needs vary across time and space, the HNO document does not provide sufficient information to cater to ground level response. Therefore, guided by the following objectives and research questions, this study sought to identify the potential solutions for more effective translation of data into actionable humanitarian response in Afghanistan.

RO1 To assess the gaps in needs information captured through the HNO in Afghanistan, in the last three years (2020, 2021 and 2022).

- RQ1 According to available data on humanitarian needs and events in Afghanistan, how significant is the change in needs during a humanitarian response year, in the last three years?
- RQ2 According to available data on humanitarian needs and events in Afghanistan, for the last three years, how significant has the difference in needs been between the province and district levels?

RO2 To learn lessons from cases outside Afghanistan about existing practices for effective humanitarian needs monitoring.

- RQ3 What efforts have been implemented by stakeholders and actors in humanitarian responses to promote context-based humanitarian response?
- RQ4 What are the drawbacks, opportunities and gaps associated with these efforts?

RO3 To recommend possible approaches that support the translation of available data to more evidence-based humanitarian response on ground, in Afghanistan.

- RQ5 What tools do humanitarian stakeholders and/or actors require for effective evidence-based response prioritization?
- RQ6 What, according to humanitarian stakeholders and actors, are the current systems in place that support the availability of tools?
- RQ7 What, according to humanitarian stakeholders and actors, is the vision for an effective humanitarian needs monitoring system in Afghanistan?

➢ *Literature Review and Conceptual Framework*

A review of efforts for improving Humanitarian Information Systems reveal that six elements necessary, namely 1) baseline, vulnerability and poverty assessment, 2) EWS, 3) emergency needs assessments, 4) impact assessments, 5) context monitoring, and 6) programme evaluation and lessons learnt. The challenges associated with implementing effective information systems include difference in information priorities across various geographic levels, lack of collaboration between agencies in information sharing, and poor commitment of resources dedicated to information management systems by humanitarian actors. The identification of elements that contribute to effective HIS and an understanding of the challenges associated with the implementation of these systems, in the context of Afghanistan, aids in the conceptualization of the SMART framework for analyzing the effectiveness of needs monitoring in Afghanistan. The SMART framework suggests that the successful monitoring of an organization's activities is achieved when the goals set are Specific, Measurable, Attainable, Reliable and Time-Bound.

➢ *Methodology, Analysis, Conclusion and Recommendations*

A mixed method, which involves the collection and analysis of quantitative and qualitative data, was used for this study. The quantitative analysis involved the use of secondary data from ACLED and IOM to identify the extent to which needs vary when aggregated at different time series and geographic levels. Primary qualitative data was generated through semi-structured interviews with the humanitarian response stakeholders in Afghanistan who influence and/or have interests in the process and outputs of the humanitarian needs analysis.

Data analysis of eight needs indicators captured in IOM's CBNA datasets showed that up to 40% of districts returned different vulnerability categorizations when aggregated at district level, compared to when aggregation was done at province level, reflecting the importance of spatial aggregation on needs analysis. Likewise, a time series visualization of ACLED data showed notable spikes and dips that were seasonal or triggered by major events. For instance, spikes in conflict levels at the start of the spring seasons related to the spring offensive were observed and the significant dip from July to September 2021 signifying the continuous reduction in conflicts as the Taliban gained control of different parts of Afghanistan.

The approach to responding to the gaps in humanitarian needs monitoring suggested by the key informants in Afghanistan's humanitarian sector, fall finely along the lines of the SMART conceptual framework for effective information systems. An effective HIS for Afghanistan will provide information that at is specific at a geographic level lower than the province level, measurable in quantifiable terms, reliable through data generated from systematic assessments, and disseminated in a timely manner. However, there are additional elements suggested to improve the humanitarian needs monitoring in Afghanistan such as capacity mapping of partners' ability to respond to needs, improved collaboration instead of competition between partners, dedicated resources for information systems and donor driven accountability

The success of the SMART model of humanitarian needs monitoring therefore, depends on non-technical factors including, capacity mapping, collaboration, accountability, and resources allocation. The SMART+ model, which is an updated version of the SMART framework, and includes additional elements identified from the findings of the study namely accountability, collaboration, and capacity mapping. It is recommended that a working group is created to implement the SMART+ framework in developing Afghanistan's HIS. The HIS system should be developed to facilitate frequent coordinated data collection and analysis of core humanitarian needs indicators. The generated data should be analyzed using an analysis model that classifies each core indicator under one phase of a vulnerability scale and then computes the overall vulnerability at the lowest geographic level. The output for the HIS should be a user controlled interactive dashboard that allows a flexible weighting of the core indicators to enable users contextualize the humanitarian vulnerability analysis according to the importance of each indicator in their localized context. The HCT and all working groups in Afghanistan should endorse this HIS and donors should require strict contribution and accountability to the HIS as criteria for funding. A sample model of the recommended HIS for Afghanistan is presented in Figure 11 and a sample output of this recommended HIS, an interactive dashboard, is developed using the sample model and available through the link: https://t.ly/an2g

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CHAPTER ONE INTRODUCTION

> *Background*

The Humanitarian Programme Cycle (HPC) refers to the coordinated activities that support the preparation, delivery, and management of service delivery in humanitarian settings (OCHA - HR.info, 2022). Comprising of five elements in a series, the success of any HPC relies on effective coordination and information management (OCHA - HR.info, 2022).
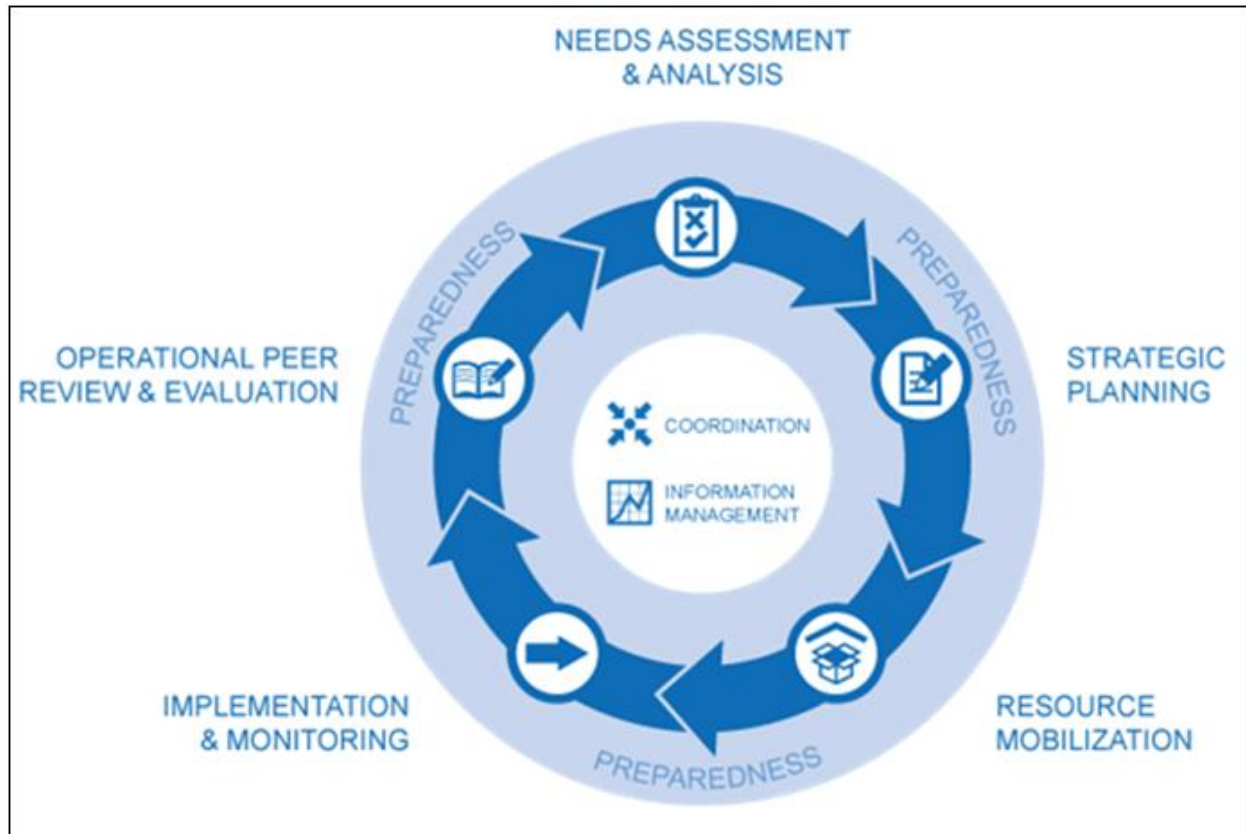
Fig 1 HPC

The HPC process (Figure 1) commences with a needs assessment and analysis to identify the vulnerable populations, and this assessment to the Humanitarian Needs Overview (HNO), a document which specifies the severity of needs of vulnerable populations across different thematic areas (OCHA - hpc.tools, 2020). Although the final product of the HNO process is the HNO document, the process commences around July of the previous year and is completed approximately six months after, presenting an overview of needs and projections for the year. Despite being a key source for yearly needs prioritization, at least two important gaps limit the HNO's ability to guide implementing partners' response on the ground. First, the unpredictable nature of fragile contexts leaves the possibility that there may be changes in the needs before the next HNO process. Jütersonke and Kobayashi (2015) highlight the role of exogenous (such as droughts, health-pandemic, and spike in mobility) and endogenous (such as democratic governance, socio-political crisis, and armed group activities) factors on the significant rapid changes in needs in fragile settings.

> *Research Problem, Objectives and Questions*

The explosion in data availability does not necessarily translate to the use of evidence for humanitarian response (Lentz and Maxwell, 2022), which is evident in the lack of specificity in emergency response plans developed by the humanitarian community for Afghanistan despite the available common humanitarian datasets on the Humanitarian Data Exchange (HDX) platform. For instance, in responding to the Paktya Earthquake in Paktika district, which occurred on June 22, 2022, Afghanistan's humanitarian community developed an Earthquake Response Plan, however, this plan simply defined the needs for Paktika as 'intense' and recommended a response that was based on a 'no regrets approach' (OCHA, 2022). This lack of specificity in defining humanitarian conditions of the districts affected by the earthquake may not sufficiently inform partners of the types of services required by the beneficiaries hence, resulting in possible wastage of resources.

The HNO does not reflect the variation in needs within the humanitarian response year and at the sub-provincial level, limiting the extent to which implementing actors' responses are guided by evidence. This is particularly problematic in Afghanistan since it is one of the largest and most complex humanitarian emergencies (CHEs) in the world, with humanitarian needs varying across seasons and space (CARE, 2021). Therefore, this study sought to identify the potential solutions for more effective translation of data into actionable humanitarian response in Afghanistan.

RO1 To assess the gaps in needs information captured through the HNO in Afghanistan, in the last three years (2020, 2021 and 2022).

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➢ *Research Scope and Justification*

The current study focused on identifying ways to improve the response monitoring in Afghanistan because of the researcher's access to the network of actors and stakeholders that contribute to the development and use of Afghanistan's HNO. A review of previous approaches for improving humanitarian information systems (HISs) was conducted. Furthermore, the study focused on the last three years to contextualize the possible effect of the Covid 19 pandemic on the change in crises contexts. Since most humanitarian crisis duty stations have Human Resources rotation policies, where staff are required to transfer to other duty stations before working for four years, it was important to keep the research within a period that potential participants have institutional memory.

CHAPTER TWO LITERATURE REVIEW

As earlier mentioned in the background section of this paper, two identified gaps related to the HNO are its failure to provide needs analysis at different times within a year and at lower geographic levels. This section of the paper reviews literature on the role of spatial aggregation and time aggregation on outcomes of data analysis. Previous documented efforts implemented by in humanitarian response to fill these gaps and support a better evidence-based response, as well as the challenges associated with these efforts, are reviewed.

➢ *The Role of Spatial Aggregation Levels on Information Outcome*

The level of spatial aggregation refers to the geographic level at which information is summarized (Jeffery et al., 2014). Since there are lower geographic levels than the province level which the Afghanistan HNO report summarizes information, it was necessary to review different studies on the role of spatial aggregation levels on information outcome. The output of aggregation is influenced by the level of data aggregation (Roquette et al., 2018). A study of health data showed a variation of disease occurrence at different geographic levels of aggregation (Bell et al., 2006), with higher levels of data aggregation reducing the ability to detect areas where disease is clustered (Ozonoff et al., 2007). However, a reduction in the accuracy of statistical generalization is seen when analysis is conducted at a lower geographic level due to the limited population size. In such instances, a phenomenon known as "small numbers problem" tends to occur, where the severity of need being analyzed is higher in areas that have small populations clusters (Pringle, 1996). Aggregating data at lower geographic levels seems to present both advantages and disadvantages with higher geographic aggregation presenting better statistical analysis, and lower aggregation providing better confidentiality and contextual information (Roquette et al., 2018).
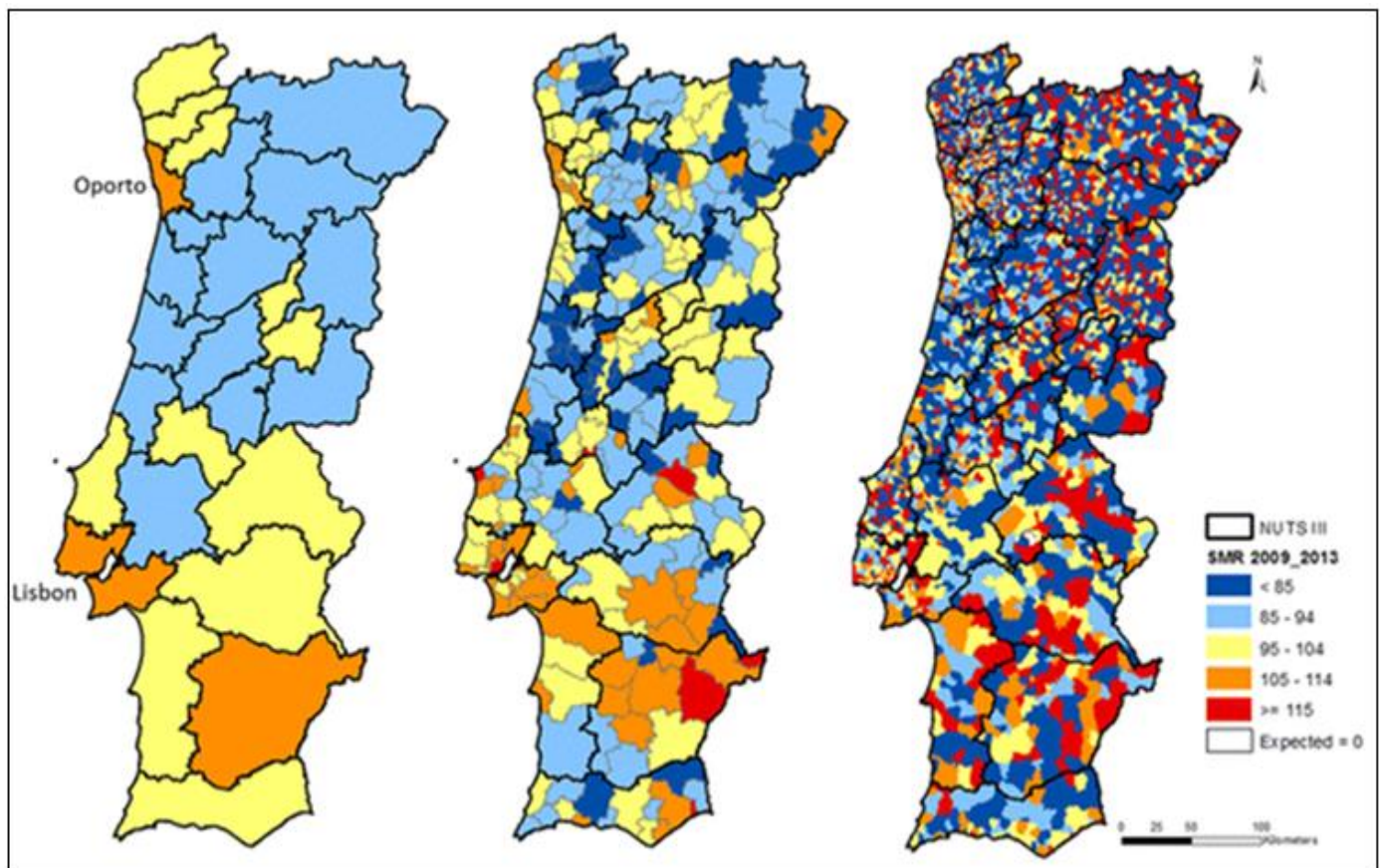
Fig 2 Spatial Aggregation and SMR Classification
Source: https://pophealthmetrics.biomedcentral.com/articles/10.1186/s12963-018-0164-6

On the left map in Figure 2, aggregation at the NUT III level shows no extreme cases, with the other cases having relatively similar classes of SMR. Municipality aggregation, the map in the middle, presents all classes of SMR ratios with two municipalities in the southeast that border Spain showing extreme (>130%) SMR values. At the parishes geographic level, all categories were spread across the entire area of the map with no specific patterns. A comparison of the polygons for the different spatial levels, shows that while the predominant rates is spanned between 85–94% at NUTS III and municipalities, the most prevalent class in the parishes was less than 85%, with extreme cases representing over 50% of the polygons (Roquette et al., 2018). The prevalence of extreme cases at lower geographic levels suggests that aggregating summaries at higher levels distort on-ground realities.

The role of this phenomenon can be seen in the context of Afghanistan's HNO report which aggregates analysis at the provincial level. A cross-sectional analysis of the number of vulnerable children under 5 years of age in Helmand province shows variation across different clusters of villages within the same province (see Figure 3). Although the blue map on the left, extracted from the Afghanistan HNO 2022 document shows the entire province is under 'extreme' health needs, the Community Based Needs Assessment (CBNA) spatial analysis on the right shows that only three districts (And-e-Ali, Lashkargah, and Nawa-e-Barakzai) are under 'extreme' conditions, while the other districts are not (OCHA, 2022; DTM, 2021). This information could be misleading as implementing actors may design their response to target all populations within the province including those areas without needs, leading to the wastage of resources. This example illustrates the variation in needs for locations within the same broad geographic classification and highlights a problem of reduced specificity in analysis that present province level severity ranking.
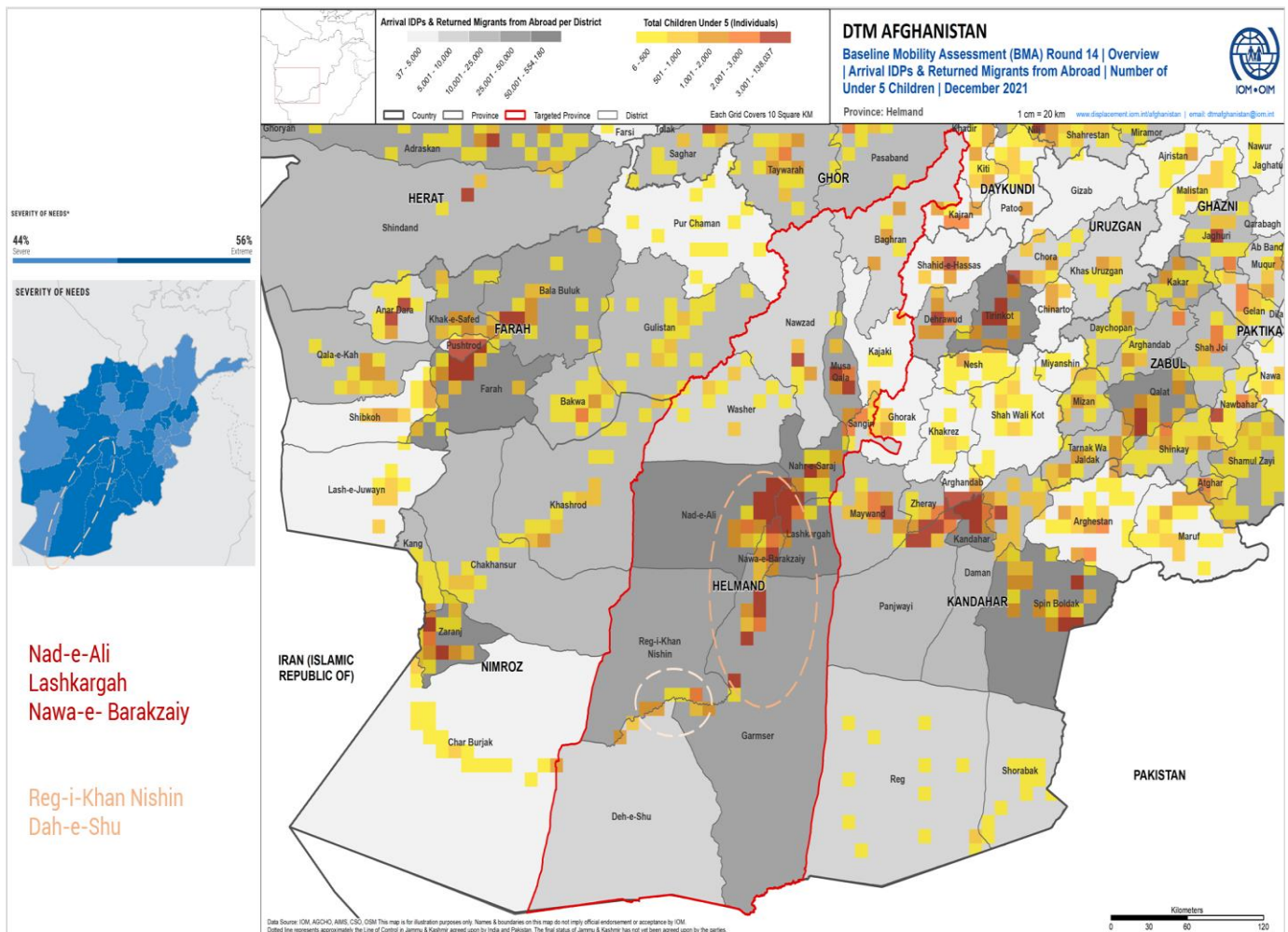
Fig 3 Under 5 Children, Helmand Province, Afghanistan, December 2021
(OCHA, 2022; DTM, 2021).

➤ *The Role of Time Aggregation Levels on Information Outcome*

The influence of the level of aggregation with respect to time has been investigated by different studies. In epidemiological research, time-series analyses are normally performed at aggregated levels (such as weekly, monthly, or quarterly), even though data is collected at more granular levels (such as daily or even hourly) (Adegboye et al., 2017; Burkom et al., 2004; Cherrie et al., 2018). Although the purpose for aggregating at higher levels may be due to lack of frequent data, analysis is still conducted at broader time intervals usually for the purpose of reducing noise in the data, maintaining confidentiality or easing consumptions of the reports that emerge from these analyses (Fefferman et al., 2005). Seasonal variations in infection rates of respiratory diseases show seasonal patterns that differ by pathogen (Stratton et al., 2017; Altizer et al., 2006; Urena-Castro et al., 2019), location (Altizer et al., 2006; Phin et al., 2014), and population (Sarkar et al., 2013). While some diseases have one yearly peak in occurrence (Naumova et al., 2007; Lal et al., 2012), others have several peak periods in some locations (Lal et al., 2012; Naumova et al., 2005). Research has shown that the effect of this phenomenon on epidemiological time series analysis can cause data irregularities as frequently as every two and half months, which suggests a need to consider as many as five analyses yearly for one occurrence (Falconi et al., 2020).

A similar phenomenon can be applied to complex and volatile humanitarian emergencies that present different drivers of emergency at varying points within a humanitarian program cycle. The role of endogenous factors, which are "factors that stem primarily from specific contexts within a particular state" (Jütersonke and Kobayashi, 2015, p. 16), was seen to influence the rapid change in humanitarian needs in Afghanistan when the Taliban took over Kabul on August 15, 2021, causing a series of international sanctions on Afghanistan leading to catastrophic humanitarian crisis (United Nations, 2021). An example of how exogenous factors, which are "predominantly beyond the control of a particular state"(Jütersonke and Kobayashi, 2015. p. 16), is the role of the Paktika earthquake on the change in Afghanistan's 2022 humanitarian context. Although OCHA made efforts to publish an updated rapid response plan to respond to the change in needs, the document did not provide detailed guidance for specific on-ground response and instead premised initial response on a 'no-regret approach' (OCHA, 2022). The season spike in conflicts around Afghanistan, such as the 'Spring Offensive' (Mackenzie, 2019) is an example of the varying situations within a HPC year.

➢ *Building Information Systems for Humanitarian Emergencies*

Different efforts to develop information management systems that respond to the issues associated with the HNO have been implemented and several elements have been identified as "essential components" for the success of these systems (Ahmed, 2021). Early warning systems (EWS) are common measures to support the HNO in providing intermediate information on emerging needs (Lumbroso et al., 2016) however, in complex situations characterized by poverty and frequent incidents of conflict or disasters resulting from natural hazards, information needs seem to vary over time (Ahmed, 2021). In their paper, Lentz et al. (2020) define the interconnected elements of HIS required for effective evidence-based response in complex emergencies. They highlight the analytical connections between six elements and the operational relationships between policy and programming and suggest that each of these elements must be fulfilled for actionable humanitarian information to be achieved. The six elements include "baseline, vulnerability and poverty assessment, EWS, emergency needs assessments, impact assessments, context monitoring, and programme evaluation and lessons learnt". The importance of each element can be seen by reviewing information systems in different emergency contexts where lack of one or more element negatively affected evidence-based response. For example, the absence of a baseline data, EWS and institutionalization of information for response contributed to the magnitude of the food security crisis in Ethiopia crisis between 1999- 2000. Although there was adequate EWS in place predicting the Kenya situation between 1999-2002, the absence of context monitoring made it difficult to identify priority communities and opportunities for ground level mitigation actions (Lentz et al., 2020).

The importance of improved information systems that support timely information collection processing, with estimations showing that an effective information system integrated with rapid response mechanism will save over 40 million dollars in 20 years only on livestock assets in Kenya. The proper integration of the six elements of effective HIS will improve humanitarian response however, most humanitarian responses are yet to integrate these elements, which result in programmes being based on inadequate information, or mere assumptions and approaches such as the "no-regret" approach. The lack of any of these elements can result to grievous errors in analysis, regardless of how effective the other elements are functioning (Lentz et al., 2020). The HNO is only one element of the suggested six elements as it serves as the baseline highlighting the humanitarian needs in at a specific time, usually around the mid-point of the year when data for the severity analysis is collected. There may be need to integrate the other suggested elements of effective HIS to improve the availability and use of evidence for on-ground response.

While the importance of the other elements is generally agreed by humanitarian programmes globally, as can be seen in the efforts made to expand the development of the other elements, there are common challenges associated with the actualization of these systems. One of the major challenges is the variation in information priorities between the different levels of the coordination structure; while field offices accurately understand local context and the possible methodologies for needs data collection and analysis, central (national, regional or headquarter) levels focus more on broader situation overviews which influences the tools and analysis they push for (Maiers et al., 2005). The way donors perceive HIS has also been identified as a challenge to its implementation because it is usually considered as a supplementary activity, with other services as WASH, shelter, health, and food considered as the core activities, and this makes donors commit less funding and demand for accountability in this area (Haselkorn, 2005).

Implementing actors and data gatekeepers also contribute to the complexities associated with the implementation of all elements required for effective HIS. The lack of cooperation amongst agencies is seen, as some agencies do not share information with other actors because they perceive each other as competitors rather than collaborators (Maiers et al., 2005). Furthermore, organizations that have the mandate to generate relevant data do not commit sufficient resources to disseminate information management capacity development to field staff (Sargent & Michael, 2005) therefore leading to the possibility of compromise in the data generated.

➢ *Conceptual Framework*

The identification of elements that contribute to effective HIS and an understanding of the challenges associated with the implementation of these systems, in the context of Afghanistan, aids in the conceptualization of the framework for analyzing the effectiveness of needs monitoring in Afghanistan. For the study, based on information gathered through reviewed literature, 'effective needs monitoring' will be achieved using the SMART framework of monitoring goals. The SMART framework suggests that the successful monitoring of an organization's activities will be achieved when the goals set are Specific, Measurable, Attainable, Reliable and Time-Bound (Yemm, 2013). The study therefore explored the vision, gaps and opportunities for humanitarian response information along the following terms:

- Specific: Information was considered specific when it is available at a geographic level that can support on-ground response. Therefore, information at village level was seen as being more specific than information at provincial level.
- Measurable: This refers to information that is quantified in a percentage, number or a categorical scale. For example, the study considered information that states the percentage of out of school children as being more measurable than information that simply says 'many' children are out of school.
- Assignable: This refers to information that is attributable to a specific thematic area or cluster (for example health, nutrition, education, etc.). Needs analysis that provide a multi-sectoral overview of the severity of needs as well as cluster (or thematic) specific information was considered more 'assignable', hence more effective, than that which provides only generic needs analysis.
- Reliable: Information is considered reliable when the source of data is credible and generated through deliberately designed assessments (Yemm, 2013).
- Time-Bound: Information is considered time-bound when it is current therefore, information that based on analysis data collected through a reliable process in July 2022, was considered more 'time-bound' hence, more reliable than that which is based on data collected in May 2022.

In the context of the current research, 'evidence-based response' is any response that is based on objective information (Aghera, et. al., 2017). Therefore, humanitarian response will be considered driven by an evidence-based approach if it allows actors to base their response on objective data analysis.

CHAPTER THREE METHODS

A mixed method, which involves the collection and analysis of quantitative and qualitative data (Brannen, 2005), was used for this study.

➢ *Quantitative Data*

The changes in the dynamics of exogenous and endogenous factors within a humanitarian response year are sometimes capable of influencing the context of the humanitarian crisis by way of increased displacement, higher demand for services and change in areas' baseline populations. Political unrest, disasters related to natural hazards, healthcare emergencies, and food insecurity are some forms of events that may influence large scale population displacement and increase the stress in locations where people displace to (OHCR, 2021). Secondary data was used to assess the frequency in occurrence of exogenous and endogenous that may trigger a change in the level of needs severity between the production of two HNOs in Afghanistan.

• The Armed Conflict Location & Event Data (ACLED), which provides data on conflicts and other shocks within the humanitarian response years (ACLED, 2022), for the last three years, was consulted, specifically as a source to understand the dynamics of political violence and protests that occurred between humanitarian programme cycle years in Afghanistan in the last three years (2020 to 2022). ACLED, shares data on events related to conflicts and, for the purpose of this study, was used to analyze the occurrence of these events within the humanitarian response year. Analysis was done by visualizing the spikes in events within each humanitarian response year from 2020 to 2022.

Although Afghanistan's HNO presents the severity of needs for each province, there is potential for variation of needs severity scores when analysis is done at different geographic levels. Afghanistan's HNO assigns a specific severity scale for each province based on the Joint Intersectoral Analysis Framework (JIAF); secondary data was used to have an idea of the variation or consistency of severity needs based on the JIAF at the district level. The following libraries and databases were consulted to generate data that can support a district level analysis based on an the JIAF to understand the significance in variation of needs across the geographic levels.

• OCHA's HDX: This platform supports data sharing among humanitarian actors who collect data related to the humanitarian response, within which they operate (HDX, 2022).
• IOM's CBNA Afghanistan database: The CBNA is conducted by IOM's Displacement Tracking Matrix (DTM) unit and monitors the emerging needs of vulnerable populations in humanitarian contexts (DTM Afghanistan, 2021).

Although the severity analysis in Afghanistan's HNO is produced through a multi-sectorial analysis of 41 indicators, due to time constraints, the secondary data analysis focused on indicators related to WASH and other sectors highlighting access to drinking water, latrine facilities, water for agriculture, water for livestock, health facilities, education facilities, shelter, and employment.

➢ *Qualitative Data*

Primary qualitative data was generated through semi-structured interviews (see Annex 4) with the humanitarian response stakeholders in Afghanistan. Key informant groups were selected according to their influence and interest in the process and outputs of the humanitarian needs analysis. All participants were contacted through an email, (see Annex 3), inviting them to participate and providing background information on the purpose of the study. The Actors' mapping in Annex 1 illustrates their roles and varying levels of influence in more detail. The interview guidelines in annex 2 served as a guide to the interview process with key informants and primarily sought to respond to RQ5, RQ6, and RQ7.

CHAPTER FOUR RESULTS, ANALYSIS AND FINDINGS

This chapter presents the findings analyzing the data derived and utilized for the research. The first section of this chapter provides findings derived from analysis of the secondary quantitative data while the second part of the chapter presents research findings from the analysis of the qualitative primary data collected from the sampled interviewees.

A. Quantitative Data Analysis and Findings

This section provides an analysis of secondary data collected to understand the role of time and space on humanitarian needs. The quantitative analysis of secondary data provides evidence to respond to Research Questions 1 and 2 through simple summary analysis of indicators aggregated using geographic and time factors.

➢ *Consistency or Variation of Needs Severity Across Geographic Levels*

• *Overview of Datasets:*

The dataset used for this analysis was IOM's CBNA Afghanistan Round 14 conducted in December 2021. The assessment, which provides an overview of the emerging vulnerabilities and multisectoral needs of communities with IDPs in Afghanistan, provided community level datasets, collected through directed observations and focus group discussions in 13,173 communities across all districts of Afghanistan. Figure 4 below shows the number of records (communities assessed) per province, across the 34 provinces of Afghanistan. 82,860 key informants participated in the key informant interviews that contributed to the generation of the datasets[1].
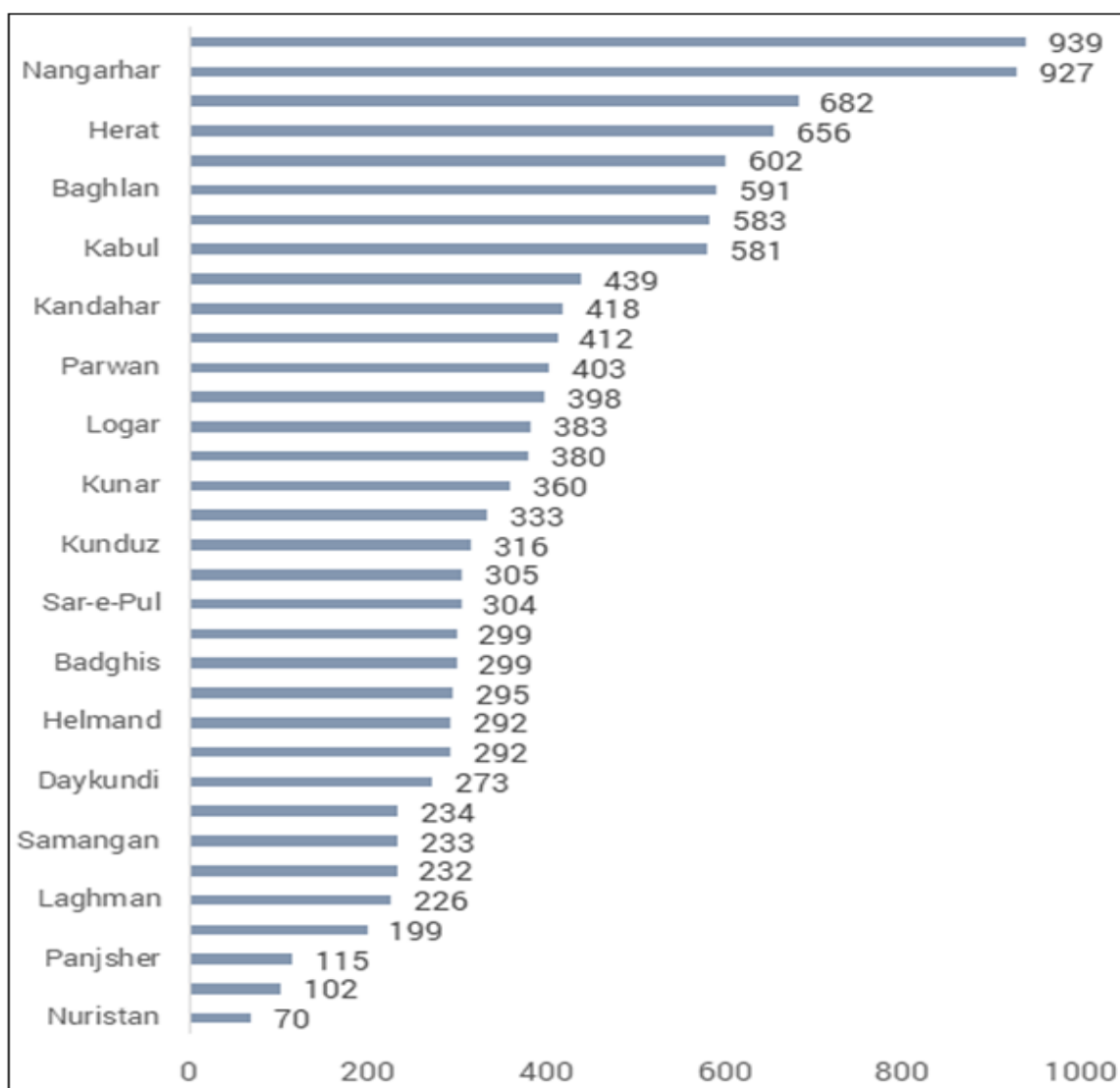
Fig 4 Number of Records per Province

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[1] IOM DTM Community Based Needs Assessment Data, Round 14 December 2021,
https://displacement.iom.int/datasets/afghanistan-community-based-needs-assessment-round-14-nov-dec-2021

- *Change in Needs Severity of Selected Indicators Across Different Geographic Levels*

One of the questions in the CBNA tool investigates communities' ability to access drinking water by asking "What percentage of your community did not have access to enough drinking water?" (DTM, 2021). The CBNA dataset presents the responses to this question per community as a percentage reported by the Focus Group. At the ADM0 level (which represents the country administrative level of the dataset), the average percentage of communities' population who do not have access to adequate drinking water was 56%. This places the vulnerability category of the drinking water needs at *Category 4 (Extreme)* with respect to the JIAF methodology approach for vulnerability analysis considered for this research.

To analyze the level of consistency in vulnerability for this indicator, the national level vulnerability score was compared to the provincial level scores. Out of the 34 provinces' vulnerability scores for this indicator, 59% (20 provinces) returned scores that fell under the same vulnerability categorization as the national vulnerability score of 4, while 14 returned scores that placed them in a different vulnerability categorization as the national categorization.
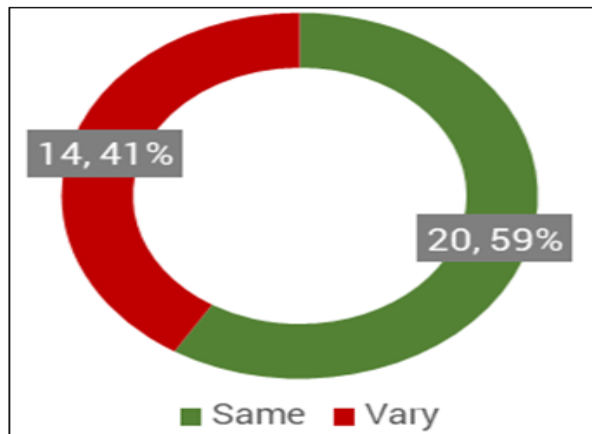
Fig 5 Provincial vs National Vulnerability Categorization for Adequate Drinking Water

Figure 5 above shows that vulnerability, based on access to drinking water, varies between province and district levels with 41% of the provinces' vulnerability categorizations deviating from the categorization at national level. While most of the deviation of these provinces fell to the next closest (positive or negative) vulnerability categorization, two provinces deviated by two vulnerability categories as shown in the chart below.
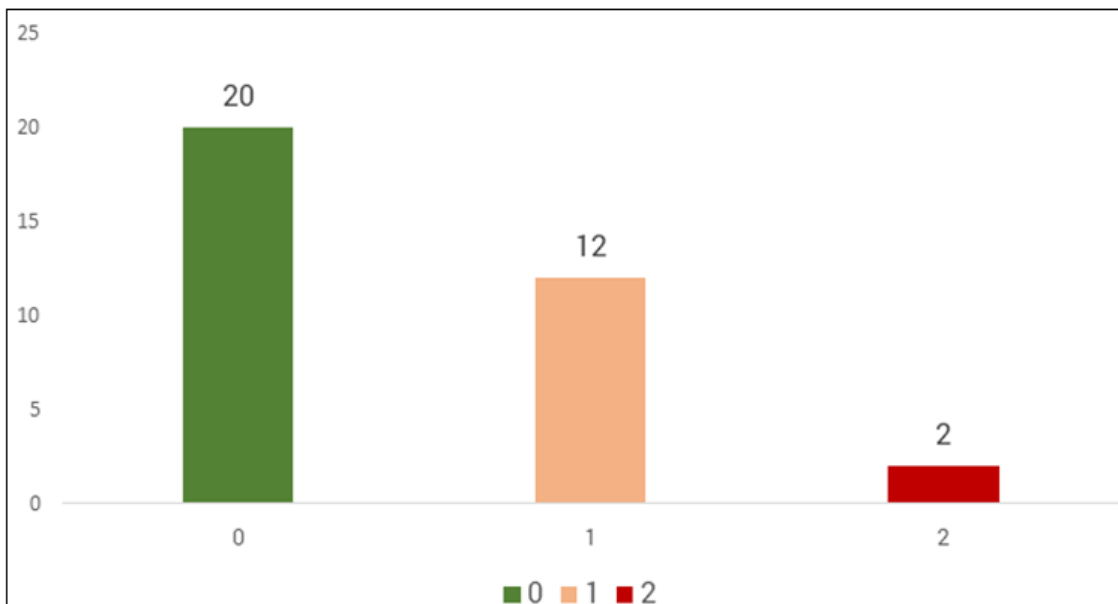
Fig 6 Number of Deviations between National and Province Vulnerability Categorization.

The deviation observed between the province and national level vulnerability categories for the drinking water indicator was also observed when district level vulnerability categories were compared with the province level vulnerability categories. When the JIAF vulnerability categorization of each of the 401 districts was compared to the vulnerability categorization of the respective provinces they belong to, it was found that 53% (212) of the districts deviated from the province's categorization, while 47% (189) returned the same vulnerability categorization as their province.
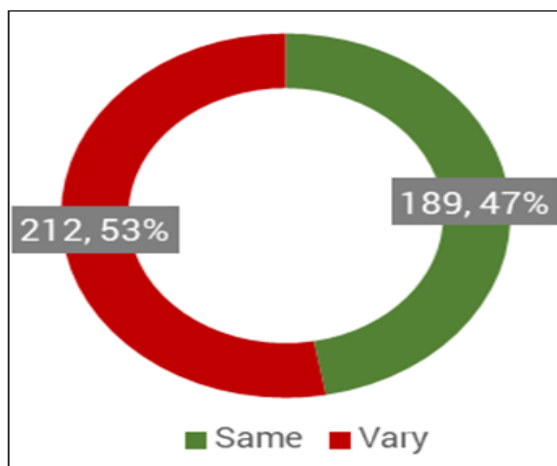
Fig 7 Comparison of District vs Provincial Vulnerability Categorization.

While most of the deviation of these districts were fell to the next closest (positive or negative) vulnerability categorization of their respective provinces, 23 and 1 districts deviated by two and three vulnerability categories respectively, as shown in the chart below.
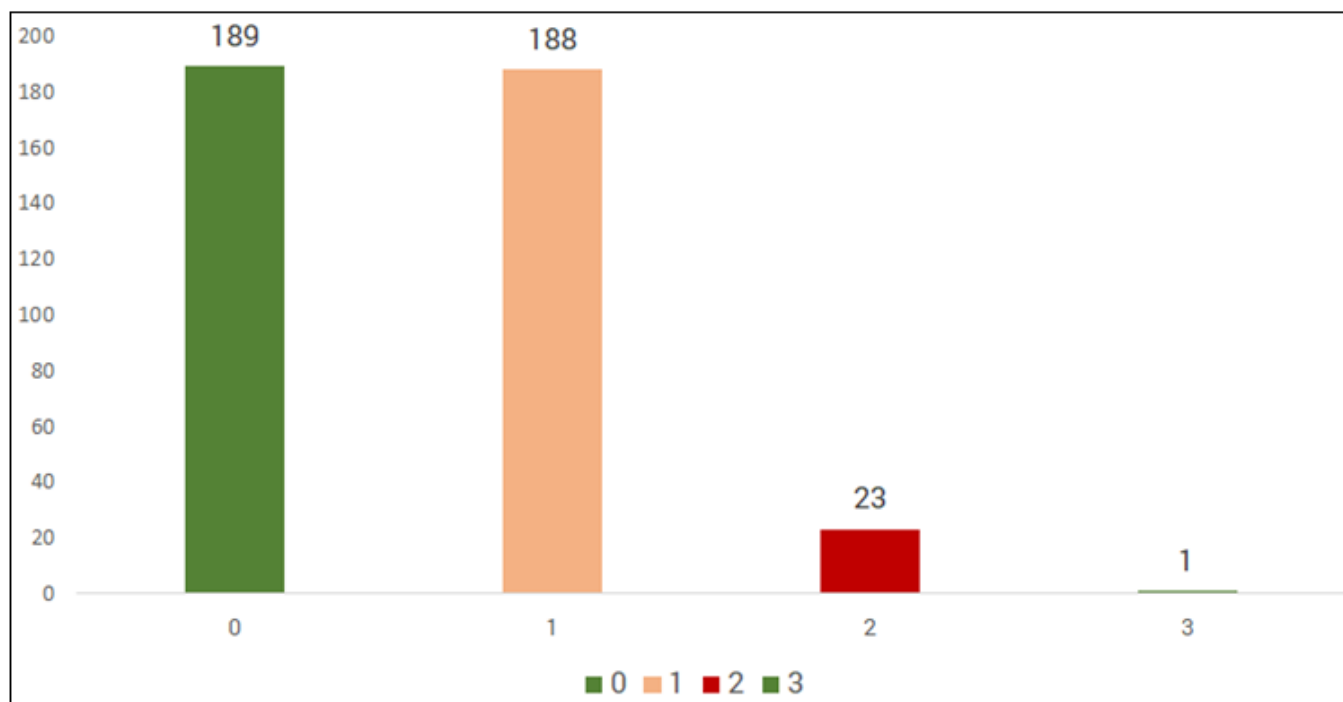
Fig 8 Number of Deviations Provincial and Districts Vulnerability Categorization.

Tables 1 and 2 summarize the deviations or consistencies of severity rankings between different geographic levels between national to province level and province to district level, respectively. These findings show how a change in the level of spatial aggregation influences the distribution of analysis outcomes and allows for more detailed representation of analysis outcomes (Roquette et al., 2018).

Table 1 Deviations between National and Provincial Vulnerability Categorization

Indicator Name	Deviations	Deviation Extent				
		0	1	2	3	4
Access to enough drinking water	14(41%)	20	12	2		
Access to adequate/safe/hygienic latrine facilities	12(35%)	22	8	3	1	
Access to water for agriculture/farming	16(47%)	18	13	3		
Access to water for their livestock	24(71%)	10	21	3		
Access to Heath Facilities	9(26%)	25	8	1		
Out of school children in the communities	29(85%)	5	19	8	2	
IDPs who do not own shelter	17(50%)	17	17			
Unemployment	8(24%)	26	8			

Table 2 Deviations between Provincial and Districts Vulnerability Categorization

Indicator Name	Deviations	Deviation Extent				
		0	1	2	3	4
Access to enough drinking water	212(53%)	189	188	23	1	
Access to adequate/safe/hygienic latrine facilities	150(37%)	251	113	29	6	2
Access to water for agriculture/farming	230(57%)	171	191	33	6	
Access to water for their livestock	198(49%)	203	171	22	5	
Access to Heath Facilities	120(30%)	281	94	16	9	1
Out of school children in the communities	194(48%)	207	172	22		
IDPs who do not own shelter	180(45%)	221	141	28	10	1
Unemployment	175(44%)	226	116	30	20	9

The outcome of the analysis, at province and district levels, suggests that more than 40% of the JIAF vulnerability categorizations at lower administrative levels deviate from the JIAF categories returned at the higher administrative level when drinking water was used as an indicator for computing vulnerability.

➢ *Consistency or Variation in Triggers of Humanitarian Needs within a Response Year*
This section provides analysis of data that illustrates changes in humanitarian needs or drivers of emergency within a response year and contributes to investigating the extent to which needs severity varies at different times within a HPC year.

• *Overview of Dataset*
Data on armed conflicts and other related events derived from ACLED was used for the analysis of changes in conflict levels within the HPC year. ACLED data[2] on Afghanistan downloaded from the ACLED website showed that 51,7222 related events occurred between the three-year period spanning 24th September 2019 and 23rd September 2022. These events were spread across 6 different categories with 'Battles' and 'Explosions/Remote violence" accounting for 31,092 and 13,247 events respectively as shown in Figure 9 below.
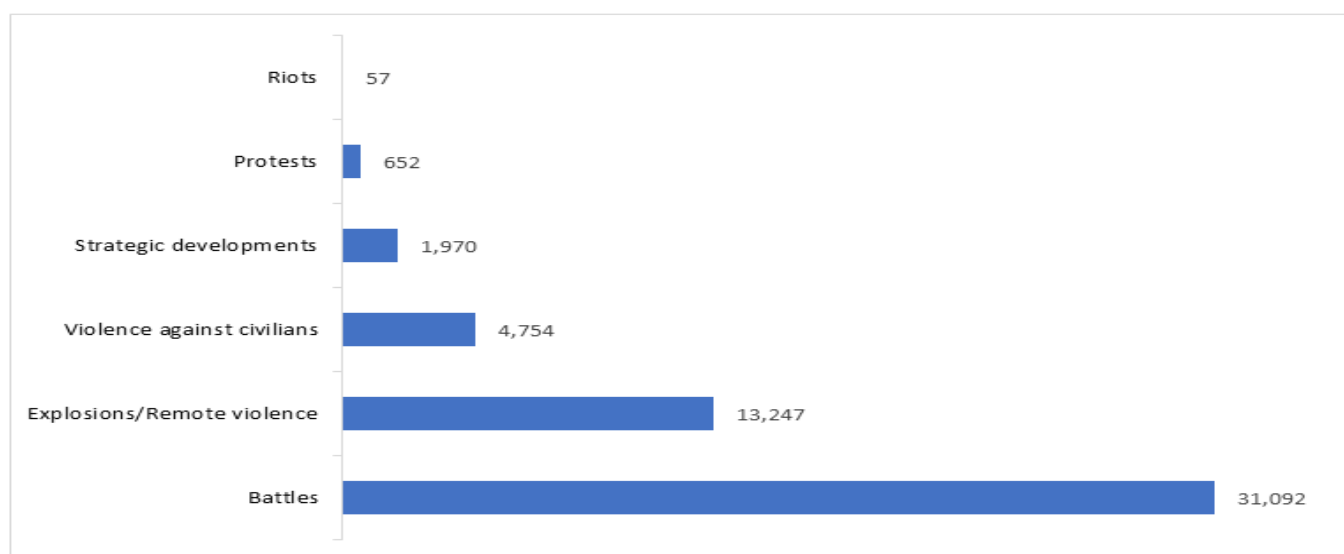
Fig 9 ACLED Reported Events by Type

• *Spikes in Conflict Levels*
One of the root causes of Afghanistan's humanitarian situation is conflict (OCHA, 2022) and although this is factored into the HNO process, the time granularity of the ALCED Afghanistan data provides understanding the prevalence of conflicts at different points within the HPC year. A time series analysis of the daily occurrence of events was used to visualize the spikes, dips, or consistencies of armed conflict at different times within. As illustrated in Figure 10 there were spikes in number of events at different points within the HPC years of 2020, 2021, and 2022. The annual spikes around March, illustrated by the circles, represent increasing conflict events. This is consistent with the time the spring offensive occurs in Afghanistan, described as a period when there is an increase in violent conflicts at the end of winter and the beginning of the spring season (Mackenzie, 2019). An abrupt dip in conflict related events, illustrated by the triangle from July to September 2021 is related to the significant reduction in violent conflicts as the Taliban took over different provinces in Afghanistan (Congressional Research Service, 2021). The varying intensity in violent conflicts at different times within a HPC year shows that aggregating the needs overview once a year may not provide sufficient detail for change in contextual dynamics at different times (Falcony et al., 2020), and how endogenous factors can influence the complexity of crisis (Jütersonke and Kobayashi, 2015).

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[2]ACLED Afghanistan Dataset, 24 September 2019 to 23 September 2022, https://t.ly/bC-g
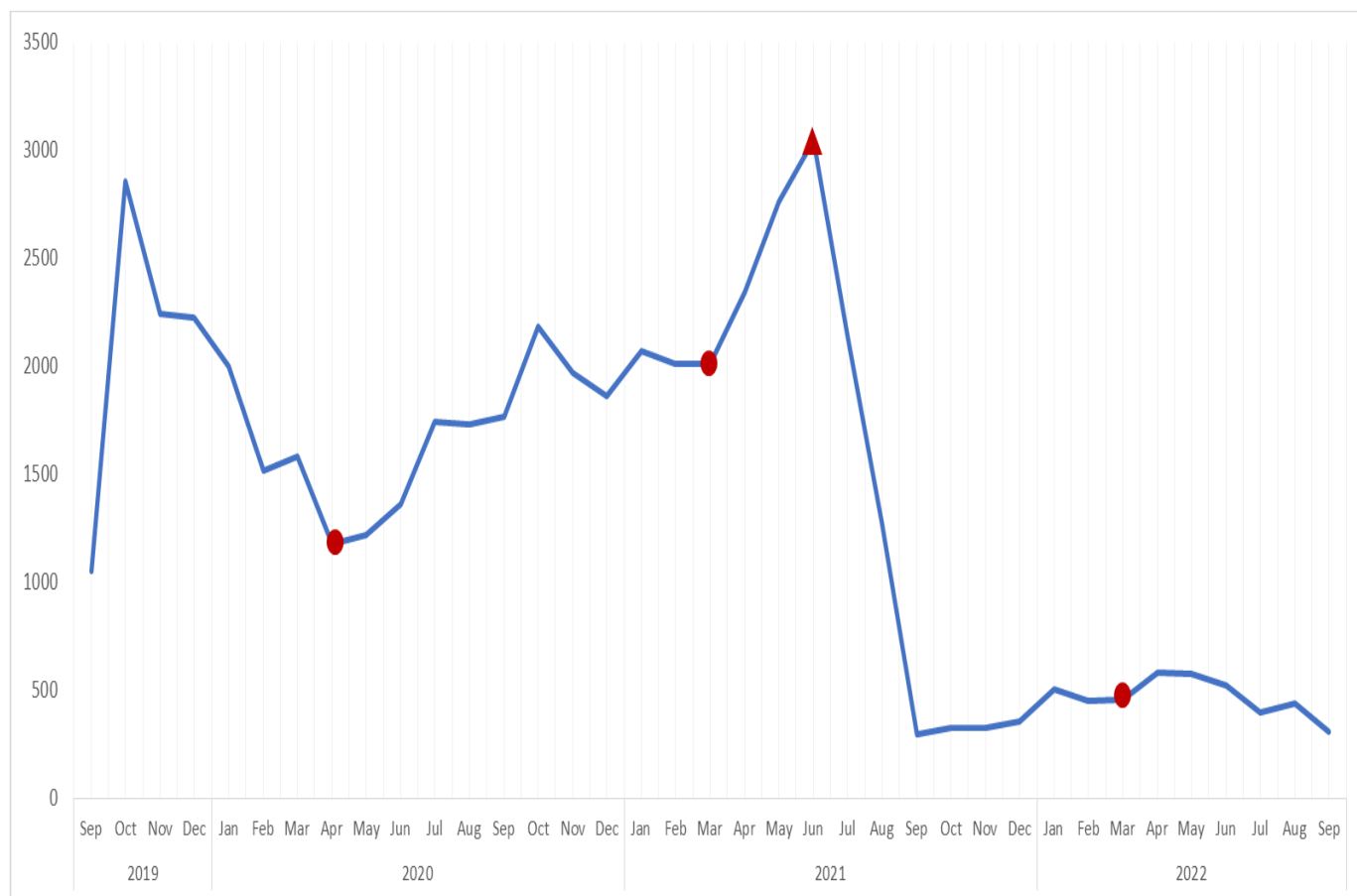
Fig 10 ACLED Reported Events by Time

B. Qualitative Data Analysis and Findings

This section provides a summary of the findings derived from the qualitative interviews conducted to respond to Research Questions 5, 6 and 7. The section is not a transcript of the entire interviews, but a summary of the discussions related to the research questions. Guided by the conceptual framework, the analysis of participants' interviews is classified under the SMART elements. Fourteen (14) participants representing the stakeholders identified through the stakeholder mapping were interviewed for the purpose of the research. Table 3 below provides a summary of participants' profiles. The interview involved non-structured questions that allowed the participants to express themselves; the interpretation of the outcome of these discussions mainly responded to research questions 5, 6 and 7.

Table 3 Key Informants' Profiles

S.N	Participant	Designation
1	A.N., iMMAP	Senior Info Mgt Specialist/Deputy Rep. a.i.
2	B.G. OCHA	Humanitarian Officer
3	B.B., UNICEF	Cluster Coordinator
4	G.W. UNICEF	Emergency Specialist
5	A.K. United Nations (United Nations) Agency	Information Management Specialist
6	OCHA	Regional Humanitarian Affairs Officer
7	OCHA	Regional Humanitarian Affairs Officer
8	OCHA	Regional Humanitarian Affairs Officer
9	H.C., UN Agency	Emergency Specialist, IOM
10	H.K., UN Agency	Prog Manager
11	S.S. UN Agency	Program Dev. Officer
12	S.B., UN Agency	Humanitarian Affairs Officer (Info Mgt)
13	A.C, UN Agency	Cluster Coordinator
14	V.N, UN Agency	Co-Cluster Coordinator

➢ *Specific: Geographic Level*

Participants' responses revealed the need for location specific humanitarian information to support evidence-based humanitarian response. "There is available information on the needs of people, but it is not possible to take this information to a community and provide a response based on what is provided… but it appears that the information is presented for donors and not for on-ground actors", mentions one of the sub-regional humanitarian response coordinators. The participant further emphasized the need for granular level information to support partners' response. A similar information need was highlighted by another participant who is an active member of the Information Management Working Group (IMWG) who explained that data available at a more granular level will provide opportunity for better analysis that translates into on the ground humanitarian response. Explaining that the only coordinated reporting mechanism amongst humanitarian partners is the monthly response monitoring system managed by OCHA's collects data at the provincial level and it is most analysis remain at this level. Although this is sufficient for reporting activities of partners and number of people they have reached, it is not sufficient information for actors to provide response.

The need for granular level gap analysis was also highlighted as the key humanitarian information need by one of the emergency coordinators of a UN agency consulted for the purpose of this study. "It seems that the HNO provides information for broad level targeting of vulnerable populations however, there is no system that provides information of how the gaps in humanitarian needs change over time and over space… we need to understand the gaps per location, if possible, per village, to enable us send actors who have presence within that area to provide a response", said the participant. The reaction from participants confirm that the geographic level of analysis and information is an important factor in the design and dissemination of humanitarian information products (Roquette et al., 2018; Bell et al., 2006). Their responses also correlate with information granularity with its usefulness for humanitarian action (Falconi et al., 2020; Adegboye et al., 2017; Burkom et al., 2004).

➢ *Measurable: Percentage, Numbers, etc.*

One of the participants, who works as a sub-regional humanitarian response coordinator echoed the highlighted the need for more specific humanitarian information for evidence-based response. Citing the earthquake as an example, the participant explained that although the media provided information on the occurrence of an earthquake, and humanitarian actors released several statements about the earthquake, it was quite difficult to get tangible information on the actual needs of the populations affected by the earthquake, which made it challenging to advocate for funds from donor agencies. The participant further explained that the framework-based humanitarian needs analysis will provide more evidence for actors to justify their asks to donors and senior management when proposing expansions in response especially for ad-hoc plans to continencies that are "common occurrences before the next HNO process occurs". Participants' responses also suggested that a better information system to support humanitarian response will be a one-stop-shop that provides all round information about the different clusters or about specific core indicators for each cluster using clear quantitative values. The responses from participants who highlighted that they use humanitarian information for broad level advocacy purposes reveal that the type of humanitarian information needed for evidence-based response is information that is clearly quantified. This further confirms stakeholders' preference for information that is based on a clear harmonized analysis framework (Lentz et al., 2020).

➢ *Assignable: Contextualizable*

Various participants mentioned that their primary need for humanitarian information is to help them understand the contextual situation of Afghanistan and enable their advocacy for funding prioritization across sectors. For example, one of the participants who support humanitarian response coordination explained that humanitarian information should enable the identification of what sectors to prioritize in Afghanistan and what key messages to present with donors during advocacy. 'The changing context of Afghanistan post August 15, saw the primary drivers of displacement and vulnerability shift from conflict to socio-economic factors, [and] adequate analysis of humanitarian data will help in the advocacy for increased funding for an area-based response approach, instead of status-based response prioritization". Another participant explained that although the broad picture of the contextual situation in Afghanistan may be obvious and portrayed on media, humanitarian information is needed for more specific details based on an existing framework for analysis. "We find this type of analysis in the annual HNO and humanitarian response plan (HRP), which provide details about the context based on needs analysis frameworks specifically the Joint Inter-sector analysis framework.

Furthermore, some agencies engage in activities that cut across different sectors and require information that span across these sectors. An emergency coordinator explained that information on the cross-cutting needs of vulnerable populations was the most required information need for evidence-based response and suggested the HNO and other reports on the multi-sector needs assessments were relevant for evidence response. The importance of multi sector needs analysis was echoed by another participant who explained that their organizations sought to provide cross-cutting multi-cluster analysis by harmonizing available data at the same geographic level and then applying a methodology, like the HNO, to identify the vulnerability levels of each location. Comparable to the need for information on multi-cluster humanitarian vulnerabilities, one participant mentioned that their organization was engaged in both humanitarian and development activities and always sought information on both areas. "To prioritize response and decide what modality, either humanitarian or development, to engage in, we seek information that gives us a context of humanitarian needs as well as the level of durable solutions achieved in the area", explained the participant. The participant further explained that "we combine information from OCHA and other development actors, like United Nations

Development Programme (UNDP) to understand the humanitarian needs and development priorities before we propose what activities to conduct in what area".

Participants also stated that a better information system for evidence-based humanitarian response will include a bottom-up approach instead of the top-bottom approach currently implemented in the HNO. One of the participants involved in regional coordination explained that the analysis of humanitarian needs is done at the central level, by applying cross sector indicators that do not consider how relevant the indicators are at the local level. To elucidate, the participant explained that "unemployment, for example, may not be an important factor for measuring humanitarian needs because it is endemic, however, this indicator may be considered as the most important factor by the central information management working group, which then bases the prioritization of response across all districts nationwide by this perception". The participants' vision of a system for better evidence-based humanitarian response, is one which allows the stakeholders at local levels to contribute to the analysis of cross sectoral needs analysis by identifying which indicators are the most important and appropriate for their locations. The importance of 'localizing' the indicators is also highlighted by another participant, who mentions the role of the perception of peace by the most important stakeholder, the De facto Authority. According to the participant, while conflict is still considered a risk when conducting vulnerability and risk analysis, and when identifying existing and potential shocks in Afghanistan, the current De facto Authority does not consider conflict as an influencing factor for humanitarian response prioritization as "they perceive that the conflict is over, and actors should not base their response design on conflict related factors". A better humanitarian response information system will be flexible enough to consider the peculiarities of stakeholders' consideration of the significance of indicators and allow the modification of weights to each indicator (Maiers et al., 2005).

The need for information at multi-cluster level is justifiable because it can support the design of evidence-based response to cover all areas of vulnerabilities. Humanitarian stakeholders in Afghanistan recognize the changing contexts over time (Jütersonke and Kobayashi, 2015. p. 16) and space (Roquette et al., 2018) and express their preference for a needs analysis that considers these changes, supporting the premise that effective information systems require contextual analysis (Lentz et al., 2020).

➢ *Reliable: Methodological Assessment*
The need to expand from a response-based monitoring approach to a needs-based monitoring approach for monitoring the progress made during a humanitarian response cycle was highlighted. One of the members of the IMWG who participated in this study explained that monthly, all clusters in Afghanistan are expected to share updates on the activities the different clusters actors (humanitarian partners providing services related to the cluster) have engaged in. This practice is systematic and applicable in Afghanistan and in all other humanitarian responses where partners complete the 5Ws matrix and share summarize the activities they have done per location for the reporting period. "This response-based approach to monitoring does not capture whether the needs were fully met and no longer exist but only informs that the partners have engaged in specific activities", explains the participant. If clusters are tasked with the mandate to report on the remaining needs that show the impact of their efforts, it will be more informative to track how the needs change over time. Since response is based on the needs, this participant suggests frequent coordinated rapid assessments of needs using very few indicators that can reflect the situation of locations. One of the elements for effective humanitarian needs monitoring is baseline, vulnerability, and poverty assessments (Lentz et al., 2020) and this is reflected in this Afghanistan humanitarian stakeholder's suggestion of the need for coordinated assessments for generating data that suit the pre-defined indicators of the analysis framework.

➢ *Time-Bound: Recent*
Most of the participants interviewed mentioned their need for information that was timely. "Considering the volatile context of Afghanistan, it is only useful if the information we get is useful and relevant to the current climes before the context changes again", said the emergency coordinator of one of the agencies interviewed for this study. The understanding of the need for timely information was also buttressed by the representative of an information management support agency working in Afghanistan who gave an example of how "we provided the most recent updates on the number of locations affected by flash floods from August to September 2022… we noticed an increase in our web traffic during this period because of the daily updates we published on the flash floods". Similarly, an emergency coordinator stated that "in complex and unstable emergency context like Afghanistan, the focus should be getting out information as soon as possible instead of spending time and resources organizing several workshops and presentations".

Likewise, another participant suggested that the data generated through the numerous assessments conducted in Afghanistan should be summarized on user-friendly dashboards that provide detailed and timely information on the situation on ground. According to this participant, coordinated data collection, management, analysis, and dissemination was a necessary step for improving the use of information for humanitarian response. "A trigger system based on real time data that feeds into a Joint Inter-sector Analysis Framework model to show spikes in humanitarian situations across the country at community level, will enable stakeholders identify what locations to respond to and what services should be prioritized in those locations", said the participant. The participant further suggested that the trigger system should not just present information but also include what actions should be taken as a response to these triggers; suggested potential actions include service provisions, further assessments, or no action.

This vision was echoed by a member of Afghanistan's IMWG who suggested that ideally, "all the data available on the HDX platform needs to be harmonized, analyzed and presented to provide near real-time information on the situation in Afghanistan". Emphasizing that the problem was not data availability but translation of this data into actionable information, this participant suggested that a better system will provide an interactive dashboard that shows an overview of the humanitarian situation at the district level (at most) by combining a humanitarian index score based on the combination of different core indicators from the different sectors. This information will then provide guidance on what actions partners should take. The participant also suggested the need for the system to score the credibility of the data sources that fed into the dashboard to enable users know how much trust they could have in the information provided per location per time.

Participants seem to agree on the importance of information timeliness for evidence-based humanitarian response (Ahmed, 2021; Lentz et al., 2020). Although the participants acknowledge the relevance of information products that fulfil reporting commitments, they seem to agree that timely information on the context will be more productive for evidence-based humanitarian response.

➢ *Additional Elements*

Responses from participants suggested that, in the context of Afghanistan, there are other elements that need to be in place for the SMART approach to information management to succeed.

• *Capacity mapping (resources, partners)*

An understanding of the capacity of humanitarian actors was also identified as a challenge to humanitarian needs monitoring process. According to one of the participants who acts as a cluster coordinator, "the first step is to understand the service gaps, and the second step is to identify partners who have the capacity to respond to these gaps… a partners' presence map is not a partners' capacity map". Partners presence maps are easily accessible through the different clusters' websites however, these maps do not indicate the capacity of partners but simply illustrate the location where partners have conducted activities. The respondent explained that in the situation of an emergency, partners who are portrayed to have presence in the location of the emergency sometimes do not have the capacity and resources required for them to respond, and this delays the response. This point is echoed by one of the humanitarian regional coordinators who explain that understanding partners who can respond to emergencies, and not just partners who "conduct hygiene promotion activities", will help improve coordinate response at field level. The partners' presence maps published on the clusters' websites may be useful for partners' visibility, but it will be more practical if it represents the resources and ranking of these partners have and the average response time for each partner.

The comparable responses from partners about the need for capacity mapping reveals the collective need for humanitarian information in this area. While the partners' presence maps published on the different clusters' websites are sufficient for reflecting areas where actors have implemented activities, stakeholders highlight the need for more detailed information on humanitarian actors' capacity. While the element of capacity mapping was not included in the initial SMART conceptual framework of this paper, an updated (SMART+) includes this element.

• *Collaboration Instead of Competition*

One challenge identified as a hinderance to effective translation of information to action in Afghanistan humanitarian response, was the existence of competition, instead of collaboration, amongst information management stakeholders; this is a common challenge common to other humanitarian needs monitoring efforts (Ahmed, 2021). With the perception that increased visibility improves funding opportunities, humanitarian actors tend to focus more on showcasing their dominance and relevance in the space within which they operate instead of focusing on the primary objective for their activities, which is the coordinated response to the humanitarian needs of beneficiaries. "Our organization is perceived by organization X to be its competition; because we also provide analysis of cross-sector needs and vulnerabilities and we even try to do this between the response year, we are seen as competition and I have noticed that they are hesitant to share datasets with us", explained one of the participants who works with an organization that supports humanitarian actors with information for evidence-based response.

• *Accountability*

Lack of enforcement or accountability mechanisms was also mentioned as a challenge. Explaining that a better information management system for improved evidence-based humanitarian response will require the coordinated efforts partners especially with respect to sharing granular data on gaps, capacity and facility availability, the participant mentioned that there was no authority to enforce these actions. "Afghanistan is a complex contexts and partners who are cluster members cannot be held accountable simply because there is no recognized authority to hold them accountable", explained the participant, who further cited examples of how actors simply engage based on their discretion or direction of donors and seem not to be accountable to the cluster because there is no recognized ministry to enforce the agreed approaches to response implementation. This, according to the participant, will make it difficult to implement any potential improvement efforts for evidence-based humanitarian response. This finding is in line with the identification of accountability, resource allocation and capacity building, were identified as common challenges faced in the implementation of effective information needs monitoring (Ahmed, 2021; Lentz et al., 2020).

CHAPTER FIVE CONCLUSIONS AND RECOMMENDATIONS

➢ *Conclusions*

The purpose of this study was to identify the potential solutions for more effective translation of data into actionable humanitarian response in Afghanistan. The HNO is conducted once yearly with the aim of providing evidence for humanitarian response however, the findings from this study showed that the needs vary at different periods and geographic levels. To identify the gaps in humanitarian needs information captured in the HNO in Afghanistan in the last three years, the study responded to two research questions probing the role of spatial and time aggregation on humanitarian needs analysis. Data analysis of eight indicators selected showed that up to 40% of the districts returned different vulnerability categorizations from the categorization returned by when the aggregation was done at province level, reflecting the importance of spatial aggregation on needs analysis (Altizer et al., 2006; Phin et al., 2014; Falconi et al., 2020). Likewise, a time series visualization of ACLED data showed notable spikes and dips that were seasonal or triggered by major events. For instance, spikes in conflict levels at the start of the spring seasons related to the spring offensive (Mackenzie, 2019) were observed and the significant dip from July to September 2021 signifying the continuous reduction in conflicts as the Taliban gained control of different parts of Afghanistan (Congressional Research Service, 2021).

HIS implemented by other humanitarian responses outside Afghanistan and the challenges associated with these systems were also critically reviewed. Identified gaps in Afghanistan's HNO are common to other responses and efforts. Different components of HISs have been implemented across humanitarian responses including baseline, vulnerability, emergency needs assessment, EWS, impact assessments, contextual analysis, and monitoring. However, in complex situations characterized by poverty and frequent incidents of conflict or disasters resulting from natural hazards, information needs seem to vary (Lentz et al., 2020). The drawback identified in the efforts to improve humanitarian needs monitoring in other responses is the poor integration of the six necessary elements for suggested for successful HIS namely "baseline, vulnerability and poverty assessment, EWS, emergency needs assessments, impact assessments, context monitoring, and programme evaluation and lessons learnt" (Lentz et al., 2020). Other challenges identified to be associated with effective implementation of humanitarian systems include difference in information priorities across various geographic levels, lack of collaboration between agencies in information sharing (Maiers et al., 2005), and poor commitment of resources dedicated to information management systems by humanitarian actors (Sargent & Michael, 2005).

The study also identified existing or potential ways to support the translation of available data to more evidence-based humanitarian response on the ground, in Afghanistan. In Afghanistan, the HNO remains the most harmonized tool that provides an overview of the humanitarian needs in Afghanistan and when there are major events or seasonal variations in the context, new information management products are developed and disseminated to guide the response. The aggregation of needs overview products in Afghanistan remains at the provincial level and generally disseminated a PDF reports. There is a gap in the timeliness and harmonization of evidence for humanitarian response in Afghanistan. The inability of the available tools to consider local context in the sub-regions of Afghanistan also creates a gap in the availability of useful evidence for humanitarian response, which is a challenge identified to be common in other responses (Ahmed, 2021). Lack of accountability, as seen in other humanitarian contexts (Haselkorn, 2005; Sargent & Michael, 2005), was also identified as a challenge preventing the efficient implementation of information systems that have been rolled out in Afghanistan.

The approach to responding to the gaps in humanitarian needs monitoring suggested by the actors in Afghanistan's humanitarian sector, fall finely along the lines of the SMART conceptual framework for information systems. An effective HIS for Afghanistan will provide information that at is specific at a geographic level lower than the province level, measurable in quantifiable terms, reliable through data generated from systematic assessments, and disseminated in a timely manner. Additional elements suggested to improve the humanitarian needs monitoring in Afghanistan are capacity mapping of partners' ability to respond to needs, improved collaboration instead of competition between partners, dedicated resources for information systems and donor driven accountability. The success of the SMART model of humanitarian needs monitoring therefore, depends on non-technical factors to support capacity mapping, collaboration, accountability, and resources allocation. The SMART+ model, shown in Figure 11, is an updated version of the SMART model and includes additional elements identified from the findings the study namely accountability, collaboration, and capacity mapping.

➢ *Recommendations*

To improve the translation of data into actionable humanitarian response in Afghanistan, it will be necessary to respond to the identified gaps and harness the recommended SMART+ model in seeking to mitigate against the challenges. A needs monitoring working group should be established to oversee the implementation of Afghanistan's HIS. The HIS system should be developed through the following steps:

- Identify core needs indicators for each sector.
- Design an analysis framework that classifies each core indicator under one phase of a vulnerability scale.

- Map out available data streams, their timing, frequency, and geographic levels of availability to feed into the analysis framework identified in 2 above and advocate for new coordinated assessments to generate data for core indicators with unavailable periodic data.
- Build an automated data pipeline that harmonizes available assessment datasets into one database.
- Link the datasets from the database to a localized user-controlled interactive analysis dashboard that allows flexible weighting of the core indicators to enable users contextualize the humanitarian vulnerability analysis according to their localized context. The dashboard should be user friendly and allow users to download datasets and PDF summary reports.
- Create and disseminate periodic updates on humanitarian actors' activity capacity mapping for thematic areas of humanitarian services.

The success of this system will require endorsement of the working group, and the HCT. Furthermore, donors should require a component of information management and accountability to IMWG and HIS for actors funded for humanitarian activities.

- *SMART+ Model and Future Research*

An implementation of the recommendations above will require coordinated periodic assessments that generate and archive data, which is then rapidly scraped, wrangled, and analyzed based on a framework, and fed into an interactive dashboard that allows users to adjust the importance of each indicator depending on the context of their analysis. The model below illustrates the flow for operationalizing the SMART+ model based on an example of the CBNA dataset, from when data is archived, retrieved, analyzed, and visualized.
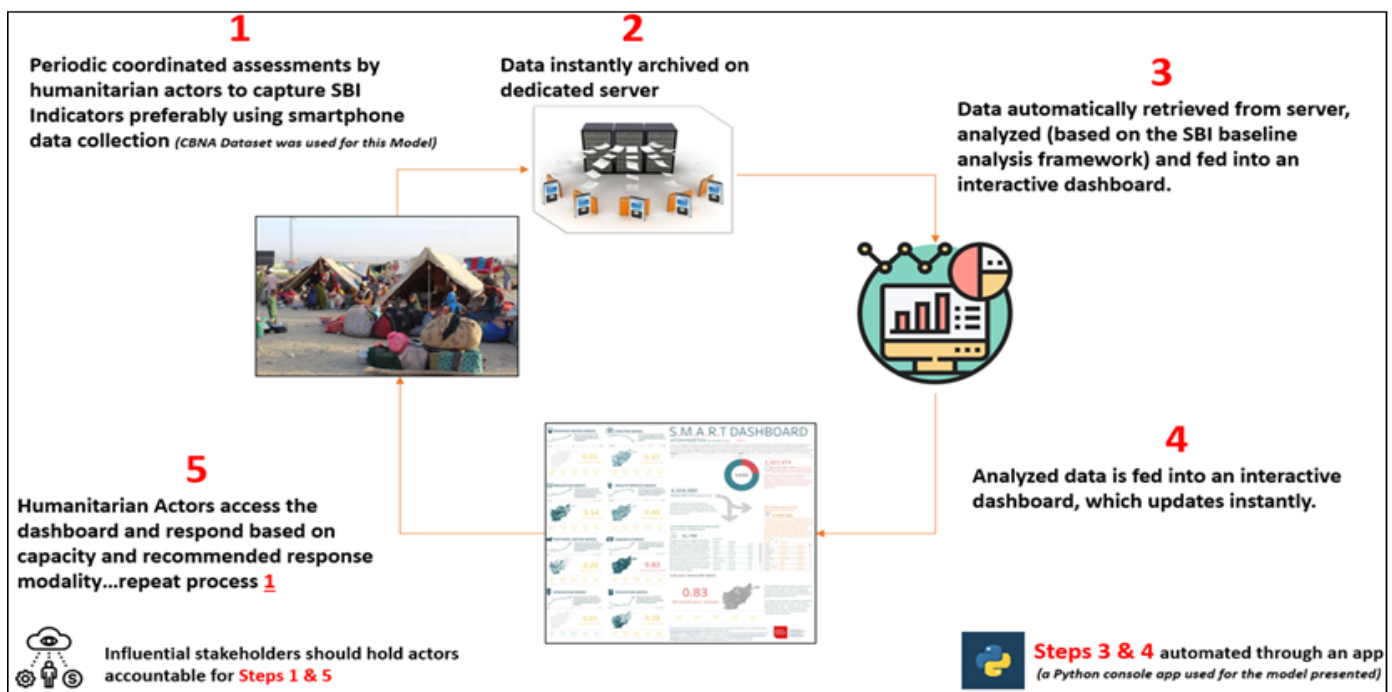
Fig 11 Operationalizing the SMART+ Model

The SBI baseline analysis framework used in Step 3 of the model in Figure 11 is presented in Annex 5. A console data pipeline application built in Python (see Annex 6), which drives Steps 3 and 4 in the model above, was used for the data mining and wrangling process of the CBNA data, which fed into the SMART tableau dashboard[3], Step 5 output. A screenshot of this dashboard and a user guide are presented in Annex 7 in Annex 8, respectively.

This study established the gaps associated with using the HNO's ability to provide evidence for on the ground humanitarian response in Afghanistan and provided recommendations for the implementation of a HIS based on the SMART+ model. It is recommended that a pilot of the recommendations is implemented, and further research conducted to critically evaluate if there are any improvements in evidence-based humanitarian response in Afghanistan.

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[3] SMART Interactive Dashboard on Tableau Public: https://t.ly/an2g

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ANNEXES

ANNEX 1: HPC PROCESS

➤ *The Following is Summary of the Task Decryptions Involved in the Design of the HNO Cycle 2023:*

- *Kickstart the HPC Process:*

   The output for this phase are the roadmaps for different working groups that contribute to the HPC process. All guidelines, geographic scope of the HPC, costing methodology, plans for different workshops, decisions of what working groups to set-up, and guidance and templates for the HPC year, are some of the activities that make up this phase. This phase typical takes about 6 weeks from July to mid-August of the previous year and falls under the responsibility of OCHA, the Inter Sector Coordination Group (ISCG) and the Information Management Working Group (IMWG).

- *Secondary Data Review (SDR):*

   This phase of the HPC process uses secondary data to identify current and emerging humanitarian needs relevant to the geographic areas selected in the previous phase. Outputs for this phase include definition framework for taggers[4], identification of credible SDR sources, catalogue of collated secondary information, and completion of the first draft of chapters one and two of the HNO document. The SDR phase of the HPC process typically takes up to 4 months and requires members of the IMWG to tag related secondary research using DEEP[5].

- *Data Preparedness and Humanitarian Access Mapping:*

   The next phase of the process involves a series of meetings and joint analysis for the identification and endorsement of baseline population numbers. This phase highlights the different populations groups present at the lowest geographic level possible and assign humanitarian access[6] scores for each unit in this geographic level. This phase typically takes up to eight works and falls under the responsibility of key partners involved in population statistics including UNFPA, IOM, OCHA, and the IMWG. The review of humanitarian access is led by the Access Working Group (AWG) in coordination with government and OCHA's Information Management Unit (IMU).

- *Multi-Sector Needs Assessment (MSNA):*

   The MSNA process seeks to identify the humanitarian needs of populations based on selected needs indicators. The outputs of this phase include data collection methodology, joint needs analysis framework, and MSNA datasets. This is the core of the HNO process as it facilitates the generation and analysis of needs data that, when overlaid against the baseline population, gives an understanding of the number of people in need of humanitarian response. Under the coordination of OCHA's IMU, the MSNA process is typically conducted by assessment partners such as REACH, iMMAP, and DTM and spans a period of approximately 4 months. The design of the MSNA is based on selected cross sectoral indicators endorsed by the different clusters; these indicators measure the humanitarian needs with respect to the thematic areas such as health, WASH, nutrition, education, food security, and protection.

- *Risk Analysis:*

   During this phase of the HPC process, OCHA in collaboration with more local actors and stakeholders establishes the methodology for the conducting an access analysis and categorizing communities, or clusters of communities, under different access categories. The process involves data collection, process, analysis access verification workshops, and reports. This phase typically spans a period of three months.

- *HNO/HRP Workshops and Templates Harmonization:*

   With different stakeholders and technical working groups contributing to the HPC process, it is important to organize workshops that brings all partners to the same understanding of the process, methods, analysis, and findings. All through the HPC process, several workshops are conducted, led by the national OCHA team and under close coordination with OCHA's HQ team. This aims to improve the level of harmonization in methodology, analysis, and presentation of the HNO reports across all humanitarian responses globally. One of the major focuses of this phase is to improve stakeholders' understanding of the JIAF. The workshops span across the entire period of the HNO process and culminates in the launch of the HNO/HRP documents, usually presented at the beginning of the response year.

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[4] Taggers are keywords, phrases, or sections of identified secondary data sources, mostly reports, that provide information that is relevant to humanitarian needs projections in the geographic area selected during the kickstart phase of the HPC process.

[5] https://thedeep.io/

[6] The ability of humanitarian partners to reach the populations in need (OCHA, 2022).

- *HNO and HRP Production:*

This phase involves the conversation of the outputs of the previous phases into a presentable report. The HNO documents highlights the people in need of humanitarian response based on the results of the analysis conducted. The output for this phase is the tangible summary of the process, methodology and findings of the entire procedure.

- *HNO and HRP Production:*

ANNEX 2: ACTORS' MAPPING: ACTORS' INFLUENCES ON THE HNO PROCESS

ACTOR	AGENDAS	ARENAS	ALLIANCES
OCHA Headquarters	Strengthen the international response to complex emergencies and natural disasters (UNGA, 1991).	Leads coordination of Humanitarian Actors and designs the elements for inter-cluster coordination. Strong representation in global donor relations Have the final say on humanitarian response prioritization Influences the decision for which agencies should lead a specific cluster – e.g. UNICEF leads Nutrition, Education, Child-Protection, and WASH; WHO leads Health Cluster, etc.	Global Cluster Lead therefore coordinates with all clusters on standardization of humanitarian response design approaches (e.g. Joint Analysis Framework for analyzing multi-cluster needs)
OCHA Afghanistan	Strengthen the coordination humanitarian response in Afghanistan	Strongest influence on the prioritization of the response Leads all recognized multi-cluster working groups (IMWG, ICCT, AAWG)	Strong collaboration with the following Working Groups involves in the HNO Process: • ICCT • HCTZ • IMWG
Humanitarian Country Team (HCT), Afghanistan	Comprises all heads of UN agencies present in Afghanistan. The agenda is to ensure coordinated response and advocacy strategies	They have a strong influence on the HNO process. OCHA's strategies are 'advise' to the HCT for endorsement and implementation	Coordination is with all UN agencies operating in Afghanistan. Strongest influence is held by cluster lead agencies such as WFP, UNICEF, WHO, FAO, UNHCR
Inter Cluster Coordination Team, Afghanistan (ICCT)	This is the technical team responsible for ensuring coordinated response that identifies and catered to humanitarian needs through an inter-cluster approach. Members are the Afghanistan cluster coordinators (e.g. Health, WASH, Education, Child Protection, Shelter, CCCM, Nutrition, Food Security and Livelihoods, etc.)	Strong influence on in-country 'policies' around multi-sector approaches and efforts to humanitarian coordination. Responsible for endorsing joint approaches including the elements of the HNO process such as what indicators should be used for the needs analysis.	
Information Management Working Group (IMWG)	This group is comprised of information management focal persons from different humanitarian actors in Afghanistan. The agenda is to provide technical information (data analysis and presentation) support to the response.	Influence is limited to applying the technical approaches required for making the information about the endorsed indicators available. Operate at the 'practice' level of the HNO process.	
Assessment and Analysis Working Group (AAWG)	This working group is established to coordinate the assessments and analysis of available data between the response cycle year and ensure the availability of actionable information.	This is a new working group and the level of influence on the HNO process will be determined by how the other stakeholders recognize its activities and outputs.	
De-factor Authority, Taliban Afghanistan	This is the de-factor authority currently leading Afghanistan. The agenda is to gain international recognition as a government.	This actor can be the most influential in the process if it becomes involved however, there is no formal relations with the actor for the time being.	

ACTOR	AGENDAS	ARENAS	ALLIANCES
Communities/Beneficiaries	These are the people in need for whom the response is designed for.	In a bottom-up approach, these people will have the most influence on the HNO process. The Accountability to Affected population element of the HNO also suggests this level of influence during the HNO process, however, this is not the reality from the researcher's observation.	
Researcher			

Annex 3: Draft Email Invitation

Subject: **Invitation to Participate in Research Project titled Humanitarian Needs Monitoring for Evidence Based Service Delivery in Afghanistan**-

Hello XXXXX (name of participant),

I am conducting interviews as part of a research study to increase our understanding of how humanitarian actors in Afghanistan use data to plan emergency responses and how the HNO can be improved in this regard.

As a XXXXXX (e.g. WASH Cluster Coordinator) you are in an ideal position to provide valuable firsthand information from your own perspective.

The interview takes around 1 hour and is very informal. I am simply trying to capture your thoughts and perspectives on this subject. Your responses to the questions will be kept confidential. Each interview will be assigned a number code to help ensure that personal identifiers are not revealed during the analysis and write up of findings.

There is no compensation for participating in this study. However, your participation will be a valuable addition to my research and findings could lead to greater public understanding of how availability information for evidence-based humanitarian response can be improved.

If you are willing to participate, please suggest a day and time that suits you and I'll do my best to be available. If you have any questions, please do not hesitate to ask.
Thanks!
Caleb

PS: This interview feeds into a thesis in <u>Conflict and Fragility Management offered by the Geneva Graduate Institute.</u>

ANNEX 4: KEY INFORMANT INTERVIEW GUIDELINES

As informed through email, I am conducting interviews as part of a research study to increase my understanding of how humanitarian actors in Afghanistan use data to plan emergency responses and how the HNO can be improved in this regard.

The interview takes around 1 hour and is very informal. I am simply trying to capture your thoughts and perspectives on this subject. Your responses to the questions will be kept confidential. Each interview will be assigned a number code to help ensure that personal identifiers are not revealed during the analysis and write up of findings.

There is no compensation for participating in this study. However, your participation will be a valuable addition to my research and findings could lead to greater public understanding of how availability information for evidence-based humanitarian response can be improved.

You may decline to participate in this interview or discontinue at any point.

1. Are you willing to participate in the interview?
   IF 1 = YES, Thank you, before we start, can I record.
   IF 1 = No, Thank you for your time.

Question
1. What do you need to achieve an effective humanitarian response prioritization?
1.1. Identify tool related to information - if not mentioned, probe further to initiate discussion around information related tools (probe if they use tools like HNO, needs analysis, emergency response plans, etc.)
1.1.1. Draw the focus of the interaction to highlight the tools that are related to information
2. How available/ accessible are these tools (mention the information related tools here) to you?
3. Give me an example of when you needed specific information to respond to an emergency in any province in Afghanistan; how did you get this information?
3.1. If HNO is mentioned, probe to initiate discussion:
3.1a. Ask for a specific example of when they consulted the HNO to inform a decision?
3.1b. Ask how effective the HNO was?
3.2. If HNO is *NOT* mentioned, probe to initiate discussion:
3.2a. Why the HNO was not used? (this will provide information on the gaps)
3.2b Then, ask for example of when they used the HNO for anything?
3.3. Probe if they will use the HNO to plan an emergency:
3.3a. that occurs within the year (e.g. earthquake, change in Political situation)
3.3b. is peculiar to a specific district/village (e.g. forced returns of IDPs back to Muqur district in Badghis)
4. For the sources of information mentioned in 5, probe: • Why they used it   • How useful it was (if possible, compared to the HNO)   • Can there be an improvement
5. Can you describe how the information tool or system for Humanitarian Needs Monitoring can be improved   Seek to probe the following information: • What should it contain?   • How frequent?   • What geographic level   • How should it be presented - static (e.g. PDF, MS Word) or interactive (e.g. Tableau, Power BI, other Dashboard)   • What kinds of indicators should be used?   • Should the indicators used for needs severity be static or contextualized – i.e. should indicators remain the same or should they change with time and space (why?)   • Should the same indicators be used by all stakeholders and actors for prioritization (why?)

ANNEX 5: SMART BASELINE INDEX (SBI) MODEL ANALYSIS FRAMEWORK

S.M.A.R.T BASELINE INDEX (SBI) MODEL 1.0 Analysis Framework

Developed for academic purpose, this model is an example of the recommended intersectoral analysis guiding the generation of information for evidence-based response.

➢ *Output*

- An interactive analysis dashboard that contextualizes SMART indicators for evidence-based response prioritization.

➢ *Methodology*

- Select SBI indicators (Eight core indicators selected and related to:
- Drinking water
- Sanitation
- Water for agriculture
- Water for livestock
- Shelter
- Education
- Unemployment
- Identify data sources for these indicators (e.g BMA/CBNA R10 to 14 datasets used) – For the purpose of this paper, the CBNA datasets[7] were used.

- *Step 1: Assumptions*

	Assumption
1	The baseline of vulnerable populations is assumed to include only persons currently displaced in Afghanistan derived from the BMA[8]. Considering the current situation in Afghanistan, the entire population can be classified as vulnerable, however for the purpose of contextualizing and prioritizing, a baseline of IDPs was considered as the population of interest.
2	All IDPs who displaced before 2021 intend to remain in place of displacement
3	All IDPs displaced after the last two years require humanitarian support
4	Indicator weights: • **Very** Important Indicators: A weight of 1 is assigned • **Quite** important indicator: A weight of 0.5 is assigned • **Not** important indicator: A weight of 0.01 is assigned
5	IDPs who have displaced for more than two years, and do not receive social cohesion support may not integrate and are likely to return to eventually require humanitarian response in the short-term
6	Vulnerable migrants have integrated, and face only needs that are at the same level as the are they reside (initially referred to the area they displaced to)

- *Step 2: Contextualized Solutions Baseline Index (SBI) – Interactive Dashboard (Annex 7 and 8)*
  Allows user to:

✓ Select area of analysis (Province and district)
✓ Assign weights (according to importance of that indicator – see Assumption 4 in table above)
✓ The maximum index score per district, according to the importance of the selected indicators, is the SBI for that district.

- *Step 3: Prioritization and Response Modality*

✓ Task partners to provide according to their capacity.
✓ Continue to monitor the changes (through coordinated assessments for new data)

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[7] Round 14 CBNA, Dec. 2021: https://t.ly/sm8d
Round 13 CBNA, Dec. 2021: https://t.ly/HLAo
Round 12 CBNA, Dec. 2021: https://t.ly/oUDL
Round 11 CBNA, Dec. 2021: http://tiny.cc/x8y2vz
Round 10 CBNA, Dec. 2021: http://tiny.cc/z8y2vz

[8] BMA Round 14, Dec 2021 http://tiny.cc/39y2vz

ANNEX 6: DATA PIPELINE PYTHON CONSOLE APPLICATION

```
# -*- coding: utf-8 -*-
"""
Created on Thu Nov  3 17:12:38 2022

@author: cikyernum
"""

#-----IMPORT LIBRARIES-----

import pandas as pd


#----GET BMA Datasts -----

#Read Excel files from download-- these are files downloaded from displacement.iom.int
BMA_Rd10 = pd.read_excel(r'C:\Users\Public\SMI_Project\SMI\PythonBuild\BMAFiles\afghanistan-baseline-assessment-
settlement-round-10_JUN-30-2020.xlsx')
BMA_Rd11 = pd.read_excel(r'C:\Users\Public\SMI_Project\SMI\PythonBuild\BMAFiles\afghanistan-baseline-assessment-
settlement-round-11_DEC-31-2020.xlsx')
BMA_Rd12 = pd.read_excel(r'C:\Users\Public\SMI_Project\SMI\PythonBuild\BMAFiles\afghanistan-baseline-assessment-
settlement-round-12_MAR-31-2021.xlsx')
BMA_Rd13 =
pd.read_excel(r'C:\Users\Public\SMI_Project\SMI\PythonBuild\BMAFiles\DTM_Afghanistan_Baseline_Aassessment_Ssettleme
nt_Round_13_JUN-30-2021.xlsx')
BMA_Rd14 = pd.read_excel(r'C:\Users\Public\SMI_Project\SMI\PythonBuild\BMAFiles\afghanistan-baseline-assessment-
settlement-round-14_DEC-31-2021 (2).xlsx')


#Create DF List
BMAdf_List = ['ADM2Code', 'ArrivalIDPs', 'ReturneeIDPs', 'IDPOwnHouseIndTotal',
        'ArrivalIDPs2012_15', 'ArrivalIDPs2016', 'ArrivalIDPs2017',
        'ArrivalIDPs2018', 'ArrivalIDPs2019', 'ArrivalIDPs2020']

#Create DFs for each round
BMA10_df_all = BMA_Rd10[BMAdf_List]
BMA11_df_all = BMA_Rd11[BMAdf_List]
BMA12_df_all = BMA_Rd12[BMAdf_List]
BMA13_df_all = BMA_Rd13[BMAdf_List]
BMA14_df_all = BMA_Rd14[BMAdf_List]




# ###TO CONCAT AT THE SETTLEMENT LEVEL#####
# BMA10_df_all['Round'] = '10'
# BMA11_df_all['Round']  = '11'
# BMA12_df_all['Round']  = '12'
# BMA13_df_all['Round']  = '13'
# BMA14_df_all['Round']  = '14'




# #Concatenate (append) the DFs
# BMAAll_df_all = pd.concat([BMA10_df_all, BMA11_df_all, BMA12_df_all, BMA13_df_all, BMA14_df_all])

# BMAAll_df_all.to_csv(r'BMAAll_settlement_df.csv')
```

```
#Pivot to district level using groupby function
BMA10_df = BMA10_df_all.groupby(['ADM2Code']).sum()
BMA11_df = BMA11_df_all.groupby(['ADM2Code']).sum()
BMA12_df = BMA12_df_all.groupby(['ADM2Code']).sum()
BMA13_df = BMA13_df_all.groupby(['ADM2Code']).sum()
BMA14_df = BMA14_df_all.groupby(['ADM2Code']).sum()


#Specify the round for each DF
BMA10_df['Round'] = '10'
BMA11_df['Round'] = '11'
BMA12_df['Round'] = '12'
BMA13_df['Round'] = '13'
BMA14_df['Round'] = '14'




#Concatenate (append) the DFs
BMAAll_df = pd.concat([BMA10_df, BMA11_df, BMA12_df, BMA13_df, BMA14_df])

BMAAll_df['IDPOwnHousePer'] = BMAAll_df['IDPOwnHouseIndTotal']/BMAAll_df['ArrivalIDPs']

BMAAll_df['SB_Inflow2012_2020'] = BMAAll_df['ArrivalIDPs2012_15'] + BMAAll_df['ArrivalIDPs2016'] +
BMAAll_df['ArrivalIDPs2017'] + BMAAll_df['ArrivalIDPs2018'] + BMAAll_df['ArrivalIDPs2019'] +
BMAAll_df['ArrivalIDPs2020']

BMAAll_df.to_csv(r'BMAAll_df.csv')


#-GET and Wrangle CBNA Datasets
CBNA_Rd10 = pd.read_excel(r'C:\Users\cikyernum\Downloads\Afghanistan-CBNA-dataset-round_10-JUN_2020.xlsx',
'CBNA_Dataset', header = 2)
CBNA_Rd11 = pd.read_excel(r'C:\Users\cikyernum\Downloads\Afghanistan_CBNA_dataset_round_11_DEC_2020.xlsx',
'CBNA_Dataset', header = 2)
CBNA_Rd12 = pd.read_excel(r'C:\Users\cikyernum\Downloads\Afghanistan_CBNA_dataset_round_12_MAR_2021.xlsx',
'CBNA_Dataset', header = 2)
CBNA_Rd13 = pd.read_excel(r'C:\Users\cikyernum\Downloads\Afghanistan-CBNA-dataset-round_13_JUN_2021.xlsx',
'CBNA_Dataset', header = 2)
CBNA_Rd14 = pd.read_excel(r'C:\Users\cikyernum\Downloads\Afghanistan-CBNA-dataset-round_14_DEC_2021.xlsx',
'CBNA_Dataset', header = 2)


#create df list for Round 10 data since it has some different field names
df_list10 = ['AssessmentDate',
 'ADM1Code',
 'ADM1NameEnglish',
 'ADM2Code',
 'ADM2NameEnglish',
 'SettlementCode',
 'SettNameEnglish',
 'HostInd',
 'PresentPop',
 'InFlowTotalReturneesFromAbroad',
 'ArrivalIDPs',
 'TotalInFlow',
 'InfantsPer',
 'ChildrenPer',
 'AdultsPer',
 'ElderlyPer',
 'MalesPer',
 'FemalesPer',
```

```
 'Under18Death',
 'Above18Death',
 'DemoHHzeroTazkiraPer',
 'DemoHHOneMemberWithNoTazkira',
 'IDPInConflict',
 'IDPInNatDisaster',
 'IDPInReturnDisplacement',
 'WASHHygienWaterPerNotAccess',
 'WASHAgriculturWaterPerNotAccess',
 'WASHLivestockWaterPerNotAccess',
 'WASHNotAccessAdequatePer2', #did not have access to adequate/safe facilities
'WASHUnequalAccess',
 'WASHHighInflux',
 'IDPOwnHouseIndPercent']


#create df list for Round 11 (and other rounds' datasets)
df_list11 = ['AssessmentDate',
 'ADM1Code',
 'ADM1NameEnglish',
 'ADM2Code',
 'ADM2NameEnglish',
 'SettlementCode',
 'SettNameEnglish',
 'HostInd',
 'PresentPop',
 'InFlowTotalReturneesFromAbroad',
 'ArrivalIDPs',
 'TotalInFlow',
 'InfantsPer',
 'ChildrenPer',
 'AdultsPer',
 'ElderlyPer',
 'MalesPer',
 'FemalesPer',
 'Under18Death',
 'Above18Death',
 'DemoHHzeroTazkiraPer',
 'DemoHHOneMemberWithNoTazkira',
 'IDPInConflict',
 'IDPInNatDisaster',
 'IDPInReturnDisplacement',
'WASHHygienWaterPer',
'WASHAgriculturWaterPer',
'WASHLivestockWaterPer',
'WASHNotAccessAdequatePer',
'WASHProblems_unequalAccess',
'WASHProblems_highInflux',
'IDPOwnHouseIndPercent']



#Create DF for Round 10
Rd10_df = CBNA_Rd10[df_list10]


#Rename the fields to suit Rd 11 (and others') field names
Rd10_df.rename(columns = {'WASHHygienWaterPerNotAccess' : 'WASHHygienWaterPer',
             'WASHAgriculturWaterPerNotAccess' : 'WASHAgriculturWaterPer',
             'WASHLivestockWaterPerNotAccess' : 'WASHLivestockWaterPer',
             'WASHNotAccessAdequatePer2' : 'WASHNotAccessAdequatePer',
             'WASHUnequalAccess' : 'WASHProblems_unequalAccess',
             'WASHHighInflux' : 'WASHProblems_highInflux',
             }, inplace = True)
```

```python
#Create DFs for the other CBNA rounds
Rd11_df = CBNA_Rd11[df_list11]
Rd12_df = CBNA_Rd12[df_list11]
Rd13_df = CBNA_Rd13[df_list11]
Rd14_df = CBNA_Rd14[df_list11]

#Specify the round for each DF
Rd10_df['Round'] = '10'
Rd11_df['Round'] = '11'
Rd12_df['Round'] = '12'
Rd13_df['Round'] = '13'
Rd14_df['Round'] = '14'

#Concatenate the cbna datasets
compiled_df = pd.concat([Rd10_df, Rd11_df, Rd12_df, Rd13_df, Rd14_df])

#rename the field names for the tableau dashboard
compiled_df.rename(columns = {
    'WASHHygienWaterPer' : 'DrinkingWater',
    'WASHAgriculturWaterPer' : 'AgricWater',
    'WASHLivestockWaterPer': 'LivestockWater',
    'WASHNotAccessAdequatePer' : 'Latrines',
    'WASHProblems_unequalAccess' : 'UnequalWater',
    'WASHProblems_highInflux' : 'InflowPressureWater'
}, inplace = True)
#compiled_df = pd.concat([Rd10_df, Rd11_df, Rd12_df, Rd13_df, Rd14_df])

compiled_df.to_csv(r'C:\Users\Public\SMI_Project\SMI\PythonBuild\BMAFiles\compiled_bma.csv')
```

ANNEX 7: SMART INTERACTIVE DASHBOARD SCREENSHOT

DRINKING WATER NEEDS
SBI classification per DTM CBNA: "What is the percentage of your community did not have access to drinking water?".
Not
0.01
SBI Classification: Mild

	Jun 20	Dec 20	Mar 21	Jun 21	Dec 21
	0.00	0.00	0.00	0.00	0.01

SHELTER NEEDS
SBI classification per DTM CBNA: "Percentage of IDPs who are NOT currently accomodated in their own homes?".
Quite
0.37
SBI Classification: Mild

	Jun 20	Dec 20	Mar 21	Jun 21	Dec 21
	0.38	0.39	0.39	0.38	0.37

IRRIGATION NEEDS
SBI classification per DTM CBNA: "What percentage of those who farm in this community do not have adequate access to water for agriculture and/or farming?".
Very
0.54
SBI Classification: Mild

	Jun 20	Dec 20	Mar 21	Jun 21	Dec 21
	0.35	0.39	0.41	0.45	0.54

HEALTH SERVICE NEEDS
SBI classification per DTM CBNA: "Percentage of communities in the district WITHOUT Health Facilities available in the community?".
Quite
0.40
SBI Classification: Mild

	Jun 20	Dec 20	Mar 21	Jun 21	Dec 21
	0.38	0.40	0.40	0.41	0.40

PASTORAL WATER NEEDS
SBI classification per DTM CBNA: "What percentage of those who have livestock in this community do not have adequate access to water for their livestock?".
Very
0.20
SBI Classification: Mild

	Jun 20	Dec 20	Mar 21	Jun 21	Dec 21
	0.13	0.14	0.14	0.15	0.20

UNEMPLOYMENT
SBI classification per DTM CBNA: "Percentage of people of over 18 years of age who are completely unemployed?".
Very
0.83
SBI Classification: Extreme

	Jun 20	Dec 20	Mar 21	Jun 21	Dec 21
	0.70	0.71	0.74	0.74	0.83

SANITATION NEEDS
SBI classification per DTM CBNA: "What percentage of households in the community does not have access to adequate/safe/hygienic latrine facilities?".
Not
0.01
SBI Classification: Mild

	Jun 20	Dec 20	Mar 21	Jun 21	Dec 21
	0.01	0.01	0.01	0.01	0.01

EDUCATION NEEDS
SBI classification per DTM CBNA: "What percentage of children of school age (6-17) in this community are not attending school?".
Very
0.38
SBI Classification: Mild

	Jun 20	Dec 20	Mar 21	Jun 21	Dec 21
	0.31	0.30	0.30	0.30	0.38

S.M.A.R.T DASHBOARD

AFGHANISTAN DECEMBER 2022   DRAFT 1.0

This S.M.A.R.T (Specific, Measurable, Assignable, Reliable and Time-Bound) dashboard is a model of summary analysis for humanitarian needs monitoring based on the findings of a research conducted to identify the potential solutions for more effective translation of data into actionable humanitarian response in Afghanistan. The findings from the research suggests that improving evidence-based humanitarian response will require the dissemination at the lowest geographic level possible through a clear analytical framework. The findings also suggest that due to the volatile context of Afghanistan, where the triggers of humanitarian crisis vary through the year.

Province: (All)
District: (All)

5,832K

1,327,474
BASELINE IDPs [2021 TO DATE]
Response Modality: Humanitarian assistance

It is assumed that all people who have displaced in the last two years are still in need of a humanitarian response. Therefore, IDPs who have displaced anytime from 2021 to the date of the analysis, and have remained in displacement are should be provided humanitarian interventions.

4,504,980
BASELINE IDPs [before 2021]

It is assumed that all people who have been in displacement for over two (before 2021) years are seeking to integrate and have either attained durable solutions or are on the path to integration and currently seeking social cohesion.

IDPs [Non-Integrated]
Response Modality: Social Cohesion
4,443,181

It is assumed that IDPs who have displaced for more than two years, and do not receive social cohesion support may not integrate and are likely to return to eventually require humanitarian response in the short-term. These IDPs require short-term humanitarian and early recovery response such as mid-term shelter, health posts, primary schools, and continuous advocacy with host communities for better inclusion and integration of displaced persons.

Per District

District	Province	
Kabul	Kabul	206,133
Herat	Herat	280,981
Lashkargah	Helmand	260,869
Dehdadi	Balkh	169,517
Ghazni	Ghazni	137,648
Surkh Rod	Nangarhar	129,237
Qalat	Zabul	114,638
Karukh	Herat	132,415
Mazar-e-Sharif	Balkh	93,661
Guzara	Herat	113,130

Vulnerable Migrants [Integrated]
Response Modality: Area-based Response
61,799

It is assumed that all vulnerable migrants have integrated, and face only needs that are at the same level as the geographic area they reside (initially referred to the area they displaced to). The response required for these populations are area-based response and should include the implementation of broad (community, district or even province level) interventions that benefit all residents of the area such as construction of dams, building health facilities, establishing and building schools, road construction, etc. long term development activities should be implemented for this population category.

Per District

District	Province	
Kunduz	Kunduz	32,473
Dargad	Takhar	18,059
Baharak	Takhar	5,403
Balkhab	Sar-e-Pul	2,887
Parun	Nuristan	4,508
Namak Ab	Takhar	2,106
Barg-e-Matal	Nuristan	1,143
Waygal	Nuristan	196
Fayzabad	Jawzjan	240
Mardyan	Jawzjan	273

S.M.A.R.T. BASELINE INDEX

0.83
SBI Classification: Extreme

	Jun 20	Dec 20	Mar 21	Jun 21	Dec 21
	0.70	0.71	0.74	0.74	0.83

The SMART Baseline Index is a score (on a scale of 0 to 1) derived through a linear computation of the overall indices of all considered indicators. It represents the highest score of all considered indicators according to the geographic area selected for analysis.

The weight for each indicator considered for the analysis is adjusted according to the indicator's importance selected as either "Very", "Quite" or "Not" important. This adjustment results in a reclassification of the overall SBI Index to reflect the resulting contextual multisectoral severity analysis.

All data used for this analysis dashboard is accessed through IOM DTM Afghanistan's CBNA (Round 10 - 14) publicly available: https://displacement.iom.int/afghanistan [Note: Select the 'DATASETS' Tab]
The maps are for illustration purpose only. Names & boundaries on this map do not imply official endorsement or acceptance by the author or IOM. The shapefiles used for the map are available on request at: https://data.humdata.org/dataset/cod-ab-afg
Assumptions are based on the author's discretion, do not represent IOM or DPP and may be subject to bias.
For academic purposes as part of the DAS/DPP-CFM Professional Thesis: https://www.graduateinstitute.ch/

GENEVA GRADUATE INSTITUTE
INSTITUT DE HAUTES ÉTUDES INTERNATIONALES ET DU DÉVELOPPEMENT
GRADUATE INSTITUTE OF INTERNATIONAL AND DEVELOPMENT STUDIES

Dashboard Link: **https://t.ly/an2g**

ANNEX 8: S.M.A.R.T DASHBOARD USER QUICK GUIDE

This S.M.A.R.T (Specific, Measurable, Assignable, Reliable and Time-Bound) dashboard is a model of summary analysis for humanitarian needs monitoring based on the findings of a research conducted to identify the potential solutions for more effective translation of data into actionable humanitarian response in Afghanistan. Improving evidence-based humanitarian response will require the dissemination of contextual severity analysis/information at the lowest geographic level possible through a clear analytical framework. The SMART dashboard is an output of a modelled analytical framework based on CBNA datasets from Jan 2020 to Dec 2021.

Follow the steps below to interact with this dashboard.

➢ *Step 1: Visit the Link: https://t.ly/an2g*
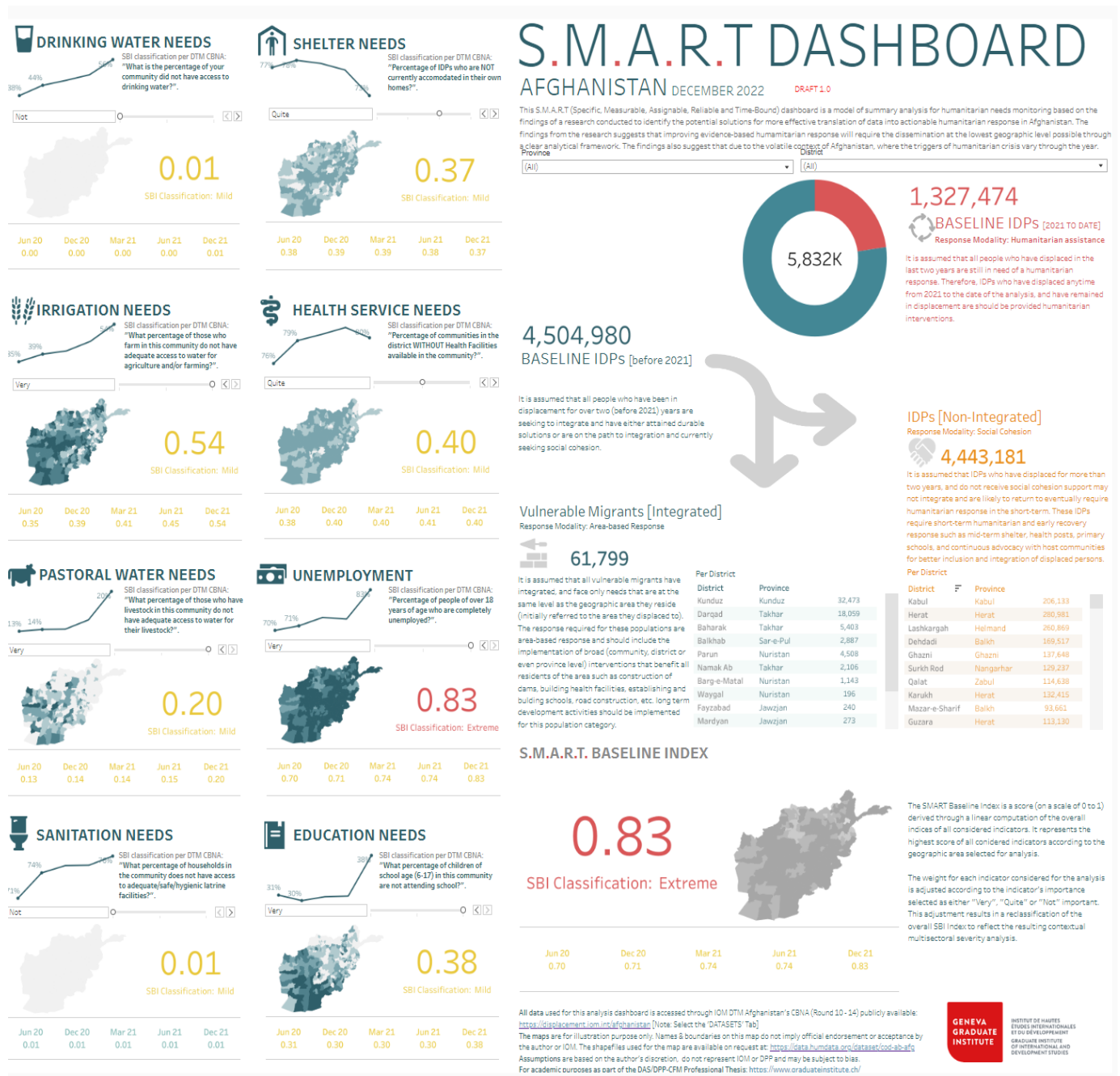
> ➢ *Step 2: Select the Location of Interest*

Filter the Province and District of Interest using the buttons shown in the screenshot below; do not apply filters to keep analysis at national level.

Location Filter Buttons Highlighted in the Red Box Below
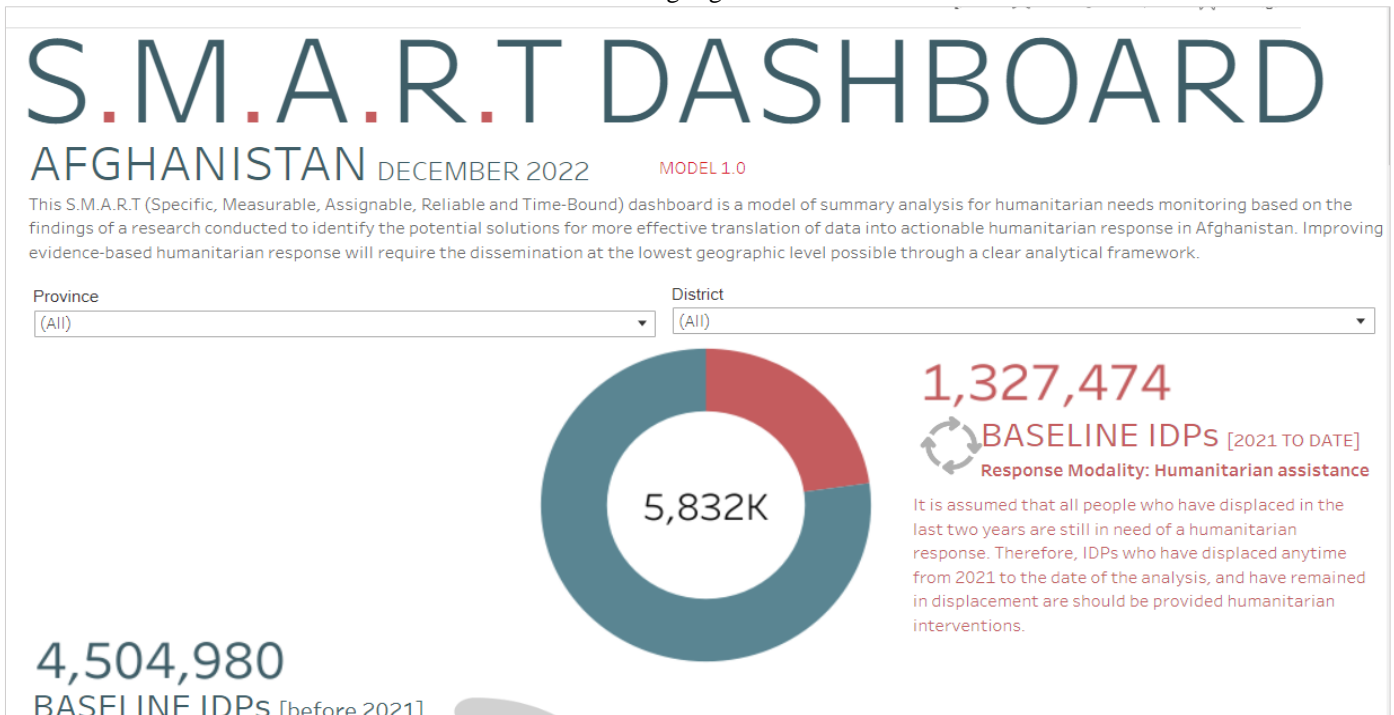
The screenshot below is an example of the generated output when "Herat" Province is selected. Notice the district level severity maps under each indicator show more granular (district) information than the HNO (usually province level).
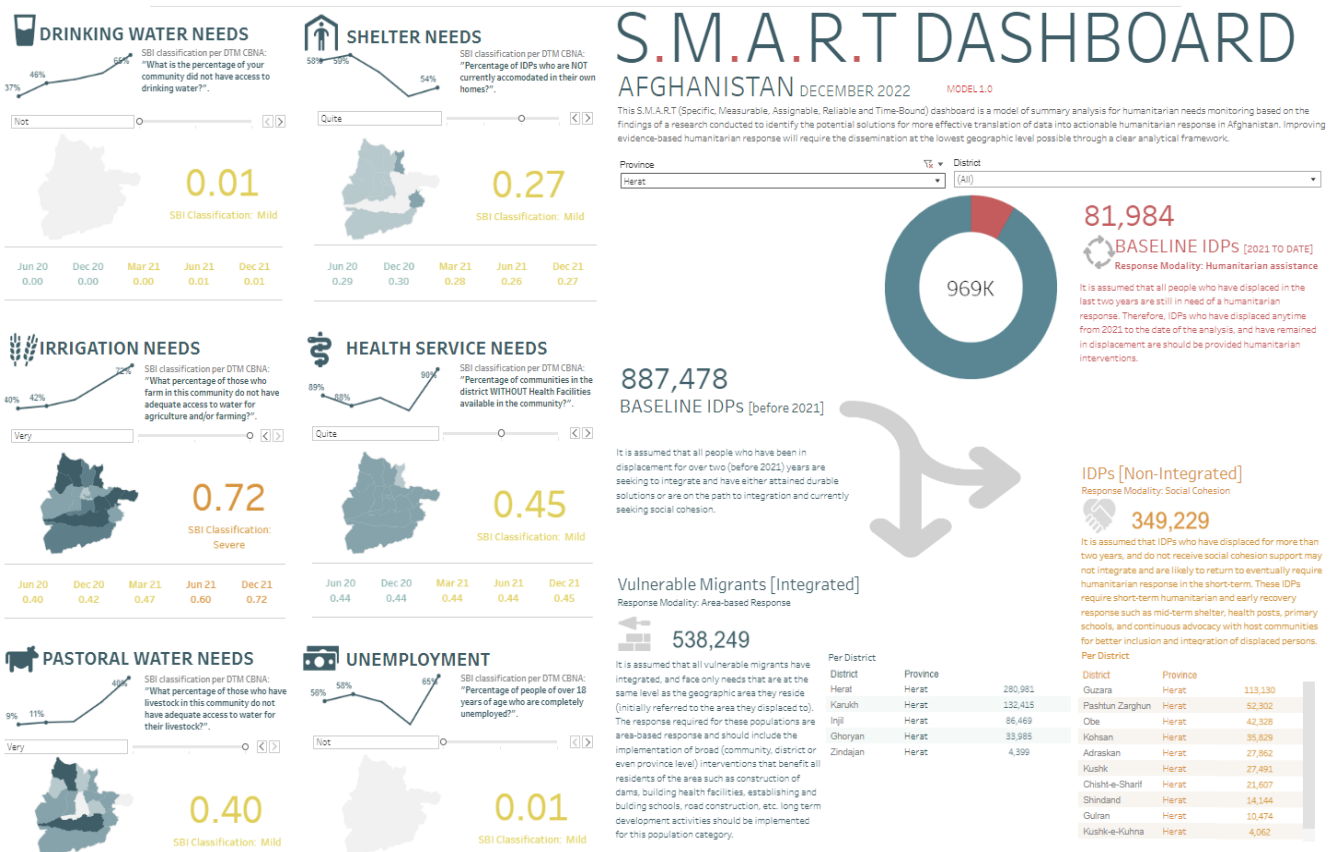
➢ *Step 3: Adjust the Indicators to Contextualize Priority Indicators for the Location*

- 8 indicators contribute to the analysis; adjust the relevance of each indicator to your analysis specifying if it is very important, quite important, or not important.

SBI Indicators Highlighted in the Red Box Below
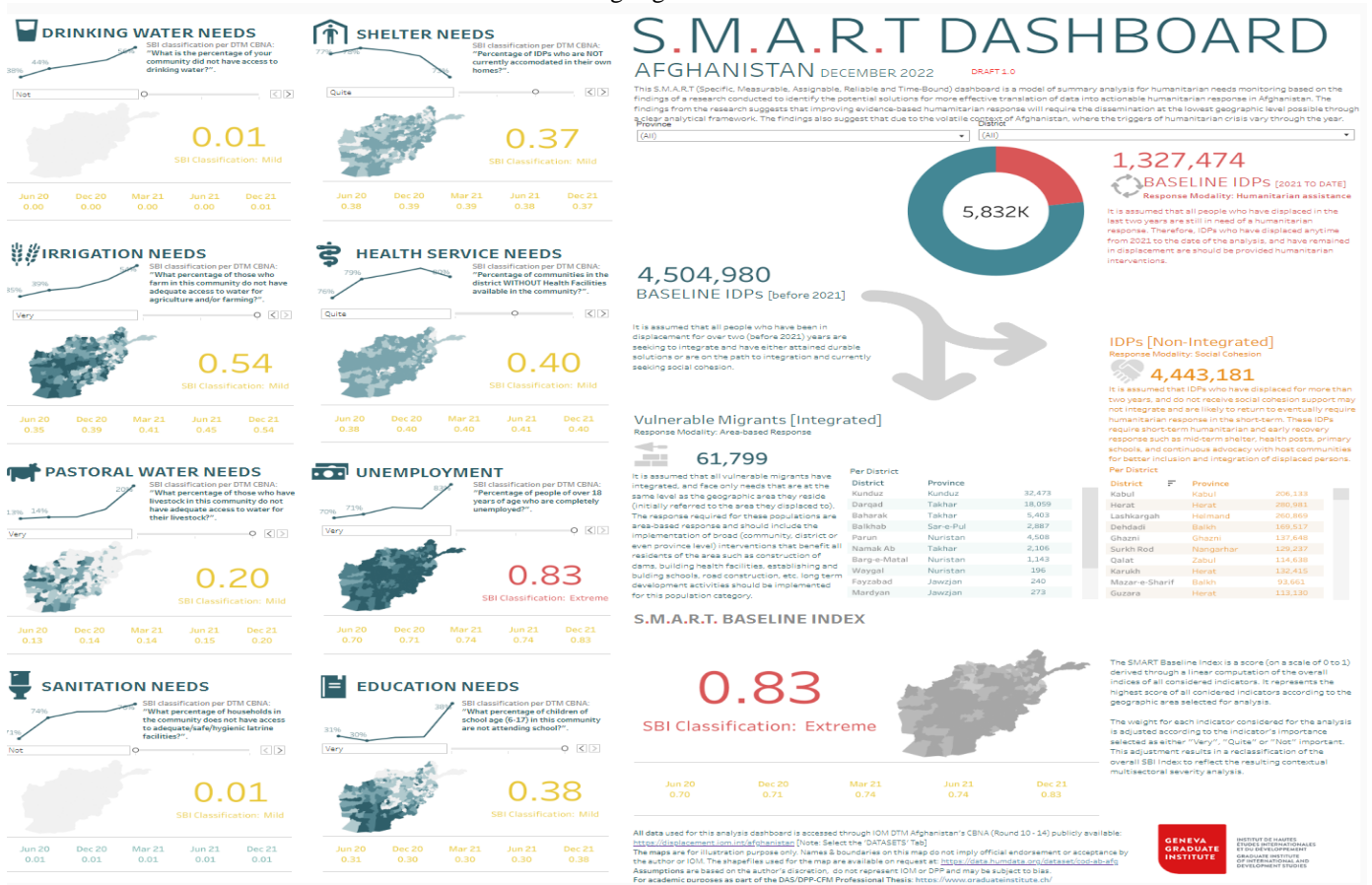
- The SBI (SMART Baseline Index) for each indicator is computed according to the weight of importance you assign to the indicator
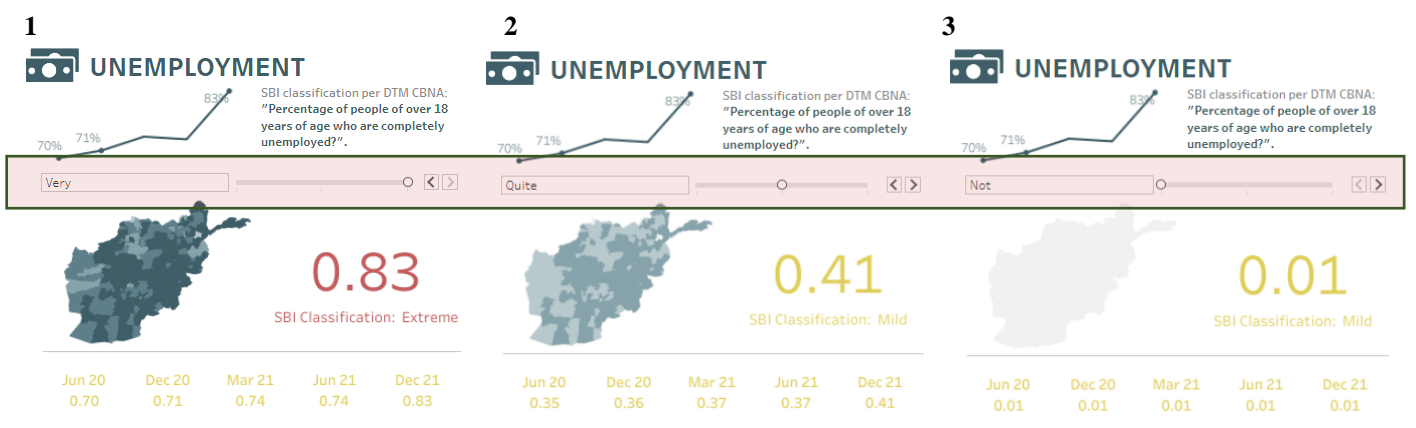
The significance of the Employment Indicator is set at 'VERY', ''QUIET'', and 'NOT' Important in 1, 2, and 3 above. Notice how the SBI scores and classifications change from 0.83 (when employment is a very important indicator), to 0.41 (when employment is a quite important indicator) and 0.01 (when employment is not an important indicator). These changes are influenced by the user and influence the overall SMART Baseline Index.

STEP 4: PROVIDE RESPONSE

- The overall SBI score and categorization are automatically updated by combining all the indicators' scores based on the levels of importance assigned to each indicator (described in the previous step).

S.M.A.R.T. BASELINE INDEX

0.54

SBI Classification: Mild

Jun 20	Dec 20	Mar 21	Jun 21	Dec 21
0.38	0.40	0.41	0.45	0.54

- Design response in line with the modality and number of people in need under each category: The people in need of Humanitarian, Social Cohesion, and Area-based Response are also generated as shown in the figure below.

5,832K

1,327,474
BASELINE IDPs [2021 TO DATE]
Response Modality: Humanitarian assistance

It is assumed that all people who have displaced in the last two years are still in need of a humanitarian response. Therefore, IDPs who have displaced anytime from 2021 to the date of the analysis, and have remained in displacement are should be provided humanitarian interventions.

4,504,980
BASELINE IDPs [before 2021]

It is assumed that all people who have been in displacement for over two (before 2021) years are seeking to integrate and have either attained durable solutions or are on the path to integration and currently seeking social cohesion.

IDPs [Non-Integrated]
Response Modality: Social Cohesion

2,057,179

It is assumed that IDPs who have displaced for more than two years, and do not receive social cohesion support may not integrate 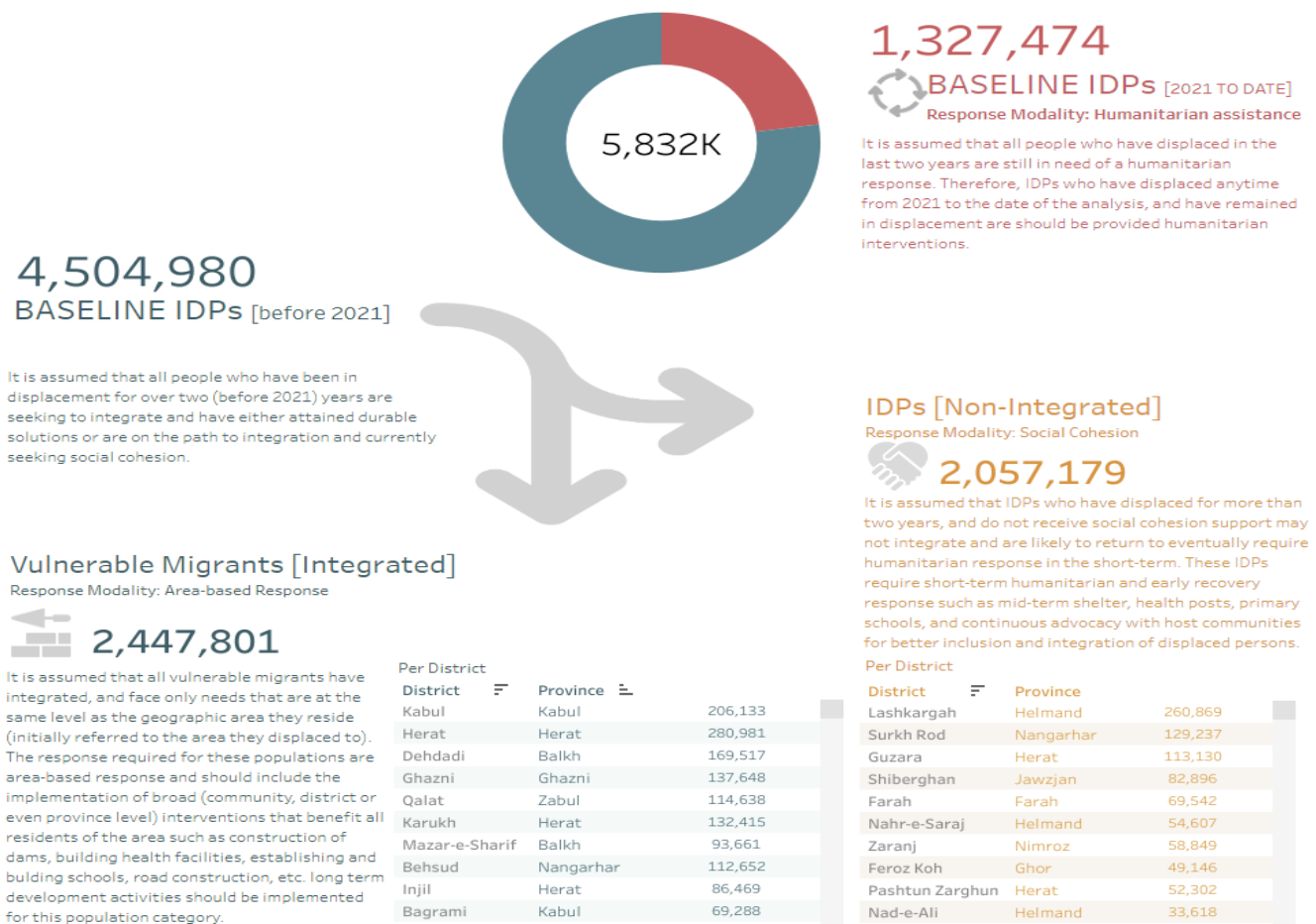and are likely to return to eventually require humanitarian response in the short-term. These IDPs require short-term humanitarian and early recovery response such as mid-term shelter, health posts, primary schools, and continuous advocacy with host communities for better inclusion and integration of displaced persons.

Vulnerable Migrants [Integrated]
Response Modality: Area-based Response

2,447,801

It is assumed that all vulnerable migrants have integrated, and face only needs that are at the same level as the geographic area they reside (initially referred to the area they displaced to). The response required for these populations are area-based response and should include the implementation of broad (community, district or even province level) interventions that benefit all residents of the area such as construction of dams, building health facilities, establishing and bulding schools, road construction, etc. long term development activities should be implemented for this population category.

Per District

District	Province	
Kabul	Kabul	206,133
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Ghazni	Ghazni	137,648
Qalat	Zabul	114,638
Karukh	Herat	132,415
Mazar-e-Sharif	Balkh	93,661
Behsud	Nangarhar	112,652
Injil	Herat	86,469
Bagrami	Kabul	69,288

Per District

District	Province	
Lashkargah	Helmand	260,869
Surkh Rod	Nangarhar	129,237
Guzara	Herat	113,130
Shiberghan	Jawzjan	82,896
Farah	Farah	69,542
Nahr-e-Saraj	Helmand	54,607
Zaranj	Nimroz	58,849
Feroz Koh	Ghor	49,146
Pashtun Zarghun	Herat	52,302
Nad-e-Ali	Helmand	33,618

In the screenshot above Out of 5.8 million IDPs (used for the model), 1.3 million are in need of humanitarian assistance, while 4.5 million are in need development (area-based response = 2.5 million) or peace building (social cohesion 2.1 million) interventions. The texts under these categories provide further descriptions to these categories. Two "Top 10" tables for people in need of area based and social cohesion respectively, are also included