Cluster-specific needs severity
Each cluster was asked to estimate the severity of needs in their respective sector for all 333 districts in Yemen, using an agreed seven-point severity scale (0 to 6). This included agreeing thresholds for indicator values along the seven-point severity scale to ensure that datasets from different clusters would be comparable across clusters, even though widely divergent datasets are used. In parallel, partners worked to organize and carry out assessments that would provide data to populate the severity scales, including the MCLA. Once all data had been collected and analysed, clusters translated these results into severity scores according to the thresholds in their agreed severity scales. Each cluster then combined individual indicator scores into a single composite severity score for every district. Formulas for generating composite scores were determined by the clusters based on internal technical agreement (including simple average, weighted average). Composite severity scores are the basis for all sector specific needs severity maps in the 2019 HNO.

Inter-cluster needs severity
The inter-cluster needs severity overlays all clusters’ severity scores with a double weight for the IPC scores to identify districts with the greatest concentration of severe needs across multiple sectors. There are 104 districts with highest severity scores (6 and 5) across multiple sectors, including 45 districts with pockets of people in IPC Phase 5. Clusters calculated their composite needs severity scores for every district. Cluster scores for every district were then added together to generate a “needs severity sum” for all districts. District sums were clustered using Jenks natural breaks so that each district was assigned a score based on its sum. The 45 IPC Phase 5 districts were overlaid with the highest inter-sector severity districts. Severity indicators measuring the needs of refugees and migrants were also excluded from the intersectoral severity analysis given the limited number of affected people.

In line with the 2017 and 2018 methodology, the Yemen ICCM endorsed the seven-point severity scale (0 to 6) against which to “grade” these values and implemented this scale for every district. A score of 2 to 3 indicates people in moderate need, who require assistance to stabilize their situation and prevent them from slipping into acute need. A score of 4 to 6 indicates people in acute need, who require immediate life-saving assistance. The outcome of this process forms the basis of the inter-sector needs severity map in the “Severity of Needs” chapter of the 2019 HNO.

Cluster-specific estimates of people in need (moderate/acute)
OCHA designed a flexible methodology for clusters to estimate people in need (PiN), including distinctions between acute and moderate need. Recognizing that clusters possess varying degrees of data on which to base district-level PiN estimates, two options were provided to maintain flexibility without sacrificing rigor.

Under option 1, clusters designed their own methodology entirely. This option was selected by two clusters, the FSAC, and the Nutrition Cluster. Under option 2, clusters relied on their composite severity scores to estimate total PiN and to categorize this estimate as moderate or acute. Severity scores were mapped to broad percentage estimates of the total district population (adjusted for displacement), with each score point (0-6) equivalent to 15 per cent of the population (0 = 0 per cent; 6= 90 per cent). For example, a district that received a score of 5 would estimate 75 per cent of the adjusted population of that district to be in need, and those people would be categorized as acute PiN. Five clusters selected option 2: WASH, Education, Shelter/NFIs/CCCM, Protection and Health.

Inter-cluster estimates of people in need (moderate/acute)
OCHA estimated total PiN in Yemen across clusters in three steps: 1) identifying the single-highest cluster total PiN estimate in every district; 2) adding the estimate of refugees and migrants in need in every district to the single highest cluster PiN figure; and 3) adding all district-level totals together. This approach provides district-level total PiN estimates without double counting. To categorize total PiN as acute or moderate, OCHA relied on sectors’ needs severity scores and the total PiN for each district. Scores of 2 or 3 were categorized as moderate, and scores of 4, 5 or 6 were categorized as acute. The proportion of moderate and acute scores in each district were then applied to the PiN for each district (e.g. if 45 per cent of sector severity scores fell in the acute range (44.5, 6- per cent of total PiN were categorized as acute, and 55 per cent as moderate). Similar to the overall PiN calculations, for each district people in acute need identified by the Refugees and Migrants Multi-Sector (RMMS) were added to the calculated inter-cluster acute PiN.
Inter-sector IDP/returnee/host community severity

While all IDPs/returnees/host communities are affected by the crisis and are in need of some form of humanitarian assistance, the most severe inter-sector needs converge mostly in governorates that have districts with ongoing conflict, and districts that are hosting the highest proportion of IDPs and returnees. The ICCM identified a set of multi-cluster indicators to estimate the severity of needs per district, in districts hosting IDPs and where returnees are residing. Indicator scores for each district were summed up. The district sums were then clustered using Jenks natural breaks so that each district was assigned a score based on its sum. Districts with no IDPs or returnees were assigned a score of zero. Districts where the inter-sector needs converge with highest scores were identified as high priority districts to be prioritized for inter-sector IDP/returnee/host community response. In addition to this, each cluster will identify other priority districts for their specific cluster response.

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<tr>
<th>INDICATOR</th>
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<td>Percentage of people in need of shelter assistance</td>
<td>Shelter/NFIs /CCCM</td>
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<td>Percentage of people in need of NFI assistance</td>
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<td>Percentage of people with specific needs</td>
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<td>Proportion of IDP and returnee communities in the district accessing an improved water source;</td>
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<td>MCLA 2018 / WASH cluster</td>
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<tr>
<td>Proportion of IDP and returnee communities in district accessing a functioning latrine</td>
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<td>School aged IDPs/returnees as percentage of same age group in the resident community</td>
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Methodology for estimating districts at risk of famine

The selection of 230 districts at risk of famine is guided by IPC protocols and WHO’s classification thresholds (i.e. ≥ 20 per cent severe food insecurity and ≥ 15 per cent GAM). Cut-off points for each category were assigned based on international thresholds and the local context. The selection of the districts at heightened risk of famine followed the below process:

- All districts in IPC Phase 4 (‘Emergency’) and with pockets of populations in IPC Phase 5 (‘Catastrophe’) were selected. This resulted in 190 districts (including 42 districts where pockets of the population are facing catastrophic conditions).
- Three districts in IPC Phase 3 (‘Crisis’) and with populations in IPC Phase 5 were added to the previous list of districts in IPC Phase 4.
- 37 districts (34 in IPC Phase 3 and 3 in IPC Phase 2) with critical nutrition situations but not in IPC Phase 4 were added.

Methodology for estimating cholera priority districts

The main indicator used to determine severity of need for cholera preparedness and prevention is the incidence of AWD or suspected cholera per 10,000 of the population. Suspected cholera and AWD cases reported through the eDEWS between January 2018 and end of October 2018 were used to calculate severity per districts. Districts were considered in acute need if the attack rate was above 456 per 10,000 of the population. This analysis identified 22 districts as priority one, 95 districts as priority two, 65 districts as priority three and 10 districts as priority four.

Cluster methodology for estimating people in need

**Food Security and Agriculture**

FSAC relied on the IPC analysis to estimate the number of people in need. This analysis was conducted in Sana’a and Aden and covered the entire country. Evidence included the FRM data (food consumption score, household dietary diversity score, household hunger score, food-related coping strategies, and livelihoods-related coping strategies). Market-related data was provided by WFP’s VAM market monitoring system and the FAO-EFRLP and FSTS market monitoring data. Malnutrition and mortality data were provided by the Nutrition Cluster, UNICEF and MoPHP, and were based on SMART surveys conducted in 15 governorates. Health and disease outbreak data were provided by WHO/MoPHP (eDEWS). The analysis benefited from FEWS NET rainfall data, agricultural production assessments by MAI, TFPM reports, and cluster data.

**Water, Sanitation and Hygiene (WASH)**

To estimate people in need, data was collected against eight core indicators (including two composite indicators) linked to WASH conditions and WASH-related disease. Indicators include access to improved water and sanitation, as well as hygiene behaviours, at the household level for IDPs, returnees and host communities, including the distinct needs of IDPs in hosting sites. Morbidity data for suspected cholera, dengue and malaria, as well as malnutrition data, were added as proxy indicators. Indicators were scored on a seven-point scale (06-) to define severity based on the percentage of population in need.
Indicators, and indirectly severity scores, were calculated based predominantly on the WASH household assessment and the MCLA, as well as SMART surveys, and eDews morbidity data. Data was triangulated with partner assessments and expert consultations at the sub-national level. At district level, each indicator was weighted based on its contribution to overall WASH severity, giving final districts severity scores. PiN were associated with severity scores, with each score point equivalent to 15 per cent of the population. PiN was broken into acute and moderate need, separating IDPs and the host community.

Health
Health partners selected a set of indicators in order to estimate the severity of the health situation in all districts of Yemen, drawing mainly from a combination of the 2018 HeRAMS, and eDEWS data, MCLA, as well as indicators covering social determinants of health. Indicators were grouped into three with double weight on the HeRAMS group and then districts were classified into seven levels using the scoring system from the lowest, 0, to the highest severity level, 6. PiN were estimated with higher density in the high severity districts and was reduced in the districts with lower severity scoring. Acute PiN was estimated proportionately from the PiN with higher percentage and the districts with a high severity score; the percentage of acute PiN was reduced for districts with a lower severity score. The total target beneficiaries was taken as 80 per cent of the PiN.

Nutrition
For estimating the people in need, the combined GAM/SAM prevalence using 2018 SMART surveys from 15 governorates and older SMART surveys, the Emergency Food Security and Nutrition Assessment (EFSNA) 2016 and Comprehensive Food Security Survey (CFSS) 2016 for the remaining seven governorates. For the SAM and Moderate Acute Malnutrition (MAM) caseloads calculations the correction factor of 2.6 was used estimating SAM and MAM caseloads while 2.0 was used for PLW.

Number of PLW in need of IYCF counselling was estimated at 8 per cent of the total population per district based on a global estimate. All children aged 659- months are in need of micronutrient supplementation. BSFP programmes for children under age 2 was estimated as all children aged 623- months in all districts with a high level of acute malnutrition and food insecurity.

Shelter / Non-Food Items (NFI) / Camp Coordination and Camp Management
The Shelter/NFI/CCCM Cluster estimated the severity score 06- scale at the district level for nine needs-based indicators according to the severity thresholds of each indicator and data from assessments and other reliable sources. If the district received a score of 2 or 3, the PiN is categorized as moderate. If the district received a score of 4, 5 or 6, it is categorized as acute. The total PiN was estimated using option 2 of the HNO guidance and generated using severity scores for acute and moderate districts. Thirty per cent of the 2019 population projection was calculated as people in need for districts under acute severity of needs, while 15 per cent was calculated for districts under moderate severity of needs. PiN estimates for districts scored 0 or 1 are not included in total PiN estimates. Using the above methodology, the total PiN for 2019 is 6.7 million people, up from 5.4 million last year, a 24 per cent increase, and those in acute need are 4.5 million people, up from 2.5 million last year, a 78 per cent increase.

Protection
District severity estimates are calculated based on available data, among others: civilian casualties, conflict incidents, grave violations of children's rights, affected schools, GBV incidents and services available, and population data regarding displacement and specific needs, including mental health and psychosocial support. Data is drawn from established monitoring mechanisms, including monitoring and documentation of civilian casualties by OHCHR, the MRM, GBV Information Management System (IMS), the TFPM, as well as other available data sources and through field-level consultations with partners where data was not available.

Education
Five indicators were used to estimate education needs severity in every district of Yemen. The Education Cluster agreed to adapt the severity scoring to double weigh indicator three (IDPs/Returnees burden on education) in the severity scale. Based on district severity scoring and its related percentages, an estimated 4.7 million children are in need of education-related services, this is in addition to the hygiene-related response. The overall PiN is calculated focusing on child enrolment rates based on 75 per cent of the CSO population estimates of school-age children (617- years old) in 2019.

Refugees and Migrants Multi-Sector (RMMS)
Refugees and Migrants Multi-Sector (RMMS) district-level population estimates of refugees, asylum seekers and migrants were developed by using 2017 estimates as the baseline. These baseline figures were adjusted using new arrivals data and the UNHCR proGres database to extrapolate refugee and asylum seeker statistics and profiles (location and gender). Field-based consultations in humanitarian hubs (Delphi methodology) were conducted to collect feedback from partners operating in different field locations. For the purpose of the 2018 HNO, the PiN was calculated using severity scores from Delphi-discussions questions. For the 2019 HNO, the same PiN was used; however to reflect the deterioration of the situation for refugees, asylum-seekers and migrants in Yemen, it was considered that all the People in Need are in Acute Needs as all persons of concern are targeted with at least of type of assistance or service from humanitarian partners in 2019.