AFGHANISTAN

Nutrition Rapid SMART Assessment Final Report

Faizabad & Aqcha Districts of Jawzjan Province

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Abbreviation

ACF	Action Contre la Faim
AAH	Action Against hunger
AIM	Assessments & Information Management Working Group
ARI	Acute Respiratory Infection
BPHS	Basic package of health services
CAAC	catchment Area Annual Census
CSO	Central Statistics Organization
CT	Caretaker
CHW	Community Health worker
DK	Do not know
DH	District Hospital
ENA	Essential Nutrition Assessment
EPI	Expended Program on Immunization
ENA	Emergency Nutrition Assessment
EPHS	Essential Package of Hospital Services
ECHO	European Commission Humanitarian of Aid Civil Protection
FEWS-NET	Famine Early Warning Systems Network
GAM	Global Acute Malnutrition
HAZ	Height for Age Z-score
HH	Household
IPD	Inpatient Department
OPD	Out-Patient Department
OCHA	Office for the Coordination of Humanitarian Affairs
MAM	Moderate Acute Malnutrition
MoPH	Ministry of Public Health
MUAC	Mid-upper arm circumference
NGO	Non-Government Organization
PND	Public Nutrition Department
PNO	Provincial Nutrition Officer
PPHD	Provincial Public health Directorate
PLW	Pregnant and Lactating Women
RC	Reserve Cluster
SAF	Solidarity of Afghan Families
SAM	Severe Acute Malnutrition

SD	Standard Deviation
SMART	Standardized Monitoring and Assessment of Relief and Transitions
TSFP	Target Supplementary Food Program
USAID	United States Agency for International Development
UNICEF	United Nation International Children Emergency Fund
VWC	Verification without Cards
W/A	Weight for Age
WFP	World Food Program
WASH	Water, Sanitation and Hygiene
W/H	Weight for Height
WHO	World Health Organization

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1. Executive Summary

Jawzjan is one of the worst drought affected area currently in Afghanistan among the other severely affected provinces like Takhar, Bamyan, Ghor, Daikundi, Uruzgan and Kandahar. A decreased level of precipitation throughout late 2017 and into early 2018 has led to drought conditions and water scarcity across nearly 20 provinces of Afghanistan. There is also issue of insecurity, 75% increase of insecurity compare to last year (source: FEWS-NET). Farmers cannot access to their land properly also causing the internal displacement of the people and moving to Center of the city - Faizabad districts.

The Rapid Nutrition Assessment was planned to be conducted between 27th June to 5th July 2018 but unfortunately the security situation became volatile in the Faizabad district. Therefore the Faizabad district's selected cluster data collection was carried out from 3 to 10 July 2018 after being halted for three days days. A total of 225 households were assessed from 23 clusters (out of total 25 targeted), Due to insecurity and ongoing fight in the Faizabad district. The Rapid SMART assessment report provides a description of the methodology used, an analysis and interpretation of the survey findings on anthropometric status, child morbidity, Immunization coverage (measles), nutritional status of pregnant and lactating women and recommendations proposed.

1.1. Summary of key findings:

Children nutritional status (N=352; 6-59 months)	
Indicators	**Result**
GAM rate among children aged 6-59 months based on Weight for Height- Z-Score <-2 SD and/or Oedema	15.9% (11.7-21.1; 95% CI)
SAM rate among children aged 6-59 months based on Weight for Height Z-Score <-3 SD and/or Oedema	2.9% (1.6- 5.1; 95% CI)
GAM rate among children aged 6-59 months based on MUAC <125 mm and/or Oedema	19.0% (12.5-27.8; 95% CI)
SAM rate among children aged 6-59 months based on MUAC <115 mm and/or Oedema	4.8% (2.6- 8.7; 95% CI)
GAM rate among children aged 6-59 months based on combined criteria (WHZ <-2 SD and/or MUAC <125 mm and/or Oedema)*	27.4% (20.1– 36.1; 95% CI)
SAM rate among children aged 6-59 months based on combined criteria (WHZ <-3 SD and/or MUAC <115 mm and/or Oedema)*	6.6% (4.0 – 10.8; 95% CI)
Stunting or chronic malnutrition among children aged 6-59 months based on Height for Age Z-Score <-2 SD	33.9% (26.9 - 41.8; 95% CI)

Underweight among children aged 6-59 months based on Weight for Age Z-Score <-2SD	24.2% (18.0-31.7; 95% CI)

*The combined GAM and SAM estimation was performed manually by changing all the MUAC only GAM/SAM data into Oedema in the ENA software to provide an aggregated prevalence under the result category of WHZ and/or Oedema.

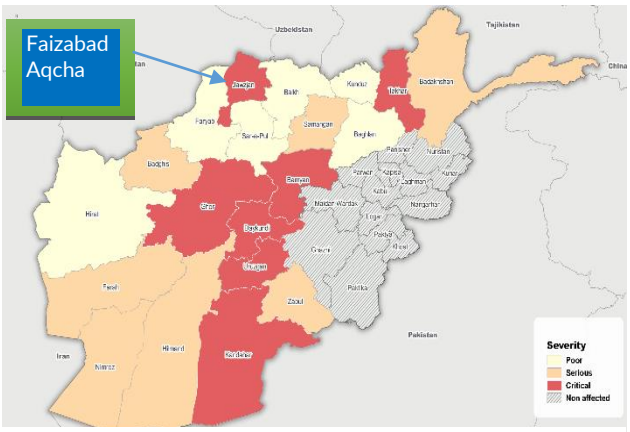
Child Health and immunization (N=366; 0-59 months)	
Indicators	**Result**
Children aged 0-59 months those reported of having Diarrhea during the past 14 days to the survey	32.0%
Children aged 0-59 months those reported of having ARI during the past 14 days to the survey	25.1%
Measles vaccination status for children aged 9-59 months based on both recall and vaccination cards confirmation method	79.7%

Nutrition status among pregnant and lactating Women (N=169)	
Indicators	**Result**
Undernutrition among pregnant women based on MUAC <230 mm	30.6%
Undernutrition among lactating women based on MUAC < 230 mm	26.7%
Undernutrition among pregnant and lactating women (PLWs) based on MUAC <230mm	27.8%

2. Introduction

Jawzjan, sometimes spelled/pronounce as Jowzjan or Jozjan (Persian: ولایت جوزجان, Pashto: جوزجان ولایت), is one of the thirty-four provinces of Afghanistan, located in the north of the country bordering neighbouring Turkmenistan. The province is divided into 11 districts and contains hundreds of villages. It has a population of about 559,691, which is multi-ethnic, and mostly agricultures. Sheberghan is the capital of Jozjan province.

Jawzjan Province is situated in the Northern part of Afghanistan, bordering Turkmenistan in the north, Balkh Province in the east, Sar-e Pol Province in the south and Faryab Province in the west. The province covers an area of 14660km2. More than one quarter of the province is mountainous or semi mountainous terrain (29.4%) while more than two thirds of the area is made up of flat land (68.9%).



Map: Drought affected area of Afghanistan and location of the survey

The population of the province is estimated around 559,691[1] people. The major ethnic groups living in Jawzjan are Uzbeks and Turkmens followed by Tajiks, Pashtuns and Arabs.

A decreased level of precipitation throughout late 2017 and into early 2018 has led to drought conditions and water scarcity across nearly 20 provinces of Afghanistan. According to below map from OCHA, the worst drought affected areas are Takhar, Jawzjan, Bamyan, Ghor, Daykundi, Uruzgan and Kandahar provinces. Farmers and pastoralists in rural areas will bear the highest burden of the drought, with the potential for crop failures or low yields, poor herd health caused by lack of animal fodder and drinking water scarcity due to decreased ground water levels. According to FEWS-NET surveillance data, there is 100% decrease of wheat production in Jawzjan province and farmers could not even get 5% of their harvest due to lack of production. There is also issue of insecurity, 75% increase of insecurity compare to last year (source: FEWSNET). Farmers cannot access to their land properly also causing the internal displacement of the people and moving to the capital of the – Faizabad and Aqcha districts.

The districts were selected based on bellow criteria:

- Jawzjan is one of the province recently affected by drought. Drought specially affected Kochi/Nomads population. Nutrition Cluster along with Assessment and Information

[1] CSO: updated Population 1396 (2017-2018)

Management Working Group/PND/MoPH through different meetings decided to conduct one Rapid SMART assessment in the area of Kochi/Nomads people. Through the data, which was shared by FEWS-NET, Faizabad & Aqcha districts were identified with high number of internal displacement people.

- Due to Insecurity and time limit give a chance to have Rapid SMART instead of full SMART
- AIM-MG were selected, these two district(Faizabad & Aqcha) to conduct rapid SMART assessment
- Entire population including Kochi of the both districts were affected

The nutrition cluster and Public Nutrition Department (PND) of MoPH have already taken some initiative to prioritize and strengthen health and nutrition activities in the drought affected provinces and urged other development, humanitarian partners for assistance. Data is important to better understand the severity of situation to ensure informed decision-making process for a better tailored programming. The last National Nutrition Survey (NNS) was conducted in 2013, which is now almost obsolete and therefore there is need to regularly conduct assessment to generate latest information especially in the worst affected and prioritized location/provinces.

Five national and international organizations for health and nutrition Programme (SAF, AWLS, SCI, Move and USAID) are providing health services in the province. It is to be noted that, a total of 41 health facilities are there in the province and out of these, one Provincial Hospital (EPHS) is implementing by Strengthening Mechanism (SM) organization. BPHS is implemented by SAF in 40 health facilities (2 DHs, 1 CHC+, 6 CHCs, 10 BHCs, 3 BHC+, 17 HSCs and 1 prison clinic). Out of these, 19 health facilities have OPD MAM, 30 OPD SAM and 2 IPD SAM programs in the province. In the survey area (Aqcha and Faizabad districts) four HFs have OPD MAM and OPD SAM program, but the OPD MAM program (TSFP) was finished in the month of June 2018. Only Aqcha DH has IPD SAM program, and there is no IDP SAM program in the Faizabad district.

Total number of detected malnourished children were 65 based on MUAC, among 65 malnourished 55 were MAM and 10 SAM, out of these 55, 37 MAM referred to nearest HFs and remaining 18 not referred to HFs due to no MAM program, 9 SAM out of 10 referred to nearest HFs and one were already in the program

3. Objective of the survey

3.1 Main objective

- To quickly assess the health and nutrition situation of children U5 and PLWs in the emergency affected area of Faizabad & Aqcha districts, Jawzjan province.

3.2 Specific objectives

- To assess malnutrition rates (Stunting, Wasting, and Underweight) among children 6 - 59 months.
- To estimate morbidity among children from 0- 59 months living in the targeted locations using two weeks recall period.
- To estimate vaccination coverage (measles) among children from 9 - 59 months.
- To estimate prevalence of malnutrition among pregnant and lactating women (PLWs) using MUAC cut-off.

4. Justification of the survey

- Jawzjan province categorized as “Critical” based on OCHA analysis for drought.
- Internal displaced population (IDPs) due to drought.
- Possible deterioration of health and nutrition situation due to ongoing drought and conflict that require immediate investigation.
- The area selected by nutrition cluster and AIM-Working Group to know the current nutrition situation in the affected districts (Faizabad & Aqcha).

5. Sample size, sampling design and procedures

5.1 Sample size and sampling design

The assessed population were inhabitants and IDPs living in the group of affected villages, meaning several settlements and the number of households were assumed to be more than 200. As there is more than ONE settlement and the population is dispersed: two stage cluster sampling was applied. As per the rapid SMART methodology, the number of clusters is in this case fixed to a minimum of 25 with 200 minimum number of children (6-59 months) required. It was selected using two-stage cluster sampling. The table below presents the precision, which were expected to be reached, according to the GAM result.

The table below presents the precision which will be expected to be reached, according to the GAM result.

Expected GAM Prevalence by MUAC	Sample size	Precision
20%	200 children	+/- 7.1%
15%	200 children	+/- 6.3 %
10%	200 children	+/- 5.3 %
5%	200 children	+/- 3.9%

To reach required number of sample, Rapid SMART for Afghanistan proposes simplified rule to convert children into households:

A. When the percentage of children under age of 5 is **below 15%,** 25 clusters of 12 households have to be selected
B. When the percentage of children under age of 5 is **above 15%,** 25 clusters of 10 households have to be selected

The reference percentage of under-5 population for Afghanistan which is 17.2% (CSO updated population 1396 (2017-2018), so conversion option **B** will be applied. So 25 Cluster of 10 households were selected randomly using PPS by ENA software out of the list. The total number of HH to be surveyed was 250.

5.2. FINAL Sampling Strategy

Finally in total, 23 clusters were visited. Two clusters in Faizabad district could not be accessed due to sudden security problem. There were 5 HHs refused to take part in the assessment process which cased a total HHs of 225 achieved during the survey. Clusters were mainly based on villages (please see the cluster selection is in Annex-1). Below table makes a summary of the achieved samples (household, children).

Details of proposed and actual sample size achieved

Number of cluster planned	Number of cluster surveyed	% of cluster surveyed	Number of HH planned	Number of HH surveyed	% HH surveyed	Number of children 6-59 months planned	Number of children 6-59 months surveyed	% children surveyed
25	23	92.0%	250	225	90.0 %	200	352	176.0%

Data was analyzed with ENA for SMART software (2011 version updated 9th July 2015). Additional data (morbidity, measles vaccination and women nutritional status) was analyzed using Microsoft Excel.

5.3 Sampling procedures

Two-stage cluster sampling methodology was employed in this survey.

Stage 1: Cluster selection

Random selection of clusters/Health Post (HP) catchment area was done using probability proportionate to size (PPS) using ENA for SMART software version 2011 of (updated 9th July, 2015). There was no updated village list or EPI micro-plan village list was available in the province. Hence, Health Post (HP) from the CAAC survey 2018 mostly named the HP/Zone list was used for this survey. The HP/zone were further divided into smaller segments and a segment was selected randomly as a cluster based on PPS method in the second stage. This division was done based on existing landmarks such as Masjid and roads. There were 71 HP /zone in the original sampling frame and 26 HP were systematically excluded because of insecurity and inaccessibility. So there were 36.6% HPs were excluded from the original sampling frame and the final sampling frame contains 45 HPs from the survey location.

Stage 1: Households:

Systematic random sampling was used to identify the households to be surveyed. The teams were trained on both methods of sampling (simple and systematic random sampling) and they were also offered with materials to assist in determining the households during the data collection exercise.

Again, for the advantage of simplification and rapidity, polygamous families accounted as ONE household. In each selected zones, one or more community member(s) were asked to help the survey teams to conduct their work by providing information about the zone with regard to the

geographical organization or the number of households.

Children

All children from 0 to 59 months of age living in selected households were included in the cluster. Age being very difficult to investigate and to ascertain in Afghanistan, children can be first selected according to height benchmarks if age record is not found. However, the high prevalence of stunting in Afghanistan impairs the relevance of height benchmarks to identify an age category.

Careful age identification was ensured by use of locally developed event calendar. Local event calendar was updated if there is one from previous studies. If there is none, than a calendar including major events of the months can be rapidly elaborated with the staffs during the training. **It is important to note that the official calendar in Afghanistan is the solar Hijri calendar (Iranian calendar).** The use of the Gregorian calendar can introduce bias and confusion while interviewing caretakers and therefore can cause additional loss of time.

5.4 Data collection

A simple tally sheets instead of a questionnaire was used **(ANNEX 3)** where surveyors can simply write down these data for each child. The number of the child in the household and the number of the household in the cluster is recorded too.

Anthropometric data

The sex has to be recorded with codes: f = female and m=male.

The age was written down in months. The preparation and the use on the field of tools to determine age can be time consuming and require previous preparation (e.g. Event calendar). The teams had at maximum sensitized to the importance of the age record.

Weight (in kg): Children are weighed to the nearest 0.1 kg by using an Electronic Uni scale (or SECA). The children who can easily stand was asked to stand on the weighing scale and their weight was recorded. In a situation when the children could not stand up, the double weighing method was applied[2].

[2] The first measurement is the weight of the care taker and the second is the weight of the caretaker with the child. The scale can record the first measurement and automatically extract it from the second measurement, showing only the weight of the child on the screen.

Height (in cm): Measuring board was to measure bare headed and barefoot children. The precision of the measurement is 1 mm. Children of less than 2 yeas measured lying down and those equal to or above were measured standing up

All children were checked for **Oedema.** If a child is suspected to have nutritional oedema then both enumerator MUST be confirming this. It is essential that all staff were trained to check for Oedema.

MUAC must only was taken on the LEFT arm using MUAC tape. The MUAC measurement recorded in mm.

Once measured, visible small mark on the left upper arm or on the fingernails of the child had in order to avoid measuring the same child several times.

All children detected as SAM whether by presence of bilateral pitting oedema or MUAC <115 cm, referred to the nearest facility or agency responsible for therapeutic care for immediate treatment in this case.

Measles immunization status

For all children selected in the sample, the mother/caretaker (CT) is asked if the child has been immunized against measles or not, and if there is a vaccination card. The answers are recorded as 'Y' (Yes); 'VWC' (Vaccination without Card); 'N' (No); 'DK' (Does not Know), according to the situation.

Morbidity data

For all children selected in the sample, the mother/CT was asked:

If the child had diarrhea within the last 15 days. Diarrhea is defined as every episode of more than 3 liquid stools per day. Record is made as follows: 'Y' (Yes); 'N' (No); 'DK' (Do not Know) If the child had Acute Respiratory Infection (ARI) within the last 14 days. Acute Respiratory Infection is any episode with severe, persistent cough or difficulty breathing. Record is made as follows: 'Y' (Yes); 'N' (No); 'DK' (Does not Know), according to the situation.

Mothers nutritional status

Women in childbearing age will assess for their nutritional status based on MUAC using the cut-off of 230 mm.

5.5 Data analysis

The anthropometric data analysed by using ENA software 2011 version (updated 9th July 2015),. Survey results is presenting in reference to WHO standards for overall final analysis.

After data entered and quality check ensured, ENA software was generate age/sex specific tables with anthropometric results with plausibility check. Confidence intervals were automatically calculated for each prevalence by the software.

ENA generates automatically table for MUAC results using cut-offs presented below:

Classification	Normal	Moderate Acute Malnutrition	Severe acute malnutrition
MUAC	≥125mm, no Oedema	<125mm to ≥115mm, no Oedema	< 115mm and/or oedema

If the weight and height with corresponding age is entered, ENA can generate a survey report automatically. If all anthropometric measurements are collected, then ENA generates results for Acute Malnutrition (WHZ), Stunting (HAZ), and Underweight (WAZ)[3]. Results are presented in **% Z-scores with 95% Confidence Interval**.

These are defined as follows:

	Acute Malnutrition	Underweight	Stunting
Global	WHZ <-2 z scores and/or oedema	WAZ <-2 z scores	HAZ <-2 z scores
Moderate	-3 < WHZ <-2 z scores	-3 < WAZ < -2	-3 < HAZ < -2 z scores
Severe	WHZ < -3 z scores and/or oedema	WAZ < -3 z scores	HAZ < -3 z scores

Maternal nutritional indicators

As defined in bellow table

	MUAC cat-off
Global	MUAC <230mm
Moderate	MUAC<230mm to 185mm
Severe	MUAC< 185mm

5.6 Training and supervision

Eight teams of two members (one female and one male) conducted the field data collection. Each two teams had one supervisor. The previous experience from Afghanistan has shown that in some cases people are not eager to allow surveyors to measure female children. It is important to bear in mind while conducting Rapid SMART assessment that, to have as much as possible mixed teams of surveyors (both male & female) that have adapted communication approach. ACF technical staff, implementing NGO's Nutrition officer and Provincial officer were supervise the survey teams.

This survey intends to utilize the same enumerators (as much as possible and available) who participated in the SMART survey earlier. The enumerators were received a 4 days training on data collection for Rapid SMART assessment which includes one day standardization test irrespective of new or previously experienced. It is expected that based on the team's prior experience with Health and Nutrition services, they were more aware and skilled to properly execute the data collection activities for the Rapid SMART assessment.

One field guidelines document with instructions and another household definition and selection document were provided to each team member. All documents, such as local event calendar, questionnaires or consent forms were translated in Dari local language for better understanding and to avoiding direct translation during the field data collection. The questionnaires were back translated using a different translator. Alterations were made as necessary.

Daily data entry and analysis was done using ENA plausibility check, and feedback was provided

[3] Overweight was included in automatic data analysis since recently.

to the data collection teams. Anthropometric data was directly entered into ENA.

5.7 Survey limitation

- Security problems was big limitation during data collection; based on the original plan the data collection was planned on 3rd to 5th July 2018 for both districts (Aqcha and Faizabad). suddenly the security condition was worst, between AOG and Government fighting were happened and most of the selected villages become in the hand of AOG and the data collection postponed, however, when the security condition becomes good than the data collection started again on 9th to 10th July,23 cluster out of 25 surveyed due to insecurity and ongoing fight in faizabad district
- Most of the Villages/ zone were based in HP from the CAAC 2018 survey and the HHs were more than 300, due to more HH the teams were done segmentation in the villages according the SMART methodology they used PPS methods and it was done in the field with villages elders, this was another limitation for time control.
- Most of the exact birth date was from EPI cards; exact birth date was not properly documented in the EPI cards and affected the age distribution. This has also implication on the percentage flag data for Height especially when it compares with age.

6. Results

6.1. Data quality

The overall plausibility score was highlighted as “Acceptable” quality of measurements with 15% overall score. The standard deviation (SD) for acute malnutrition, weight for height z-scores, was calculated at 1.16 with SMART flags. A SD that is within the acceptable range of values for SD is between 0.8 and 1.2.

The plausibility check reported a percentage of values flagged with SMART flags: WHZ - 1.4%, HAZ – 5.4%, WAZ – 1.4%.

The age ratio of 6-29 months to 30-59 months was 1.23 (the value should be around 0.85: the p-value = 0.001 for age distribution which is significant difference). One of the observation of having more younger children in the sample was – older children used to go to agricultural field or Bazaar with thier father and therefore missed the anthropometric measurement.

6.2. Anthropometric results:

352 children aged 6-59 months were surveyed and there were 5 children excluded as outliers (WHZ). Estimation of prevalence of GAM was done based on WHO 2006 child growth standards and the results are presented with exclusion of Z- score from observed mean SMART flags: WHZ -3 to + 3, HAZ -3 to +3 and WAZ -3 to +3. The overall data quality check is shown in **Annex 2**. See table below for distribution of age and sex sample.

Table 1: Distribution of age and sex of sample

	Boys		Girls		Total		Ratio
AGE (mo)	no.	%	no.	%	no.	%	Boy:Girl
6-17	63	55.3	51	44.7	114	32.4	1.2
18-29	41	51.3	39	48.8	80	22.7	1.1
30-41	35	45.5	42	54.5	77	21.9	0.8
42-53	31	55.4	25	44.6	56	15.9	1.2
54-59	11	44.0	14	56.0	25	7.1	0.8
Total	181	51.4	171	48.6	352	100.0	1.1

Table 2: Prevalence of acute malnutrition based on WHZ (and/or oedema) and by sex

	All n = 347	Boys n = 179	Girls n = 168
Prevalence of global acute malnutrition (<-2 z-score and/or oedema)	(55) 15.9 % (11.7-21.1 95% CI)	(36) 20.1 % (14.8-26.7 95% C.I.)	(19) 11.3 % (6.7 - 18.4 95% C.I.)
Prevalence of moderate acute malnutrition (<-2 z-score and >=-3 z-score, no oedema)	(45) 13.0 % (9.4 - 17.6 95% C.I.)	(31) 17.3 % (12.7-23.1 95% C.I.)	(14) 8.3 % (4.3 - 15.4 95% C.I.)
Prevalence of severe acute malnutrition (<-3 z-score and/or oedema)	(10) 2.9 % (1.6 - 5.1 95% C.I.)	(5) 2.8 % (1.0 - 7.6 95% C.I.)	(5) **3.0 %** (1.2 - 7.0 95% C.I.)

Table 3: Distribution of acute malnutrition and oedema based on WHZ

	<-3 z-score	>=-3 z-score
Oedema present	Marasmic kwashiorkor No. 0 (0.0 %)	Kwashiorkor No. 0 (0.0 %)
Oedema absent	Marasmic No. 11 (3.1 %)	Not severely malnourished No. 341 (96.9 %)

There were no cases of Oedema found.

Table 4: Prevalence of acute malnutrition based on MUAC (and/or oedema) and by sex

	All n = 352	Boys n = 181	Girls n = 171
Prevalence of global acute malnutrition (< 125 mm and/or oedema)	(67) 19.0 % (12.5 - 27.8 95% C.I.)	(34) 18.8 % (11.3 - 29.6 95% C.I.)	(33) 19.3 % (11.1- 31.5 95% C.I.)
Prevalence of moderate acute malnutrition (< 125 mm and >= 115 mm, no oedema)	(50) 14.2 % (9.4 - 20.9 95% C.I.)	(29) 16.0 % (9.7 - 25.3 95% C.I.)	(21) 12.3 % (6.8 - 21.2 95% C.I.)
Prevalence of severe acute malnutrition (< 115 mm and/or oedema)	(17) 4.8 % (2.6 - 8.7 95% C.I.)	(5) 2.8 % (1.1 - 6.6 95% C.I.)	(12) **7.0** % (3.4 - 13.8 95% C.I.)

Table 5: Prevalence of Global Acute Malnutrition based on combined criteria (MUAC+WHZ+Oedema)

Status	All (boys and girls) N=347
Prevalence of global acute malnutrition based on both criteria (WHZ <-2SD and/or MUAC <125mm and/or Oedema)	(95) 27.4% (20.1 – 36.1; 95% CI)
Prevalence of severe acute malnutrition based on combined criteria (WHZ <-3SD and/or MUAC <115mm and/or Oedema	(23) 6.6% (4.0 – 10.8; 95% CI)

*The combined GAM and SAM estimation was performed manually by changing all the MUAC only GAM/SAM data into Oedema in the ENA software to provide an aggregated prevalence under the result category of WHZ and/or Oedema.

Table 6: Prevalence of underweight based on weight-for-age Z-scores and by sex

	All n = 347	Boys n = 181	Girls n = 166
Prevalence of underweight (<-2 Z-score)	(84) 24.2 % (18.0 - 31.7 95% C.I.)	(51) 28.2 % (20.0 - 38.1 95% C.I.)	(33) 19.9 % (12.6 - 29.9 95% C.I.)
Prevalence of moderate underweight (<-2 Z-score and >=-3 Z-score)	(61) 17.6 % (12.8 - 23.6 95% C.I.)	(37) 20.4 % (14.0 - 28.8 95% C.I.)	(24) 14.5 % (8.8 - 22.9 95% C.I.)
Prevalence of severe underweight (<-3 Z-score)	(23) 6.6 % (4.1 - 10.5 95% C.I.)	(14) 7.7 % (4.4 - 13.2 95% C.I.)	(9) 5.4 % (2.6 - 11.1 95% C.I.)

Table 7: Prevalence of stunting based on height-for-age Z-scores and by sex

	All n = 333	Boys n = 171	Girls n = 162
Prevalence of stunting (<-2 z-score)	(113) 33.9 % (26.9 - 41.8 95% C.I.)	(61) 35.7 % (28.4 - 43.7 95% C.I.)	(52) 32.1 % (23.3 - 42.5 95% C.I.)
Prevalence of moderate stunting (<-2 z-score and >=-3 z-score)	(74) 22.2 % (17.4 - 28.0 95% C.I.)	(40) 23.4 % (17.8 - 30.1 95% C.I.)	(34) 21.0 % (14.8 - 29.0 95% C.I.)

Prevalence of severe stunting (<-3 z-score)	(39) 11.7 % (7.8 - 17.3 95% C.I.)	(21) 12.3 % (8.4 - 17.7 95% C.I.)	(18) 11.1 % (6.2 - 19.1 95% C.I.)

The summary of the Mean Z-scores with their Standard Deviations, the design effects and number of the out of range data per index is the table 9 below.

Table 8: Mean Z-scores, design effect and excluded subjects

Indicator	N	Mean z-scores ± SD	Design Effect (z-score < -2)	Z-scores not available*	Z-scores out of range
Weight-for-Height	347	-0.77±1.16	1.33	0	5
Weight-for-Age	347	-1.18±1.16	2.09	0	5
Height-for-Age	333	-1.31±1.40	1.94	0	19

* contains for WHZ and WAZ the children with oedema.

The observed mean of the Z score was -0.77 (±1.16) the design effect of 1.33 is reflecting homogeneity of the surveyed population.

6.3. Child health and immunization

Retrospective morbidity data was collected among all children aged 0-59 months, with the 2 weeks recall period to assess the occurrence of main diseases. All children aged from 9 to 59 months were assessed whether they ever received measles vaccine or not. Analysis of data and findings illustrated in table 10 and 11.

Table 9: Under-five morbidity, two weeks recall, (N=366)

Parameters	Frequency	Result
Acute Respiratory Infection (ARI) with the two weeks recall prior	92	25.1%
Diarrhea with the two weeks recall prior	117	32.0%

Table 10: Measles immunization status, children 9-59 mounts, (N=315)

Parameters	Frequency	Result
Yes, confirmed by card	180	57.1%
Yes, recall	71	22.5%
Yes by both recall and card confirmation	251	**79.7%**
No	56	17.8%
Don't Know	8	2.5%

Only 79.7% of children 9-59 months were vaccinated which is far below the expected national coverage (90%), meaning the population immunity against measles is low.

6.4. Maternal Nutritional status

The information on maternal nutrition status was collected for women of childbearing age (CBA), from 15 to 49 years with focus on pregnant and lactating women. The results illustrated in the tables 11 and 12 below.

Table 11: Physiological status of women of reproductive age (15-49 years), (N=228)

Status	Frequency	%
Pregnant	49	21.5%
Lactating	120	52.6%
Non-pregnant & non-lactating	59	25.9%
Total	228	100%

Table 12: Nutrition status of pregnant and lactating women based on MUAC cut off

Separate for Pregnant and lactating cut off	Frequency	Result
Global Acute malnutrition among Pregnant women based on MUAC <230 mm (N=49)	15	30.6%
Global Acute Malnutrition among Lactating women based on MUAC <230 mm (N=120)	32	26.7%
PLWs MUAC cut off (N=169)		
Global Acute Malnutrition among PLWs based on MUAC <230 mm	47	27.8%
Severe acute malnutrition among PLWs based on MUAC <185 mm	2	1.2%

7. Discussion

The survey results is not reflecting the provincial level picture of the nutrition situation. It is only representative of the Aqcha and Faizabad districts. The GAM rate based on WHZ can be classified as a critical 15.9% (11.7-21.1 95% CI) according to WHO[4] thresholds of severity of the condition. However, the global acute malnutrition rate of MUAC <125 mm further confirmed the possible existing of critical nutrition situation in the surveyed area 19.0% (12.5-27.8 95% CI). The high rate of Acute malnutrition together with serious level of stunting 33.9% (26.9-41.8 95% CI) and serious underweight rate 24.2% (18.0-31.7 95% CI) portrays a very high and complex level of malnutrition situation in the two districts.

In this survey, the prevalence of diarrhoea (32.0%) and Acute Respiratory Infection (ARI)/cough (25.1%) reported which is quite high for Aqcha and Faizabad districts and suggest that morbidity might play a significant role as cause of the acute malnutrition.

The measles vaccinated coverage has been found to be below the national MoPH standard/target of 90% and found 79.7% by both recall and cards verifications and this may potentially increase the risk of measles outbreak in the province with lack of basic personal and environmental hygiene as well as lack of safe drinking water in the area.
Drought affected the agricultures, livelihoods and food security predisposing to increase the morbidity and malnutrition cases in the surveyed area.

[4] < 5 % acceptable, 5-9 % poor, 10-14 % serious , > 15 % critical

8. Recommendation

- To strengthen the OPD MAM & SAM program in all health facilities and avoiding the RUTF/RUSF shortage to ensure regular supply in the nutrition centres (HFs)

- To create mobile health and nutrition clinic in each surveyed district to cover all the hard to reach and out of coverage villages/areas by health facilities.

- To expend the TSFP program (both for U5 and PLWs) in the health facilities without any supply gap to reduce the MAM cases in the area.

- To strengthen the referral system through CHWs as well as case identification both in the community and facility.

- To sensitise the health Shura and community on malnutrition treatment and consequences through Mula Imams, teachers and elder people in the community.

- To strengthen the health education activities by using interactive IEC/BCC materials in health facilities.

9. Annexes

Annex 1: Selected Cluster/Villages for data collection, Aqcha and Faizabad districts

District	Name of HP/cluster	Total Household	Total Population	Cluster
Aqcha District	Batikhot Afghania	256	1228	1
	Kotan Aqar	195	1190	2
	Komak Amarkhan	452	3162	3
	Kulbaqal Mqari	265	2430	4
	Qom Arigh	462	3440	RC
	Kulbaqal olamia	388	2714	5
	Tabi Afghania	168	1180	6
	Qaraboin safla	315	1817	7
	Nahia Awal	2817	17249	8,9,10,11
	Qazil Girdab	111	697	12
	Nahia 2	1976	12261	13,14,15
	Mehr Abad	260	1472	16
	Bish arigh Watni	460	2811	17
	Yandagh Arigh	423	2900	RC
	Shirak	890	3840	RC
Faiz Abad District	Hidar Abad	530	4867	18,19
	Ali Abad	356	2355	20
	Sheshakhana Uzbaki	197	1391	21
	Sheshakhana Arabia	381	2661	22
	Sheshkhana Uzbakia	286	2490	23
	Sansiz	643	5243	24
	Khanmi Tarkmnia	208	1394	25

Annex 2: Plausibility check for Data Quality

Standard/Reference used for z-score calculation: WHO standards 2006
(If it is not mentioned, flagged data is included in the evaluation. Some parts of this plausibility report are more for advanced users and can be skipped for a standard evaluation)

Overall data quality

Criteria Flags* Unit Excel. Good Accept Problematic **Score**

Flagged data Incl % 0-2.5 >2.5-5.0 >5.0-7.5 >7.5
(% of out of range subjects) 0 5 10 20 **0** (1.4 %)

Overall Sex ratio Incl p >0.1 >0.05 >0.001 <=0.001
(Significant chi square) 0 2 4 10 **0** (p=0.594)

Age ratio(6-29 vs 30-59) Incl p >0.1 >0.05 >0.001 <=0.001
(Significant chi square) 0 2 4 10 **4** (p=0.001)

Dig pref score - weight Incl # 0-7 8-12 13-20 > 20
0 2 4 10 **0** (6)

Dig pref score - height Incl # 0-7 8-12 13-20 > 20
0 2 4 10 **0** (6)

Dig pref score - MUAC Incl # 0-7 8-12 13-20 > 20
0 2 4 10 **0** (7)

Standard Dev WHZ Excl SD <1.1 <1.15 <1.20 >=1.20
. and and and or
. Excl SD >0.9 >0.85 >0.80 <=0.80
0 5 10 20 **10** (1.16)

Skewness WHZ Excl # <±0.2 <±0.4 <±0.6 >=±0.6
0 1 3 5 **0** (-0.04)

Kurtosis WHZ Excl # <±0.2 <±0.4 <±0.6 >=±0.6
0 1 3 5 **1** (-0.32)

Poisson dist WHZ-2 Excl p >0.05 >0.01 >0.001 <=0.001
0 1 3 5 **0** (p=0.264)

OVERALL SCORE WHZ = 0-9 10-14 15-24 >25 **15** %

The overall score of this survey is 15 %, this is acceptable.

There were no duplicate entries detected.

Percentage of children with no exact birthday: 20 %

Anthropometric Indices likely to be in error (-3 to 3 for WHZ, -3 to 3 for HAZ, -3 to 3 for WAZ, from observed mean - chosen in Options panel - these values will be flagged and should be excluded from analysis for a nutrition survey in emergencies. For other surveys this might not be the best procedure e.g. when the percentage of overweight children has to be calculated):

Line=25/ID=2: WAZ (2.086), Weight may be incorrect
Line=26/ID=3: HAZ (2.048), Age may be incorrect
Line=29/ID=3: HAZ (2.322), Age may be incorrect
Line=30/ID=1: HAZ (4.229), Age may be incorrect
Line=37/ID=2: HAZ (4.559), Age may be incorrect
Line=65/ID=2: HAZ (2.225), Age may be incorrect
Line=74/ID=3: HAZ (1.876), Height may be incorrect
Line=76/ID=2: HAZ (3.676), Height may be incorrect
Line=81/ID=3: **WHZ (2.939)**, WAZ (2.003), Weight may be incorrect
Line=82/ID=4: HAZ (2.689), Age may be incorrect

Line=88/ID=1: HAZ (2.317), Age may be incorrect
Line=92/ID=1: **WHZ (2.685)**, Height may be incorrect
Line=100/ID=1: HAZ (2.854), Height may be incorrect
Line=104/ID=2: HAZ (2.354), Height may be incorrect
Line=117/ID=1: **WHZ (2.271)**, Weight may be incorrect
Line=124/ID=2: HAZ (2.060), Age may be incorrect
Line=128/ID=1: HAZ (2.598), Age may be incorrect
Line=190/ID=1: HAZ (-4.312), Age may be incorrect
Line=194/ID=2: **WHZ (2.746)**, Weight may be incorrect
Line=220/ID=2: HAZ (1.981), Age may be incorrect
Line=231/ID=2: HAZ (2.046), Age may be incorrect
Line=302/ID=3: HAZ (5.164), WAZ (1.995), Age may be incorrect
Line=352/ID=1: HAZ (-7.756), WAZ (-5.359), Age may be incorrect
Line=358/ID=1: HAZ (2.222), Age may be incorrect
Line=360/ID=1: **WHZ (-4.871)**, WAZ (-4.212), Weight may be incorrect
Percentage of values flagged with SMART flags:WHZ: 1.4 %, HAZ: 5.4 %, WAZ: 1.4 %
Age distribution:
Month 6 : ########
Month 7 : ###############
Month 8 : ###########
Month 9 : ########
Month 10 : ########
Month 11 : ##########
Month 12 : ##########
Month 13 : ################
Month 14 : ######
Month 15 : ##
Month 16 : ########
Month 17 : #########
Month 18 : ########
Month 19 : #######
Month 20 : ###
Month 21 : ####
Month 22 : ###########
Month 23 : ######
Month 24 : ########
Month 25 : ###########
Month 26 : ######
Month 27 : #####
Month 28 : ####
Month 29 : #######
Month 30 : ######
Month 31 : ######
Month 32 : #####
Month 33 : #######
Month 34 : ###########
Month 35 : ###
Month 36 : #########
Month 37 : ########

Month 38 : #########
Month 39 : #########
Month 40 : ##
Month 41 : ##
Month 42 : ######
Month 43 : #
Month 44 : ###
Month 45 : #######
Month 46 : ###
Month 47 : ####
Month 48 : #######
Month 49 : ######
Month 50 : ##########
Month 51 : ########
Month 52 : #
Month 53 : ###
Month 54 : ##
Month 55 : #####
Month 56 : ###
Month 57 : #####
Month 58 : ##
Month 59 : #######
Month 60 : #
Age ratio of 6-29 months to 30-59 months: 1.23 (The value should be around 0.85).:
p-value = 0.001 (significant difference)

Statistical evaluation of sex and age ratios (using Chi squared statistic):

Age cat.	mo.	boys	girls	total	ratio boys/girls
6 to 17	12	63/42.0 (1.5)	51/39.7 (1.3)	114/81.7 (1.4)	1.24
18 to 29	12	41/40.9 (1.0)	39/38.7 (1.0)	80/79.6 (1.0)	1.05
30 to 41	12	35/39.7 (0.9)	42/37.5 (1.1)	77/77.2 (1.0)	0.83
42 to 53	12	31/39.1 (0.8)	25/36.9 (0.7)	56/76.0 (0.7)	1.24
54 to 59	6	11/19.3 (0.6)	14/18.3 (0.8)	25/37.6 (0.7)	0.79
6 to 59	54	181/176.0 (1.0)	171/176.0 (1.0)		1.06

The data are expressed as observed number/expected number (ratio of obs/expect)
Overall sex ratio: p-value = 0.594 (boys and girls equally represented)
Overall age distribution: p-value = 0.000 (significant difference)
Overall age distribution for boys: p-value = 0.003 (significant difference)
Overall age distribution for girls: p-value = 0.072 (as expected)
Overall sex/age distribution: p-value = 0.000 (significant difference)

Digit preference Weight:

Digit .0 : ##
Digit .1 : ##################################
Digit .2 : ##################################
Digit .3 : ##################################
Digit .4 : ##############################
Digit .5 : ##
Digit .6 : ##################################
Digit .7 : ##############################
Digit .8 : ##############################
Digit .9 : ##############################

Digit preference score: **6** (0-7 excellent, 8-12 good, 13-20 acceptable and > 20 problematic)
p-value for chi2: 0.208

Digit preference Height:

Digit .0 : ####################################
Digit .1 : ################################
Digit .2 : ##
Digit .3 : ##################################
Digit .4 : ##############################
Digit .5 : ##################################
Digit .6 : ##############################
Digit .7 : ########################
Digit .8 : ##
Digit .9 : ######################################

Digit preference score: **6** (0-7 excellent, 8-12 good, 13-20 acceptable and > 20 problematic)
p-value for chi2: 0.338

Digit preference MUAC:

Digit .0 : ##
Digit .1 : ##################################
Digit .2 : ##
Digit .3 : ##
Digit .4 : ##############################
Digit .5 : ##
Digit .6 : ##################################
Digit .7 : ########################
Digit .8 : ##############################
Digit .9 : ############################

Digit preference score: **7** (0-7 excellent, 8-12 good, 13-20 acceptable and > 20 problematic)
p-value for chi2: 0.090

Evaluation of Standard deviation, Normal distribution, Skewness and Kurtosis using the 3 exclusion (Flag) procedures

.	no exclusion	exclusion from reference mean (WHO flags)	exclusion from observed mean (SMART flags)
WHZ			
Standard Deviation SD:	1.23	1.23	1.16
(The SD should be between 0.8 and 1.2)			
Prevalence (< -2)			
observed:	15.9%	15.9%	15.9%
calculated with current SD:	15.2%	15.2%	14.4%
calculated with a SD of 1:	10.4%	10.4%	10.9%
HAZ			
Standard Deviation SD:	1.68	1.65	1.40
(The SD should be between 0.8 and 1.2)			
Prevalence (< -2)			
observed:	32.7%	32.5%	33.9%
calculated with current SD:	30.5%	29.8%	31.2%
calculated with a SD of 1:	19.6%	19.1%	24.7%
WAZ			
Standard Deviation SD:	1.22	1.22	1.16
(The SD should be between 0.8 and 1.2)			
Prevalence (< -2)			
observed:	24.4%	24.4%	24.2%

calculated with current SD:	24.8%	24.8%	23.8%
calculated with a SD of 1:	20.3%	20.3%	20.5%

Results for Shapiro-Wilk test for normally (Gaussian) distributed data:

WHZ	p= 0.652	p= 0.652	p= 0.187
HAZ	p= 0.000	p= 0.000	p= 0.000
WAZ	p= 0.795	p= 0.795	p= 0.118

(If p < 0.05 then the data are not normally distributed. If p > 0.05 you can consider the data normally distributed)

Skewness

WHZ	0.05	0.05	-0.04
HAZ	0.50	0.68	0.27
WAZ	-0.01	-0.01	0.01

If the value is:
-below minus 0.4 there is a relative excess of wasted/stunted/underweight subjects in the sample
-between minus 0.4 and minus 0.2, there may be a relative excess of wasted/stunted/underweight subjects in the sample.
-between minus 0.2 and plus 0.2, the distribution can be considered as symmetrical.
-between 0.2 and 0.4, there may be an excess of obese/tall/overweight subjects in the sample.
-above 0.4, there is an excess of obese/tall/overweight subjects in the sample

Kurtosis

WHZ	0.18	0.18	-0.32
HAZ	0.86	0.43	-0.72
WAZ	-0.05	-0.05	-0.47

Kurtosis characterizes the relative size of the body versus the tails of the distribution. Positive kurtosis indicates relatively large tails and small body. Negative kurtosis indicates relatively large body and small tails.
If the absolute value is:
-above 0.4 it indicates a problem. There might have been a problem with data collection or sampling.
-between 0.2 and 0.4, the data may be affected with a problem.
-less than an absolute value of 0.2 the distribution can be considered as normal.

Test if cases are randomly distributed or aggregated over the clusters by calculation of the Index of Dispersion (ID) and comparison with the Poisson distribution for:

WHZ < -2: ID=1.17 (p=0.264)
WHZ < -3: ID=0.80 (p=0.729)
GAM: ID=1.17 (p=0.264)
SAM: ID=0.80 (p=0.729)
HAZ < -2: ID=1.66 (p=0.026)
HAZ < -3: ID=1.52 (p=0.055)
WAZ < -2: ID=1.51 (p=0.059)
WAZ < -3: ID=1.18 (p=0.252)

Subjects with SMART flags are excluded from this analysis.
The Index of Dispersion (ID) indicates the degree to which the cases are aggregated into certain clusters (the degree to which there are "pockets"). If the ID is less than 1 and p > 0.95 it indicates that the cases are UNIFORMLY distributed among the clusters. If the p value is between 0.05 and 0.95 the cases appear to be randomly distributed among the clusters, if ID is higher than 1 and p is less than 0.05 the cases are aggregated into certain cluster (there appear to be pockets of cases). If this is the case for Oedema but not for WHZ then aggregation of GAM and SAM cases is likely due to inclusion of oedematous cases in GAM and SAM estimates.

Are the data of the same quality at the beginning and the end of the clusters?

Evaluation of the SD for WHZ depending upon the order the cases are measured within each cluster (if one cluster per day is measured then this will be related to the time of the day the measurement is made).

Time point	SD for WHZ 0.8 0.9 1.0 1.1 1.2 1.3 1.4 1.5 1.6 1.7 1.8 1.9 2.0 2.1 2.2 2.3
01: 1.23 (n=23, f=0)	##################
02: 1.47 (n=23, f=0)	###########################
03: 1.31 (n=23, f=0)	######################
04: 0.99 (n=22, f=0)	########
05: 1.35 (n=23, f=1)	#######################
06: 0.94 (n=23, f=0)	######
07: 1.15 (n=22, f=0)	###############
08: 1.07 (n=23, f=0)	##########
09: 1.25 (n=22, f=0)	##################
10: 1.23 (n=21, f=2)	##################
11: 0.87 (n=17, f=0)	###

12: 1.02 (n=17, f=0) #########
13: 1.49 (n=17, f=1) ############################
14: 1.00 (n=15, f=0) ########
15: 1.33 (n=14, f=0) ####################
16: 1.69 (n=10, f=0) OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
17: 1.08 (n=08, f=0) OOOOOOOOOOOO
18: 1.42 (n=09, f=0) OOOOOOOOOOOOOOOOOOOOOOOO
19: 1.79 (n=06, f=1) OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
20: 2.49 (n=03, f=0) ~~~~~~
21: 0.84 (n=03, f=0) ~~
22: 0.01 (n=02, f=0)
23: 1.04 (n=02, f=0) ~~~~~~~~~~
24: 0.53 (n=02, f=0)
(when n is much less than the average number of subjects per cluster different symbols are used: 0 for n < 80% and ~ for n < 40%; The numbers marked "f" are the numbers of SMART flags found in the different time points)

Analysis by Team

Team	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**
n =	36	45	52	45	50	32	63	29
Percentage of values flagged with SMART flags:								
WHZ:	0.0	0.0	1.9	2.2	2.0	3.1	1.6	0.0
HAZ:	5.6	4.4	9.6	8.9	6.0	3.1	3.2	0.0
WAZ:	0.0	0.0	1.9	2.2	2.0	0.0	3.2	0.0
Age ratio of 6-29 months to 30-59 months:								
	0.80	1.05	2.47	0.96	1.38	0.60	2.15	0.71
Sex ratio (male/female):								
	1.25	1.65	0.79	1.05	0.92	1.13	0.91	1.23
Digit preference Weight (%):								
.0 :	17	4	10	13	10	16	21	28
.1 :	6	13	6	2	10	16	13	17
.2 :	6	16	12	16	10	3	8	10
.3 :	14	7	12	18	8	0	8	14
.4 :	8	11	6	4	20	16	3	0
.5 :	0	16	10	11	24	3	11	17
.6 :	14	11	19	11	4	16	6	3
.7 :	6	7	12	9	10	13	5	3
.8 :	11	4	8	11	0	16	19	0
.9 :	19	11	8	4	4	3	6	7
DPS:	19	13	12	16	23	21	19	28

Digit preference score (0-7 excellent, 8-12 good, 13-20 acceptable and > 20 problematic)

Digit preference Height (%):								
.0 :	8	7	8	9	16	6	16	14
.1 :	11	13	4	11	8	3	13	10
.2 :	14	9	21	13	14	9	11	17
.3 :	3	4	13	16	18	22	3	0
.4 :	6	9	8	9	8	16	11	0
.5 :	11	11	12	7	4	13	10	14
.6 :	6	4	6	11	10	9	10	17
.7 :	11	2	4	13	8	13	5	3
.8 :	19	18	2	9	6	3	16	21
.9 :	11	22	23	2	8	6	6	3
DPS:	15	20	23	12	14	19	14	24

Digit preference score (0-7 excellent, 8-12 good, 13-20 acceptable and > 20 problematic)

Digit preference MUAC (%):								
.0 :	25	0	2	9	4	9	27	14

.1 :	8	9	6	13	16	6	6	21
.2 :	3	13	17	11	18	9	8	14
.3 :	11	9	13	13	20	22	8	10
.4 :	14	4	10	2	8	16	14	3
.5 :	8	7	19	16	18	6	8	14
.6 :	0	16	15	16	6	3	10	10
.7 :	11	11	4	13	6	6	2	0
.8 :	11	7	4	4	2	22	14	3
.9 :	8	24	10	2	2	0	3	10
DPS:	21	21	19	17	23	24	23	20

Digit preference score (0-7 excellent, 8-12 good, 13-20 acceptable and > 20 problematic)

Standard deviation of WHZ:

SD	0.93	1.07	1.29	1.21	1.34	1.36	1.19	1.27

Prevalence (< -2) observed:

%		11.1	13.5	8.9	18.0	15.6	19.0	37.9

Prevalence (< -2) calculated with current SD:

%		12.7	10.5	12.5	17.3	17.3	20.6	26.2

Prevalence (< -2) calculated with a SD of 1:

%		11.1	5.3	8.2	10.3	10.0	16.4	20.8

Standard deviation of HAZ:

SD	1.52	1.39	1.86	1.77	1.86	1.30	1.55	1.20

observed:

%	19.4	26.7	25.0	22.2	28.0	37.5	46.0	62.1

calculated with current SD:

%	16.8	32.3	22.1	23.1	26.7	34.7	43.7	53.5

calculated with a SD of 1:

%	7.1	26.2	7.7	9.7	12.3	30.5	40.2	54.2

Statistical evaluation of sex and age ratios (using Chi squared statistic) for:

Team 1:

Age cat.	mo.	boys	girls	total	ratio boys/girls
6 to 17	12	6/4.6 (1.3)	3/3.7 (0.8)	9/8.4 (1.1)	2.00
18 to 29	12	4/4.5 (0.9)	3/3.6 (0.8)	7/8.1 (0.9)	1.33
30 to 41	12	6/4.4 (1.4)	4/3.5 (1.1)	10/7.9 (1.3)	1.50
42 to 53	12	2/4.3 (0.5)	4/3.5 (1.2)	6/7.8 (0.8)	0.50
54 to 59	6	2/2.1 (0.9)	2/1.7 (1.2)	4/3.8 (1.0)	1.00
6 to 59	54	20/18.0 (1.1)	16/18.0 (0.9)		1.25

The data are expressed as observed number/expected number (ratio of obs/expect)

Overall sex ratio: p-value = 0.505 (boys and girls equally represented)

Overall age distribution: p-value = 0.881 (as expected)

Overall age distribution for boys: p-value = 0.680 (as expected)

Overall age distribution for girls: p-value = 0.978 (as expected)

Overall sex/age distribution: p-value = 0.493 (as expected)

Team 2:

Age cat.	mo.	boys	girls	total	ratio boys/girls
6 to 17	12	10/6.5 (1.5)	7/3.9 (1.8)	17/10.4 (1.6)	1.43
18 to 29	12	4/6.3 (0.6)	2/3.8 (0.5)	6/10.2 (0.6)	2.00
30 to 41	12	4/6.1 (0.7)	4/3.7 (1.1)	8/9.9 (0.8)	1.00
42 to 53	12	8/6.0 (1.3)	4/3.7 (1.1)	12/9.7 (1.2)	2.00
54 to 59	6	2/3.0 (0.7)	0/1.8 (0.0)	2/4.8 (0.4)	
6 to 59	54	28/22.5 (1.2)	17/22.5 (0.8)		1.65

The data are expressed as observed number/expected number (ratio of obs/expect)

Overall sex ratio: p-value = 0.101 (boys and girls equally represented)
Overall age distribution: p-value = 0.079 (as expected)
Overall age distribution for boys: p-value = 0.348 (as expected)
Overall age distribution for girls: p-value = 0.275 (as expected)
Overall sex/age distribution: p-value = 0.017 (significant difference)

Team 3:

Age cat.	mo.	boys	girls	total	ratio boys/girls
6 to 17	12	9/5.3 (1.7)	10/6.7 (1.5)	19/12.1 (1.6)	0.90
18 to 29	12	6/5.2 (1.2)	12/6.6 (1.8)	18/11.8 (1.5)	0.50
30 to 41	12	4/5.0 (0.8)	4/6.4 (0.6)	8/11.4 (0.7)	1.00
42 to 53	12	4/5.0 (0.8)	1/6.3 (0.2)	5/11.2 (0.4)	4.00
54 to 59	6	0/2.5 (0.0)	2/3.1 (0.6)	2/5.5 (0.4)	0.00
6 to 59	54	23/26.0 (0.9)	29/26.0 (1.1)		0.79

The data are expressed as observed number/expected number (ratio of obs/expect)
Overall sex ratio: p-value = 0.405 (boys and girls equally represented)
Overall age distribution: p-value = 0.007 (significant difference)
Overall age distribution for boys: p-value = 0.240 (as expected)
Overall age distribution for girls: p-value = 0.019 (significant difference)
Overall sex/age distribution: p-value = 0.001 (significant difference)

Team 4:

Age cat.	mo.	boys	girls	total	ratio boys/girls
6 to 17	12	5/5.3 (0.9)	7/5.1 (1.4)	12/10.4 (1.1)	0.71
18 to 29	12	4/5.2 (0.8)	6/5.0 (1.2)	10/10.2 (1.0)	0.67
30 to 41	12	6/5.0 (1.2)	5/4.8 (1.0)	11/9.9 (1.1)	1.20
42 to 53	12	6/5.0 (1.2)	2/4.7 (0.4)	8/9.7 (0.8)	3.00
54 to 59	6	2/2.5 (0.8)	2/2.3 (0.9)	4/4.8 (0.8)	1.00
6 to 59	54	23/22.5 (1.0)	22/22.5 (1.0)		1.05

The data are expressed as observed number/expected number (ratio of obs/expect)
Overall sex ratio: p-value = 0.881 (boys and girls equally represented)
Overall age distribution: p-value = 0.938 (as expected)
Overall age distribution for boys: p-value = 0.941 (as expected)
Overall age distribution for girls: p-value = 0.634 (as expected)
Overall sex/age distribution: p-value = 0.505 (as expected)

Team 5:

Age cat.	mo.	boys	girls	total	ratio boys/girls
6 to 17	12	11/5.6 (2.0)	7/6.0 (1.2)	18/11.6 (1.6)	1.57
18 to 29	12	4/5.4 (0.7)	7/5.9 (1.2)	11/11.3 (1.0)	0.57
30 to 41	12	1/5.3 (0.2)	4/5.7 (0.7)	5/11.0 (0.5)	0.25
42 to 53	12	6/5.2 (1.2)	3/5.6 (0.5)	9/10.8 (0.8)	2.00
54 to 59	6	2/2.6 (0.8)	5/2.8 (1.8)	7/5.3 (1.3)	0.40
6 to 59	54	24/25.0 (1.0)	26/25.0 (1.0)		0.92

The data are expressed as observed number/expected number (ratio of obs/expect)
Overall sex ratio: p-value = 0.777 (boys and girls equally represented)
Overall age distribution: p-value = 0.108 (as expected)
Overall age distribution for boys: p-value = 0.052 (as expected)
Overall age distribution for girls: p-value = 0.423 (as expected)
Overall sex/age distribution: p-value = 0.011 (significant difference)

Team 6:

Age cat.	mo.	boys	girls	total	ratio boys/girls
6 to 17	12	6/3.9 (1.5)	2/3.5 (0.6)	8/7.4 (1.1)	3.00
18 to 29	12	3/3.8 (0.8)	1/3.4 (0.3)	4/7.2 (0.6)	3.00
30 to 41	12	2/3.7 (0.5)	7/3.3 (2.1)	9/7.0 (1.3)	0.29

42 to 53	12	3/3.7 (0.8)	4/3.2 (1.2)	7/6.9 (1.0)	0.75
54 to 59	6	3/1.8 (1.7)	1/1.6 (0.6)	4/3.4 (1.2)	3.00
6 to 59	54	17/16.0 (1.1)	15/16.0 (0.9)		1.13

The data are expressed as observed number/expected number (ratio of obs/expect)
Overall sex ratio: p-value = 0.724 (boys and girls equally represented)
Overall age distribution: p-value = 0.707 (as expected)
Overall age distribution for boys: p-value = 0.565 (as expected)
Overall age distribution for girls: p-value = 0.141 (as expected)
Overall sex/age distribution: p-value = 0.045 (significant difference)

Team 7:

Age cat.	mo.	boys	girls	total	ratio boys/girls
6 to 17	12	11/7.0 (1.6)	14/7.7 (1.8)	25/14.6 (1.7)	0.79
18 to 29	12	12/6.8 (1.8)	6/7.5 (0.8)	18/14.3 (1.3)	2.00
30 to 41	12	5/6.6 (0.8)	8/7.2 (1.1)	13/13.8 (0.9)	0.63
42 to 53	12	2/6.5 (0.3)	4/7.1 (0.6)	6/13.6 (0.4)	0.50
54 to 59	6	0/3.2 (0.0)	1/3.5 (0.3)	1/6.7 (0.1)	0.00
6 to 59	54	30/31.5 (1.0)	33/31.5 (1.0)		0.91

The data are expressed as observed number/expected number (ratio of obs/expect)
Overall sex ratio: p-value = 0.705 (boys and girls equally represented)
Overall age distribution: p-value = 0.002 (significant difference)
Overall age distribution for boys: p-value = 0.011 (significant difference)
Overall age distribution for girls: p-value = 0.066 (as expected)
Overall sex/age distribution: p-value = 0.000 (significant difference)

Team 8:

Age cat.	mo.	boys	girls	total	ratio boys/girls
6 to 17	12	5/3.7 (1.3)	1/3.0 (0.3)	6/6.7 (0.9)	5.00
18 to 29	12	4/3.6 (1.1)	2/2.9 (0.7)	6/6.6 (0.9)	2.00
30 to 41	12	7/3.5 (2.0)	6/2.9 (2.1)	13/6.4 (2.0)	1.17
42 to 53	12	0/3.5 (0.0)	3/2.8 (1.1)	3/6.3 (0.5)	0.00
54 to 59	6	0/1.7 (0.0)	1/1.4 (0.7)	1/3.1 (0.3)	0.00
6 to 59	54	16/14.5 (1.1)	13/14.5 (0.9)		1.23

The data are expressed as observed number/expected number (ratio of obs/expect)
Overall sex ratio: p-value = 0.577 (boys and girls equally represented)
Overall age distribution: p-value = 0.038 (significant difference)
Overall age distribution for boys: p-value = 0.058 (as expected)
Overall age distribution for girls: p-value = 0.263 (as expected)
Overall sex/age distribution: p-value = 0.005 (significant difference)

Evaluation of the SD for WHZ depending upon the order the cases are measured within each cluster (if one cluster per day is measured then this will be related to the time of the day the measurement is made).

Team: 1

Time point — SD for WHZ (0.8 0.9 1.0 1.1 1.2 1.3 1.4 1.5 1.6 1.7 1.8 1.9 2.0 2.1 2.2 2.3)

```
01: 0.68 (n=03, f=0)
02: 1.43 (n=03, f=0)  ##########################
03: 1.61 (n=03, f=0)  ##################################
04: 1.16 (n=03, f=0)  ###############
05: 1.26 (n=03, f=0)  ###################
06: 0.63 (n=03, f=0)
07: 0.70 (n=03, f=0)
08: 0.18 (n=03, f=0)
09: 0.39 (n=03, f=0)
10: 0.39 (n=03, f=0)
```

(when n is much less than the average number of subjects per cluster different symbols are used: 0 for n < 80% and ~ for n < 40%; The numbers marked "f" are the numbers of SMART flags found in the different time points)

Team: 2

Time SD for WHZ
point 0.8 0.9 1.0 1.1 1.2 1.3 1.4 1.5 1.6 1.7 1.8 1.9 2.0 2.1 2.2 2.3
01: 1.16 (n=03, f=0) ###############
02: 2.88 (n=03, f=0) ##
03: 0.73 (n=03, f=0)
04: 0.84 (n=03, f=0) ##
05: 1.28 (n=03, f=0) ####################
06: 0.31 (n=03, f=0)
07: 0.64 (n=03, f=0)
08: 0.97 (n=03, f=0) #######
09: 0.68 (n=03, f=0)
10: 0.52 (n=03, f=0)
11: 0.69 (n=03, f=0)
12: 0.83 (n=02, f=0) #
13: 0.01 (n=02, f=0)
14: 0.22 (n=02, f=0)
15: 0.04 (n=02, f=0)
(when n is much less than the average number of subjects per cluster different symbols are used: 0 for n < 80% and ~ for n < 40%; The numbers marked "f" are the numbers of SMART flags found in the different time points)

Team: 3

Time SD for WHZ
point 0.8 0.9 1.0 1.1 1.2 1.3 1.4 1.5 1.6 1.7 1.8 1.9 2.0 2.1 2.2 2.3
01: 1.88 (n=03, f=0) ##
02: 0.22 (n=03, f=0)
03: 1.77 (n=03, f=0) ##
04: 0.45 (n=03, f=0)
05: 0.50 (n=03, f=0)
06: 1.63 (n=03, f=0) ################################
07: 1.18 (n=03, f=0) ################
08: 1.11 (n=03, f=0) ############
09: 1.20 (n=03, f=0) ################
10: 1.54 (n=02, f=0) ##############################
11: 0.79 (n=03, f=0)
12: 1.33 (n=03, f=0) ######################
13: 2.89 (n=03, f=1) ##
14: 0.40 (n=02, f=0)

(when n is much less than the average number of subjects per cluster different symbols are used: 0 for n < 80% and ~ for n < 40%; The numbers marked "f" are the numbers of SMART flags found in the different time points)

Team: 4

Time SD for WHZ
point 0.8 0.9 1.0 1.1 1.2 1.3 1.4 1.5 1.6 1.7 1.8 1.9 2.0 2.1 2.2 2.3
01: 1.02 (n=03, f=0) #########
02: 0.67 (n=03, f=0)
03: 1.13 (n=03, f=0) ##############
04: 0.45 (n=03, f=0)
05: 0.52 (n=03, f=0)
06: 0.53 (n=03, f=0)
07: 0.79 (n=02, f=0)
08: 1.77 (n=03, f=0) ##
09: 0.19 (n=02, f=0)
10: 0.14 (n=02, f=0)
11: 1.68 (n=02, f=0) ####################################
12: 0.92 (n=02, f=0) #####
13: 0.07 (n=02, f=0)
14: 0.91 (n=02, f=0) #####
15: 2.54 (n=02, f=0) ##
(when n is much less than the average number of subjects per cluster different symbols are used: 0 for n < 80% and ~ for n < 40%; The numbers marked "f" are the numbers of SMART flags found in the different time points)

Team: 5

Time SD for WHZ
point 0.8 0.9 1.0 1.1 1.2 1.3 1.4 1.5 1.6 1.7 1.8 1.9 2.0 2.1 2.2 2.3
01: 0.43 (n=03, f=0)
02: 0.25 (n=03, f=0)
03: 2.03 (n=03, f=0) ##
04: 0.48 (n=02, f=0)
05: 1.13 (n=03, f=0) ##############
06: 1.33 (n=03, f=0) ######################
07: 2.08 (n=03, f=0) ##
08: 0.96 (n=03, f=0) #######
09: 1.04 (n=03, f=0) ##########
10: 2.06 (n=03, f=1) ##

11: 0.84 (n=03, f=0) ##
12: 0.74 (n=03, f=0)
13: 1.26 (n=03, f=0) ##################
14: 1.32 (n=03, f=0) ####################
15: 1.71 (n=02, f=0) OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
16: 1.23 (n=02, f=0) OOOOOOOOOOOOOOOOO
17: 2.05 (n=02, f=0) OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
18: 0.66 (n=02, f=0)
(when n is much less than the average number of subjects per cluster different symbols are used: 0 for n < 80% and ~ for n < 40%; The numbers marked "f" are the numbers of SMART flags found in the different time points)

Team: 6

Time SD for WHZ
point 0.8 0.9 1.0 1.1 1.2 1.3 1.4 1.5 1.6 1.7 1.8 1.9 2.0 2.1 2.2 2.3
01: 0.27 (n=02, f=0)
02: 0.02 (n=02, f=0)
03: 0.14 (n=02, f=0)
04: 0.62 (n=02, f=0)
05: 1.09 (n=02, f=0) ############
06: 1.50 (n=02, f=0) ##############################
07: 0.23 (n=02, f=0)
08: 0.16 (n=02, f=0)
09: 1.76 (n=02, f=0) ##
10: 1.99 (n=02, f=0) ##
12: 0.37 (n=02, f=0)
15: 0.63 (n=02, f=0)
16: 1.36 (n=02, f=0) ########################
18: 0.63 (n=02, f=0)
(when n is much less than the average number of subjects per cluster different symbols are used: 0 for n < 80% and ~ for n < 40%; The numbers marked "f" are the numbers of SMART flags found in the different time points)

Team: 7

Time SD for WHZ
point 0.8 0.9 1.0 1.1 1.2 1.3 1.4 1.5 1.6 1.7 1.8 1.9 2.0 2.1 2.2 2.3
01: 1.11 (n=04, f=0) #############
02: 0.88 (n=04, f=0) ####
03: 0.70 (n=04, f=0)
04: 1.68 (n=04, f=0) ###################################
05: 1.81 (n=04, f=1) ######################################
06: 0.18 (n=04, f=0)
07: 1.09 (n=04, f=0) ############
08: 0.88 (n=04, f=0) ###
09: 1.51 (n=04, f=0) ##############################
10: 0.52 (n=04, f=0)
11: 0.77 (n=03, f=0)
12: 1.40 (n=04, f=0) ########################
13: 1.13 (n=04, f=0) ##############
14: 0.66 (n=03, f=0)
15: 1.08 (n=03, f=0) ############
(when n is much less than the average number of subjects per cluster different symbols are used: 0 for n < 80% and ~ for n < 40%; The numbers marked "f" are the numbers of SMART flags found in the different time points)

Team: 8

Time SD for WHZ
point 0.8 0.9 1.0 1.1 1.2 1.3 1.4 1.5 1.6 1.7 1.8 1.9 2.0 2.1 2.2 2.3
01: 1.33 (n=02, f=0) ######################
02: 0.25 (n=02, f=0)
03: 0.97 (n=02, f=0) #######
04: 1.60 (n=02, f=0) ##################################
05: 0.20 (n=02, f=0)
06: 1.03 (n=02, f=0) ##########
07: 0.49 (n=02, f=0)
08: 0.02 (n=02, f=0)
09: 0.02 (n=02, f=0)
10: 0.49 (n=02, f=0)
(when n is much less than the average number of subjects per cluster different symbols are used: 0 for n < 80% and ~ for n < 40%; The numbers marked "f" are the numbers of SMART flags found in the different time points)

(for better comparison it can be helpful to copy/paste part of this report into Excel)

Annex 3: Tally Sheet for Jawzjan Rapid SMART

15 – 49 years women برای خانم (15 الی 49 سال)

ولسوالی (District):_____ اسم- قریه (Village Name) :_____. تاریخ (Date):

_____ : (Team #) تیم نمبر . _____ : (Cluster #) نمبر کلستر._____

S/ No نمبر مسلسل	HH No نمبر خانواده	Physiological status: حالت فزیولوژیک 1 = Pregnant/حامله 2 = Lactating /شیردهی 3 =None of bot نه حامله و نه شیرهی /	Age /years) سن به سال	MUAC(mm) اندازه بازو	Oedema پندیده گی 1=Y2= بلیN نه خیر
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Date (MM / DD /YYYY)تاریخ سروی	Cluster Number نمبرکلستر	Team Numberنمیر تیم	Village Name : نام قریه	Households No نمبر خانواده

Child No نمبر طفل	Sex جنس F/M	Exact Date of Birth (MM,DD,YYYY) تاریخ دقیق تولد	Age month سن به ماه	Weight (kg) وزن به کیلوگرام	Height (cm) قد به سانتی متر	Oedema پندیده گی 1=Y بلی 2=N نخیر	MUAC (cm) موک په سانتی متر	Has your child had diarrhea in the past two weeks? ایا طفل شما در 14 روز گذشته اسهال شده ؟ 1=Y بلی 2=N نخیر	Has your child had ARI in the past two weeks? ایا طفل شما در 14 روز گذشته سرفه دارد (سینه بغل) ؟ 1=Y بلی 2=N نخیر	Have your child been vaccinated against measles? ایا طفل شما واکسین سرخکان گرفته 1=Yes Card: بلی. کارت دارد 2=Yes No card بلی اما کارت ندارد 3=No : نخیر 4=DK: نمی فهمم
1										
2										
3										
4										
5										

Annex 4: Jawzjan Local Event Calendar

نام ماه	1397	ماه	1396	ماه	1395	ماه	1394	ماه	1393	ماه	1392	ماه
حمل	نوروز . وقت شگوفه درختان . جشن دهقان . شروع مکاتب. قوزی قرن . میله گل سرخ . جندا بالا . سمارق . هفت میوه . ۱۳ بدل .گل سنجت	4	نوروز . وقت شگوفه درختان . جشن دهقان . شروع مکاتب. قوزی قرن . میله گل سرخ . جندا بالا . سمارق . هفت میوه . ۱۳ بدل .گل سنجت	16	نوروز . وقت شگوفه درختان . جشن دهقان . شروع مکاتب. قوزی قرن . میله گل سرخ . جندا بالا . سمارق . هفت میوه . ۱۳ بدل .گل سنجت	28	نوروز . وقت شگوفه درختان . جشن دهقان . شروع مکاتب. قوزی قرن . میله گل سرخ . جندا بالا . سمارق . هفت میوه . ۱۳ بدل .گل سنجت	41	نوروز . وقت شگوفه درختان . جشن دهقان . شروع مکاتب. قوزی قرن . میله گل سرخ . جندا بالا . سمارق . هفت میوه . ۱۳ بدل .گل سنجت	53	نوروز . وقت شگوفه درختان . جشن دهقان . شروع مکاتب. قوزی قرن . میله گل سرخ . جندا بالا . سمارق . هفت میوه . ۱۳ بدل .گل سنجت	
ثور	جشن هشت ثور. وقت توت . وقت غوره شدن میوه . سرکشیدن گندم و جو . دشت پرگل میشود . سیلاب خیزی .	3	جشن هشت ثور. وقت توت . وقت غوره شدن میوه . سرکشیدن گندم و جو . دشت پرگل میشود . سیلاب خیزی .	15	جشن هشت ثور. وقت توت . وقت غوره شدن میوه . سرکشیدن گندم و جو . دشت پرگل میشود . سیلاب خیزی .	27	جشن هشت ثور. وقت توت . وقت غوره شدن میوه . سرکشیدن گندم و جو . دشت پرگل میشود . سیلاب خیزی .	40	جشن هشت ثور. وقت توت . وقت غوره شدن میوه . سرکشیدن گندم و جو . دشت پرگل میشود . سیلاب خیزی .	52	جشن هشت ثور. وقت توت . وقت غوره شدن میوه . سرکشیدن گندم و جو . دشت پرگل میشود . سیلاب خیزی .	
جوزا	ماه رمضان . وقت زردالو . وقت پخته شدن چوکری . وقت ترکاری باب .عید ماه رمضان	2	ماه رمضان . وقت زردالو . وقت پخته شدن چوکری . وقت ترکاری باب .عید ماه رمضان	14	ماه رمضان . وقت زردالو . وقت پخته شدن چوکری . وقت ترکاری باب .عید ماه رمضان	26	ماه رمضان . وقت زردالو . وقت پخته شدن چوکری . وقت ترکاری باب .عید ماه رمضان	39	ماه رمضان . وقت زردالو . وقت پخته شدن چوکری . وقت ترکاری باب .عید ماه رمضان	51	ماه رمضان . وقت زردالو . وقت پخته شدن چوکری . وقت ترکاری باب .عید ماه رمضان	
سرطان	الوکیلان . رزدالو . تربوز و خربوزه بخته میشود . گرمی شدید . وخت انکور	1	الوکیلان . رزدالو . تربوز و خربوزه بخته میشود . گرمی شدید . وخت انکور	13	الوکیلان . رزدالو . تربوز و خربوزه بخته میشود . گرمی شدید . وخت انکور	25	الوکیلان . رزدالو . تربوز و خربوزه بخته میشود . گرمی شدید . وخت انکور	38	الوکیلان . رزدالو . تربوز و خربوزه بخته میشود . گرمی شدید . وخت انکور	50	الوکیلان . رزدالو . تربوز و خربوزه بخته میشود . گرمی شدید . وخت انکور	
اسد	وخت انجیر و انار ناک . جهار مغز و بادام عید قربان		وخت انجیر و انار ناک . جهار مغز و بادام عید قربان	12	وخت انجیر و انار ناک . جهار مغز و بادام عید قربان	24	وخت انجیر و انار ناک . جهار مغز و بادام عید قربان	37	وخت انجیر و انار ناک . جهار مغز و بادام عید قربان	49	وخت انجیر و انار ناک . جهار مغز و بادام عید قربان	
سنبله	بخته شدن ماش . گنجید جمع واری کندم کشت جواری		بخته شدن ماش . گنجید جمع واری کندم کشت جواری	11	بخته شدن ماش . گنجید جمع واری کندم کشت جواری	23	بخته شدن ماش . گنجید جمع واری کندم کشت جواری	36	بخته شدن ماش . گنجید جمع واری کندم کشت جواری	48	بخته شدن ماش . گنجید جمع واری کندم کشت جواری	59

میزان	ماه خزان . برگ خزان . خاک باد . خزان باد . روز معلم .		10	ماه خزان . برگ خزان . خاک باد . خزان باد . روز معلم .	22	ماه خزان . برگ خزان . خاک باد . خزان باد . روز معلم .	35	ماه خزان . برگ خزان . خاک باد . خزان باد . روز معلم .	47	ماه خزان . برگ خزان . خاک باد . خزان باد . روز معلم .	58
عقرب	شروع بارنده کی . کشت زراعت		9	شروع بارنده کی . کشت زراعت	21	شروع بارنده کی . کشت زراعت	34	شروع بارنده کی . کشت زراعت	46	شروع بارنده کی . کشت زراعت	57
قوس	اب دادن اول به گندم . کشت کدوچه . کشت بادرنگ . شروع برف . امتحان سالانه روز ها کوتاه میشود		8	اب دادن اول به گندم . کشت کدوچه . کشت بادرنگ . شروع برف . امتحان سالانه روز ها کوتاه میشود	20	اب دادن اول به گندم . کشت کدوچه . کشت بادرنگ . شروع برف . امتحان سالانه روز ها کوتاه میشود	33	اب دادن اول به گندم . کشت کدوچه . کشت بادرنگ . شروع برف . امتحان سالانه روز ها کوتاه میشود	45	اب دادن اول به گندم . کشت کدوچه . کشت بادرنگ . شروع برف . امتحان سالانه روز ها کوتاه میشود	53
جدی	چله کلان . شروع فصل زمستان . وقت بخاری و صندلی . وقت برف باری . رخصتی زمستانی مکاتب		7	چله کلان . شروع فصل زمستان . وقت بخاری و صندلی . وقت برف باری . رخصتی زمستانی مکاتب	19	چله کلان . شروع فصل زمستان . وقت بخاری و صندلی . وقت برف باری . رخصتی زمستانی مکاتب	32	چله کلان . شروع فصل زمستان . وقت بخاری و صندلی . وقت برف باری . رخصتی زمستانی مکاتب	44	چله کلان . شروع فصل زمستان . وقت بخاری و صندلی . وقت برف باری . رخصتی زمستانی مکاتب	56
دلوه	چله خورد . روز اسقلال از روسها . وقت بزکشی		6	چله خورد . روز اسقلال از روسها . وقت بزکشی	18	چله خورد . روز اسقلال از روسها . وقت بزکشی	31	چله خورد . روز اسقلال از روسها . وقت بزکشی	43	چله خورد . روز اسقلال از روسها . وقت بزکشی	55
حوت	اخر ماه زمستان . جمعه واری صندلی . درخت گل میکند . خاک باد		5	اخر ماه زمستان . جمعه واری صندلی . درخت گل میکند . خاک باد	17	اخر ماه زمستان . جمعه واری صندلی . درخت گل میکند . خاک باد	30	اخر ماه زمستان . جمعه واری صندلی . درخت گل میکند . خاک باد	42	اخر ماه زمستان . جمعه واری صندلی . درخت گل میکند . خاک باد	54

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WHO: treashold

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