Nutrition & Mortality Survey

Conflict Directly Affected & Indirectly Affected Districts, Abyan GOVERNORATE, YEMEN

22 December, 2012 to 3 January, 2013

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NUTRITION & Mortality SURVEY REPORT

ABYAN GOVERNORATE, YEMEN

CONFLICT DIRECTLY AFFECTED AND INDIRECTLY AFFECTED DISTRICTS

Conducted: 22 December, 2012 to 3 January 2013

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ABBREVIATIONS AND ACRONYMS

ARI	Acute Respiratory Infection
CBO	Community Based Organization
CI	Confidence Interval
CMAM	Community Management of Acute Malnutrition
CMR	Crude Mortality Rate
ENA	Emergency Nutrition Assessment
EPI	Expanded Programme on Immunization
GAM	Global Acute Malnutrition
HAZ	Height-for-Age z-score
HH	Household
IDP	Internally Displaced People
ITN	Insecticide Treated Net
MCH	Maternal and Child Health
MOPHP	Ministry of Public Health and Population
MUAC	Middle Upper Arm Circumference
N	Number
NGO	Non-governmental Organization
OTP	Outpatient Therapeutic Programme
PHC	Primary Health Care
PPS	Population Proportional to Size
RUTF	Ready-To-Use Therapeutic Food
SAM	Severe Acute Malnutrition
SD	Standard Deviation
SFP	Supplementary Feeding Programme
SMART	Standardized Monitoring and Assessment of Relief and Transition
TFC	Therapeutic Feeding Centre
TFP	Therapeutic Feeding Programme
TSFP	Targeted Supplementary Feeding Programme
U5MR	Under five Mortality Rate
UNICEF	United Nation Children's Fund
WAZ	Weight-for-Age z-score
WFP-CFSS	World Food Programme-Comprehensive Food Security Survey
WHO	World Health Organization
WHZ	Weight-for-Height z-score

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The UNICEF Yemen Country Office provided technical support employing SMART methodology. A survey manager and supervisors were provided by the IOM, IRC, Abyan Governorate Health and Population Office, Lahj Governorate Health Office and the MoPHP. The survey enumerators and team leaders came from Abyan Governorate. The data entry team from the Office of Lahj and Abyan Governorates Public Health and Population performed the data entry to enable daily data quality verification.

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EXECUTIVE SUMMARY

Abyan governorate is located in the south of the country, bordering the Gulf of Aden in the south, with an area of 16,442 square kilometers and a population of 476,242. The governorate contains of two main ecological zones the coastal region and the highlands.

Abyan experienced a devastating catastrophe as Ansar al-Shari'a and government forces vied for control of the region during 2011 and the first half of 2012. Reports indicate that nearly 150,000 people fled their homes in Abyan to the neighbouring Aden and Lahj governorates when fighting began. In early May 2012 the Yemeni Army began a major offensive to wrestle control of the province from militants and captured it after a month of heavy fighting. The government and aid agencies are currently assessing needs in Zinjibar and the surrounding area. The priorities after the "very heavy destruction" would be water, shelter, food, sanitation and power. Meanwhile, UN agencies, the government, and local and international NGOs have set up a working group, headed by Minister of Public Works, which is providing technical assistance to aid planners regarding how best to conduct assessments of damaged property. WFP, the UN Children's Fund (UNICEF), the UN Office for the Coordination of Humanitarian Affairs (OCHA) and the World Health Organization (WHO) drafted an Abyan and the South Inter-Agency Response Plan, which is partly intended to encourage the return of displaced families. WFP conducted a general food distribution for 15,000 displaced households within Abyan and provide three months of food rations to encourage around 10,000 families currently displaced in Aden to return to their homes in Abyan.

The 2012 WFP-CFSS reported that 19.9%, 29.7%, 49.7% are severely, moderately, and "severe and moderate" food insecure in Abyan governorate respectively. Furthermore, as Abyan has been particularly badly affected in early 2012, the governorate reported reduced access to food by 28 percent of its populations as a result of insecurity. The survey, reported the following malnutrition prevalence: GAM: 10.1%, SAM: 3.3%, underweight: 25.8%, and stunting: 32.8%. According to Nutrition cluster strategy 2012/Yemen, Abyan falls within the serious zone (GAM from 10 – 14.9%).

Between 22 December 2012 and 3 January 2013, MoPHP, UNICEF, IOM and IRC conducted two inter-agency nutrition surveys using the Standardized Monitoring and Assessment for Relief and Transition (SMART) methodology covering the Conflict Directly Affected and Indirectly Affected districts in Abyan Governorate of Yemen. This was a Yemen Nutrition Cluster initiative to establish and monitor the levels of acute malnutrition, stunting and underweight among children aged 6-59 months in the different livelihood/ ecological zones, identify some of the factors associated with malnutrition, and inform on the appropriate responses.

Using a two-stage Probability Proportionate to Population Size (PPS) sampling methodology, 42 clusters in the Conflict Directly Affected and Indirectly Affected districts were randomly selected for both anthropometric and mortality assessments. The calculated sample sizes in the Conflict Directly Affected and Indirectly Affected districts using ENA for SMART software were 892 and 960 households respectively for assessing both the anthropometry and mortality.

The nutritional situation in the Conflict Directly Affected and Indirectly Affected districts is shown in table 1 below. It is clear that Abyan has different pattern of malnutrition than that have seen in other governorates (e.g. Hodeidah, Hajjah etc.) but similar to neighbouring Aden. This pattern is represented by a 'normal' stunting, 'serious' underweight and 'critical' wasting. In the Conflict Directly Affected districts the Global Acute Malnutrition (GAM) rate was **16.1 per cent** (95% CI: 13.5 – 19.2), with Severe Acute Malnutrition (SAM) 2.8 per cent (95% CI: 2.0 – 4.0). GAM and SAM rates in the Conflict Indirectly Affected districts were **11.3 per cent** (95% CI: 9.0 – 14.2) and 1.9 per cent (95% CI: 1.2 – 3.2), respectively. ***According to WHO categorization, these rates indicate that the nutrition situation in Abyan Conflict Directly Affected districts is critical (which equal to GAM rates*** ≥ 15% ***per cent) and in the*** Conflict ***Indirectly districts is serious (which equal to GAM rates between 10 -14 per cent).***

Stunting rates in the Conflict Directly Affected and Indirectly Affected districts are **28.8 per cent** (95% CI: 24.5 – 33.5) and **36.5 per cent** (95% CI: 31.7 – 41.6) respectively with severe stunting of 7.2 per cent (95% CI: 5.6 – 9.1) and 12.1 per cent (95% CI: 9.1 – 16.0) respectively. ***Although these rates are below the critical levels of 40 per cent; the stunting rates especially in the Indirectly Affected districts should attract attention.***

Underweight rate in the Conflict Directly Affected districts is **29.4 per cent** (95% CI: 25.6 – 33.5), with severe underweight of 5.9 per cent (95% CI: 4.3 – 7.9) while the underweight and severe underweight rates in the Conflict Indirectly Affected districts are **29.3 per cent** (95% CI: 24.8 – 34.3) and 6.1 per cent (95% CI: 4.2– 8.8), respectively. ***These rates are approaching the critical levels of 30 per cent, as per WHO categorization.***

The two main sources of drinking water in the Conflict Directly Affected districts were house-connected piped water (47 per cent) and water tankers (28 per cent) while in the Conflict Indirectly Affected districts they were water tankers (40 per cent) and house-connected piped water (22 per cent). Around two thirds of Abyan population are having flush/pour flush latrine however, more households in the Conflict Indirectly Affected districts reported defecation in open compared to the Conflict directly Affected districts (14% vs. 3%). The main source of income is fixed monthly waged work (for around half of the population) followed by casual labour (for less than one fifth). Around half of the districts' population seeks health services from a public health facility when sick and nearly another half seeks private health services.

There was high prevalence of common disease, as recorded during the survey (diarrhea, Acute Respiratory Infection -ARI- and fever prevalence are the reported cases 2 weeks before the survey while measles was one month before the survey) as shown in table 1 below. The diarrhea prevalence in last two weeks prior to the survey is significantly much higher in the Conflict Directly Affected than Conflict Indirectly Affected districts and in urban than rural areas which may be related collapse of the water and sanitation networks as well as other services due to the conflict in these areas. Diarrhea prevalence is also much higher among children aged less than 36 compared to those who are 36 and above. Among children aged 6 to 24 months diarrhea prevalence was higher among children who were given more than one milk feed (other than breast

milk) in the previous day to the survey which may be related to unhygienic preparation or administration of artificial milk. Having diarrhea found also to be significantly associated with GAM and underweight as repeated attacks of diarrhea may be associated to poor environmental sanitation which is known to be associated with tropical enteropathy with resultant poor nutrient absorption and considerable nutrient losses. The resulting nutritional deficiency causes impaired immunity and increased vulnerability to more infection resulting in a vicious cycle of infection and malnutrition. Significantly higher ARI prevalence found to be associated with stunting.

Vitamin A coverage of 38 per cent in the Conflict Indirectly Affected districts and of 39.0 per cent in the Conflict Directly Affected districts was much lower than the Sphere Standards recommendation of 95 per cent coverage. Furthermore, only 47 per cent of the children aged 9-59 months in the Conflict Indirectly Affected districts immunized against measles compared to 67 per cent in the Conflict Directly Affected districts. No association was found between vaccination or vitamin A supplementation and wasting, stunting, and underweight prevalence, or with any of the investigated morbidities.

A significant proportion of children (around 88 per cent) do not receive the recommended number of meals (4 meals and above), as per UN-FAO recommendations. However, neither the number of meals nor the number of feeds (other than breastfeeds) shows an effect on levels of stunting, GAM and SAM.

WASH is known to be an important factor related to both morbidities as well malnutrition. Overall only 60% of Abyan households drink water from clean containers (i.e. no algae seen) which found to be significantly higher in the Conflict Directly Affected than Conflict Indirectly Affected districts (66% vs. 50% respectively), and in urban than rural (70% vs. 56% respectively). Although diarrhea prevalence found to be slightly higher among households not using clean storage for drinking water the difference is not statistically significant. Furthermore, all household caretaker handwashing practices are significantly higher among Conflict Indirectly Affected districts except hand washing before child feeding and after disposal of child faces that found to be significantly higher among the Conflict Directly Affected districts. However, only hand washing before meal and after meal was significantly associated with low diarrhea prevalence. Although, observed unavailability of soap at handwashing facility seems to be associated with higher diarrhea prevalence, the difference was not statistically significant. Of the household caretaker handwashing practice only hand washing before meal and before child feeding shows significant association with stunting. Having no flush/pour latrine found not to be associated with diarrhea or malnutrition.

Although both the Conflict Directly Affected and Indirectly Affected districts are having difficulty in accessing food, the Conflict Directly Affected districts were found to have significantly more vulnerable on different indicators e.g. 52%, 44%, 29%, and 34% the households reduced meal size, meal number, have members experienced to go to the bed hungry and reduced expenditure on health/education compared to 37%, 34%,20%,28% in Conflict Indirectly Affected districts respectively. The mean of the composite score for the five food insecurity indicators was also significantly higher in the Conflict Directly Affected than Conflict Indirectly Affected districts (2.3 vs. 2.0

respectively). Overall, the prevalence of all types of malnutrition found to be higher among food insecure households. However, this was only statistically significant for some food insecurity indicators e.g. GAM with reducing the size of meals because of the scarcity of resources, SAM and underweight with household member go the bed in night hungry because of not enough food, and stunting with borrowing food/money to purchase food or purchase food in credit.

Finally, about three fourths of the caretakers in Abyan have no formal education. Although the prevalence of all types of malnutrition was higher among illiterate caretakers, this was only statistically significantly with stunting. Although there is no significant association was found between caretakers' education and morbidities, there is strongly significant association with poor child feeding, low vaccination coverage and vitamin A supplementation.

Recommendations

As Abyan emerges from war, the humanitarian needs are high and should attract more attention both from government, CBOs/NGOs, and donor community. Although mortality is still low, the critical and serious levels of wasting and to some extent underweight require an urgent intervention to address the situation across the governorate with more focus on the Conflict Directly Affected district. The specific recommendations include:

Immediate Interventions

- Government along with development partners need to urgently restore security and basic services such as water, electricity and sanitation. As hundreds of internally displaced families have returned to their homes a general food distribution and provide food rations is important. Pre-positioned supplies in WASH, child protection and nutrition are important for response to reach the larger population.
- Rehabilitate and re-operationalize the destroyed health facilities to ensure proper delivery of health services especially nutritional services, vaccination and vitamin A supplementation.
- Develop detailed integrated response micro-plan articulating district level humanitarian needs, delivering response package, coverage and gaps to document the progress, advocacy and lessons learnt.
- Priority should be given to pockets of vulnerability especially in the Conflict Directly Affected areas through mobilizing outreach services to rapidly address the high GAM/SAM rates.
- Development of CMAM protocol, strengthen and expanding CMAM services to reach all the existed health facilities and outreach services. CMAM services should adhere to the CMAM protocol (ensuring systematic treatment and full consideration of moderate acute malnutrition management) that should be integrated with infant feeding, hygiene promotion and food security interventions.
- Promote appropriate IYCF practices (especially promotion of appropriate complementary feeding practices for children aged 6 to 24 months) along with micronutrient supplementations and deworming. Accelerate the integration of IYCF counseling into all CMAM services delivered by both fixed and mobile clinics.

- Intensive social mobilisation campaigns on IYCF feeding and caring practices through behavior change / communication interventions mainly in the following areas; timely introduction of complementary food and continue breastfeeding up to two years, along with vitamin A supplementation, micronutrient supplements, and promotion of safe sanitation and hygienic practices including hand washing with soap as well as safe disposal of children's excreta, diarrhoea prevention measures and appropriate management of ARI among young children

Medium Term Interventions

- From the development point of view, there is an essential need for Yemen to be an active member in the global SUN movement.
- High level advocacy with the government and development partners to mobilise their commitment to fight malnutrition among U5 Yemeni children.
- Scaling up implementation of the national nutrition strategy and related action to address the high level of malnutrition in line with the lifecycle approach.
- Continued support for longer term water development and sanitation programmes throughout the governorate, with community mobilization activities to promote safe sanitation and hygienic practices.
- Follow up SMART nutrition survey and coverage survey in 2014 to track the progress on implementation of the response plan.
- Promote improved latrine use and other hygiene services like Community Led Total Sanitation (CLTS) strategy.

Other Recommendations

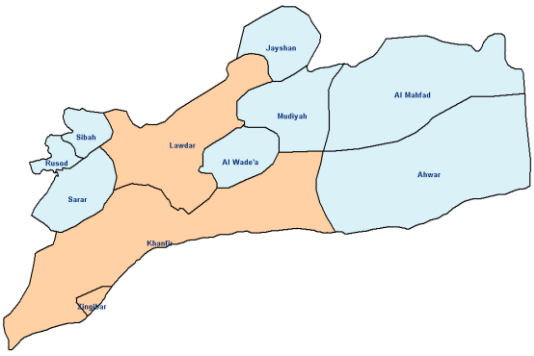
- Further investigation is needed to understand the causality tree behind high level of acute malnutrition among boys compared to girls found in this survey as well as earlier surveys e.g. in Hodeidah, Taiz, Hajja governorates.
- Undertaking full scale national nutrition and mortality survey.
- In a view of high malnutrition among illiterate mothers' children as well as poor child feeding practices and health indicators (e.g. vaccination, Vitamin A supplementation) found in this survey as well as previous surveys in Yemen, a focus on girls' education is necessary in the long term battle against malnutrition as well as for broader development.

Table 1. Summary of Abyan Governorate Nutrition Survey Findings, December 2012/January 2013

Indicator	Conflict Indirectly Affected districts (N=893)			Conflict Directly Affected districts (N=939)		
	N	%	95% CI	N	%	95% CI
I- Child Malnutrition						
Total number of households assessed for children	964	99.9		908	99.7	
Mean household size	7.3			7.5		
Total number of children assessed	893			939		
Child sex: Males (boys)	459	51.4		451	48.0	
Females (girls)	434	48.6		488	52.0	
Global Acute Malnutrition (WHZ<-2 z-score or oedema)	99	11.3	9.0-14.2	148	16.1	13.5-19.2
Severe Acute Malnutrition (WHZ<-3 z score or oedema)	17	1.9	1.2-3.2	26	2.8	2.0-4.0
Oedema	0	0		0	0	
Chronic Malnutrition (H/A<-2 z score)	311	36.5	31.7-41.6	260	28.8	24.5-33.5
Severe Chronic Malnutrition (H/A<-3 Z score)	103	12.1	9.1-16.0	65	7.2	5.6-9.1
Underweight prevalence (W/A<-2 Z score)	258	29.3	24.8-34.3	271	29.4	25.6-33.5
Severe Underweight (W/A<-3 z score)	54	6.1	4.2-8.8	54	5.9	4.3-7.9
II- Child Morbidity						
Children reported with suspected measles within one month prior to assessment	35	4.0	2.6-5.2	42	5.0	3.2-5.9
Children reported with diarrhoea in 2 weeks prior to assessment	345	39.0	35.7-41.9	482	52.0	48.6-55.1
Children reported with ARI within two weeks prior to assessment	583	65.0	62.5-68.3	631	68.0	64.7-70.6
Children reported with febrile illness in 2 weeks prior to assessment	611	68.0	65.1-71.6	591	63.0	60.0-66.4
III- Immunization and Supplementation Status						
Children aged 9 – 59 months immunised against measles	391	47.0	43.7-50.0	582	67.0	63.8-69.7
Children who have received 3 doses of polio vaccine	406	46.0	42.1-49.0	578	62.0	58.7-64.8
Children reported to have received vitamin A supplementation in last 6 months	334	38.0	35.1-41.6	350	39.0	35.4-41.8
III- Child Feeding						
Children (6-24 months) reported to be breastfeeding	218	74.0	68.6-78.3	211	75.0	69.0-79.6
Children (6-24 months) fed 4 times and above	34	11.0	8.1-15.1	37	13.0	9.2-17.4
IV- Mortality						
0-5 Death Rate (U5DR) as deaths/10,000/ day	0.00		0.00-0.00	0.16		0.04-0.66
Crude Death Rate (CDR) as deaths/10,000/ day	0.24		0.14-0.42	0.27		0.18-0.40

1.0 INTRODUCTION / BACKGROUND

Figure (1): Abyan map



Abyan Governorate is located in the south of the country, bordering the Gulf of Aden in the south, with an area of 16,442 square kilometers and a population of 476,242. It is about 427 Km to the south eastern of the Capital Sana's and surrounded by Shabwah and Albyda Governorates from north, Arabic sea from south, Shabwah from east, and Aden and Lahj from west.

Administratively, Abyan consists of 11 districts that are divided into coastal districts (Khanfar, Zanjibar and Ahwar) and mountainous districts (Sara, Rosed, Sabah, Loder, Modia, Alwadeea, Geshan and Almahfeed).

Topography and Climate

Abyan Governorate contains two ecological zones: the coastal region and the highlands. The area has a diversified landscape from coastal plains to the hinterland of plateaus. Within the mountains and plateaus are valleys or wadis, of which the most famous are Wadi Hassan, Wadi Bana which converge in Delta Abyan. The climate of Abyan Governorate vary from a hot and dry climate in the coastal plains regions and low mountain slopes where temperature rises up to 40°C in summer, to a temperate climate in the highlands.

Socio-political situation

The Abyan region was historically part of the Fadhli Sultanate. The City of Zanjibar is the capital of the governorate, which is situated 60 km east of the City of Aden, lying within the Delta Abyan area, which is rich in agricultural land. The City of Ja'ar contains some of the oldest landmarks of the governorate, including the Khanfar Fort (on Mount Khanfar), which is a few kilometers from the city. It is a tourist site, which overlooks the green landscape of Delta Abyan and the Batais Conversion Dam.

The governorate is noted for its agriculture, in particular the cultivation of date palms and animal husbandry. The Governorate as a whole is important for the cultivation of tobacco, cotton, peanuts, oranges, bananas mangos, papayas and a little coffee. It also has a long coastline that extends for 300 km, which yields fish of the finest quality.

Abyan experienced a devastating catastrophe as Ansar al-Shari'a and government forces vied for control of the region during 2011 and the first half of 2012. Reports indicate that nearly 150,000 people fled their homes in Abyan to the neighbouring Aden and Lahj governorates when fighting began in May 2011. In early May 2012 the Yemeni Army began a major offensive to wrestle control of the province from militants and captured it after a month of heavy fighting.

The government and aid agencies assessed needs in Zinjibar and the surrounding area where the priorities after the "very heavy destruction" found to be water, shelter, food, sanitation and power.

Meanwhile, UN agencies, the government, and local and international NGOs have set up a working group, headed by Minister of Public Works, which is providing technical assistance to aid planners regarding how best to conduct assessments of damaged property. WFP, the UN Children's Fund (UNICEF), the UN Office for the Coordination of Humanitarian Affairs (OCHA) and the World Health Organization (WHO) drafted an Abyan and the South Inter-Agency Response Plan, which is partly intended to encourage the return of displaced families. WFP conducted a general food distribution for displaced households within Abyan and provide food rations to encourage displaced families in Aden to return to their homes in Abyan.

Yemen's cabinet on 19 June, 2012 approved the establishment of an Abyan reconstruction fund with an initial capital of YR10 billion (US$47 million), which includes contributions from the government, donor states, Yemeni business people and expatriates.

Food insecurity and nutritional status

The 2012 WFP-CFSS[1] reported that 19.9, 29.7, 49.7 per cents are severely, moderately, and "severe and moderate" food insecure in Abyan governorate respectively. Furthermore, as Abyan has been badly affected in early 2012, with an estimated 150,000 people forced to leave their homes between February and April 2012, the governorate reported reduced access to food by 28 per cent of its populations as a result of insecurity.

[1] WFP. Comprehensive Food Security Survey, Yemen. March 2012 WFP (2012). The State of Food Security and Nutrition in Yemen. Summary and Overview

Regarding malnutrition, the 2010 IFPRI National Food Security Paper estimated GAM rate based on HBS 2005-06 data in Abyan to be 13.5 per cent, with SAM at 2.4 per cent. The underweight and stunting prevalence were 47.7 per cent and 55.7 per cent respectively[2]. The 2012 WFP-CFSS, reported the following prevalence: GAM: 10.1 per cent, SAM: 3.3 per cent, underweight: 25.8 per cent, and stunting: 32.8 per cent. According to Nutrition cluster strategy 2012/Yemen[3], Abyan fall within the serious zone (GAM from 10 – 14.9%).

Health services and health situation

In Abyan, public health services are provided through a network of one governorate hospital, 7 rural hospitals, 45 Health Centre, and 85 Health Unit which staffed with 244 doctor and 192 nurse. Nevertheless, as Abyan has been badly affected in early 2012, many of these facilities have been destroyed or become un-operational. Regarding the private health services, it is mainly concentrated in the main cities where there are three private hospitals but they mainly provide curative services.

The main reported diseases in Abyan are diarrhea, malaria, schistosomiasis, hepatitis, and TB. Malaria is more spread in Al-Mahfed district and Modia but less in the capital Zanjibar district; while schistosomiasis, hepatitis and TB are more spread in Khanfar district and Sarar.

2.0 ASSESSMENT OBJECTIVES

The overall objective of the two SMART surveys was to establish the nutrition situation in Abyan Governorate, determine some of the factors influencing malnutrition, and identify some of the public health services accessible to the Abyan population.

Specific objectives were:

To estimate the level of acute malnutrition (wasting), stunting and underweight among children aged 6-59 months in the Conflict Directly Affected and Non Affected districts of Abyan Governorate.

1. To identify factors influencing nutrition status of the children aged 6-59 months children in the Conflict Directly Affected and Non Affected districts of Abyan including disease prevalence and access to essential services.
2. To estimate the prevalence of some common diseases (measles, diarrhoea, fever and ARI) of the children aged 6-59 months in the Conflict Directly Affected and Non Affected districts of Abyan.
3. To estimate the measles and polio vaccination and Vitamin A supplementation coverage among children aged 6-59 months in the Conflict Directly Affected and Non Affected districts of Abyan.
4. To estimate the crude and under-five mortality/death rates in the Conflict Directly Affected and Non Affected districts of Abyan Governorate.

[2] MoPIC and IFPRI. National Food Security Strategy Paper (NFSSP). Final Draft, February 2010
[3] Nutrition cluster strategy 2012/ Yemen

3.0 METHODOLOGY

3.1: Sampling Design and Sample Size Determination

Two cross-sectional surveys were conducted between 22 December, 2012 to 3 January 2013 in the Abyan Governorate's Conflict Directly Affected and Indirectly Affected districts. Using a two-stage Probability Proportionate to Population Size (PPS) sampling methodology, 42 clusters in each of the Conflict Directly Affected and Indirectly Affected districts were randomly selected for both anthropometric and mortality assessments. The cluster sampling methodology was selected in view of lack of an exhaustive updated list of household details and accurate demographic characteristic by village; only population estimate at village level was available. The total estimated population in the Conflict Directly Affected districts was 253,996 considering the IDPs returned to Zinjibar, while the total estimated population in the Conflict Indirectly Affected districts was 263,055, however, two days before the survey, Al-Mahfad District were removed from the frame for security reasons (Ref: Annexes 9 and 10: Sampling Frame: Source: CSO Projection, 2012).

All the three Conflict Directly Affected districts (Zanjibar, Khanfar and Lawdar) were put in the first stratum. From the 8 indirectly affected districts, 7 districts were put in the second stratum; they are: Ahwar, Al Wadea'a, Gaishan, Modiah, Rosud, Sabbah, and Sarar, While Al-Mahafad was dropped because of sudden increased activities of AQAP just two days before clusters selection of and initiation of data collection

Table 2: Parameters used in the Sample Size Determination

Parameters	Indirectly Affected districts Survey	Affected districts Survey
Estimated Acute Malnutrition Prevalence (%)	**10.1**	**10.1**
Desired Precision (%)	**2.5**	**2.5**
Design Effect[4]	**1.5**	**1.5**
Average Household Size[5]	**7.5**	**7.5**
Under 5 year old (%)[6]	**14.5**	**15.6**
Non response household (%)[7]	**3**	**3**
Sample Size (N)	**960**	**892**

The calculated sample sizes in the Conflict Directly Affected and Indirectly Affected districts using ENA for SMART software were 892 and 960 households respectively. The calculated sample for death estimation purpose using parameters of estimated death of 0.18 per 10000 per day and desired precision of 0.15 per 10000 per day in a recall period of 90 days resulted in a sample size of 766 households in each Conflict Directly Affected and Indirectly Affected districts respectively

Based on this, it was decided that **892** households per cluster per day could be visited in the Conflict Directly Affected districts **and 960** households in the Conflict Indirectly Affected districts for assessing both the anthropometry and mortality. However, two

[5] Calculated on basis of Central Statistics office data of population versus households
[6] Estimated on basis of MoH reports and immunization statistics
[7] Non-response rate of 3% was estimated in case the teams encounter refusal, security-related inaccessibility or absence.

clusters were dropped from the second stratum, the first is Al-Mossoge in where villagers had left the village to neighbouring villages and to Ahwar City because of the scarcity of rain and drought, and the second is Akhdam village that team has reached and completed the survey, but on their return way to Rusod, team members were stopped by an armed group and robbed them all completed questionnaires. For safety, the team gave them all questionnaires that later on could not be returned back by either district authorities or the People Local Committees.

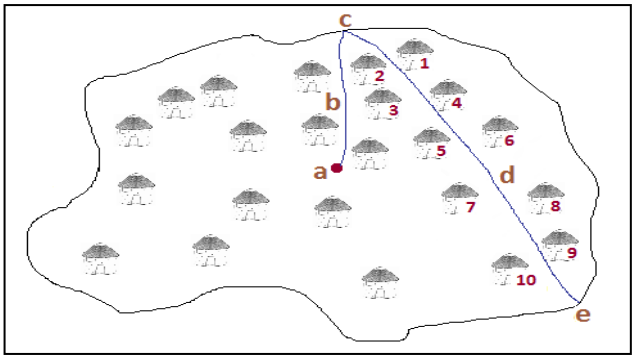
3.2: Sampling Procedure

The ENA for SMART software was used in the random selection of the 42 clusters from the sampling frame, including identification of the reserve clusters. The sampling frame consisted of an exhaustive list of villages or urban area sections known to be accessible within Abyan Governorate and the estimated population size for each of the villages. Independent sampling frames for Affected and Indirectly Affected districts s were used in this selection process (Ref: Sampling frames in Annexes 9 and 10). In this case, all villages in Abyan Governorate were accessible and were included in the sampling frame, thus giving them an equal chance of being selected.

All the 42 clusters randomly selected from the sampling frames for the Conflict Directly Affected and Non- Affected districts were accessible and were assessed, hence the reserve clusters were not assessed in the two surveys. Upon reaching the cluster/ villages, the survey teams, with the help of an elder or a village guide, requested the village residents' permission to assess the areas. The purpose of the survey was explained and the process of random selection of a representative sample from the cluster was also elaborated.

Once granted permission to continue with the survey, the survey team used the Modified EPI methodology to randomly pick the household to be interviewed. This involved identifying the centre of the cluster/ village, where they had to spin a pen to randomly select the direction to take to the edge/periphery of the village. The team walked to the edge of the cluster/ village. From the edge of the village, the team had to spin the pen again aiming to randomly get a direction to follow to the other extreme edge of the village. In case the pen pointed towards outside of the village, the teams were to spin the pen multiple times till the pen pointed to any of the directions towards the village. Once a new direction was obtained, the team counted all the households along the randomly selected direction, gave each household a number, and then randomly selected the first household to be interviewed from the numbered households (for example, household number 7 in the households numbered 1 to 10, in the figure (2)).

Figure (2): The modified EPI method used for selection of households



Same direction was followed to select the subsequent household for interview, going for next nearest household on the right side and following the selected direction, until the required minimum number of households and children had been assessed (Ref: Figure (2) indicating the household selection process- Figure adopted from the SMART Methodology Guideline). Anthropometric data alongside other child

data were collected from all children aged 6-59 months found in the randomly selected household.

In case the team assessed all households to the edge of the village and did not reach the required number of households, the team would repeat the process again i.e. start from the cluster/ village centre to randomly select another direction, then walk to the edge, then spin the pen again and count the households to the edge of the cluster. Then randomly pick the first household for interview, and then go the next nearest household, to the right hand side, till the required number of households were interviewed.

In case of absence of the children during the interview time or absence of the members of the randomly selected households, an appointment was made by the survey team to return back before leaving the cluster.

3.3: Study Population and Data Collection Process

As defined in the sampling frame, the study population was the entire population of Abyan Governorate as defined based on the two types of districts– the Conflict Directly Affected and the Indirectly Affected .

The activities undertaken in the entire survey period are summarised in Table 3, below. Data collection preparation commenced with a four-day training of enumerators, team leaders and supervisors (Ref: Annex 3: Abyan Nutrition Survey Team). The training conducted covered interview techniques, sampling procedures, field procedures (random household selection, introduction and systematic data collection), inclusion and exclusion criteria, sources and reduction of errors, taking of measurements (height, weight and MUAC) focusing on achieving high precision and accuracy, data collection standardisation procedures to ensure data quality, diagnosis of oedema, measles, ARI, diarrhoea and collection of household details necessary to establish household members movement and/or death in order to compute mortality rates, handling of equipment and the general courtesy during the assessment. Seven survey teams were involved in the data collection process.

Quantitative data were collected by means of a household questionnaire for nutrition survey and a mortality survey question, adopted from the SMART Methodology guidelines (Ref: Annex 1: Abyan Nutrition Survey Questionnaire and Annex 2: Abyan Mortality Survey Questionnaire). Only children aged 6-59 month were included in the measurement of height, weight and MUAC. The age estimation was based on birth or immunization card details and/or supported with events calendar and date conversion tables based on the Islamic Calendar (Ref: Annex 5 and 6: Age Conversion Tables and Events Calendar).

Retrospective mortality data were collected from all randomly selected households, irrespective of presence or absence of children aged 6-59 months. A recall period of 90 days prior to the survey was used.

Table 3: Chronology of Activities in the Abyan Governorate Survey

Action	Period
Preparation: Contacting local authority, survey team identification, training material preparation	1 – 13 Dec 2013
Training of survey teams and pre-testing of questionnaire	15 – 20 Dec 2012
Abyan Conflict Directly Affected districts survey: Data collection and data entry	22 Dec 2012 to 3 Jan 2013
Abyan Indirectly Affected districts : Data collection and data entry	
Abyan Conflict Directly Affected districts : Data cleaning	5 Jan – 30 Jan 2013
Abyan Indirectly Affected districts : Data cleaning	
Data analysis	1 Feb-14 Feb 2013
Abyan Nutrition Survey report drafting and releasing	14-26 Feb 2013
Circulation of final report	30 Feb 2013

3.4: Measurement Standardization and Quality Control

Eight survey teams (one team as a reserve) underwent rigorous standardisation test procedures using 10 children aged 6 - 59 months. This exercise was conducted at training place in the training venue of Morcure Hotel in Aden Governorate and it aimed at assessing the accuracy and precision of the survey teams for purposes of enhancing the survey data quality. The weak team members were identified and the common mistakes made were identified and addressed (Ref: Annex 4: Abyan Nutrition Survey Standardization Test Report, showing team performance and how errors were rectified/addressed). Further field testing of survey tools and exercise on data collection, including household selection and interview steps and familiarization of questions was conducted, and field level challenges and common mistakes identified and discussed. The field testing was conducted in Bait Al-Harrani in Lahj.

Beside training, which also included role playing and field testing, data quality was also ensured through (i) Monitoring of fieldwork by coordination team; (ii) Crosschecking of filled questionnaires on a daily basis, recording of observations and daily de-briefing and discussion; (iii) Confirmation of measles, severe malnutrition especially oedema cases and death cases by supervisors; (iv) Daily entry of anthropometric data, continuous data cleaning and plausibility checks, plus ensuring each team was given feedback on the quality of previous day's data before the start of a new day; (v) Equipment calibration/ monitoring accuracy of equipment (weighing scales) by regularly measuring objects of known weights to check for any differences, (vi) Additional check was done at the data entry level to enable entry only of relevant possible responses and measurements; (vii) Continuous reinforcement of good practices. During the field data collection, all measurements were loudly called by both the enumerators reading and recording them, to reduce errors during recording.

Clear job descriptions were provided to the teams as part of the training, to ensure appropriate guidance in delivering the assigned tasks (Annex 11: Survey Team Job Description). The supervisor had to review the questionnaire and verify the accuracy of the details before the teams leave a household, thus minimizing possibility of incomplete data (missing variables) and outliers.

3.5: Data Entry and Analysis

The anthropometric data were entered and analysed using ENA for SMART software, while the remaining household variables and child-related variables (feeding practices and morbidity) were entered and analysed using Epi info ENA version 3.5.3. Running and tabulation of all variable frequencies was carried out as part of data cleaning. The nutrition indices (z-scores) for Weight for Height (wasting), Height for Age (stunting) and Weight for Age (underweight) were generated and compared with WHO 2006 Growth Standards. Children/cases with extreme z-score values were flagged and investigated and appropriately excluded in the final analysis if deviating from the observed mean (SMART flags).

The classification used for wasting levels was a follows:

W/H < -3 Z-Scores or oedema = Severe acute malnutrition
W/H ≥ -3 Z-Scores < -2 Z-Scores = Moderate acute malnutrition
W/H < -2 Z-score or oedema = Global/total acute malnutrition
W/H ≥ -2Z-Scores = Normal

The classification used for Stunting levels was a follows:

H/A < -3 Z-Scores = Severe stunting
H/A ≥ -3 Z-Scores < -2 Z-Scores = Moderate stunting
H/A < -2 Z-score = Stunting Prevalence rates
H/A ≥ -2Z-Scores = Normal

The classification used for Underweight levels was a follows:

W/A < -3 Z-Scores = Severe Underweight
W/A ≥ -3 Z-Scores < -2 Z-Scores = Moderate underweight
W/A < -2 Z-score = Underweight Prevalence Rates
W/A ≥ -2Z-Scores = Normal

Frequencies and cross-tabulations were used to give percentages, means and standard deviations in the descriptive analysis and presentation of general household and child characteristics.

Mortality data were entered into the individual level sheet of ENA software and analysed immediately.

3.6: Data Entry Verification and Cleaning

Four team members shared the work of data entry, and then each member would review the work done by another colleague before merging the data on a daily basis.

About 10 per cent of the entered questionnaires were randomly drawn using the Random Number Table of ENA software. These drawn questionnaires were revised for accuracy of entry in the electronic database. The quality of data entry was accepted if accuracy was not less than 95 per cent.

The uniqueness of IDs of both household questionnaire and mortality sheet was also reviewed for any repeating during data entry.

For anthropometry data, all flagged records were also reviewed by means of revisiting original questionnaires.

4.0 ASSESSMENT RESULTS

4.1: Household Characteristics of Study Population

As shown in Table 4 below, the gender of household head in Abyan is largely male (around 93 per cent). 84 per cent and 89 per cent of household heads are married and living with partner in the Conflict Indirectly Affected and directly Affected districts respectively. Those who are married but living far from spouse for ≥ 6 months is higher in Indirectly Affected districts (10%) compared to only one per cent in the Conflict directly Affected districts which go with the fact that Conflict Indirectly Affected districts have more expatriates abroad than Affected districts. Stability also may encourages such internal and external immigration. Interestingly, the Conflict directly Affected districts have nearly double widowed than Conflict Indirectly Affected districts (7% vs. 4%). Whether this is related to the recent conflict in Abyan or not is beyond the scope of this survey. While more than two thirds of caretakers in the Conflict Indirectly Affected districts are illiterate, only half of the caretakers in the Conflict directly Affected districts are. Similarly, the percentage of highly educated caretakers are nearly four folds in the Conflict directly Affected than Indirectly Affected districts (9% vs.2%). This is due to the fact that the conflict was mainly happening in the urban areas (e.g. the capital Zanjibar and Ja'ar) where the illiteracy is lower and higher education is higher than rural Indirectly Affected districts.

The main source of income is the fixed monthly wage however, this is higher in the Conflict directly Affected than Indirectly Affected districts (58% vs. 47%). Temporary work/ casual labour[8] is the second source of income in both Conflict Indirectly Affected and directly Affected districts (16% vs.19%). While, higher percentage of households in the Conflict Indirectly Affected districts are living on remittance (16%) only 3% in the Conflict directly Affected districts lives. This goes with previously mentioned finding that the higher percentage of households are spouse are living far from spouse for ≥ 6 months in Indirectly Affected districts.

In spite the fact that Abyan is considered a fertile agricultural region (the Abyan delta), only 2% of the population in both areas lives on crops. Qat also is not an important source of income in both types of districts (3% or less).

Regarding drinking water (see table 4), the main source for households in the Conflict directly Affected districts (which are the main urban cities) is house-connected piped water (47%) compared to only 22% in the Conflict Indirectly Affected districts. The second most important source is water tanker which is higher in Indirectly Affected districts (40%) than Affected districts (28%) which may reflects the struggle of getting drinking water in the Conflict Indirectly Affected districts that is partially mountainous.

As shown in Table 4, around two thirds of households in both types of districts are having flush or pour flush latrine with slightly higher percentage in the Conflict directly Affected districts (70% vs. 65%) as it is mainly urban. However, more households in the Conflict Indirectly Affected districts reported defecation in open compared to the Conflict directly Affected districts (14% vs. 3%) which is also reflecting the rural predominance in the Conflict Indirectly Affected districts.

[8] Temporary work is daily wage based work such as work in construction, on others' farms, etc.

Table 4: Household Characteristics

Indicator	*Conflict Indirectly Affected districts*		*Conflict Directly Affected districts*	
	N	*%*	*N*	*%*
Household members:				
Total Households	964		908	
Mean household size	7.3		7.5	
Mean No of Under-five	1.1		1.2	
Sex of Household Head:				
Male	897	93.1	838	92.5
Female	66	6.9	68	7.5
Marital status of household head:				
1. Married and living with spouse	809	84.0	801	89.0
2. Married but living far from spouse for ≥ 6 months	93	10.0	11	1.0
3. Widowed	43	4.0	65	7.0
4. Single	12	1.3	16	1.8
5. Recalcitrant	2	0.2	2	0.2
6. Divorced	4	0.5	10	1.0
Education level of household caretaker:				
1. Illiterate	662	69.0	448	50.0
2. Read and write	189	20.0	205	22.0
3. Basic education	61	6.0	71	8.0
4. Secondary education	27	3.0	102	11.0
5. Higher education	24	2.0	79	9.0
Main Source of Income:				
1. Fixed monthly waged work	453	47.0	523	58.0
2. Temporary work/ Casual labour	148	16.0	171	19.0
3. Remittance	154	16.0	30	3.0
4. *Qat* cultivation and trade	32	3.0	22	2.0
5. Crops other than *Qat*	23	2.0	22	2.0
6. Animal and Animal products	35	4.0	30	3.0
7. Handmade work	38	4.0	26	3.0
8. Trade	22	2.0	10	1.0
9. Others	56	6.0	71	8.0
Main water source for drinking:				
1. House-connected piped water	213	22.0	422	47.0
2. Water tanker	399	40.0	252	28.0
3. Water from unprotected open well	136	14.0	102	11.0
4. Water from covered rainwater harvesting tank	93	10.0	0	0
5. Water from protected open well	55	6.0	52	6.0
6. House-connected yard piped water	44	5.0	40	4.0
7. Protected spring	11	1.0	0	0
8. Unprotected surface water (wadi, springs, etc.)	8	1.0	0	0
9. Others (e.g. bottled water etc.)	4	1.0	37	4.0
Household latrine type:				
1. Flush/pour flush latrine	652	65.0	634	70.0
2. Open pit latrine	150	16.0	153	17.0
3. Simple covered pit latrine	51	5.0	91	10.0
4. Defecation in open (in fields, etc.)	137	14.0	25	3.0

4.2: Morbidity, Immunization Status and Health Seeking Behaviour

Overall, high prevalence of common diseases was recorded in both the Conflict directly Affected and Indirectly Affected districts. However, remarkably higher prevalence of diarrhoea during the two weeks prior to the survey recorded among children in the Conflict directly Affected districts compared to Conflict Indirectly Affected districts (52% vs. 39%). In both Conflict Directly Affected and Indirectly Affected districts around two thirds of children were having ARI -as described by coughing or breathing difficulty- and fever (see Table 5).

Suspected measles[9] during the last month was slightly higher in the Conflict directly Affected districts (5 per cent) compared to slightly less than 4 per cent only in the Conflict Indirectly Affected districts.

As shown in Table 5, only 62 per cent of children have been vaccinated with the third dose of polio in the Conflict directly Affected districts compared to 46.0 per cent in the Conflict Indirectly Affected districts. Also, higher measles vaccination coverage were found among children aged 9 months to below 60 months in the Conflict directly Affected districts (67.0 per cent) compared to only 47 per cent in the Conflict Indirectly Affected districts.

Vitamin A supplementation during the previous 6 months was very low both in the Conflict directly Affected districts and Conflict Indirectly Affected (39 vs. 38 per cent).

Very few children slept under a mosquito net the night before the survey however, the percentage is slightly higher in the endemic Conflict Indirectly Affected districts (27 per cent) than less endemic Conflict Affected districts (20 per cent).

As shown in Table 5, while 51 per cent of the households in the Conflict directly Affected districts seek health services from public health facilities compared to 45 per cent in the Conflict Indirectly Affected districts did. On the contrary, there is higher access of private health services in Abyan districts as indicated by the finding that 53 and 46 per cent seek private clinics in the Conflict Indirectly Affected and directly Affected districts respectively. Less than one per cent does not seek medical assistance during illness or seek traditional medication in the Conflict directly Affected and Indirectly Affected districts. Around half of those who did not seek medical care did because the cost, and the rest due to far distance or poor service quality.

Table 5: Health Seeking Behaviour

Indicator	*Conflict Indirectly Affected districts*		*Conflict directly Affected districts*	
	N	*%*	*N*	*%*
Morbidity				
Children with diarrhoea within 2 weeks prior to assessment	345	39.0	482	52.0
Children with ARI within two weeks prior to assessment	583	65.0	631	68.0
Children with fever within two weeks prior to assessment	611	68.0	591	63.0
Suspected measles within one month prior to assessment	35	3.9	42	5.0
Immunization				
Children (9-59 months) immunised against measles	391	47.0	582	67.0
Children who have ever received polio vaccine	406	46.0	578	62.0

[9] The suspected measles is defined as having rash and fever in addition to at least one of: cough, sore throat, or conjunctivitis.

Indicator	*Conflict Indirectly Affected districts*		*Conflict directly Affected districts*	
	N	*%*	*N*	*%*
Supplementation				
Children who received vitamin A supplementation in last 6 months	334	38.0	350	39.0
Sleeping under mosquito net				
Children slept under mosquito net last night	240	27.0	188	20.0
Where health service is sought				
Public health facility	430	45.0	461	51.0
Private clinic	509	53.0	414	46.0
Pharmacy	12	1.0	18	2.0
Personal medication	5	0.5	8	0.7
Do not seek medical assistance	4	0.4	2	0.2
Traditional medication	1	0.1	1	0.1

4.3: Feeding Practices

Table 6: Feeding practices for of children aged 6 to 24 months

Indicator	*Conflict Indirectly Affected districts*		*Conflict directly Affected districts*	
	N	*%*	*N*	*%*
Still breastfeeding	218	74.0	211	75.0
Number of feeds (other than breastfeeds)				
No feed	16	5.0	8	3.0
One feed	19	7.0	32	11.0
Two feeds	66	22.0	71	25.0
Three feeds	163	55.0	134	48.0
Feeding 4 times and above	34	11.0	37	13.0
Number of milk feeds (other than breast milk)				
No milk feed	97	34.0	90	33.0
One milk feed	37	13.0	39	15.0
More than one milk feed	152	53.0	141	52.0

As shown in Table 6, only around three quarters of children aged 6 to 24 months are continuing breastfeeding in Abyan. Inappropriate infant and young child feeding practice was recorded in the Conflict directly Affected and Indirectly Affected districts where only 13 per cent of children in the Conflict directly Affected districts and 11 per cent in the Conflict Indirectly Affected districts had four and above feeds other than breastfeeding in the previous day. Only around half of children over 6 months of age in the Conflict directly Affected and Indirectly Affected districts were given more than one milk feed (other than breast milk) in the previous day to the survey.

4.4: WASH

Households' caretakers WASH practices were assessed where both Affected and Indirectly Affected districts found to be having poor WASH practices (table 7). While hand washing after toilet, hand washing before feeding child and hand washing after disposal of child's faces found to be slightly better in the Conflict directly Affected districts (74, 20, and 38 per cent compared to 68, 16 and 24 per cent in the Conflict

Indirectly Affected districts respectively), hand washing before meal, hand washing after meal, and hand washing after cleaning livestock's place were better in the Conflict Indirectly Affected districts (57, 71, and 29 per cent compared to 48, 67, 20 per cent in the Conflict directly Affected districts respectively). No much difference was found in hand washing before cooking between the Conflict directly Affected and Indirectly Affected districts (45 and 46 per cent respectively).

Although on observation, no difference were found on availability of soap at hand washing facility in the Conflict directly Affected and Indirectly Affected districts (93% for each), clean water container (no algae seen) were higher in the Conflict directly Affected than Indirectly Affected districts (66 vs. 50 per cent).

Table 7: WASH practices

Indicator	*Conflict Indirectly Affected districts*		*Conflict directly Affected districts*	
	N	*%*	*N*	*%*
1. Hand washing after toilet	655	68	664	74
2. Hand washing before meal	545	57	435	48
3. Hand washing After meal	687	71	603	67
4. Hand washing before cooking	439	46	407	45
5. Hand washing before feeding child	157	16	181	20
6. Hand washing after disposal of child's faces	231	24	344	38
7. Hand washing after cleaning livestock's place	282	29	177	20
8. Availability of water at hand washing facility	961	99	900	99
9. Availability of soap at hand washing facility	893	93	835	93
10. Availability of ash/leaves/sand at hand Washing facility	11	2	13	2
11. Water container clean (no algae seen)	474	50	590	66

4.5: Food security

Three parameters to assess food accessibility and two parameters to assess coping strategies were used in this survey in which all were measuring the practice 30 days prior to the survey. Although both types of districts are having difficulty in accessing food, the Conflict directly Affected districts are obviously suffering more. While 52 per cent and 44 per cent of the households in the Conflict directly Affected districts reported reducing meals' size and meals' number respectively only 37 per cent and 34 per cent in Indirectly Affected districts were. Similarly in the Conflict directly Affected districts 29 per cent of households have members experienced to go to the bed hungry compared to 20 per cent in the Conflict Indirectly Affected districts. Regarding coping strategies, in the Conflict directly Affected districts 34 per cent of the households reduced expenditures of education and/or health compared to 28 per cent in the Non Affected.

In the Conflict directly Affected districts 15 per cent of households mentioned none of the above parameters (compared to 19% in Indirectly Affected districts), 23 per cent mentioned one parameter (compared to 30 per cent in the Conflict Indirectly Affected districts), 17 per cent mentioned two parameters (compared to 15 per cent in Indirectly Affected districts), 16 per cent mentioned three parameters (compared to 16 per cent in the Non Affected districts), 20 per cent mentioned four parameters (compared to 13 per cent in the Non Affected districts), and 10 per cent mentioned all of the five parameters (compared to 7 per cent in the Non Affected districts).

A composite score for the five food insecurity indicators was developed and shows significantly higher mean in the Conflict directly Affected than Indirectly Affected districts (2.3 vs. 2.0).

Table 8: Food security

Indicator (Over the past 30 days)	*Conflict Indirectly Affected districts*		*Conflict directly Affected districts*	
	N	*%*	*N*	*%*
1. reduce the size of meals because of the scarcity of resources	359	37.0	469	52.0
2. reduce the number of meals because of the scarcity of resources?	328	34.0	400	44.0
3. did you or any HH member go the bed in night hungry because of not enough food?	195	20.0	258	29.0
4. did the HH borrow food, borrow money to purchase food or purchase food in credit or mortgage only if the reason that HH has not money?	738	77.0	664	74.0
5. did the HH reduce the expenditure on education or health to save money to purchase food?	273	28.0	307	34.0

4.6: Characteristics of the children assessed

Table 9: Conflict Indirectly Affected districts: Age and Sex distribution

Indicator	*Boys*		*Girls*		*Total*		*Ratio*
AGE (months)	*no.*	*%*	*no.*	*%*	*no.*	*%*	*Boy: girl*
6-17	112	51.9	104	48.1	216	24.2	1.1
18-29	101	48.3	108	51.7	209	23.4	0.9
30-41	108	53.7	93	46.3	201	22.5	1.2
42-53	103	52.0	95	48.0	198	22.2	1.1
54-59	35	50.7	34	49.3	69	7.7	1.0
Total	459	51.4	434	48.6	893	100.0	1.1

Table 10: Conflict Directly Affected districts: Age and Sex distribution

Indicator	*Boys*		*Girls*		*Total*		*Ratio*
AGE (months)	*no.*	*%*	*no.*	*%*	*no.*	*%*	*Boy: girl*
6-17	88	44.2	111	55.8	199	21.2	0.8
18-29	110	49.1	114	50.9	224	23.9	1.0
30-41	97	45.5	116	54.5	213	22.7	0.8
42-53	118	54.4	99	45.6	217	23.1	1.2
54-59	38	44.2	48	55.8	86	9.2	0.8
Total	451	48.0	488	52.0	939	100.0	0.9

Generally there were nearly equal numbers of boys and girls assessed in the Affected and Indirectly Affected (overall ratio of 1.1%), implying representativeness of the sample collected during the survey, as shown in Tables 9 & 10.

Regarding the age ratio of 6-29 months to 30-59 months (that should be around 1.0), it was found to be 0.91 and 0.82 in the Conflict Indirectly Affected and directly Affected districts respectively.

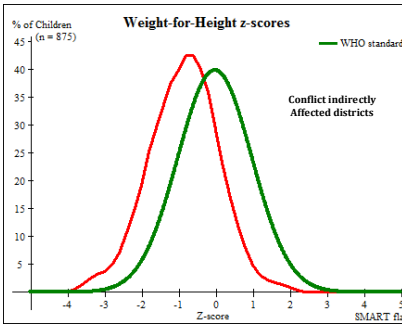
Furthermore, the overall sex/age distribution in both Indirectly Affected and directly Affected districts does not significantly differ ($p > 0.05$) which means that the boys and girls are equally represented according to age groups.

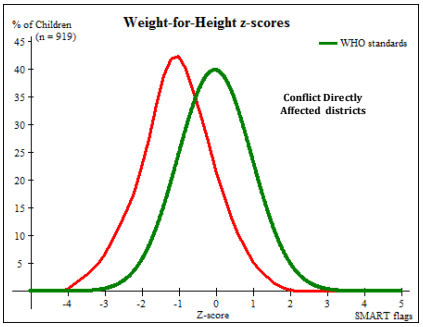
4.7: Nutrition Status

Below is a summary of the anthropometric results for both the Conflict directly Affected and Indirectly Affected districts. Data quality was validated using the plausibility check function of the SMART for ENA software. For the Conflict directly Affected districts the data quality was excellent (plausibility data quality scores of 4) and for Conflict Indirectly Affected districts it was good (plausibility data quality score of 7) (see Annex 13). The interpretation was made based on the 2006 WHO Growth Standards.

4.6.1: Acute Malnutrition Rates

There is an overall shift of the study population to the left when compared with the reference population, as the graphs shown which is implying presence of malnutrition.





The level of wasting – also known as (GAM) – found in the Conflict directly Affected districts is **16.1 per cent,** compared to only **11.3 per cent in the Conflict** Indirectly Affected districts as shown in Tables 11 & 12 (including the confidence intervals).

Furthermore, the SAM prevalence found to be 2.8 and 1.9 in the Conflict directly Affected and Indirectly Affected districts respectively.

Table 11: Abyan Conflict Indirectly Affected districts: Prevalence of acute malnutrition based on weight-for-height z-scores (and/or oedema) and by sex

Indicator	*All n = 875*			*Boys n = 447*			*Girls n = 428*		
	N	*%*	*95% CI*	*N*	*%*	*95% CI*	*N*	*%*	*95% CI*
Prevalence of global acute malnutrition (<-2 z-score and/or oedema)	99	11.3	9.0-14.2	60	13.4	10.0-17.7	39	9.1	6.4-12.9
Prevalence of moderate acute malnutrition (<-2 z-score and >=-3 z-score	82	9.4	7.2-12.0	52	11.6	8.7-15.4	30	7.0	4.6-10.6
Prevalence of severe acute malnutrition (<-3 z-score and/or oedema)	17	1.9	1.2-14.2	8	1.8	1.0-3.3	9	2.1	1.1-4.1

Table 12: Abyan Conflict Directly Affected districts: Prevalence of acute malnutrition based on weight-for-height z-scores (and/or oedema) and by sex

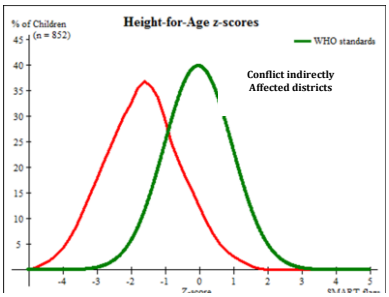
Indicator	*All n = 919*			*Boys n = 442*			*Girls n = 477*		
	N	*%*	*95% CI*	*N*	*%*	*95% CI*	*N*	*%*	*95% CI*
Prevalence of global Acute malnutrition (<-2 z-score and/or oedema)	148	16.1	13.5-19.2	89	20.1	16.3-24.6	59	12.4	9.7-15.6
Prevalence of moderate malnutrition (<-2 z-score and >=-3 z-score	122	13.3	10.7-16.3	72	16.3	12.8-20.6	50	10.5	8.0-13.6
Prevalence of severe malnutrition (<-3 z-score and/or oedema)	26	2.8	2.0-4.0	17	3.8	2.5-5.9	9	1.9	1.0-3.4

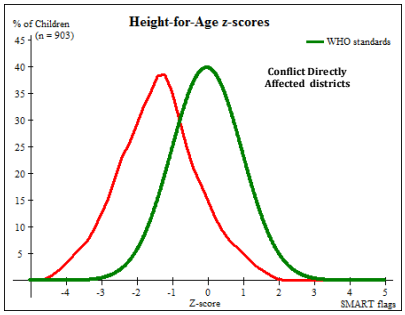
The prevalence of oedema is 0.0 per cent

The prevalence of acute malnutrition based on the NCHS reference is reflected in the summary Table 17 below.

4.6.2: Chronic Malnutrition Rates

There is also an overall shift to the left of the study population deviating from the reference population as the graphs shown (implying presence of chronic malnutrition). Global stunting is higher in the Indirectly Affe





than Affected districts (36.5 vs. 28.8 per cent). The prevalence of severe stunting is also higher in the Conflict Indirectly Affected districts (12.1 vs. 7.2 per cent). The details of the stunting rates are as shown in the tables 13 & 14 below.

Table 13: Abyan Conflict Indirectly Affected districts: Prevalence of stunting based on height-for-age z-scores and by sex

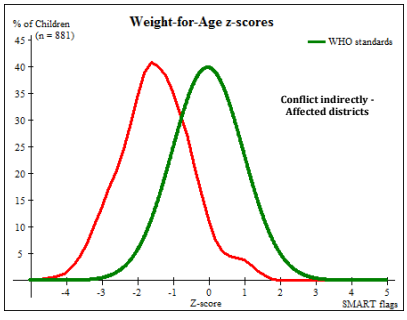
Indicator	*All n = 852*			*Boys n = 434*			*Girls n = 418*		
	N	*%*	*95% CI*	*N*	*%*	*95% CI*	*N*	*%*	*95% CI*
Prevalence of stunting (H/A<-2 z-score)	311	36.5	31.7-41.6	172	39.6	34.0-45.6	139	33.3	27.8-39.2
Prevalence of moderate stunting (<-2 z-score and >=-3 z-score)	208	24.4	21.3-27.8	117	27.0	22.3-32.2	91	21.8	17.4-26.9
Prevalence of severe stunting (H/A<-3 z-score)	103	12.1	9.1-16.0	55	12.7	9.1-17.3	48	11.5	8.1-16.0

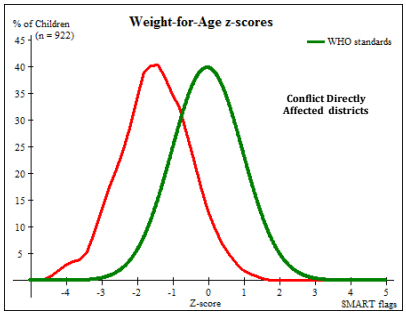
Table 14: Abyan Conflict Directly Affected districts: Prevalence of stunting based on height-for-age z-scores and by sex

Indicator	*All n = 903*			*Boys n = 431*			*Girls n = 472*		
	N	*%*	*95% CI*	*N*	*%*	*95% CI*	*N*	*%*	*95% CI*
Prevalence of stunting (H/A<-2 z-score)	260	28.8	24.5-33.5	117	27.1	22.2-32.7	143	30.3	24.9-36.2
Prevalence of moderate stunting (<-2 z-score and >=-3 z-score)	195	21.6	18.3-25.2	86	20.0	16.2-24.4	109	23.1	18.7-28.2
Prevalence of severe stunting (H/A<-3 z-score)	65	7.2	5.6-9.1	31	7.2	4.9-10.3	34	7.2	5.0-10.2

4.6.3: Underweight Rates

Regarding underweight, an overall shift of the study population from the reference is shown in the graphs, implying presence of underweight.





Underweight and severe underweight prevalence are around 29 and 6 per cent In both Conflict Directly Affected and Indirectly Affected districts. The details of the underweight rates are as shown in the tables 15 & 16 below.

Table 15: Abyan Conflict Indirectly Affected districts: Prevalence of underweight based on weight-for-age z-scores by sex

Indicator	*All n = 881*			*Boys n = 454*			*Girls n = 427*		
	N	*%*	*95% CI*	*N*	*%*	*95% CI*	*N*	*%*	*95% CI*
Prevalence of underweight (<-2 z-score)	258	29.3	24.8-34.3	139	30.6	24.9-37.1	119	27.9	23.4-32.8
Prevalence of moderate underweight (<-2 z-score and >=-3 z-score)	204	23.2	19.9-26.8	115	25.3	21.1-30.1	89	20.8	17.4-24.8
Prevalence of severe underweight (<-3 z-score)	54	6.1	4.2-8.8	24	5.3	3.2-8.6	30	7.0	4.9-10.1

Table 16: Abyan Conflict Directly Affected districts: Prevalence of underweight based on weight-for-age z-scores by sex

Indicator	*All n = 922*			*Boys n = 443*			*Girls n = 479*		
	N	*%*	*95% CI*	*N*	*%*	*95% CI*	*N*	*%*	*95% CI*
Prevalence of underweight (<-2 z-score)	271	29.4	25.6-33.5	136	30.7	26.0-35.8	135	28.2	23.0-34.0
Prevalence of moderate underweight (<-2 z-score and >=-3 z-score)	217	23.5	20.1-27.4	105	23.7	19.4-28.6	112	23.4	18.4-29.2
Prevalence of severe underweight (<-3 z-score)	54	5.9	4.3-7.9	31	7.0	4.8-10.1	23	4.8	3.2-7.2

The following table (Table 17) summarizes the Malnutrition rates in both the Conflict directly Affected and Indirectly Affected districts and gives the prevalence of acute malnutrition based on the NCHS reference.

Table 17: Summary of Malnutrition Rates by type of districts

Indicator	*Conflict Indirectly Affected districts*			*Conflict directly Affected districts*		
	N	*%*	*95% CI*	*n*	*%*	*95% CI*
Global Acute Malnutrition (WHZ<-2 or oedema)	99	11.3	9.0-14.2	148	16.1	13.5-19.2
Severe Acute Malnutrition (WHZ<-3 or oedema)	17	1.9	1.2-14.2	26	2.8	2.0-4.0
Oedema		0			0	
Global Acute Malnutrition (WHM<80% or oedema)*	99	11.3	9.0-14.1	157	17.0	14.6-19.7
Severe Acute Malnutrition (WHM<70% or oedema)*	5	0.6	0.2-1.3	12	1.3	0.8-2.1
Stunting rate (HAZ<-2 z score)	311	36.5	31.7-41.6	260	28.8	24.5-33.5
Severe stunting rate (HAZ <3 z score)	103	12.1	9.1-16.0	65	7.2	5.6-9.1
Underweight Rates (WAZ<-2 z score)	258	29.3	24.8-34.3	271	29.4	25.6-33.5
Underweight rate (WAZ_-3 z score)	54	6.1	4.2-8.8	54	5.9	4.3-7.9

* NCHS reference is used.

4.8: Mortality

Table 18: Mortality data

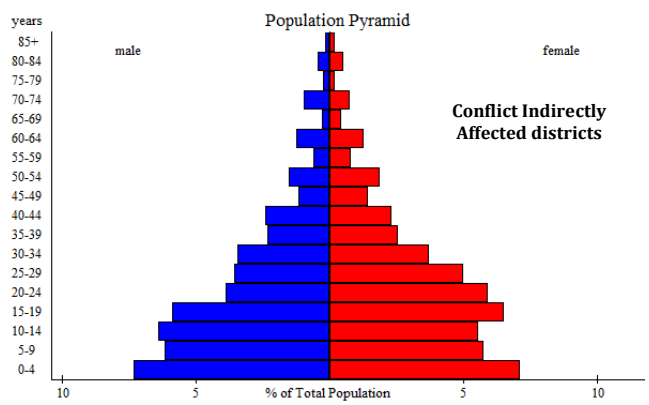
Indicator	*Conflict Indirectly Affected districts*		*Conflict directly Affected districts*	
	U5	*Total*	*U5*	*Total*
Total HHs surveyed			-	
Total Population assessed in HHs	1184	8344	1351	9176
Number who joined the HHs	161	986	177	1604
Number who left the HHs	178	1210	203	1703
Number of births	25	-	36	-
Number of deaths	0	18	2	22
Mortality rate (per 10,000 per day)				
Under-five	**0.00**		**0.16**	
Crude	**0.24**		**0.27**	

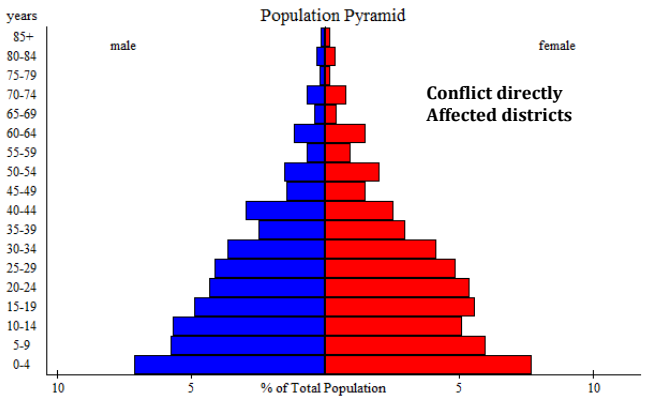
Table 18 shows the crude and under-five death rate In the Conflict Indirectly Affected and directly Affected districts. The under-five mortality is lower in the Conflict Indirectly Affected than Affected districts (0.00 vs. 0.16). Similarly, the crude death rate is slightly higher in the Conflict directly Affected than Indirectly Affected districts (0.27 vs. 0.24). Although, the crude death rate is higher among males than females in both Conflict directly Affected (0.41 vs. 0.14, respectively) and Indirectly Affected districts (0.27 vs. 0.21, respectively); the gender difference seems to be higher in the Conflict directly Affected districts.

Overall these rates are low and within the acceptable levels according to WHO categorisation, hence not raising major concern.

4.9: Population Pyramid

Information about household members during the previous 90 days was collected. The resulting population pyramid for each zone is shown below. The pyramid is a stage one (expanding) population pyramid where there is high birth rate; high death rate, and short life expectancy. The population distribution shows almost equal number of the men and women (0.9 : 1) both in the Conflict directly Affected and Indirectly Affected districts.





5. Discussion

5.1 Malnutrition

The pattern of malnutrition that found in Abyan is somewhat similar to the pattern that found recently in the neighbouring Aden which characterized by 'normal' stunting, 'serious' underweight and 'critical' wasting. This pattern reflects recent malnutrition that may be precipitated by situations that affect family food supply and limit food intake like the conflicts, famine etc. Such pattern that can develop very rapidly and under favourable conditions can also be restored rapidly differs from the pattern that found in previous SMART surveys (e.g. in Hodeidah, Hajjah) that shows acute but also predominant chronic malnutrition as reflected by extremely high stunting rates which signifies recent-on-top of chronic food insecurity and poverty.

According to the WHO categorization of the malnutrition severity, current GAM rate from Abyan Affected districts classifies it as 'Critical i.e. ≥ 15%' and the current GAM rate for Indirectly Affected districts classifies it as serious i.e.10-14%. Furthermore, the SAM rate of 2.8 in the Conflict directly Affected districts is more than the 2% level where emergency situation is commonly declared. Even in the Conflict Indirectly Affected districts the SAM prevalence of 1.9 is approaching such cut-off point of the emergency situation.

The Conflict directly Affected districts shows higher prevalence of GAM and SAM than Conflict Indirectly Affected districts, but the difference in GAM rates is only statistically significantly (16.1 vs. 11.3, X^2: 8.7, P: <0.01, df 1). Compared to the national figures, the Conflict directly Affected districts GAM rate of 16.1 exceeds the 12.3 per cent national level of the 2003 Family Health Survey, the 2010 IFPRI estimation based on the 2005-06 HBS of 15.7, and the recent 2012 WFP-CFSS estimates of 13.0. However, for Conflict Indirectly Affected districts the GAM prevalence of 11.3 is slightly lower than national figures. Nevertheless, the current GAM rates in the Conflict directly Affected and Indirectly Affected districts are higher than the 2012 WFP GAM rate of 10.1 per cent for Abyan governorate.

Regarding SAM rates, the current SAM figures of 2.8 for the Conflict directly Affected districts is approaching the 3.0 per cent national level of the 2003 Family Health Survey but lower than the 2010 IFPRI estimation based on the 2005-06 HBS of 4.4, and the 2012 WFP estimates of 3.6 per cent. For Conflict Indirectly Affected districts SAM rate of 1.2 is much lower than national figures. Nevertheless, the current SAM rates for the Conflict directly Affected and Indirectly Affected districts are lower than 2012 WFP-CFSS recent estimates for Abyan governorate of 3.2 per cent.

The stunting rate is significantly higher in the Conflict Indirectly Affected districts than Affected districts: 36.5 vs.28.8, X^2 12.5, P value <0.01, df 1. However, such stunting prevalence is much lower than the estimated national stunting levels of 58 per cent (as per 2003 PAPFAM survey), the 2010 IFPRI estimation based on the 2005-06 HBS of 55.7, and the recent WFP-CFSS estimates of 46.6 per cent. Furthermore, the current stunting

figures are also lower than the 2010 IFPRI stunting prevalence for Abyan Governorate of 55.7 but somewhat similar to the recent WFP-CFSS estimates of 32.8 per cent. Regarding the severe stunting, the current rates for Affected and Indirectly Affected districts is also lower than the 2010 IFPRI estimates for Abyan of 16.8 and the recent national WFP-CFSS estimates of 21.7 per cent and but similar (especially for Conflict Indirectly Affected districts) to the recent WFP-CFSS estimates of 12.9 per cent . Such low stunting prevalence and the high wasting prevalence especially in the Affected district may signifies recent food insecurity that result from the recent conflict and may be somewhat better-off food security situation in these district prior to the conflict.

Regarding underweight, which is a composite variable for acute and chronic malnutrition levels in a population, the 29 per cent underweight prevalence In both Conflict Directly Affected and Indirectly Affected district is nearly approaching the WHO (2000) critical levels i.e. 30 per cent. Such rate is lower than the recent WFP-CFSS estimated national figure of 35.5 and the 2010 IFPRI estimates for Abyan of 47.7 per cent but nearly similar to the 2012 WFP-CFSS Abyan Governorate figure of 25.8. The current severe underweight prevalence of 6 per cent is also lower than 2102 WFP-CFSS estimated national figure of 12.6 and the 2010 IFPRI estimates for Abyan of 14.0. However, it is similar to the 7.0 per cent prevalence for Abyan Governorate shown by 2102 WFP-CFSS.

Both GAM and SAM did not significantly differ between rural and urban areas (13.8% vs. 14.6% and 2.9 vs. 2.6 respectively). However, stunting differs significantly between the rural and urban areas (37.3% vs. 20.4%, X^2 46.8, P <0.0001, df 1). Similarly underweight differs significantly between the rural and urban areas (32.0% vs. 22.8%, X^2 14.5, P <0.0001, df 1). Such significant differences may signifies chronic food insecurity in the rural areas and somewhat better-off food security situation in the urban areas prior the conflict.

Contrasting findings from previous nutritional surveys (e.g. Hodeidah, Hajjah), there is no significant differences were found in stunting and underweight between boys and girls. Nevertheless, similar to the previous surveys, boys found to have higher GAM than girls (17.2% vs. 11.0%, X^2 14.6, P<0.0001, df 1). Although, SAM rate is higher among boys than girls, the difference was not significant (3.4% vs. 2.2%, X^2 2.6, P >0.05, df 1).

Wasting, stunting, and underweight did not differ among children aged 36 and above than younger group (which was seen in previous surveys) which may indicates a more wide-spread food insecurity problem in Abyan rather than something limited that is related to practice e.g. weaning.

5.2 Child Feeding

Among children aged 6 to 24 months, only 74 per cent still breastfeed. This does not differ between the Conflict directly Affected and Indirectly Affected districts, urban and rural areas, or by child gender. There is also no statistically significant difference

in wasting, stunting, and underweight between those who still breastfed and those who have ceased breastfeeding.

A significant proportion of children (88 per cent) do not receive the recommended number of meals (4 meals and above), as per UN-FAO recommendations. Although, this does not differ between the Conflict directly Affected and Indirectly Affected districts or gender, it is significantly differ between urban and rural residence (19.5% vs. 9.5%, X^2 10.6, P < 0.01, df 1). However, the levels of wasting, stunting, and underweight does not differ between those who received 4 meals and above or those received less.

Among children aged 6 to 24 months, only about half received more than one milk feed in the last 24 hours. The number of feeds (other than breastfeeds) does not differ between Affected and Indirectly Affected districts, urban and rural, or gender and shows no effect on levels of wasting, stunting, and underweight.

5.3 Vitamin A Supplementation

It is notable that the vitamin A supplementation 6 months prior to the survey is about 38% which is much lower than the recommended 95 per cent coverage Sphere Standards, 2011. Such coverage does not significantly differ between the Conflict directly Affected and Indirectly Affected districts and gender but significantly differ between urban and rural residence (43.0% vs. 37.0%, X^2 4.4, P < 0.05, df 1). No association was found for vitamin A supplementation on wasting, stunting, and underweight prevalence.

Nevertheless, in the view of its proven protective effects for children against infection, more efforts are needed to increase vitamin A supplementation coverage especially in the Conflict directly Affected districts.

5.4 Vaccination coverage

Regarding vaccination, the percentage of children who have been vaccinated with the third dose of polio vaccination found to be significantly higher in the Affected than in Indirectly Affected districts (62.0% vs. 46.0%, X^2 48.9, P<0.0001, df 1). Even in these Affected districts that have higher coverage, such coverage is still much lower than the recommended 95 per cent coverage Sphere Standards. Furthermore, polio vaccination is higher in urban compared rural residence (68.0% vs.50.0%, X^2 50.5, P<0.0001, df 1). However, no association was found with gender, with wasting, stunting, and underweight, or with any of the investigated morbidities i.e. fever, measles, ARI or diarrhea.

Similarly, the measles vaccination coverage of children aged 9 months to below 60 months, is higher in the Conflict directly Affected than Indirectly Affected districts (67.0% vs. 47.0%, X^2 68.1, P<0.0001, df 1). This may indicates more attention had been given for protecting children against possible measles outbreaks in the conflict areas e.g. However, even in these Affected districts that have higher coverage, such coverage is still far less than the recommended 95 per cent coverage Sphere Standards.

Measles vaccination coverage was also higher in urban than rural residence (69.0% vs. 53.0%, X^2 36.2, P<0.0001, df 1). However, no association was found with gender, with wasting, stunting, and underweight prevalence, or with any of the investigated morbidities i.e. fever, measles, ARI or diarrhea.

5.5 Morbidity

The morbidities during the last two weeks prior to the survey was recorded as being high in Abyan governorate where 45% of children reported to have diarrhoea (compared to national figure of 29.6[10]), 67% to have ARI (compared to national figure of 42%[11]) and 66% to have fever (compared to national figure of 40%[12]). Such high prevalence of different morbidities may indicates inappropriate living condition, predisposing the population to illness which is common during conflicts. Furthermore, low herd immunity, inadequate health services and low vaccination coverage could be attributing factors. Such high morbidities is calling for an appropriate and adequate health service provision in order to address negative health outcomes including malnutrition.

The diarrhea prevalence in last two weeks prior to the survey is significantly much higher in the Conflict directly Affected than Indirectly Affected districts (52% vs. 39%, X^2 31.5, P<0.0001, df 1) and in urban than rural areas (55% vs. 42%, X^2 26.0, P<0.0001, df 1) which may be related to collapse of the water and sanitation networks as well as other basic services due to the conflict in these areas.

Diarrhea prevalence is also much higher among children aged less than 36 compared to those who are 36 and above (54% vs. 35%, X^2 64.0, P<0.0001, df 1). However, diarrhea prevalence does not differ by breastfeeding status, feeding 4 times and above (other than breastfeeds) but higher among children who were given more than one milk feed (other than breast milk) in the previous day to the survey (63% vs. 54%, X^2 4.5, P<0.05, df 1). This may be related to unhygienic preparation or administration of artificial milk. Diarrhea also does not differ by gender, vitamin A supplementation, or polio or measles vaccination.

The association between diarrhea and malnutrition has been found in similar previous surveys. Having diarrhea also found in this survey to be significantly associated with GAM (16% vs. 12%, X^2 5.9, P<0.05, df 1) and underweight (33% vs. 26%, X^2 10.9, P<0.01, df 1) but not with stunting or SAM. Repeated attacks of diarrhoea – that may be associated to poor environmental sanitation- found to be associated with tropical enteropathy with resultant poor nutrient absorption and considerable nutrient losses[13]. The resulting nutritional deficiency causes impaired immunity and increased vulnerability to more infection resulting in a vicious cycle of infection and malnutrition.

10 Multiple Indicator Cluster Surveys (MICS), 2006
11 Family Health Survey, 2003
12 Family Health Survey, 2003
13 Jean H Humphrey. Child undernutrition, tropical enteropathy, toilets, and Handwashing. Lancet.com Vol 374 September 19, 2009:1032-35

Regarding the ARI, it does not significantly differ between the Conflict directly Affected and Indirectly Affected districts, rural and urban, and gender. However, significantly higher stunting prevalence found among children who have ARI (34% vs. 30%, X^2 4.1, P<0. 05, df 1) but not with wasting or underweight. ARI also does not associated with breastfeeding and does not differ among children aged less than 36 compared to those who are 36 and above.

Fever two weeks prior to the survey was significantly higher in the Conflict Indirectly Affected than Affected districts (68 % vs. 63%, X^2 5.4, P<0.05, df 1) but no significant difference was found with rural and urban residence or by gender. This may support previous statistics from Abyan health office that Conflict Indirectly Affected districts are more endemic to malaria than Affected districts. Fever neither significantly associated with wasting, stunting, or underweight nor with breastfeeding. However, fever prevalence found to be higher among children aged less than 36 compared to those who are 36 and above (71% vs. 59%, X^2 26.4, P<0.0001,df 1) which may be related to underdeveloped immunity.

Suspected measles[14] during the last month was higher in urban than rural residence (6.0% vs. 3.5%, X^2 5.5, P<0.05, df 1). However, it does not significantly differ between the Conflict directly Affected and Indirectly Affected districts, non-vaccinated children to measles, or by gender. It is also not associated with nutritional status, age feeding practices, or aged less than 36 month.

5.6 WASH and Morbidities and Nutrition Situation

WASH known to be an important factor in relation to morbidities as well malnutrition. Overall only 60% of Abyan households drink water from clean container. Clean water container (i.e. no algae seen) found to be significantly higher in the Conflict directly Affected than Indirectly Affected districts (66% vs. 54%, X^2 27.6, P<0.0001, df 1), and in urban than rural residence (70% vs. 56%, X^2 29.5, P<0.0001, df 1).

Although diarrhea prevalence found to be slightly higher among households not using clean storage for drinking water (48% vs.44%) the difference is not statically significant. Furthermore, no significant association was found between not using clean storage for drinking water and wasting, stunting, and underweight.

Around two thirds of households in both types of districts are having flush or pour flush latrine. Having no flush/pour latrine found not to be associated with diarrhea or malnutrition.

The Conflict directly Affected districts have significantly poorer handwashing practices than Conflict Indirectly Affected districts except for hand washing before child feeding and hand washing after disposal of child faces which are significantly better among the

[14] The suspected measles is defined as having rash and fever in addition to at least one of: cough, sore throat, or conjunctivitis.

Conflict directly Affected districts. Similarly, all household caretaker handwashing practices (except for hand washing before and after meals) are significantly higher in urban areas except for handwashing after cleaning livestock place which is higher in rural areas. Unavailability of soap at handwashing facility was significantly higher in rural areas (9% vs. 3%, X^2 23.9, P<0.0001, df 1).

Only hand washing before meal (42% vs. 50%, X^2 11.4, P<0.01, df 1) and after meal (43% vs. 50%, X^2 6.8, P<0.01, df 1) were significantly associated with low diarrhea prevalence. Although, observed unavailability of soap at handwashing facility seems to be associated with higher diarrhea prevalence, the difference does reach the significance level.

Of the household caretaker handwashing practice only hand washing before meal (30% vs. 35%, X^2 4.9, P<0.05, df 1) and before child feeding (28% vs. 43%, X^2 6.8, P<0.01, df 1) shows significant association with stunting which may be related to higher diarrhea prevalence among those who do not wash hand before meal that mentioned before.

Still, hygiene promotion should be a key intervention contributing reducing morbidities and eventually better nutrition and well-being of the population.

5.7 Food insecurity

Food insecurity indicators found to be high in Abyan governorate where around half of the households reduced meal size or number and around a third reduced expenditure on health/education and have members experienced to go to the bed hungry. This confirms the finding of 2012 WFP-CFSS that half of the Abyan population is food insecure and that 30 percent of populations suffer from reduced access to food as a result of conflict and insecurity[15].

Affected districts were found to have significantly higher percentage and more vulnerable than Conflict Indirectly Affected districts on different food insecurity indicators e.g. reducing the size of meals because of the scarcity of resources (52% vs. 37%, X^2 35.0, P<0.0001, df 1), lower meals number (44% vs. 34%, X^2 20.3, P<0.0001, df 1), member go bed hungry because of not enough food (29% vs. 20%, X^2 12.2, P<0.0001, df 1), reduced expenditure on health/education (34% vs. 28%, X^2 4.9, P<0.05, df 1).

The mean of the composite score for the five food insecurity indicators was also significantly higher in the Conflict directly Affected than Indirectly Affected districts by one way Anova test (2.3 vs. 2.0, F 19.7, P <0.0001, df 1). This indicates that although both the Conflict directly Affected and Indirectly Affected districts are having difficulty in accessing food, the Conflict directly Affected districts are obviously suffering more.

Food insecurity indicators also did not differ between rural and urban areas except for borrowing food/ money to purchase food or purchase food in credit which is significantly higher in rural areas (81% vs. 66%, X2 47.6, P<0.0001, df 1). This may goes

[15] WFP. Comprehensive Food Security Survey, Yemen. March 2010

with the findings from the 2012 WFP-CFSS[17] that in Abyan 80 percent of all households had debt related to food. The fact that such debt is higher in rural than urban areas may also reflects more community coherence at rural areas.

Although the prevalence of all types of malnutrition found to be higher among food insecure households, this is only found to be statistically significant for few variables that are shown in table 20.

Table 20. Food insecurity and malnutrition

Food insecurity	Yes/NO	Malnutrition Prevalence	Statistical significance
1. GAM			
1. reduce the size of meals because of the scarcity of resources	Yes	17	X^2: 7.4, P<0.01, df 1
	No	12	
2. SAM			
1. Did you or any HH member go the bed in night hungry because of not enough food?	Yes	4	X^2: 5.5, P<0.05, df 1
	No	2	
2. Underweight			
1. Did you or any HH member go the bed in night hungry because of not enough food?	Yes	34	X^2: 6.6, P<0.01, df 1
	No	28	
2. Did the HH borrow food, borrow money to purchase food or purchase food in credit or mortgage only if the reason that HH has not money?	Yes	32	X^2: 11.8, P<0.001, df 1
	No	23	
3. Stunting			
1. Did the HH borrow food, borrow money to purchase food or purchase food in credit or mortgage only if the reason that HH has not money?	Yes	34	X^2: 3.9, P<0.05, df 1
	No	29	

5.8 Nutrition Status and Household Caretaker Education

The association between education level of mothers and the child nutritional status is well reported by nutritional survey done in Yemen since 1991. About three fourth of the caretaker in Abyan have no formal education. Although, the prevalence of all types of malnutrition was higher among illiterate mothers' children, only this was statistically significant with stunting. Illiterate mothers' children have significantly higher prevalence of stunting than literate (34.0% vs. 28%, X^2 5.3, P<0.05, df 1).

Although there is no significant association was found between mothers' education and morbidities, there is strongly significant association between mother's education and child feeding and between mother's education and vaccination and vitamin A supplementation. Illiterate mothers' 6 to 24 months children have significantly lower than 4 meals in the last 24 hours (11% vs. 18%, X^2 4.1, P<0.05, df 1) and received less than one milk feed in the last 24 hours (50% vs. 63%, X^2 5.7, P<0.05, df 1). Illiterate

mothers' children also have significantly lower polio vaccination (50% vs. 71%, X^2 54.7, P<0.0001, df 1), lower measles vaccination (54% vs. 69%, X^2 24.6, P<0.0001, df 1), and lower vitamin A supplementation (35% vs. 55%, X^2 44.3, P<0.0001, df 1).

Therefore, a focus on girls' education should be a priority for its clear and well documented profits on children and community health.

6.0 RECOMMENDATIONS

Abyan has different pattern of malnutrition than that seen in other governorates (e.g. Hodeidah, Taiz etc.) but similar to the neighbouring Aden which is represented by 'normal' stunting, 'serious' underweight, and 'critical wasting'. The current figures for GAM are higher than the figures from the 2012 WFP-CFSS but rather similar for underweight and stunting. As Abyan, governorate emerges from war; the humanitarian needs are high and should attract more attention both from government, CBOs/NGOs, and donor community. Although mortality is still low, the critical and serious levels of wasting and to some extent underweight necessitate urgent interventions to address the situation a cross the governorate with more focus on the Affected district.

The existence of multi-sectoral aggravating factors such as collapsed basic services more importantly water, electricity and sanitation, high prevalence of communicable diseases, insufficient coverage of essential health services like immunization and micronutrient supplementation in addition to high level of illiteracy among the majority of caretakers and poor feeding practices are appealing and calling for an integrated multi-sectoral action. The need to deliver an integrate package of services to mothers and their children is very important not only to address the high wasting level but also to address the high level of underweight as well as other development indicators.

Government with support from development partners need to restore security and basic services such as water, electricity and sanitation. As hundreds of internally displaced families have returned to their homes conducting a general food distribution and provide food rations is important. Pre-positioned supplies in WASH, child protection and nutrition are important for response to reach the larger population.

Below are the main immediate and medium-term recommendations:

Immediate Interventions

- Government along with development partners need to urgently restore security and basic services such as water, electricity and sanitation. As hundreds of internally displaced families have returned to their homes a general food distribution and provide food rations is important. Pre-positioned supplies in WASH, child protection and nutrition are important for response to reach the larger population.
- Rehabilitate and re-operationalize the destroyed health facilities to ensure proper delivery of health services especially nutritional services, vaccination and vitamin A supplementation.
- Develop detailed integrated response micro-plan articulating district level humanitarian needs, delivering response package, coverage and gaps to document the progress, advocacy and lessons learnt.

- Priority should be given to pockets of vulnerability especially in the Affected areas through mobilizing outreach services to rapidly address the high GAM/SAM rates.
- Development of CMAM protocol, strengthen and expanding CMAM services to reach all the existed health facilities and outreach services. CMAM services should adhere to the CMAM protocol (ensuring systematic treatment and full consideration of moderate acute malnutrition management) that should be integrated with infant feeding, hygiene promotion and food security interventions.
- Promote appropriate IYCF practices (early initiation of breastfeeding, exclusive and sustained breastfeeding for 2 years and promotion of appropriate complementary feeding practices for children aged 6 to 24 months) along with micronutrient supplementations and deworming. Accelerate the integration of IYCF counseling into all CMAM services delivered by both fixed and mobile clinics.
- Intensive social mobilisation campaigns on IYCF feeding and caring practices through behavior change / communication interventions mainly in the following areas; timely introduction of complementary food and continue breastfeeding up to two years, along with vitamin A supplementation, micronutrient supplements, and promotion of safe sanitation and hygienic practices including hand washing with soap as well as safe disposal of children's excreta, diarrhoea prevention measures and appropriate management of ARI among young children

Medium Term Interventions

- From the development point of view, there is an essential need for Yemen to be an active member in the global SUN movement.
- High level advocacy with the GOY and politicians to mobilise their commitment to fight undernutrition among U5 Yemeni children.
- Scaling up implementation of the national nutrition strategy and related action to address the high level of malnutrition in line with the lifecycle approach along with promotion of maternal nutrition.
- Continued support for longer term water development and sanitation programmes throughout the governorate, with community mobilization activities to promote safe sanitation and hygienic practices.
- Follow up SMART nutrition survey and coverage survey in 2014 to track the progress on implementation of the response plan.
- Exploring new initiatives to promote small scale income generating projects, draw lessons learnt and replicate the successful projects.
- Promote improved latrine use and other hygiene services like Community Led Total Sanitation (CLTS) strategy.

Other Recommendations

- Further investigation is needed to understand the causality tree behind high level of acute malnutrition among boys compared to girls found in this survey as well as earlier surveys e.g. in Hodeidah, Taiz, Hajjah governorates.
- Undertaking full scale national nutrition and mortality survey.

- In the view of high malnutrition among illiterate mothers' children as well as poor child feeding practices and health indicators e.g. vaccination, vitamin A supplementation, found in this as well (as previous surveys in Yemen), a focus on girls' education is necessary in the long term battle against malnutrition as well as for broader development.

7. Annexes

استبيان رقم: .....

Annex 1: Abyan Nutrition Survey Questionnaire

الجمهورية اليمنية
وزارة الصحة العامة والسكان
مكتب الصحة العامة والسكان بمحافظة أبين

مسح الحالة التغذوية والوفيات في محافظة أبين
ديسمبر 2012- يناير 2013م

استبيان الأسرة (نموذج 1)

أولاً. يتم الشرح للساكنين في المسكن (البالغين منهم) عن المسح والتعريف بالجهة القائمة عليه والأشخاص العاملين فيه (أعضاء الفريق)، ثم بعد ذلك الحصول على الموافقة الشفهية منهم.

الموافقة	.1	نعم		
	.2	لا		انتقل إلى النهاية

تاريخ المقابلة	يوم		شهر		سنـــــة			
					2	Ø	1	2

المديرية	العزلة	القرية/ الحارة
الاسم	الاسم	الاسم

اسم رب الأسرة:	

فريق المسح رقم		الاسم	التوقيع
	الاسرة والأنثروبومتري		
	الوفيات		
	رئيس الفريق		

بين فيما إذا كان هناك:		
.1	غياب الأسرة عند الزيارة الأولى ويتطلب الأمر زيارة ثانية	
.2	غياب طفل عند الزيارة الأولى ويتطلب الأمر زيارة ثانية*	

* عند غياب الطفل، تستكمل كل بياناته عدا القياسات الإنثروبومترية والأوديما حيث تستكمل عند حضوره.

ملاحظة: البيانات في الغلاف هي للاستخدام الميداني والإداري من قبل أعضاء الفريق.

استبيان رقم: .....

يملئ من قبل رئيس الفريق (تستخدم لإدخال البيانات)

غياب الأسرة حتى بعد الزيارة الثانية (1 نعم ، 2 لا)	
الموافقة (1 نعم ، 2 لا)	

رقم الفريق	

رقم استبيان الأسرة				

تاريخ المقابلة	ي	ي		ش	ش		س	س	س	س
							2	1	Ø	2

هل المنطقة حضرية (1) أم ريفية (2)	

رمز القرية / الحارة			رمز العزلة	
رمز المديرية			رمز المحافظة	1 1
رقم **طبقة** المسح			رقم العنقود	

العمل المكتبي

	الاسم	**اليوم**		**الشهر**		**السنة**				**التوقيع**
إدخال البيانات										
المراجعة										
ترميز أخرى										

الملاحظات

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استبيان رقم: .....

س 001: بيانات عن الأسرة (الأحياء فقط والذين يعيشون حاليا في الأسرة)

H001a	عدد أفراد الأسرة (الأحياء فقط الذين يعيشون حاليا في الأسرة تاريخ المسح)	**العدد**	

H001b	عدد الأطفال أقل من 5 سنوات (الأحياء فقط الذين يعيشون حاليا في الأسرة تاريخ المسح)	**العدد**	

H001c	عدد الأطفال أقل من 6 أشهر (الأحياء فقط الذين يعيشون حاليا في الأسرة تاريخ المسح)	**العدد**	

س 002 – س 003: بيانات رب الأسرة

H002	مانوع رب الأسرة		
	1. ذكر		
	2. أنثى		

H003	الحالة الاجتماعية لرب الأسرة		
	1. متزوج ويعيش مع شريكه.		
	2. متزوج لكنه لا يعيش مع الشريك منذ ستة أشهر أو أكثر.		
	3. أرمل.		
	4. مطلق.		
	5. حانق		
	6. عازب.		

س 004: بيانات راعي الأسرة

H004	المستوى التعليمي لراعي الأسرة		
	1. أمي.		
	2. يقرأ ويكتب.		
	3. تعليم أساسي.		
	4. تعليم ثانوي.		
	5. تعليم عالي (جامعة أو كلية أو معهد).		

س 005: مصدر دخل الأسرة

H005	ماهو مصدر الدخل **<u>الرئيسي</u>** للأسرة؟			
	.1	منتجات زراعية غير القات.		
	.2	حيوانات ومنتجات الحيوانية.		
	.3	اسماك.		
	.4	تجارة.		
	.5	عمل مؤقت.		
	.6	وظيفة دائمة براتب شهري.		
	.7	حوالات (من المغتربين).		
	.8	أعمال حرفية.		
	.9	زراعة/ بيع/ نقل القات.		
	.1Ø	هبات (من الأهل أو الأصدقاء).		
	.11	ضمان إجتماعي.		
	.12	أخرى: تذكر		

س 006 – س 012: بيانات عن الماء والإصحاح البيئي والنظافة

H006	ماهو المصدر الرئيسي **<u>لمياه الشرب</u>** في منزلكم؟ (خيار واحد فقط)			
	.1	أنابيب مياه موصلة إلى البيت.		
	.2	أنابيب مياه موصلة إلى فناء البيت.		
	.3	بئر مفتوحة غير محمية.		
	.4	بئر مفتوحة محمية.		
	.5	خزان مغطى لحصاد مياه الأمطار.		
	.6	خزان مفتوح لحصاد مياه الأمطار.		
	.7	سيارة نقل المياه (وايت ماء)		
	.8	مياه صحية معبأة (حدة، شملان، كوثر الخ)		
	.9	مياه سطحية غير محمية (وادي، عين ماء جاري، الخ)		
	.1Ø	عين ماء محمية		
	.11	أخرى: تذكر		

				إنتقل إلى
H007a	هل تقومون بمعالجة الماء قبل **الشرب؟**			
	.1	نعم		
	.2	لا		H~~008~~
	.3	لا أعرف		H~~008~~

H007b	ماهي طريقة المعالجة **الرئيسية** المستخدمة **لمياه الشرب** (خيار واحد فقط)			
	1.	غلي الماء قبل الشرب		
	2.	استخدام الكلور		
	3.	الترشيح عبر قماش نظيف		
	4.	استخدام مرشح سيراميك أو رمل أو ماشابه (فلتر أو قطارة)		
	5.	ترك الماء ساكنا قبل الشرب لترسيب الشوائب.		
	6.	استخدام الشب (شب الفؤاد)		
	7.	أخرى: تذكر		

H008	**للملاحظة**: **تحقق** من توفر نقاط تخزين المياه **لغرض الشرب**: هل الوعاء الحاوي لمياه الشرب نظيف؟ (عدم وجود طحالب يعني رقم 1 ووجود الطحالب يعني رقم 2)			
	1.	نعم.		
	2.	لا.		

H009	اين تتم عملية قضاء الحاجة (التبرز)؟ (اختر فقرة من التالي)- **تحقق** من توفر المرافق والممارسات			
	1.	مرحاض - يتوفر فيه صب الماء للتنظيف الذاتي (سيفون أو دلو).		
	2.	مرحاض - حفرة دون غطاء.		
	3.	مرحاض - حفرة مغطاة بطريقة بسيطة (الجاف).		
	4.	قضاء الحاجة في العراء (في الحقول مثلا، الخ.)		
	5.	أخرى: تذكر		

H010	متى تقومين بغسل اليدين باستخدام الصابون أو الرماد أو التراب أو أوراق الشجر أو ي مادة اخرى؟ (ضع علامة أمام أكثر من فقرة إذا قام الشخص بذكرها. **يرجى عدم طرح خيارات الإجابة على المستجيب**					
	a.	بعد قضاء الحاجة	.1	نعم		
			.2	لا		
	b.	قبل الأكل	.1	نعم		
			.2	لا		
	c.	بعد الأكل	.1	نعم		
			.2	لا		
	d.	قبل الطبخ	.1	نعم		
			.2	لا		
	e.	قبل إطعام الطفل	.1	نعم		
			.2	لا		
	f.	بعد التخلص من براز الطفل	.1	نعم		
			.2	لا		
	g.	بعد التنظيف لمكان المواشي والدواجن	.1	نعم		
			.2	لا		
	h.	اية إجابات أخرى: تذكر:				

H011	**للملاحظة**: في نقطة غسل اليدين، تحقق من وجود التالي					
	a.	الماء	.1	نعم		
			.2	لا		
	b.	الصابون	.1	نعم		
			.2	لا		
	c.	الرماد/ التراب/ القضاض/ أوراق الشجر.	.1	نعم		
			.2	لا		

H012a	أين تحصلون بصورة رئيسية على الرعاية الصحية عندما يمرض أحد أفراد الأسرة؟			**إنتقل إلى**
	.1	لا أطلب مساعدة طبية		
	.2	تداوي شخصي		
	.3	معالج تقليدي/ شعبي		
	.4	شيخ/ القرآن		
	.5	صيدلية		
	.6	عيادة خاصة		C~~013~~
	.7	مرفق صحي عام		C~~013~~

H012b	في حالة عدم الحصول على الخدمة الصحية، ماهو السبب الذي يجعلكم لاتسعون للحصول على الخدمة في مرفق صحي أو عيادة عند المرض؟			
	.1	الكلفة عالية		
	.2	المرفق بعيد ولا تتوفر مواصلات		

	3.	لايوجد وقت كافي		
	4.	لا نثق في خدما ت المرافق القريبة		
	5.	أخرى: تذكر		

س 013 – س 017: خاص بحالة الأمن الغذائي (الإجابة على هذه الإسئلة يجب أن تكون وفقا للحالة خلال الـ 30 يوم الماضية)

H013	خلال الثلاثين اليوم الماضية، هل حدث أن لجأ (الاسم) أو أحد أفراد الأسرة إلى تصغير حجم الوجبات في اليوم بسبب شحة الموارد؟			
	1.	نعم		
	2.	لا		

H014	خلال الثلاثين اليوم الماضية، هل حدث أن لجأ (الاسم) أو أحد أفراد الأسرة إلى تقليل عدد الوجبات في اليوم بسبب شحة الموارد؟			
	1.	نعم		
	2.	لا		

H015	خلال الثلاثين اليوم الماضية، هل حدث أن ذهب (الاسم) أو أحد أفراد الأسرة إلى النوم في الليل وهو جائع بسبب عدم كفاية الغذاء؟			
	1.	نعم		
	2.	لا		

H016	خلال الثلاثين اليوم الماضية، هل حدث وأن قامت الأسرة باستلاف الغذاء، أو أقترضت نقودا من أجل شراء الغذاء أو قامت بشراء الغذاء بالآجل (الدين) أو الرهن **بسبب عدم توفر النقود؟**			
	1.	نعم		
	2.	لا		

H017	خلال الثلاثين اليوم الماضية، هل حدث أن قللت الأسرة الإنفاق على التعليم والصحة لشراء مواد غذائية؟			
	1.	نعم		
	2.	لا		

س 018: حالة تيويد ملح الأسرة

H018	قم بفحص الملح الذي استخدمته الأسرة يوم أمس بواسطة كاشف اليود السريع؟			
	1.	لايوجد اليود.		
	2.	يود أقل من 15 جزء في المليون		
	3.	يود بنسبة 15 جزء في المليون أو أكثر		
	4.	لم يعمل الفحص		

س 019 – س 025: حالة الإطعام والتحصين للأطفال في سن 6-59 شهراً في الأسرة

		C019	C020a	C020b	C021	C022a
رقم الطفل	الاسم الأول للطفل	نوع الطفل 1= ذكر 2 = أنثى	تاريخ الميلاد (بالهجري أو الميلادي)	عمر الطفل (بالأشهر) (إذا كان الطفل أكبر من 24 شهر انتقل إلى السؤال C023)	للطفل الذي عمره 24 شهر أو أقل. هل مازال الطفل يرضع (رضع خلال الـ 12 ساعة الماضية)؟ 1= نعم 2 = لا	للطفل الذي عمره 24 شهر أو أقل. كم مرة قمتي بإطعام الطفل خلال 24 ساعة الماضية؟ (يرجى عدم حساب مرات الرضاعة الطبيعية)
.1			يوم شهر سنـــة			
.2			يوم شهر سنـــة			
.3			يوم شهر سنـــة			
.4			يوم شهر سنـــة			
.5			يوم شهر سنـــة			
.6			يوم شهر سنـــة			
.7			يوم شهر سنـــة			

استبيان رقم: .....

			C022b		C023	C024	C025
رقم الطفل (كما سبق أعلاه)	الاسم الأول للطفل	عمر الطفل (بالأشهر)	للطفل الذي عمره 24 شهر أو أقل. كم مرة قمتي بإعطاء الطفل حليب خلال 24 ساعة الماضية؟ (يرجى عدم حساب مرات الرضاعة الطبيعية)		هل تم إعطاء الطفل فيتامين (أ) خلال الستة أشهر الماضية؟ (إظهار عينة) 1 = نعم 2 = لا 3= لا أعرف	هل أخذ الطفل جرعة لقاح الخماسي3/ الشلل3؟ 1 = نعم 2 = لا	للأطفال بعمر تسعة أشهر فأكبر. هل تم تطعيم الطفل ضد الحصبة. (حقنة في اليد اليسرى)؟ 1 = نعم من البطاقة. 2 = نعم بالتذكر. 3 = لا أعرف 4 = لم يطعم
.1							
.2							
.3							
.4							
.5							
.6							
.7							

س 026 – س 035: القياسات الجسمانية ومراضة الأطفال بين سن 6-59 شهر في الأسرة

			C026	C027	C028	C029
رقم الطفل (كما سبق أعلاه)	الاسم الأول للطفل	عمر الطفل (بالأشهر)	الوزن (كيلو جرام) 88.8 = رافض 99.9 = غائب	الطول (سم) 888.8 = رافض 999.9 = غائب	التوذم (أوديما) في كلا القدمين. 1 = نعم 2 = لا 8 = رافض 9 = غائب	قياس محيط الذراع (سم) (الميواك) 88.8 = رافض 99.9 = غائب
.1			.	.		.
.2			.	.		.
.3			.	.		.
.4			.	.		.
.5			.	.		.
.6			.	.		.
.7			.	.		.

استبيان رقم: .....

			C030	C031	C032	C033	C034	C035
رقم الطفل (كما سبق أعلاه)		عمر الطفل (بالأشهر)	الإسهال خلال الأسبوعين الماضيين 1 = نعم 2 = لا	سعال أو صعوبة في التنفس خلال الأسبوعين الماضيين 1 = نعم 2 = لا	الحمى خلال الأسبوعين الماضيين 1 = نعم 2 = لا	الاشتباه بالحصبة خلال الشهر الماضي (طفح جلدي + حمى + (سعال أو إلتهاب حلق أو إلتهاب الملتحمة) 1 = نعم 2 = لا	هل نام الطفل تحت شبك الناموس الليلة الماضية؟ 1 = نعم 2 = لا	هل الطفل مسجل حالياً في أي مركز تغذية 1= SFP (تغذية تكميلية) 2= TFC (معالجة سوء التغذية في القسم الداخلي في المستشفى) 3= OTP (معالجة سوء التغذية في العيادة خارجية) 4= أخرى 5 = غير مسجل
.1								
.2								
.3								
.4								
.5								
.6								
.7								

مسح الحالة التغذوية والوفيات في محافظة أبين ، ديسمبر 2012- يناير 2013

استمارة رصد أفراد الأسرة خلال فترة 90 يوم من تاريخ المسح (نموذج 2)

مديرية المسح: _____ **الحي:** _____ **التاريخ:** _____ **رقم العنقود:** _____ **رقم الفريق:**

_____ **رقم إستبيان الأسرة:** _____ **طبقة المسح:** _____

م	الاسم (اختياري)	الجنس (ذكر أو أنثى)	العمر بالسنوات	التحق أثناء فترة 90 يوم	غادر أثناء فترة 90 يوم	ولد أثناء فترة 90 يوم	توفي أثناء فترة 90 يوم	سبب الوفاة	موقع الوفاة
1									
2									
3									
4									
5									
6									
7									
8									
9									
10									
11									
12									
13									
14									
15									
16									
17									
18									
19									
20									

هام: يتم تسجيل كل الأفراد الموجودين حاليا و كل من التحق بالأسرة أو غادرها أو توفى أو ولد خلال 90 يوم من تاريخ المسح

رموز أسباب الوفاة	
1 = الاسهال	**5 = سوء التغذية**
2 = الحمى	**6= العنف / بسبب الصراعات**
3= الحصبة	**7= أخرى (حدد)**
4 = مشاكل في التنفس	

رموز مواقع الوفاة	
1 = في الموقع الحال	
2= أثناء الهجرة	
3= في آخر مكان سكن فيه	
4 = أخرى (حدد)	

Questionnaire Number: ……

Annex 2: Abyan Nutrition Survey English Questionnaire

Republic of Yemen
Ministry of Public Health and Population
Office of Public Health and Population, Abyan Governorate

Nutritional Status and Mortality Survey – Abyan Governorate, Nov – Dec 2012

Household Questionnaire (Form 1)

First: Explain to the residents of the household (adults) about the survey and inform them of the agency conducting the survey and survey staff (team members). Then request their verbal agreement to participate in the survey.

Consent	1.	Yes.		
	2.	No.		Go to the end.

Date of interview	day		month		year			
					2	Ø	1	2

District	**Ozla (Sub-district)**	**Village/ Hara**
Name	Name	Name

Name of head of household	

Survey team number ……		**Name**	**Signature**
	Household and anthropometric data		
	Mortality data		
	Team leader		

Indicate which situation applies:		
1.	Absence of household upon first visit which necessitated a second visit	
2.	Absence of child upon first visit which necessitated a second visit *	

* If the child is not present, all data should be filled in except anthropometric measurements and edema which should be completed only if the child is present.
Note: The data inside the cover is for field and administrative use by the team members.

To be filled by the Team Leader (for data input purposes)

Questionnaire Number: ……

Repeated absence of the household even after the second visit (1=yes, 2=no)	
Consent (1=yes, 2=no)	

Team Number		

Household Questionnaire Number				

Date of Interview	day		Month		year				
					2	Ø	1	2	

Is the region urban (1) or rural (2)?	

Village or neighborhood code number			Sub-district code number		
District code			Governorate code number	1	1
Survey zone (stratum) number			Cluster number		

Stratum number is (1) for Affected Zone and (2) for Indirectly Affected zone

……

……

Desk work

	Name	**day**		**month**		**Year**				**Signature**
Data entry										
Review										
Other encoding										

Remarks:

……
……

……
……

……
……

……
……

……
……

……

Q001: Household data (only those who are alive and living together continuously)

H001a	Number of household members (only those who are alive and living with the household on the date of the survey)	Quantity	

H001b	Number of children under five (only those who are alive and living with the household on the date of the survey)	Quantity	

H001c	Number of children under six months (only those who are alive and living with the household on the date of the survey)	Quantity	

Q002 – Q003: Head of household data

H002	Gender of the head of household			
	1.	Male		
	2.	Female		

H003	Social status of the head of household			
	1.	Married and living with partner		
	2.	Married and not living with partner for at least six months or more.		
	3.	Widow/widower		
	4.	Divorced		
	5.	Angered and separated/ Recalcitrant		
	6.	Single		

Q004: Household caretaker data

H004	Education level of household caretaker			
	1.	Illiterate.		
	2.	Can read and write (literate).		
	3.	Basic education.		
	4.	Secondary education.		
	5.	Tertiary education (university, college, or institute).		

Q005: Household income source

H005	What is the **primary** source of income for the household?			
	1.	Non-qat agricultural products		
	2.	Livestock and livestock products		
	3.	Fishery		
	4.	Trading		
	5.	Temporary work (Casual work)		
	6.	Monthly salary		
	7.	Remittance (from emigrants)		
	8.	Craftsmanship		

	9.	Farming/sale/transport of qat		
	1Ø.	Donation (from friends and relatives)		
	11.	Social insurance		
	12.	Other: specify -		

Q006 – Q012: Water, environmental sanitation, and hygiene data

H006	What is the main source of **drinking water** in your home? (choose one only)			
	1.	Piped water connected to home.		
	2.	Piped water connected to yard.		
	3.	Open, unprotected well.		
	4.	Open, protected well.		
	5.	Covered rainwater collection tank.		
	6.	Open rainwater collection tank.		
	7.	Water delivery truck.		
	8.	Bottled water (Hadda, Shamlan, Kawthar, etc.)		
	9.	Unprotected surface water (valley, running spring, etc.)		
	1Ø.	Protected spring water.		
	11.	Other: specify -		

H007a	Do you treat the water before drinking?			Go to
	1.	Yes		
	2.	No		~~H9~~08
	3.	Don't know.		~~H9~~08

H007b	What is the **main** method used to treat **drinking water**? Choose only one.			
	1.	Boil water before drinking.		
	2.	Use chlorine substance.		
	3.	Filter through clean cloth.		
	4.	Use ceramic or sand filter or similar filter method.		
	5.	Let water settle before drinking.		
	6.	Use of alum crystal to disinfect.		
	7.	Other.		

H008	**Note**: **Investigate** availability of storage for **drinking water**. Is the water container clean (no algae seen)?			
	1.	Yes.		
	2.	No.		

H009	What is used for defecation? Choose one of the following. **Verify** existence of facilities and practices.			
	1.	Toilet – equipped with flush mechanism to wash water down.		
	2.	Toilet – uncovered pit.		
	3.	Toilet – simple dry covered pit.		
	4.	Outdoors in the open air (in fields, for example).		
	5.	Other: specify -		

H010	When do you clean your hands with soap, ashes, dust, tree leaves, or any other material? Place a check mark for each answer said by the respondent. **Do not give the respondent any choices for the answer.**					
	a.	After using the toilet.	1.	Yes		
			2.	No		
	b.	Before eating.	1.	Yes		
			2.	No		
	c.	After eating.	1.	Yes		
			2.	No		
	d.	Before cooking.	1.	Yes		
			2.	No		
	e.	Before feeding the child.	1.	Yes		
			2.	No		
	f.	After disposing of child's waste.	1.	Yes		
			2.	No		
	g.	After cleaning the livestock or poultry areas.	1.	Yes		
			2.	No		
	h.	Any other answers: Specify -				

H011	Note: With regard to hand-washing, confirm the use of the following:					
	a.	Water.	1.	Yes		
			2.	No		
	b.	Soap.	1.	Yes		
			2.	No		
	c.	Ashes, dust, limestone powder, tree leaves.	1.	Yes		
			2.	No		

H012a	Where do you obtain health care if someone in the household gets sick?			Go to
	1.	No medical help is sought.		
	2.	Personal medicines.		
	3.	Traditional healer.		
	4.	Shaykh.		
	5.	Pharmacy.		
	6.	Private clinic.		C013
	7.	Public health facility.		C013

H012b	Why don't you seek health services at a health facility or clinic when someone gets sick?			
	1.	High cost.		
	2.	Facility is distant and transportation is not available.		
	3.	Not enough time.		
	4.	We do not have confidence in the nearby services.		
	5.	Other: specify -		

Q013 – Q017: The food security situation part (to be answered for the situation in the past 30 days)

H013	Over the past 30 days, did you or any HH member use to reduce the size of meals because of the scarcity of resources?			
	1.	Yes		
	2.	No		

H014	Over the past 30 days, did you or any HH member use to reduce the number of meals because of the scarcity of resources?			
	1.	Yes		
	2.	No		

H015	Over the past 30 days, did you or any HH member go the bed in night hungry because of not enough food?			
	1.	Yes		
	2.	No		

H016	Over the past 30 days, did the HH borrow food, borrow money to purchase food or purchase food in credit or mortgage **only if the reason that HH has not money**?			
	1.	Yes		
	2.	No		

H017	Over the past 30 days, did the HH reduce the expenditure on education or food to save money to purchase food?			
	1.	Yes		
	2.	No		

Q018: Situation of salt iodisation

H018	Use the rapid test reagent to check the iodisation status of the salt HH was used yesterday?			
	1.	Not iodised.		
	2.	Below 15 ppm.		
	3.	15 ppm and above.		
	4.	The test was not made.		

Q019 – Q025: Nutritional and Immunization Status of Children ages 6-59 months within the household

		C019	C020a	C020b	C021	C022a
Child no.	Child's first name	Child's gender 1 = male 2 = female	Date of birth. If the date is recorded, skip C020b)	Age of child in months. If the child is older than 24 months, go to question C023.	For children 24 months or less. Is the child still breastfeeding? 1 = yes 2 = no	For children 24 months or less. How many times have you fed the child in the past 24 hours? Do not include number of times breastfed.
1.			Day mo. Year			
2.			Day mo. Year			
3.			Day mo. Year			
4.			Day mo. Year			
5.			Day mo. year			
6.			Day mo. year			
7.			Day mo. year			

			C022b	**C023**	**C024**	**C025**
Child no. (as above)	Child's gender 1 = male 2 = female	Child's age (in months)	For children 24 months or less. How many times have you fed the child milk in the last 24 hours? Do not include number of times breastfed.	Has the child been given Vitamin A in the past six months? (Show sample.) 1 = yes 2 = no 3 = don't know	Has the child been given vaccinations for Pentavalent 3 and Polio 3? 1 = yes 2 = no	For children nine months and older. Has the child been immunized against measles (shot in left arm)? 1 = yes, shown on card 2 = yes, from memory 3 = don't know 4 = has not been immunized
1.						
2.						
3.						
4.						
5.						
6.						
7.						

Q026 – Q035: Anthropometric measurements and childhood diseases of children aged 6 – 59 years in the household

			C026	**C027**	**C028**	**C029**
Child no. (as above)	Child's gender 1 = male 2 = female	Child's age (in months)	Weight (kg) 88.8 = refused 99.9 = not present	Height (cm) 888.8 = refused 999.9 = not present	Bilateral edema (in both legs). 1 = yes 2 = no 8 = refused 9 = not present	Middle upper arm circumference (cm) 88.8 = refused 99.9 = not present
1.			☐☐.☐	☐☐☐.☐		☐☐.☐
2.			☐☐.☐	☐☐☐.☐		☐☐.☐
3.			☐☐.☐	☐☐☐.☐		☐☐.☐
4.			☐☐.☐	☐☐☐.☐		☐☐.☐
5.			☐☐.☐	☐☐☐.☐		☐☐.☐
6.			☐☐.☐	☐☐☐.☐		☐☐.☐
7.			☐☐.☐	☐☐☐.☐		☐☐.☐

			C030	C031	C032	C033	C034	C035
Child no. (as above)	Child's gender 1 = male 2 = female	Child's age (in months)	Diarrhea within the past two weeks 1 = yes 2 = no	Cough or difficulty breathing in the past two weeks 1 = yes 2 = no	Fever in the past two weeks 1 = yes 2 = no	Symptoms similar to measles in past month (skin rash + fever + cough or throat infection or conjunctivitis) 1 = yes 2 = no	Did the child sleep under mosquito net last night? 1 = yes 2 = no	Is the child currently registered at a nutrition center? 1 = SFP 2 = TFC/SC 3 = OTP 4 = other 5 = not registered
1.								
2.								
3.								
4.								
5.								
6.								
7.								

Nutritional Status and Mortality – Abyan Governorate, Nov – Dec 2012

Individual household members monitoring form for the 90 days following survey commencement date (Form 2)

District surveyed: _____ Village/neighborhood: _____ Date: _____ Cluster number: _____
Team number: _____ Household questionnaire number: _____ Survey zone (stratum): _____

No.	Name (optional)	Sex (M, F)	Age in years	Joined within the 90 day period	Left within the 90 day period	Born within the 90 day period	Died within the 90 day period	Cause of death	Place of death
1									
2									
3									
4									
5									
6									
7									
8									
9									
10									
11									
12									
13									
14									
15									
16									
17									
18									
19									
20									

Important: All individuals present in the household should be recorded, whether joining or leaving the household, and whether born or died within the 90 day period from commencement of the survey.

Symbols for causes of death	
1 = diarrheal disease	5 = malnutrition
2 = fever	6 = violence / impacts of conflicts
3 = measles	7 = other (specify)
4 = respiration disorders	

Symbols for places of death
1 = at the current location
2 = during emigration
3 = at a different residence
4 = other (specify)

Annex 3: Abyan Nutrition Survey Team, 22 December 2012 to 3 January 2013

Team No	Survey Team	Position	Duty Station
1	Fahmi Abdullah Ahmed **(Team Leader)**	Medical Ass.	Lawder
	Dr. Yomna Ali Al-Saqqaf	Doctor	IOM - Abyan
	Lawahdh Saleh Ali	Midwife	Khanfar
	Marwa Saleh Ahmed	Midwife	Abyan
2	Abdullah Fadhl Al-Dawbahi **(Team Leader)**	Nurse	Khanfar
	Dr. Sameha Husain Nasr	Doctor	IOM - Abyan
	Ramia Mohammed Mahnoob	Medical Ass.	IOM - Abyan
	Sabreen Saleh Yaser	Midwife	AlRazi Hosp
3	Dr. Meaad Abdullah Haitham **(Team Leader)**	Doctor	Abyan
	Sahar Hasan Qasem	Nurse	IOM - Abyan
	Aseema Mohammed Mubarak	Midwife	Abyan
	Jakeleen Saeed Ali	Biologist	Abyan
4	Dr. Gamal Ali AlShaddadi **(Team Leader)**	Doctor	AlRazi Hosp
	Sahar Mohammed Naser	Midwife	Abyan
	Wafa Ali Alawi	Midwife	Abyan
	Najla Ali Saeed	Midwife	IOM - Abyan
5	Dr. Mohammed Hamood Al-Asbahi **(Team Leader)**	Doctor	AlRazi Hosp
	Ahd Haidra Mohammed	Midwife	Abyan
	Fatima Mohammed Abdo	Midwife	Abyan
	Afaf Abdullah Duba	Midwife	IOM - Abyan
6	Omar Hood Haidra **(Team Leader)**	Nurse	AlRazi Hosp
	Aisha Hasan Al-Waal	Nurse	IOM - Abyan
	Mareena Mohammed Ahmed	Midwife	IOM - Abyan
	Raima Noman AlShami	Midwife	IOM - Abyan
7	Hesham Ahmed Al-Saied **(Team Leader)**	Nurse	Abyan
	Amal Fadhl Eid Shaikh	Medical Ass.	GHO
	Maha Ali Salem	Nurse	IOM - Abyan
	Najla Noman Ali	Midwife	Abyan
	Data Entry team		
	Sami Mohammed Al-Qala'a	Lahj GHO	
	Asma Omar Saeed	Abyan	
	Haidra Alsaffdi Ahmed	Abyan GHO	
	Nashwan abdulwahed Qahtan	Abyan GHO	
	Finance		
	Wael Fadhl Ali	Lahj GHO	

	Logistics		
	Saeed Ali Omar	GHO-Nut Officer	Abyan GHO
	Survey Technical Supervisors		
	Dr. Omar Fadhl Omair	Doctor	IOM - Abyan
	Ahmad Abdo Haidan	GHO-RH Officer	Abyan GHO
	Ahmed Mohammed Al-Shobaili	Medical Ass.	IRC - Abyan
	Survey Manager		
	Dr. Murad Aidaroos Nasr	Doctor	IOM - Abyan
	Technical Advisor, Training & Data verification		
	Nagib Abdulbaqi Ali	Nutrition Specialist	UNICEF – Sana'a
	Data Analysis and Report Writing		
	Prof. Abdulwahed Al-Serouri	SMART Consultant	UNICEF – Sana'a

Annex 4: Abyan Nutrition Survey Standardization Test Report for Evaluation of Enumerators

Report for Evaluation of Enumerators

Weight:

	Precision: Sum of Square [W2-W1]	Accuracy: Sum of Square [Superv.(W1+W2)-Enum.(W1+W2]	No. +/- Precision	No. +/- Accuracy
Supervisor	0.03		3/0	
Enumerator 1	0.48 POOR	0.39 POOR	2/3	4/3
Enumerator 2	0.42 POOR	0.35 POOR	5/3	8/0
Enumerator 3	0.05 OK	0.38 POOR	4/1	2/6
Enumerator 4	0.39 POOR	0.20 POOR	6/1	6/2
Enumerator 5	0.21 POOR	0.38 POOR	5/1	8/0
Enumerator 6	0.30 POOR	0.65 POOR	4/0	0/9
Enumerator 7	0.57 POOR	0.54 POOR	4/2	5/3

Height:

	Precision: Sum of Square [H2-H1]	Accuracy: Sum of Square [Superv.(H1+H2)-Enum.(H1+H2]	No. +/- Precision	No. +/- Accuracy
Supervisor	0.81		9/0	
Enumerator 1	0.89 OK	3.08 POOR	5/1	5/4
Enumerator 2	3.06 POOR	2.93 POOR	4/4	2/7
Enumerator 3	0.90 OK	3.03 POOR	6/4	7/2
Enumerator 4	2.20 POOR	8.47 POOR	4/5	2/7
Enumerator 5	17.97 POOR	12.06 POOR	9/1	3/7
Enumerator 6	108.33 POOR	94.46 POOR	5/2	6/4
Enumerator 7	1.98 POOR	2.19 OK	4/4	4/5

MUAC:

	Precision: Sum of Square [MUAC2-MUAC1]	Accuracy: Sum of Square [Superv.(MUAC1+MUAC2)-Enum.(MUAC1+MUAC2]	No. +/- Precision	No. +/- Accuracy
Supervisor	3.00		2/1	
Enumerator 1	997.00 POOR	760.00 POOR	4/2	5/5
Enumerator 2	186.00 POOR	173.00 POOR	6/4	7/1
Enumerator 3	83.00 POOR	84.00 POOR	1/6	8/2
Enumerator 4	48.00 POOR	317.00 POOR	3/5	9/0
Enumerator 5	75.00 POOR	60.00 POOR	5/2	1/7
Enumerator 6	48.00 POOR	349.00 POOR	6/2	0/10
Enumerator 7	61.00 POOR	94.00 POOR	2/5	1/9

Annex 5: Calendar of Events forAbyan for Reference in Age Estimation

	2007		2008		2009		2010		2011		2012	
Jan		69	New Year's day	57	New Year's day	45	New Year's day	33	New Year's day	21	New Year's day	9
Feb		68		56		44		32		20		8
Mar		67		55		43		31	7th Oct burn event	19		7
Apr		66		54		42		30		18		6
May		65	National Day	53	National Day	41	National Day	29	Zengebar crisis National day	17	National Day	5
Jun		64		52		40		28		16		4
Jul		63		51	Tarq Alfadly event	39		27		15	Ramadan	3
Aug		62		50	Ramadan	38	Ramadan	26	Ramadan Alfater Aid	14		2
Sep		61	revolution Day Ramadan	49	revolution Day Alfater Aid	37	revolution Day Alfater Aid	25	revolution Day	13	revolution Day	1
Oct		60	revolution Day Alfeter Aid	48	revolution Day	36	revolution Day	24	revolution Day	12	revolution Day	0-1
Nov		59	dependence day	47	dependence day Aladah Aid	35	dependence day Aladah Aid Gulf 20	23	dependence day Aladah Aid	11	dependence day	
Dec		58	Aladah Aid	46	ALmagalah event	34		22		10		

Annex 6: Cluster Sampling for Conflict Indirectly Affected districts

City/ Village	Ozla	District	Cluster No
Hawsa	Gaishan	Gaishan	1
Jabera	Gaishan	Gaishan	2
Asekenah	Gaishan	Gaishan	3
Amshakwa	Gaishan	Gaishan	4
Qarn Madwah	Modiah	Modiah	5
Kawkab	Modiah	Modiah	6
14Oct - Rayman	Modiah	Modiah	7
Fahman - AlSaban	Modiah	Modiah	8
AmQa'a	Modiah	Modiah	9
Saken Ambeer	Modiah	Modiah	10
Al Ma'war	Modiah	Modiah	11
Batheeb - Hasn AlShaikh	Ahwar	Ahwar	12
Mayo - AlZera'a	Ahwar	Ahwar	13
hesn Ahl Mohammed	Ahwar	Ahwar	14
Tajamo' AlMesooh	Ahwar	Ahwar	15
AlJawl Adakheli	Ahwar	Ahwar	16
AlWadea'	AlWadea'	AlWadea'	17
Amlazan	AlWadea'	AlWadea'	18
AlRata'e	AlWadea'	AlWadea'	19
AlHamra	AlWadea'	AlWadea'	20
Al Molhem	AlWadea'	AlWadea'	21
Amlajfa	AlWadea'	AlWadea'	22
Dera' Ahl Othman	Sabbah	Sabbah	23
Dor AlDahera	Sabbah	Sabbah	24
Asfal Yafak	Sabbah	Sabbah	25
Bait Mojamal	AlQarah	Rosud	26
Lakamat Bin Daban	AlQarah	Rosud	27
AlThanaba	AlQarah	Rosud	28
Shaka'	AlQarah	Rosud	29
Makeel	AlQarah	Rosud	30
AlDhafar	AlQarah	Rosud	31
Sheb AlNajeel	AlQarah	Rosud	32
Akhdam	AlQarah	Rosud	33
Al Ghazi	AlQarah	Rosud	34
AlRakab	AlQarah	Rosud	35

Dera' AlSabeel	AlQarah	Rosud	36
AlMehraq	AlQarah	Rosud	37
Lakamat Ial Qasim	AlQarah	Rosud	38
Dar AlQawh	Sarar	Sarar	39
AlAlah	Sarar	Sarar	40
Khara'n	Sarar	Sarar	41
Balha	Sarar	Sarar	42
Amsurra	Modiah	Modiah	RC
Al Hadi Saleh	Modiah	Modiah	RC
AlSha'leel	Ahwar	Ahwar	RC
AlMeshar	Sabbah	Sabbah	RC
AlBaiadha	AlQarah	Rosud	RC

Annex 7: Cluster Sampling for Abyan Conflict Directly Affected districts

City/ Village	Ozla	District	Cluster No
Bait Ali Joaim	Zarah	Lawdar	1
Amsharj	Zarah	Lawdar	2
Amsha'a	Zarah	Lawdar	3
AlMaslab	Zarah	Lawdar	4
Batheeb - AlKoni	Zarah	Lawdar	5
Batheeb - Harat Alhare AlAm	Zarah	Lawdar	6
Batheeb - Harat Alhare AlAm	Zarah	Lawdar	7
Amdakhla	Zarah	Lawdar	8
Qa'a Al Husain	Zarah	Lawdar	9
AlSalamia	Zarah	Lawdar	10
Laqoh	Zarah	Lawdar	11
Zarah	Zarah	Lawdar	12
Noman	Zarah	Lawdar	13
AlQana AlSofla	Zarah	Lawdar	14
Hasr	Zarah	Lawdar	15
Qarn Amkareen	Zarah	Lawdar	16
AlHumaisha	Zarah	Lawdar	17
Al Ahmed Saleh	Zarah	Lawdar	18
AlRahwa	Jea'ar	Khanfar	19
AlDerjaj	Jea'ar	Khanfar	20
AlHajfoor	Jea'ar	Khanfar	21
AlHasn-7Oct-Harat AlSooq	Jea'ar	Khanfar	22
Batais	Jea'ar	Khanfar	23
Batais	Jea'ar	Khanfar	24
Harat Mohammed Thabet	Jea'ar	Khanfar	25
Harat Mohammed Thabet	Jea'ar	Khanfar	26
Qasem Abdullah	Jea'ar	Khanfar	27
Mohammed Thabet - Hrat AlHakooma	Jea'ar	Khanfar	28
Harat AlTaweedhat	Jea'ar	Khanfar	29
AlHaroor	Jea'ar	Khanfar	30
Saken AlGubaili	Jea'ar	Khanfar	31
AlMakhzan	Jea'ar	Khanfar	32
AlMakhzan	Jea'ar	Khanfar	33
AlKhamela	Jea'ar	Khanfar	34
AlKod - Badr	Jea'ar	Khanfar	35

AlKod - Saleh Gamee - AlMash	Jea'ar	Khanfar	36
AlWanas	Jea'ar	Khanfar	37
Shaqra	Jea'ar	Khanfar	38
farhan - AlAsala	Zengubar	Zengubar	39
Al-Tomaisi - AlMahal	Zengubar	Zengubar	40
Naji - 22 Mayo	Zengubar	Zengubar	41
BaShahara	Zengubar	Zengubar	42
Amqadeh	Zarah	Lawdar	RC
Jol Salem AlMeyoh	Jea'ar	Khanfar	RC
Saeed Ali Haidara - AlRai AlTaqleedi	Jea'ar	Khanfar	RC
AlMthalath - Harat AlMothalath	Jea'ar	Khanfar	RC
Amsaleeb	Jea'ar	Khanfar	RC

Annex 8: Sampling Frame of Abyan Conflict Indirectly Affected districts

Geographical unit	Population size	Geographical unit	Population size	Geographical unit	Population size
جيشان	592	طيق	17	جول امرواح	295
امشاقه	21	امرقصه	57	امحدين	97
خدش	72	امكريف	29	امحصين	88
ذمرا ال حكمي	76	شعب داوود	67	اجوه	417
امجريبه	27	سياحه	129	امحيره السفلى	50
نجد العنس	28	امرواح	75	امعجميات	60
امبثوام	72	امصيعم	857	امعجيز	39
ذمجرف	78	شعب امفقه	15	امجرور	6
امرصيفه	50	امحنو	58	سيبان وامسحاير	37
هوصه	25	الصرير	47	امحيرةالعليا	125
امروس	76	امهجر	81	امهرت	7
ذم غريف	21	امحاط	56	امصرير	43
ذناب	9	امريحضيه	70	امزريبه	17
لجفة امبير	33	امقاصير	25	مكله	29
امذروة	16	امجز	86	امجريف	42
امسلف	28	امجمع	28	قرض	60
شعب امجلب	79	امفريش	8	امعذ فوري	22
املحه	141	امسياب	80	امثوم	152
فردن	4	امقرد	142	مرحوم	281
امبثيراء	101	لوبطى	72	تبه	27
قضه	17	متبات	109	الجحصامه	43
سعاده	80	امعجلمية	31	المغربيه	48
ريره	46	امشرجه	57	غواق	47
الصر	7	قرن امعقير	39	ليه السفلى	50
امصوفيات	80	بحره	91	امجريف	27
ذي معلب	23	صوفه	122	بلجدار	22
جربة عاطف	57	امصينعة	11	امرتبه	23
امرباء	62	الحشرج	213	امقدفده	26
الصيديه	14	ذمشرية	76	دكي ال سليمان	18
ضاحة الرياح	140	امرحب	33	امصلح	54
ال بركه	54	امفرشات	48	امشطيه	51
امرزه	55	دردر	89	شرعان	45
امخيبيه	61	جرار الطهين	177	ذاره	76
امحياط ال حسين	142	امكديات	199	امصليب	35
الحديج	8	جدبه	11	سناوم الاعلى	34
شاقة معنج	8	امقرين	79	شقه	53
تحض	47	مراقم	29	امرحبه	63
وبار	31	امحبس	140	الحجريه	27
حاط السعفي	61	امشجن	27	امحاط	15
امرده	232	الحصمة	51	امخربه	6
امخرص	56	امسليف	22	العطفه	129
كراش	167	امقيمه	50	سناوم الاسفل	27
موتب	215	امعظيبه	104	مدوه	182
امفطوط	38	امشجين	37	طاووط الاعلى	57
حاط ال ناصر	291	دينوش	176	عراوب	37
امخليف محمر	90	مدالنظر	114	امحجي	38
امخناق	41	امضبيانه	97	الجشيشيه	21
جراده	34	امصرات	179	امخيبيه	21
امداسم	40	امصلب	12	النوام	37
امجنن	15	اسيكينه	17	السوداء	30
ذي امحنو	23	امكربه	9	لامص	22
العف	271	امزمار	6	امتويلقه	316
باقراضه	145	امحينيه	111	امشكوه	79
امصليب	51	امضيق	48	قرن الحماس	18
امبيض	151	بلخبار	3	ال عبد امبي سريع	31
امرضح	170	عذمر	3	حيب احترك	106
امرتاه	247	مجول مسود	118	امسدره	37
ظهرين	142	حاطليوس الاسفل	72	حيب ال حاتم	36
المديد	120	حاطليوس الاعلى	112	قرن موسى	30
جابره	576	العواسج	344	هرب	29
شعب شوال	74	الكتات	103	حسان	42

Geographical unit	Population size	Geographical unit	Population size	Geographical unit	Population size
تيلمه	29	قرن العرماني	98	المنصيب	76
رابط	19	الجهايه	52	ال واقش	43
المقطع	26	امخيل	70	المحفحف	264
امخناق	11	لحمر	679	السوداء	43
الجوار	55	الطبول	218	برذعه	22
الحماس	28	ال مكسر	699	سمر	6
فرعة مقدح	39	ال واقش	74	ذويه	489
ال معورسريع	9	امسوداء	224	قاع العسل	406
المثلعه	218	امحجار	81	مقرن	190
الجيف	59	قرن الوسّل	744	ال عمير	4
سومالك	55	امحجنون	143	ال دهيس	114
امناح	12	النخيه	74	القوز	816
مار	20	تجمع النخيه	38	فرعة القوز	313
القلعه	87	امصره	961	المقر	511
باتملة	55	الفريض	508	فرعان	164
فرعةالفاقه	58	القليته	2073	ال فجم	88
فلحان	18	ال جارالله	15	امعقم	26
المقري	29	جمعان	309	ال امعيد سالم	39
امسنف	55	ال مشيح	70	ال فياض	89
امحماضه	264	ناعب	59	ال هادي صالح	46
رفوان	19	ال حسين	48	ال هادي عوض	34
امعوسج	69	امذراع	224	غير	103
امكويره	55	امقاصر	155	حصن ال الحسين	53
امافود	38	كوكب	888	ال ممرط	843
امسوح	52	العريف	85	ال حاتم كيران	135
سهله	102	قرن ال مشدق	95	باذنب	210
شعب سالم	36	رشنه	67	الحسك	114
عثر	28	14أكتوبر - أهل سالم الهيتمي	699	الحبيل	252
امرخم ال قريش	49	14أكتوبر - حارة المقبابه	1851	ال الربائي	286
الجوفاء	31	14أكتوبر - آل صالح	584	الجيف	68
طلح	67	14أكتوبر - ريمان	945	حصن عبدالله حسين	8
ال احمدمصمع	161	فحمان - فحمان	3673	حصن المشرقي	69
نسرا	29	فحمان - الصين	1616	القشابر	251
وادي النوف	24	فحمان - حارة جرشب	655	جيزة القنان	385
مخلين	48	السجيله	142	العابر	247
الحاط شيبه	49	جول امشعيب	241	ثويرين	706
مزار الغريب	47	مكسرفضل علي	199	حصن محمدعلي هيتم	175
وسيم	28	السلام	69	حصن هس	88
امسرور	80	امكريف	206	الساده	42
جويره	12	ال حاتم مران	639	ال شبيحي	405
امسلاعه	59	ال صينيه الفرعه	364	ال معور	278
حبيل خله	89	حصن الساده توعة	68	جوعر	597
حبيل قرن	6	حصن العنبري	35	ال مسود ي	48
امبقيره	675	امشعراء	473	ال امشق	127
المناصب	180	اهل اميشع	48	ال النوابحه	126
املجى	182	حصن الحبيد	23	القريه	233
تعويه	150	حجر البدري	311	جبلة بادح	292
امساحله	122	امقاع	382	قرنعة ال اسرائيل	110
قرن اميمه	79	قرن موفجه	321	اللبن	40
طهم	164	حبان	211	الشافعيه	97
عوض محسن	20	قرن عشال	384	الأنتقاضه - الكدمه	459
امضاوح	150	قرن امارم	93	الأنتقاضه - القرنعه	585
قرن منوه	297	تجمع حرجة ال صينيه	149	الأنتقاضه - الساده	256
حبيل طهم	167	منصب	322	الأنتقاضه - السلام	709
الجنح	30	جبلة الوزنه	2232	باذيب - حصن الشيخ	1764
عرقوب محمر	312	ساكن امبير	614	باذيب - الشروه	276
امكدو	32	ال صينيه البصره	104	مايو - ليبيا	280
الوحده	253	الحسني	16	مايو - وحدة الكفاح	516
تجمع اماصول	33	المداره	515	مايو - ردفان	296
صومل	119	اهل شفاء	63	مايو - جول الحدد	385
امحلوف تورك	49	اهل شائع	145	مايو - العسكر	207

Geographical unit	Population size	Geographical unit	Population size	Geographical unit	Population size
مايو - السعد	234	حصن الطامي	131	حمضان	14
مايو - المجبى	213	حصن اهل محمد	953	سيسب	85
مايو - جول مهدي	441	المحصامه	514	ارينبه	46
مايو - الزراعه	825	الميزان	46	تجمع سيسب	55
الأنتفاضه - الرعب	278	الرحبه	221	تجمع ذموره	33
الاول	220	بريه	44	كبر	37
الجاوال	205	ماسب	584	جول السلام	285
دهساء	59	كوره الرصراص	90	ساقه الغريب	54
حصن امصيدي	10	القريه الرصراص	138	جول الهيل	556
الصبيل	181	الجوفاء الرصراص	459	اهل سبيله	45
الحبيل	85	اول الرصراص	256	الخزعل	97
جول الثويرحيه	684	ظهر المكيله	235	ابن الابيض	75
الجثوه	74	قرية نصبه	202	اهل بارك فيه	73
الشواق	71	الرواد	423	قريه الونش	68
الحره	24	الرويس	124	الغريب	182
البجباج	61	حصن العميسي	176	اهل سعيدالبدوي	74
خمور	83	الثميره	8	حمدون	28
الكداح	67	تجمع لبهاج	26	المنصب	38
امبسطي	639	تجمع غيضمان	40	مزرعة باشبوه	26
الحجنه	131	تجمع لضابي	30	الجول الداخلي	131
الجيش	53	ضيعم	173	بئرفضل	157
البحاويه	506	تجمع المسوح	363	المخشف	171
العند	94	تجمع المغابره	77	اهل عيشه	67
اهل ناصر	366	تجمع لعشم	151	حصن بلعيد	201
ساكن تسليره	68	زايه	16	الملحه	49
برقه	16	الشبهه	78	كوره العسوس	417
الجعفريه	12	بيعر	79	قرن الفؤره	132
ابوطنه	74	منبع	84	تعالب ال باعش	265
العتاريب	13	الشاقه	434	بيت العامري	29
النعيم	179	الملجي	64	امعديل	19
الشعليل	155	فحم	27	بيت عبدالله صالح	26
ال جعيم	238	الخشب	75	قرن محمد	22
الجدله	56	الهميه	27	ال صابر	75
بن الشبيه	117	بريخ	5	ال محضوج	120
قرية قريه	76	تجمع السدره مربض	22	حسين مسعود	97
الدحقه	104	المعاشير	74	ساكن الخضر علي	15
اهل صالح المساني	451	مواقيد جاله	78	الجرويه	177
حوطه المدرك	86	عياناء	112	ال معرج	180
البندر	574	المعبيره	68	الشحطه	236
اسماعيل	24	تجمع العراقيب	54	الحصن	64
اهل احمد المساني	97	لهيه	95	ال وهيب	137
اهل ربيع	70	الهجيره	33	بيت المزمبر	31
محسن ربيع	41	المزارب	45	بيت علي صالح	26
الجعش	255	المتعلف	100	بيت شيخ محمد	14
حصن بن حريبه	68	المقابره	78	الوضيع	2102
البلق	52	الخروش	53	ساكن علي مشرم	108
الهجل	65	جول التعالب	16	ساكن هيثم	97
اهل الحاج العمودي	235	الدخله	22	ال حسين علي	164
ساكن عثمان باجاح	16	عثير	29	قرن احمد عسل	95
المشهد	83	الجذامي	61	ساكن عيدروس	145
ساكن علي صالح	14	عمد	43	ساكن محدب	62
مقبل	292	تجمع المسافيل	29	جريز فان	524
السعد	322	التنوم	26	تثيلح	72
باشبوه	87	قداحه	22	مكوع	103
ساكن بن ربيع	1	جول غزه	60	ساكن علي الصيدى	25
باساحم	275	خباله	29	ال احمد فضل	45
حصن ناصر اهل احمد	296	تجمع تماده	35	ال علي صالح	18
كدمه الرماح	88	تجمع الفرش	8	حبيب الهارش	280
الد عمكي	30	تجمع ظلومه	62	اميرقاء	166
ساكن حرسي	14	تجمع اهل الصليح	34	علي عبدالله	13
ابوحنش	6	ذموره	12	صالح جغيم	35

Geographical unit	Population size	Geographical unit	Population size	Geographical unit	Population size
املفج	159	الحاطبه	275	الحبيل	812
سفاح	13	القدس	73	الشعب	699
الجبل وادي الفرع	8	الصلاتوحه	79	خريشه العواص	56
فريده	339	سالم الحمزة	93	الجيف	27
امخرابه	193	الترقيه	12	فرعة الذئبه	197
امفيسّال	20	بيت عوض صالح لبابض	74	امر كد	1276
الفرع ال القيده	128	اهل النقي	134	شعب علي مجهر	140
كورة الجفه	223	المزرعه	62	ال مدلع	137
قرن ال عزيز	31	امصفصف	79	حميثه ال مجهر	191
ال مدفن	74	عبدالله احمدناصر	8	ال كريدم	47
شعب امنقع	17	مدرسه الوحده	1	امقلع	295
ال قتاب حبيب	153	امنصيميه	86	املجفه	687
ال صالح الرباش	168	امكدو	90	ال فارخ	82
امشغاريه	40	بيت الجريبه	156	الخلوة مرصع	51
رشاد	263	بيت الخضر الطميتي	54	الفريعات	272
محمد الحمزه	24	امعميثه	120	الغوازل مرصع	168
سالم هادي	14	الساده امزراع	61	مطرح اهل سعد الاعلى	68
اميمه	217	اهل الطريحي	45	مطرح اهل سعد الاسفل	251
املزان	246	القشيعة	240	الصافح	48
صالح عبدالله مظلومي	26	ال مسعود	29	ذراع الفارعه مرصع	22
سالم صالح مظلومي	33	اهل هيثم	28	الفارع ال معمى	47
ضاضه منصور سعيد	51	سمعان	169	حاط البركاني	18
ضاضه المنصب	90	امريده	16	الحبيل	568
ضاضه الخضر عبد الله	9	الكمع	917	خفوش	184
امصوملي	23	الحمره	367	اسفل حدق	194
ال الرباش	58	امقاع	54	حاط الضيف	46
مجدب	688	اهل امقبرية	18	حاط احمد علي	22
قرن الجرباء	82	ساكن مقط	66	ميواب موسى	16
ال احمد منصور	121	امجدار	218	حاط الفرش	48
ال ناصر منصور	66	ال مسر	68	حبيل امعلال	11
غول حيده الدنبوع	129	حبيل حساره	573	شعب سلمه	27
غول حيدره الضب	27	امقربه	105	ذراع عنبيان	8
غول حيده ناصر سعيد	48	منقاش دلهم	144	ذمضاط	35
دكين	20	عطيه	276	مرصاف حدق	119
السمخ	38	الرياض	172	امرثيه عيال سالم	59
حبيل المسجد	388	المتنبح	38	ال وحيش	15
كوره حليمه	275	ال صائل	33	ال مهتم	36
امخالف ال امتدقاء	62	ربوعه	135	المحروق	40
المخراقه	89	ال شمباء	305	اسفل مرصاف	63
كوره محمد مقبل	70	ال عبدالرب	347	مجدع مضلل	26
امقراره امشياف	601	ال امنجم	470	شرزان	64
الطباله ال الحمزه	98	ال فجاح	198	شعب علي	47
ال المحروق	90	امصلاوحه	140	ذراع صالح محمد	30
لحزوم	268	ساكن امصحران	92	امضباع	18
الطباله الكايس	52	ساكن محمد امقرش	98	حبيل المرصعه	50
الميدان	58	مضبان ال احمد علي	16	امضاهري	32
ال ملوق	64	ساكن ابو بكر	36	الحسي	16
ال طرموم	146	ال محمد منصور	43	مقسم	31
ال بوشرم	111	ال الهدار	160	اسفل امحنو	17
حبيل مزقم امحجل	228	ال علي منصور	121	نجد امعضب	12
امراس ال شميا	241	قرن امر هين الصبري	6	النظيم	123
الفرشه	45	ال الخيري	46	ذي زبد سبيح	65
الرتاعي	400	ال احمد سالم	47	النشم	14
ال هيثم	15	قرن امر هين مشرم	27	السقايه	41
التبيه	54	المخلس ال الجحما	154	حظله	144
الحردوب	667	ال هدران	139	الحنكه سبيح اسفل	52
الحمزه مدهس	31	ال ملهم	221	سبيح اسفل-حصن مشدل	56
قرية اميتول	65	ساكن ناصر جحما	95	المذافي	66
ال الطريقي	171	ال علي صالح ابوبكر	7	جبيجبه	118
ال مجدع	39	قرن امر هين ال عوض	62	الحنكه بين الوده	26
ال احمد محمد	20	المخلس ال خرام	36	البسره	29

Geographical unit	Population size	Geographical unit	Population size	Geographical unit	Population size
العميلجه	30	شعب الجراد	45	التولقه	33
الوحده	41	دباج	138	العشيرات	86
سيود	54	الزفتين	44	شعب لاهب	33
تهجره	49	الجره	121	اسفل نعمان	1
امغفيلي	114	المنقاش	137	الجروم	110
الجوف	9	الحسوه	29	الغرابه	192
ظلمه	256	الخشعة	23	المريوم	9
المخيّبي	15	ذراع المدرسه	67	امدخول	23
صريم	32	عرفا	21	اسفل قرض	24
بير الحجري	25	الجائزه	175	التعيبات	3
السميره	63	الحوطه	113	ذراع الجروم	22
النشمات	22	الذراع	261	اسفل العشر	33
المعشار	75	القرن	122	الشعبين	30
جنفور	113	المعزبه	163	ذراع السوق	26
النصر	90	الدور	109	تي سمعه	12
الرزوم	132	الجبل	65	حبيل اهل بقش	33
الفرعه	174	شعب اهل ناجي	35	بلوله	19
ذراع منخل	83	دور سالمه	98	الخضيراء	35
حبيل حدق	184	القرين	343	الفريغ	19
مطرح اهل طاهر	65	الحصن	191	وادي مزرح	34
عليل	27	دور الجديده	90	شعب الماء	42
الموكره	25	بيت عوض عبدالله	19	عطف المحل	84
العشره	36	اسفل سقم	135	ذراع القصاص	113
ذل الحناء	57	ذراع سقم	120	حبيل المصينعه	33
الحزيج	52	حزر لعلي	208	شعب الوسطي	200
الطوي	35	الشيبانية	51	القفله	156
الحازق	25	بيت حسن حسين	24	ذراع المجافيه	107
الشعوبه	31	السورق	601	الماون	41
السقمه حدق	113	دار الصفاء	186	تي سليمان	23
الرحبه حدق	255	دور الظاهره	217	حيظان	15
مامض	56	الفمر	86	العقله	229
ذراع سلمان	109	البورعه	80	الريوي	110
لقلت	58	ذراع تي مالك	23	ذراع باجمران	17
لحيان	22	دقة الكهالي	103	اسفل يراك	32
المصينعه	40	السله	92	شعب صالح	19
الفارعه	83	علنيط	64	الشعبه	82
جيشان	28	الصرصور	138	جحريه	6
المعزبه	95	حاط الحبيل	74	اسفل يفاك	81
عطف الراك	759	عطوم	16	الفريع	97
ذراع ال احمد	431	بيت عبدالله كسويه	13	العطفه	149
المنيحه	36	قلعة الصمود	36	المعترض	77
اهل مخير	167	ذراع تي سالمه	90	ذراع الرامي	117
التلت	210	الناجة	23	ذراع اهل عليان	119
ذراع سالم	74	حاط مجسان	11	النجرات	67
ذراع الجراب	32	نجد مورق	12	حبيل الحصين	21
اشعاب تراه	67	سوق سباح	181	بيت الجعدي	18
شعب احمد	85	عرجش	208	ذراع النوره	122
الجميميه	100	حبيل الشبه	98	الحله	51
شعب نعمان	30	شعب سيود	87	مسورة	173
ذراع حامد	13	حبيل الجذاب	173	ذي العنصد	34
كاليه	71	الخرق	251	الكمة الحمراء	18
البيحاني	164	يثوب	93	اعلى قراض	45
ذي التوالقه	89	الحواجل	15	ذي جليد	624
ذراع الكتاب	87	عمق	42	المحراس	119
ذراع القبالي	58	الخوفعي	65	صائر	50
ذراع اهل عثمان	91	اللفيج بيت عوض مبارك	8	ذي المالح	212
الجريب	14	شعب البقر	16	بيت بن طوق	143
الماروك	17	لتيله	48	وسط الوادي	79
الصومعه	24	الحمراء	23	صر عدد	64
الخضراء	371	الخاسري	61	شعب الذيب	80
الزفق	317	روسه	62	بيت بن حمزه	81

Geographical unit	Population size	Geographical unit	Population size	Geographical unit	Population size
المعزبه	40	سعيده	27	الفرع	211
د قار	38	المعزبه	119	البارك	97
بيت بن التيح	78	الخربه شعب	212	ذالشارق	114
الخربه	70	اسرار	13	المقدم	49
التحنفه	236	دايه	161	القود	277
ذراع المشدلي	61	شعبه	40	نباش	21
بيت بن مثنى	84	الحديدة	70	الحره	117
قود بن عسكر	289	رهاو ذي هجير	23	دار الصلايه	63
الصلول	102	عمران	455	الخلوه	46
بيت الحبيل	261	نصحان	263	الزحاح	184
حصن بن سعدان	225	النجيد	80	ارطب	71
لكمة المقدح	55	الوتره	50	القرن	64
القران	334	اسفل قطبي	173	بوه	79
عفرا	25	الفارس	167	اسفل حمومه	250
اسفل حرص	27	حمال	66	بيت الجعدي	127
بيت مجمل	87	هرمان	106	اسفل عرق	36
معزبة بن شيخان	75	الضباب	36	رهوة فارس	360
ذراع الفقيه	169	القاهره	117	المداد	46
المفيصره	158	الحمرا	172	اللكمه	58
القطو	62	الجحله	148	مثيط	85
الكداحه	28	قرية ناصر	529	اسفل خدمين	79
ذراع بن درويش	166	المحراس	80	شعب البارع	541
اشعاب منصور	23	الكمه	52	المعزبه	127
المياببر	9	رهوة حرضه	8	خيران	20
لكمة الوطح	330	الذراع	82	بيت الجماه	78
خيران	198	العرشه	195	السمسره	73
الظفر	12	المعزبه	78	مسجد السمسره	276
عسيله	148	الذنبه	130	بوباس	65
حبيل الوطح	172	ذي التوحط	124	دار الرباط	14
الجحيل	15	الساكن	119	ادثم	101
عفران	21	بيت الحيط	103	مكيل	488
الراحه	232	ذي الحرمه	99	مفلح	264
قطبي	41	المزوب	147	ثيمرز	80
عرمه	135	صدحان	255	بيت بن عراش	158
المجاريش	23	المبرك	96	الفرعه	72
العلفي	22	الحيط	25	بدره	51
العطف	43	حلمه	68	بيت الفقيه	107
جبل المطور	523	القطله	48	دار الحمراء	38
الجريبات	46	بيت سعيده	27	ثنفي	123
القدام	174	المدحاء	48	الرفقه	105
بيت احجل	18	المجارير	94	غيل الكثيري	158
المركيه	159	اعلى كدهيه	74	بري	165
قرة العين	108	لكمة البير	245	بيت المنور	16
محسان	69	الفريع	269	السوداء	60
الرباط	349	رهوة الجبانه	160	العملجه	27
سوق المنصوره	36	لكمة كدهيه	118	دار الحنش	27
رهوة الرباط	218	الحوزه	214	القرن	110
الجراجر	19	شمسان	27	الخظراء	130
ظجع	39	ذراع المدن	44	المشتيح	104
جود الذئب	62	النشره	201	الدقه	160
العطف	168	فلسان	241	بيت المضيق	42
الخشعه	57	الزحاح	150	ذراع العطف	92
لسيان	55	قود المدام	128	شباحي	17
اسفل مغلان	104	اسفل الذراع	166	الالافق	116
لكمة بن دعبان	275	الموصف	1233	جراذع	29
المصنعه	69	شكع	81	بيت لصور	26
الحصن	66	تل العماقي	69	سلبة الالافق	4
النوبه	109	السدره	101	حبيل الحنكه	108
قود الذهب	96	لكمة ظلمان	66	حبيل سالمه	64
نصلح	397	حبيل المعزبه	90	قرمش	68
لحلى	136	ثي القبور	178	دقة يانوس	96

Geographical unit	Population size	Geographical unit	Population size	Geographical unit	Population size
حجار البيض	163	الفرع	213	دقة ريم	115
عبر	308	بيت بن قماطه	43	الصفاه	221
المصنعه	187	ينبح	120	حرير	65
شعب ازهر	25	العدنه	102	حرشان	540
رهوة الحرف	49	دقة عبدان	323	السبيل	45
سوق الشعب	10	الربابه	119	الحقيل	15
حبيل المسياه	62	حبول القشوة	231	بيت احمد حيدره	83
عينا	30	تالبه	150	ذامر	227
النقافه	73	اللكام	139	شقبان	115
دار الشعب	95	النوبه	62	مكهل	10
الرفد	37	شريان	431	حذه	280
الخربه	676	الناحيه	189	بيت بن جراش	88
الظفر	275	نباخ	105	المصينعه	170
ذراع بن عسكر	136	ثي بقله	86	نجد المهدية	48
ذبوب	83	صفحة ديول	23	الزغرور	370
ذراع المصبيح	25	الحبول	235	ال غازي	168
ذراع الحاجب	74	شعب الحيد	118	شعره	506
المدام	17	الجربوب	92	اشعاب علي	143
نعمان	33	قرن النشوف	17	اشعاب سعد	133
الحاجب	225	الحنجور	58	الخيل	274
اعلشيب	100	المعزبه	26	حال	150
المعزبه	111	امطراسي	30	خلاله	104
ثمر	125	نجد امتيه	38	حبيل ابليس	27
دقة المغني	6	نجد السله	43	سلحه	198
اربمه	216	شعب الختينه	30	عزه	29
بئر المرفق	81	البدوه	21	الحرضه	28
كسومه	26	الجله	18	قشوان	68
دقة بن زايد	106	الملواه	9	الحمراء	30
دقة بن عيسى	89	بيت محمد حيدره	38	المطلع	14
خيران	200	المصنعه	27	الحديده	31
اجرم	32	اخدام	137	القدير	31
الساكن	114	المسمار	16	لكمة دهلة سالمه	13
الحصن	36	شعب النطفه	17	المسند	55
الشعبه	195	المسان	73	حبيل صلاح	43
الذراع	75	السبياني	99	حصن علي	24
لكمة الجعفره	34	ذي المظاظ	51	العقبه	36
الحاص	150	نجد رداع	38	شعب بن هادي	61
قهر	23	الرحبه	14	دقة عميره	9
شعبة الحاص	41	شعب جار الله	24	شعب الحجر	29
شعب بن الشيخ	52	شعب امذيبه	9	دار الدقه	80
وادي شرذه	96	ذم ديام	67	الضيعه	155
الدواجن	82	طهيان	31	حنكة الفراص	81
المعقاب	337	عضيد	20	حبيل المسياه	18
وعلان	449	رهوة ضبيه	31	المحفد	44
القريه	76	وضاح	4	حبيل الشاوش	77
حلمه	51	يهون	53	الضباب	13
الضيعه	117	ام طويل	43	قرن الضباب	269
الحجله	19	شعبة بن يحي	46	دحيم	85
القشيب	106	ضرم	71	الجحلله	53
القاره	144	فلج	49	الشهد	329
مربان	147	الساكن الجديد	74	الذيب	140
قرواءه	190	ذي مجريف	233	دورمه	210
قرن الحمار	14	بردان	236	حقر	129
المعزبه	25	بيت مصلح	79	الفارعه	54
بيت الرشيدى	11	اسفل شعب	59	حبيل قشبي	18
حيسوت	15	دكه	193	الصلعه	11
الشعيب	24	اسفل بردان	13	الحازه	65
شعب النجيل	31	المخه	59	اشعاب عامر	104
عمدات	234	موقر	174	بيت بن هادي	26
حصن بن عنس	40	اسفل فلج	63	ظبئه	117
رصد	1044	اسفل الشعب	169	عرض الغريب	29

Geographical unit	Population size	Geographical unit	Population size	Geographical unit	Population size
حبيل بن طاهر	211	العقله	178	خربة بن شنظور	47
الركب	120	الصلاتيه	102	الحصن	41
لصنابح	104	الحرضى	111	نوباتين شنظور	30
المعيان	52	اعلى العقاب	91	حاجب المطري	51
الوطاء	140	دار الطوب	106	قود المطري	136
العقبه	83	بركان	50	الوطيه	91
بيت الحربي	18	رهوة سنام	86	بيت الخيالي	29
الجاه	123	المربض	338	المجرور	24
حبيل الجلب	21	لكمة بن عطاف	108	ذ نشمه	73
اسفل شعبه	125	رهوة العسيمي	44	الصرف	109
حبيل الملكه	85	ذراع سنام	78	صفح المعزبه	4
الرديف	88	المعيان	175	جلب صالح	42
اعلى شقصه	254	الهشام	2	المقصاص	13
عيشه	68	رهوة الحصن	14	الفساسي	28
شقصه	320	شعب الحداد	11	شعب السهل	20
المجرور	74	البارك	89	الزقاره	34
الخضراء	115	الحصن	87	معزبة بن اسعد	52
غيل شقصه	218	دفار	212	قرن مصباح	86
نجد المغون	194	حبيل النسري	36	اسفل محيديب	68
القطاط	68	قود الرماعي	93	القرانع	46
السيله	32	رهوة لباقير	33	شعاب المياح	6
القشعه	85	ثعليه	134	الملح	53
رهوة شعب مريح	39	الصحراء	58	ذراع الدور	102
سلاح	104	المهجوف	211	ذراع الحدب	59
المويره	126	المنقل	55	المردع	13
ال عيسى	219	العقبه	108	معزبة ظبه	34
مشدود	117	لجوف	114	علدم	23
الحنجور	38	غنامه	221	شمسان	220
حد المشرقي	100	بيت ال سواد	32	ذراع الغنم	10
العرقوب	12	الزعابله	86	دار الكمه	24
لبدان	58	اهل شميله	170	دار الحرشفي	15
العقاب	230	المحراق	113	الحوطه	69
وادي صرادح	211	المدحا	155	الدقه	18
رهوة الشعراء	37	الزهوين	143	ذراع الخريه	91
الشعراء	155	الركب	74	بيت بن عيسى	54
المدوره	107	الصفعه	88	حيد الشعراء	134
قرن السعيدي	119	اللكمه	54	غيل عسل	35
حبيل مقبل	61	القراءه	44	بيت بن عباس	90
الخشعه	13	جبل بن قماطله	59	لكمةاعيال قاسم	217
عمران	38	الدويره	43	الضرئمه	45
النوبه	69	رهوة سلاح	84	دار الذراع	112
السويل	10	حصن التنابك	75	الخليواه	81
الرحبه	29	المعزبه	118	القيئمه	76
المحز	6	رهوة حرد	8	رهوة الشعوى	75
الكور	179	قود بن هادي	109	الجبوب	71
قرية بن صلاح	51	المرداء	38	الفاهر	126
حصن حراشي	30	لكمة بن سعيد طالب	108	رهوة الفاهر	138
حلمه	44	المنفاش	58	الطلحه	174
ذراع السبيل	65	قرن بن معمر	103	رهوة لمس	265
شرطحه	57	رهوة بن علي	183	حبيل فضل	195
الظفر	95	المسرجه	180	حبيل الطلحه	128
مذيله	261	ذلحوس	21	اسفل مشط	312
شعب عثمان	209	دفة العضرب	19	المحراس	125
شعب المجر	4	اسفل عضيب	11	اسمح	20
الربعه	65	وادي ضبه	9	الجشا	91
الجلوب	57	البرقة	16	رهوة العروس	50
الحقيل	69	قرية ظبه	41	السوداء	8
القرحه	280	ذراع باكراع	146	مصيفعه بن عليان	82
الخربه	7	بيت بن طاهر	15	مسيريب	140
الفقر	24	القطاط	194	القرن	7
لكمة بن عبد الملك	104	حيد بن اسعد	100	اسفل الفراشه	37

Geographical unit	Population size	Geographical unit	Population size	Geographical unit	Population size
ثمر	19	اسفل مر لعلي	8	دار الحنتي	55
معزبة بن عسيل	57	البخباخ	42	النجد شوظه	6
قود المشلى	45	اسفل الصفاه	40	الدقه	36
قود الدلاعيس	95	اسفل شعب مسود	34	قرن امنقل	40
ذراع المحله	57	قمة بن مشوش	49	امقاريه	83
معزبة السيسب	79	المغباب	151	ال بديل	223
اعلى السيسب	275	اعلدابهم	81	المسوح	132
الخضراء	212	المسياه	63	الصفعه	118
لكمة اهل دجران	137	قود ابهم	44	ال عسل	121
دار مقرس	6	اسفل ابهم	13	المقدح	222
قود بن بعوه	102	اسفل العقبه	18	الشعبه	56
الجحيله	29	اسفل لمس	97	ذراع اميبت	17
قرية بن لصم	309	بيت زين احمد	20	اسفل طاقه	53
ذبذوب	154	نابص	5	المحارس الاسفل	80
ذراع الدقدوق	59	ملاحه	388	القفله	15
ذراع الميرك	124	حبيل مفطخه	92	حاجب ال مخير	113
الجوفا	23	المشاف	24	القود الاسفل	89
حبيل ودعان	31	قرقر	18	القود الاعلى	37
قرن التهامي	34	القلات	149	المعزبه	144
ذراع العيساني	84	امعزيفه	3	الخشناء	113
عضيد	190	ارنبه السفلى	122	عضمان	34
البياضه	127	قريه	64	المناح	20
سكته	173	اسفل مينه	25	بيت يسلم	52
رهوة الجدة	23	نجد الكحل	71	قرن المسوح	61
حبيل التربيه	51	امعكينا	80	المحارس العلياء	162
عفاره	146	ارنبه العليا	30	الحسوه	9
دار البركه	151	قلعة المقبره	28	دقة ال جابر	83
الحاجب	233	ذم جريف	15	سرار	66
الجبانه بيت شغفل	50	اسفل امفاتخ	34	اسفل مذايه	4
مجيبه	12	الفرع	12	الجداسه	30
حبيل الديام	38	قرقر الاسفل	43	ال عبدان	25
المجهاش	23	المهم	3	الحجيشه	67
الماسوس	46	المحشاوي	46	امراءه	32
خيران	134	اسفل صربان	202	امعقبه	150
بيت المرفدي	21	نوبان	76	العلاه	318
قود السخلى	24	دار القوح	66	المريقب	22
السيله	97	العريش	38	قرن مقبل	90
ذراع الحسيه	30	اسفل متيه	161	اسفل حوج	33
الازواق	15	امقحفي	58	قرن بن جبر	38
رهوة عبده	35	الهشاش	22	الدقه	46
دار اللكمة	52	اسفل مربان	138	الشنابك	133
الرحبه	34	الهدارة	27	الحجار	41
قول بن عامر	21	صرها	16	امرشح	24
شعاب امبغثاء	43	اسفل المحياف	25	المحراس	49
اسفل مر لسفل	67	العلاة	80	السند	18
قود باسلاله	46	امعقبه	31	دار الحبيل	39
الملحه	25	اسفل شوظه	106	امصفحه	58
وادي الرظام	63	بين الواديين	16	جراده	140
قود الرظام	208	المجزع	46	اللكمه	85
حبيل الراحه	44	قرن ام نمر	67	امعشاو	59
اسفل شهذان	41	المشيجح	95	ال جيلان	92
ركب فروع	146	الكيله	9	امقرضه	34
اسفل الحجفه	16	الفرعه	259	فقاش	25
العقله	8	امليسا	38	دقة الحاجب	10
ذراع عمر	25	القرن	69	عمران	127
حبيل صالح	16	الرصراص	72	القفل	146
الشعبه	28	القشعه	10	الفارس	133
اعلى شهذان	32	رهوة بن علي	112	جفانه	53
اسفل غوري	17	ملون خضله	173	امحيله	132
اسفل الضاجعه	23	المصفاه	19	البوال	40
الجيرف	27	ال بن حسن	63	سوق عمران	4

Geographical unit	Population size	Geographical unit	Population size	Geographical unit	Population size
دار الجيزه	27	امكرتني	18	المناره خلهه	26
الذراع	70	امعضب	37	المقهايه	25
حاجب الجعاونه	50	اميدوه	19	بركان خلهه	63
عصور	57	ذم نمر زرعه	15	خلهة	33
شعب الجرف	7	الثمري	25	اسفل انمة	3
المسن	13	تلاعت	82	امرقع	34
ال لينجل	183	امعضبيه	180	بدوة امعزيقه	43
الدقة قرض	57	املحيف	102	امحسوه	23
شعب حميد	20	املقسي	70	صليعم	13
رهو ة تمر	44	متيله	83	رعسه	7
الدعيس	171	الحصن	155	بلها	28
ال جماح	148	ذم نمر	44	امقبيبه	60
الذنيه	126	اسفل امها	95	اسفل امجيف	121
الحيان	17	نجد صائل	8	الذراع	96
ذي مجرف	37	الذيله	50	مجحار	81
شعب سالم	23	نجد الصر	29	امعطفه	82
اسفل متن	16	نجد عصم	84	طهيميم	14
الصفعه	23	اعصم	83	ثعل	23
امتوحط	29	الحتته	27	فرش المحترض	14
القشعه منصبي	41	اسفل لصفة	54	الملحة	10
امنجاد	54	امسمير	24	ذراع السيلة	96
بيت التيمي	6	ذراع ذوقيط	90	ذراع السقيف	21
الجهلي	195	فرعة الجرجر	33	الكدام	59
اللويه	33	امخرفه	126	الفرع	12
ذراع فرج	38	السحاري	116	شعب الجلادي	31
دار الغريب	45	قرن صفراء	134	ممريخ	26
القشعه غرض	72	امخالف	37	ذراع البيوت	63
شعبة قرض	150	واكفه	9	حبيل امحنكه	102
ال علي متني	28	امنجيد	85	امكبيبه	70
ال عمر	25	المرجلة	143	القشعه	68
ذنب الكلب	15	امشاهب	19	امعثير	118
شعب الغيل	81	خالف قشور	25	امعرام	11
القرن مذابه	80	ركبة المخالف	37	ذراع امياله	149
ال الفقيه	11	اميدوة	40	اسفل فلاحه	95
الفرع الاسفل	92	امتويلقه	12	فرش جريجر	74
ال داود	216	ذمقلت	46	جرجر	22
ذراع الحمير	72	ركبة البقره	82	قرن ودن	69
ركب حوج	83	رهوة امها	46	الفرع	36
الفرع الاعلى	61	فرعة امزلاطين	176	ذراع بن سلمان	15
اسفل شعبات	11	فرعة الحريق	81	امعقيبه	40
رهوة فلاحه	150	قرن خزخز	30	امحجر	14
ملعس	46	فرعه بازرين	165	وادي المنقم	54
خرعان	130	اشعاب اللزي	74	حلاف	15
فلاحه	57	قرن بازرين	77	اسفل امنمين	63
الدقه	55	محيجر	21	شعب العير	64
القرن	77	امقبيل	94	مقبل	73
شعب دقلة	50	اميدرة امقصره	38	قشعة السيلة	24
اعلى فلاحه	45	حبر	66	اميعقوب	43
المعزبه	10	المدرج	57	سواحب	55
املح	61	اسفل خلهة	23	الوعراء	35
محزان	32	اسفل خام	15	قضاء	35
عشرلسل	53	انمه	21	ريك	32
عشرلعلي	39	همدان	23	امنقل	26
مربان	34	اميدوه امشوكه	10	امدوحل	18
مليحه	34	دي تعب	35	امزوق	11
امسويد	25	مكر	2	عزف	56
صويره	31	دم	50	صبارة	46
خيمان	14	حبيل امبارك	9	مناظر	20
امعقر	32	ميت	31	صحار	50
شمخه	50	دي تار	47	ضبع	28
شده	12	امشعبين	13	اسفل ربدان	12

Geographical unit	Population size	Geographical unit	Population size	Geographical unit	Population size
امقيناء	76				
زلال	43				
ظهروت	6				
امترج	13				
هجر	36				
رحقان	10				
خزره	19				
اسفل نمكه	47				
حطاط الركب	215				
حلاف	42				
المراوضه	76				
قرن حمر	35				
دفان	88				
فرعه حرزه	73				
فرعه المقاصير	33				
اسفل ساحب	42				
ساحب	191				
رضاع	27				

Annex 9: Sampling Frame of Abyan Conflict Directly Affected districts

Geographical unit	Population size	Geographical unit	Population size	Geographical unit	Population size
مروحه	196	الجعادي	149	باذيب - الصديق	1229
القري	85	منصح	161	باذيب - باتور	1815
الحليه	43	مسّرم	93	باذيب - الحبيل	1649
ذامقاته	126	فقيش المعرج	108	باذيب - حارة الشارع العام	6733
تعليه	78	فقيش الهندي	26	باذيب - شروان	182
بيت علي مكسر	43	تيب	62	النوبه	887
ال تلوان	70	مكسح	70	الخضريه	189
محمد علي مكسر	36	امشرج	229	ساكن العيد الربيدي	29
حجلان	245	امشغيب	77	ال مرتن	173
بيت احمد ناصر عمر	36	ال عمر	32	ال سيال	107
السمحه	72	مخناق	11	امصلعاء	485
المصنعه	181	هجار	10	جمعر	271
بيت احمد حسين	73	قاسم علي	16	ردفان	73
الشحاذ	55	العلهين	96	صعيه	126
شرعان	161	ال قهس	70	القرن	241
بيت الحضرمي	76	ال الصاد	64	صلعا الدوله	189
ذ معلب	94	الدباني	46	ساكن حسن صالح	79
الفجه	42	ال امجلد	136	ساكن عدن	150
دث	178	نعيوب	590	امصعام	544
صرواح	34	حصن حقيس	165	ساكن ربيز	120
علمه	52	المخراقه	291	بئر النخعي	571
الخضراء	49	المظروكه	262	امدخله	633
الجمشيه	112	القرن الاعلى	295	الحامد	32
مقطينه	78	القرن الاسفل	42	ضوع	13
السدير	32	الجربوب	316	ال شاعف	12
ساكن السيد	63	امدرب	496	الجونه	61
قشير	16	ال حيدره	32	السويدا	614
السر	252	ال سالم عبدالله	51	تنوخ	323
بيت علي جعيم	54	ال عياد	148	الطيبقي	119
القشع	40	ال لمحمدي	70	ساكن جمره	5
القوعه	295	بيت علي سالم الحيري	12	القافريه	417
المسدره	16	امحراب	127	امصير	77
الخزجه	530	دحان	118	امدرب	11
التوالق	40	بيت امضيري	9	ساكن الكيله	11
ريمان	301	بيت حقيس	22	الحبيل	312
الهجهج	114	الجباري	118	امشبهه	89
ساكن امرقشان	48	ال الصملي	126	جحين	283
الحمرات	22	ال الزهري	195	ساكن ال طه	10
العنق	68	حسن بنقي	20	الخديره	774
امنحور	129	امرهوه	295	اميرشاء	153
ال المجهز	272	امكريف	289	الحيد	262
ال احمد منصور	20	بيت موقش	35	مكرارة	585
منقاش ال هديل	119	حيد امركز	42	ال طيوز	93
ال هادي	97	امشعه	1314	بيت غليف	28
عنبره	270	ناعب	84	ساكن درعان	28
الجروبه	258	امدرب زغينه	140	الفرش	353
ا محنده	253	زغينه	1096	ال شميل	85
قرن ال شتيم	69	بسوف	359	قاع ال حسين	136
ياسين	38	نوبة ال محسور	202	ال الزاحف	409
الخياله	440	المنياسه	311	صبرة ال مارم	417
الوركا	100	حجر الحسيله	99	قرن امنوب	150
امقشعه	49	الوحده	55	قرن ال اسرائيل	218
النوق	233	النجده	1883	ساكن عبدالله الخضر	33
ساكن رشيد	59	مزرعة عمر علي	97	ال حنشل	116
ال مسعود	11	الحافه	203	ال احمد هادي	63
بلوة	293	المصلب	391	بيت محمد صالح	26
امخرز	51	امد يام	79	الشابحه	1227
بيت طيش	74	المسخل	266	امهيدان	245
تعليه	65	الحميراءال مسعود	454	امقرن	238
ريده	15	باذيب - المعلم	1693	العدني	342
الجماء	172	باذيب - الكوني	3014	الشيرامه	759

Geographical unit	Population size	Geographical unit	Population size	Geographical unit	Population size
ال حمد شيخ	223	حبيل الطافش	168	امساحل	103
الصيوعي	321	حبيل القريب	35	امقواسر	127
مصنع اليافعي	76	الصومعه	201	حسر	465
الكور	29	ال لقم	38	امعزيفه	15
السلاميه	807	امعرج حسن	56	جابر	122
الحميراء	100	ساكن هزم	1201	مقلت	23
البطر الساده	131	ال شيخ	258	الفجاج	128
المخربيه	183	قو بريح	21	الجماريه	35
حافور	70	عكيم	86	مخيه	119
الراضه	407	الطريه الجوف	383	هشان	76
القرنعه	56	الجوف امزريب	219	غرابه	138
ال سالم	257	الجوف ال محمد عبدالله	87	مجزع هشان	61
ال ناصر كرده	30	الجوف القرعه	81	اعلى غرابه	100
صالح كرده	37	الجوف ال السعيدي	120	موجف	164
حصون ال شوعان	102	ال باحسن	453	مجزع برع	115
ال عبد الله محمد	137	ال امباك	74	بديه	119
البطان ال شوعان	282	ال مشمق	187	امسر	170
العين	2857	نعمان	475	امهشيمه	47
لفوح	544	امعجمان	298	امجز	268
دحان	249	الجيزه	799	اميرك	52
النويه	264	ال قاسم	91	امسدر	61
ال سالم عبدالله	38	ثرة	565	مقيفعه	105
ال سيلان	127	ال مزاحم	342	الحسيوه	133
عراكبي السيفيه	39	الكرابي	33	خلهه	109
عراكبي ال عبيد	339	ال عبادي	406	امسداره	191
عراكبي ال عمير	509	عرفان	496	ماتحه	115
عراكبي علي الفضل	80	هميش	200	عراعر	50
شعب كثير	333	ال شطيرة	62	بطاح	53
الشعراء	811	المشرقه	601	حبيل قري	34
ال مرخي	36	الركيه	197	حبيل مشرم	125
ال معرج	78	امقرن	150	امساحله	48
القيمه	398	ملعه	140	ال مشيب	97
الجنح	510	القنه العليا	135	الفشله	59
ال بدحيل	91	القنه السفلى	637	امدره	57
شعب الظبي	249	ال امشير	28	الحصحص	85
ال علوي محمر	38	مسدد دهمس	99	قبا	68
الكيال	349	آل حيمد	9	الحائل	57
ال بوبك	332	صفاق السفلى	64	امعجم امسحري	206
ودن طاهر	324	صفاق معلي	211	قريه	43
المشتيح	52	عين الناشري	33	امياته	64
امقادح	362	قرين صالح	305	حربب امرقعه	25
مكيمه العليا	213	ال الوادي الشرئمه	68	امخرحين	97
مكيمه السفلى	446	ال امزنو	57	امقودره	151
الكبيده	144	ال عزة	42	المحراقه	62
شروان	426	ال مسود	67	امشب	103
امرصاص حروبي	83	الخالف	451	باحزقول	97
ال عبدالرحمن	335	ام دجاره	86	امقاطر	63
ال محمد علي	11	القرعه السوداء	15	بيت محسن علي	12
ال امرصاص	572	ساكن امساس	70	بن بجله	9
المسقاله	762	ال حيدر	29	حداء	458
ال منصر	79	الجروب	110	قنيب	119
امقرارة	63	ال الوادي عبده	68	الرزم اهل امارم	142
ال عبدربه ناصر	59	ا ماجل	1840	امكريف	82
ال صالح سعيد المحروق	97	ضلاعه	234	قرن امكرين	183
الحمراء	345	المجمع	111	امدريب	653
ال مظلف	188	العاتور	235	الحميمه	325
ال جعفر	69	عيشه	316	مدور سكره	198
القرن	364	قفل	175	غوز دهمان	155
زاره	1530	امدقيقه	94	المحيذبه	77
ال معرج	587	الخسعه	214	العاتق	199
حبيل المفرق	244	شباب	24	الشاعوس	92

Geographical unit	Population size	Geographical unit	Population size	Geographical unit	Population size
الخشم	449	الرهوه	191	حبيل المحماضه	56
اثله	55	المناصره	58	المصانع	37
كورة الحامدي	152	ساكن سيل	114	الذنوب	221
البطان	32	ساكن امين	715	طفوه	62
القوز	1443	ساكن صالح هادي	142	كبث	340
ال الدقيسي	199	ساكن العقر	40	غفر	198
القرحه	52	ساكن هادي حمود	136	اللكيده	1021
امجحوه	339	المرابيش	326	ابوعامر	82
الكوره	437	ساكن طبيق	316	الخاشعه	22
الحميشه	1523	ساكن ناجي	245	الجول يرامس	482
امصره	2260	ساكن السيخه	190	امشقرا	65
القرين	449	معزوب علي بن علي	75	الجولان	22
المربيضه	184	بيضان	108	المعر	107
الحبيل	114	جول الساده	51	ساكن الماس	25
الحلو القرعه	67	المحجر	355	ثبيعه	61
ساكن حسين احمد	18	بارزبه	202	سمره	32
الحجّاء	211	الوعرة	171	داحيه	22
ال مقطع مسحال	273	المجزاع	79	امسواد	290
المسحال	489	امساحله	48	كوبا	101
مزنه	69	جسر 26 ميكانن	30	الروضه السفلي	7
ال مظلف	131	الدرجاج	3304	وادي الشجح كليب	45
ال احمد صالح	259	جول سالم سنان	290	غارف	136
الحمره	355	الكوبليه	47	امنجيد	34
ال جبير	147	الرواء	2743	امكازه	55
ال بدور المعضاب	83	سنوان	149	سمطط	20
امجوار	88	جحيصه	86	الروضه العليا	107
الحرجه	126	ملحه حميشانه	249	صاعم	63
اويل	43	جبل لحبوش	74	امعجيما كودمسعود	23
المشارق	20	الحصحوص	345	القيانه	16
ال عبادي	33	الرواء الشرقيه	36	ثرجم	28
ال صالح	43	الحجفور	120	سمياء	71
ال الدقس	79	الهيجه	264	العطف	32
ال سالم حسن	47	عرشان	215	رثه	4
ساكن محمد ال خزيز	36	ملحه سربول	479	اره	111
بيت ال ناصر علي	48	الحصن - عبدالله محسن - المناكيب	436	صلحا	10
ساكن احمد عبدالله	48	الحصن - عبدالله محسن - السيخه	1369	امحصحص	9
ال امساكت	110	الحصن - عبدالله محسن - حارة السوق	208	ربيان	49
الخليف	82	الحصن - عبدالله محسن - أهل عطيه	1462	حلحال	24
امعقمه	189	الحصن - 7 أكتوبر - حارة السوق	1374	عيان	21
ال مفند	74	الحصن - عبدالله محسن - الجبل	459	سعيد علي حيدره - الري التقليدي	1471
وادي المعاين	40	الحصن - 7 أكتوبر - النصر	791	سعيد علي حيدره - سعيد علي حيدره	3666
جوح باعي	33	الحصن - عبدالله محسن - الوديعه	993	محمد ثابت - حارة محمد ثابت	8252
حبيل المخسه	286	الحصن - عبدالله محسن - القاهره	1169	قاسم عبدالله - قاسم عبدالله	5389
امصيلي	120	الحصن - 7 أكتوبر - حارة البقر	1373	قاسم عبدالله - حارة الصبيحه	1471
مشعاب	106	جول سالم المبوح	1023	قائد صائل - حارة قائد صائل	1534
وادي العضه	391	جول احمد	141	محمد ثابت - حارة الحكومه	404
الحمسّه	61	عابر	234	يسلم صالح - حارة يسلم صالح	3390
ثبيه	113	اللجاف	41	التعويضات - حارة التعويضات	1812
وادي الحجاج	56	الشركه	81	المحراق - حارة المحراق	2444
ال يحي	152	ساكن عبدالله محمد	88	المثلث - حارة جبل خنفر	1039
القشع	20	ساكن الحاج صالح	29	المثلث - حارة الآثار	1565
كرهما	63	حلمه	1942	المثلث - حارة المثلث	2138
القويزاء	210	ساكن الحسني	138	الفتح	539
العبر ال جريب	487	ساكن البصير	308	شداد	37
معطاف	294	ساكن المساعده	35	بوطه	126
ال الشرفاء	109	ساكن الحكمي	86	الحَيَقي	88
امعمروش القدح	82	ساكن قمشيه	105	الحمري	39
ال عنان العبر	45	ساكن احمد عوض	99	الصوملي	83
مدرج امكور	106	ساكن امان	62	النخيله	287
ساكن العبيده	402	حبيل البرق	1045	اللحوج	455
جامع يوسف	261	باتيس	6439	وعيص	573

Geographical unit	Population size	Geographical unit	Population size	Geographical unit	Population size
مرحب	150	ساكن الياقعي	5	المسيمير	4089
الشامي	248	جسر ابو شنب	19	عذيبه	97
العبادي	187	معزوب عبدالله الحبيلي	25	الفارعه	22
قرادي	30	معزوب علي الجبيلي	6	مريب	119
الهام	106	كدمه بن لعور	447	نمحن	114
الجبلين	156	ساكن ال شاطر	41	عزوفه	62
الحرور	869	كدمه المحاوره	33	متوان	14
النش	34	كدمةالمراقشه	45	لاريب	184
الوقعه	43	كدمه ال بويكر الجبيلي	30	الونس	336
حصن داوود	52	كدمة الفلاحي	11	سقم	215
المنصب	19	كدمة المهندس	6	امصريه	24
الزرانيق	164	كدمة محمد الجبيلي	31	الفريقه	30
الحسني	88	كدمة عبوده فرج	59	امشاقه	199
الدوبحي	24	ساكن ال هاشم	71	امراك	133
معزوب الهاجس	135	كدمة ال يوسف	16	خمس	34
معزوب مزوع	9	كدمة وهان	12	ثرى	57
معزوب علي عبده	41	كدمة الحنش	30	الكمب	13
شلاع صغير	38	كدمة جعيم	30	ذوبه	15
الشنار	28	المخزن	8224	سعيده	151
ساكن اللحوم	41	الجرائب	245	الكود	59
حصن امطيري	272	ساكن عبد القادر -الديو	848	نخل	46
ساكن عبده علي بن علي	51	الفشال	174	شقاوه	41
كدمة شمل	35	بئر الشيخ	1115	نعبان	18
معزوب سعد عبيد	34	ابوخشب	123	مسل	73
كدمة المالود	300	الخامله	481	مسقع	123
كدمه السيدقاسم	562	خبت لسلوم	157	جيبه	52
كدمة الزبود	71	النشيره	118	اخريقه	31
كدمة ابو العز	65	الابقار	303	اباد العريس	17
عبر عثمان	755	الخامله	1239	مدران	41
عبر عثمان - حبار	611	الكراديف	655	شعبن	10
بئر حوتي	55	الوادي	225	نهيج	11
الخريبي	20	جسر عطيفي	117	امصعام	17
بيت مراد	22	الكود - بدر - بدر	3457	كواشه	18
حصن اليافعي	110	الكود - ناجي - المحلج	189	المخيزن	39
كدمه ال بلعيد	151	الكود - ناجي - الكدمة	1814	شقره	5199
المرافده	77	الكود - ناجي - مركز الأبحاث	473	مساحله	254
بخيت	41	الكود - ناجي - الساحمي	115	المقبيره	72
كدمة مفتاح	119	الكود - صالح جميع - أهل محمود	182	هر	12
امطريقي	24	الكود - صالح جميع - أصبى	785	لشعاب	76
الضريه	21	الكود - صالح جميع - العبيده	1015	الجير	90
كمب الدويل	42	الكود - صالح جميع - وحدة الصمود	319	جايه	32
الطربه الجعدي	411	الكود - صالح جميع - المسح	609	بقيشه	12
كمب الطريه	362	الكود - صالح جميع - الابقار	47	الحجناء	93
ال سند	43	الكود - صالح جميع - صالح جميع	1272	امنشره	53
ساكن الجبيلي	57	الكود - صالح جميع - الصمود	549	خدد	28
اهل جبير	81	الكود - صالح جميع - أهل سعيد	208	طوفه	34
مزرعة العدي	62	الكود - صالح جميع - الوديعه	750	الخير	73
ساكن الكبابي	20	دهل احمد	864	اللجي	47
احمد عوض	54	السمه	75	حول	18
الشيخ مهدي	52	جعوله	91	الخبار	112
محمد عقيل	99	القرنعه	645	محبب	43
باطروس	46	النش	316	امصاعا	41
المشارفه	32	الخيش	58	كدهيه	47
الحجر	359	عفيني	63	خور خضر	66
الجمل	12	جلجله	223	السراو	43
باحكيم	1	امصليب	86	الحجر	38
عيضه	53	محطة العلم	40	هريم	7
النجمه الحمراء	83	محطه الشاطئ	53	علق	21
القريات	276	المبطوح	22	معكث	25
الجول الشعبيه	1909	ساكن الوادي	349	امخشه	96
الدوكره	144	دار الراحه المطلع	146	المرون	198

Geographical unit	Population size	Geographical unit	Population size	Geographical unit	Population size
موجان	158				
ضحوكه	64				
سري	12				
بلهب	1				
امصاصيه	23				
عبيده	182				
امرواكي	244				
خير الكمه	101				
اوص	4				
حطيب	79				
هيواد	46				
نُجر	117				
العطف	172				
عطف المراء	22				
الرفاقه	23				
المليح	46				
المخبازه	43				
المحطه	70				
الفراع	11				
التريميله	78				
الباطنه	21				
امقريه	57				
فرحان - العصله	1959				
فرحان - النصر	966				
الطمبسي - الأوراس	686				
الطمبسي - شمس الدين	2321				
الطمبسي - المحل	792				
الطمبسي - باجدار	2849				
ناجي - الصرح	920				
ناجي - المراقد	143				
ناجي - الساحه	120				
ناجي - 22مايو	786				
عبد الباري - سواحل	3574				
حصن شداد	669				
الوادي	66				
جليله	8				
كود حيدره	19				
مخماله	7				
الشيخ عبد الله	350				
الموازعه	9				
معازيب باكازم	20				
باشحارة	806				
مجمع جولة زنجبار	21				
عمودية	1826				
اهل حجيج	24				
القوارع	31				
الشيخ سالم	332				
خبان	6				
سلاء	55				
بريره	66				
المراقد	170				
محطة حسان	54				

Annex 10: Job Descriptions for Survey Teams (Extracted from SMART Training Materials

Each survey team should be composed of at least 3 people. Including women in survey teams is highly recommended since they are usually more comfortable interacting with children. Generally, two surveyors are involved in anthropometric measurements while another one, the team leader, records the data on the forms. However, it is strongly suggested that each team member knows how to accomplish the tasks of his teammates, because unexpected events can happen and a change in the staff may be required.

All team members must have the following qualifications:

- They should be able to write and read English or French (depending on the country where the survey takes place) and speak the local languages of the areas where the survey will be conducted.
- They should have sufficient level of education, as they will need to read and write fluently and count accurately.
- They should be physically fit to walk long distances and carry the measuring equipment.
- They do not (necessarily) have to be health professionals. In fact, anyone from the community can be selected and trained as long as he meets the above criteria.

1. Survey Manager (or supervisor)

The manager guarantees the respect of the survey methodology; he has the responsibility for:

1- Gathering available information on the context and survey planning,

2- Selecting team members,

3- Training team members,

4- Supervision of the survey: Taking necessary actions to enhance the accuracy of data collected:

4.1 Visiting teams in the field and making sure that before leaving the field, each team leader reviews and signs all forms to ensure that no pieces of data have been left out; making sure that the team returns to visit the absent people in the household at least once before leaving the area.

4.2 It is particularly important to check cases of oedema, as there are often no cases of oedema seen during the training and some team members may therefore be prone to mistaking a fat child for one with oedema (particularly with younger children). The supervisor should note teams that report a lot of oedema, confirm measles and death cases, and visit some of these children to verify their status.

4.3 Ensuring that households are selected properly and, that the equipment is checked and calibrated each morning during the survey, and that measurements are taken and recorded accurately.

4.4 Deciding on how to overcome the problems encountered during the survey. Each problem encountered and decision made must be promptly recorded and included in the final report, if this has caused a change in the planned methodology.

4.5 Organizing data entry into ENA and checking any suspect data every evening, by using the appropriate sections of the plausibility report.

4.6 Organizing an evening "wrap up" session with all the teams together to discuss any problems that have arisen during the day[16].

4.7 Ensuring that the teams have enough time to take appropriate rest periods and has refreshments with them. It is very important not to overwork survey teams since there is a lot of walking involved in carrying out a survey, and when people are tired, they may make mistakes or fail to include more distant houses selected for the survey.

5- Analyse and write the report.

2. Team Leader

Skills and required abilities:

To be able to read, write and count; know the area to survey; be reliable and friendly.

Tasks:

1. Ensures all forms and questionnaires are ready at start of day;
2. Ensures all equipment is ready at start of day;
3. Calibrates measurement instruments on daily basis;
4. Ensures all food/refreshments are ready at start of day;
5. Organises briefing meeting with his team before departure in morning;
6. Speaks with chief of village to explain the survey and its objectives,
7. Draws a map of the area to survey and use a random table;
8. Manages the households selection procedure;
9. Uses a local events calendar to estimate the age;
10. Calculates the Weight-for-Height ratio after taking anthropometric measurements;
11. Checks if the child is malnourished (checks for the presence of oedema);
12. Fills the anthropometric form;
13. Fills survey questionnaires when needed;
14. Fills the referral form if necessary;
15. Ensures that houses with missing data are revisited before leaving the field the same day;

[16] This may not be possible if the survey area is large since the teams might be widely separated and remain in the field for several days. In that case, communication with teams in the field might often be very difficult; hence, each team leader must be sufficiently trained to be able to take decisions independently.

16. Checks that all forms are properly filled out before leaving the field.
17. Ensures that all the equipment is maintained in a good state;
18. Manages time allocated to measurements, breaks and lunch,
19. Ensures security of team members,
20. Note and report the problems encountered.

3. Measurers

Skills and required abilities:

To be able to read, write and count; know the area to survey; be reliable and friendly.

Tasks:

1. Measures the height, weight and arm circumference (if included in the survey);
2. Assesses the presence of edema;
3. Uses a local events calendar to estimate the age;
4. Respects the time required for measurements, breaks and meals;
5. Takes care of the equipment;
6. Follows security measures.

The measurers must acquire some special skills and knowledge although they don't have the primary responsibility for tasks that are related:

1. Know how to calculate the weight-for-height ratio;
2. Know how to select households for the survey;
3. Know how to check if a child is malnourished;
4. Learn how to make a reference for a malnourished child.

Annex 11: Referral Form for the Malnourished Children

مسح الحالة التغذوية للأطفال تحت سن الخامسة في محافظة أبين، ديسمبر 2012 – يناير 2013

استمارة إحالة طفل مصاب بسوء تغذية حاد وخيم

الأخوة/ المرفق الصحي : .....

نود إحاطتكم أن الطفل/ الطفلة : ..... كان/ كانت ضمن عينة المسح المشار إليه أعلاه ووجد أنه مصاب بسوء تغذية حاد من خلال القياسات التالية:

محيط ذراع الطفل بالسنتيمتر (ØØ. Ø)	سنتيمتر .	
طول / ارتفاع الطفل بالسنتيمتر (ØØØ. Ø)	سنتيمتر .	
وزن الطفل بالكيلوجرام (ØØ. Ø)	كيلوجرام .	

وجود التوذم: (نعم / لا)

تاريخ القياس	يوم	شهر	سنـــــة
			2 Ø 1 2

يرجى تعاونكم معه/ معها

وتقبلوا تحيات فريق المسح

اسم المشرف الميداني .....

توقيعه

Annex 12: Assessments Quality Checks

12. a. Plausibility check for: Yem_Abyan_Conflict Indirectly Affected districts_Dec 2012 Jan 2013.as

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**
Missing/Flagged data	Incl	%	0-2.5	>2.5-5.0	>5.0-10	>10	
(% of in-range subjects)			0	5	10	20	**0** (1.0 %)
Overall Sex ratio	Incl	p	>0.1	>0.05	>0.001	<0.000	
(Significant chi square)			0	2	4	10	**0** (p=0.403)
Overall Age distrib	Incl	p	>0.1	>0.05	>0.001	<0.000	
(Significant chi square)			0	2	4	10	**2** (p=0.086)
Dig pref score - weight	Incl	#	0-5	5-10	10-20	> 20	
			0	2	4	10	**0** (5)
Dig pref score - height	Incl	#	0-5	5-10	10-20	> 20	
			0	2	4	10	**2** (6)
Standard Dev WHZ	Excl	SD	<1.1	<1.15	<1.20	>1.20	
			0	2	6	20	**0** (0.94)
Skewness WHZ	Excl	#	<±1.0	<±2.0	<±3.0	>±3.0	
			0	1	3	5	**0** (-0.10)
Kurtosis WHZ	Excl	#	<±1.0	<±2.0	<±3.0	>±3.0	
			0	1	3	5	**0** (0.19)
Poisson dist WHZ-2	Excl	p	>0.05	>0.01	>0.001	<0.000	
			0	1	3	5	**3** (p=0.003)
Timing	Excl	Not determined yet					
			0	1	3	5	
OVERALL SCORE WHZ =			0-5	5-10	10-15	>15	**7** %

At the moment the overall score of this survey is 7 %, this is good.

12.b. Plausibility check for: Yem_Abyan_Affected Districts_Dec 2012.as

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**
Missing/Flagged data	Incl	%	0-2.5	>2.5-5.0	>5.0-10	>10	
(% of in-range subjects)			0	5	10	20	**0** (1.3 %)
Overall Sex ratio	Incl	p	>0.1	>0.05	>0.001	<0.000	
(Significant chi square)			0	2	4	10	**0** (p=0.227)
Overall Age distrib	Incl	p	>0.1	>0.05	>0.001	<0.000	
(Significant chi square)			0	2	4	10	**0** (p=0.235)
Dig pref score - weight	Incl	#	0-5	5-10	10-20	> 20	
			0	2	4	10	**2** (7)
Dig pref score - height	Incl	#	0-5	5-10	10-20	> 20	
			0	2	4	10	**2** (10)
Standard Dev WHZ	Excl	SD	<1.1	<1.15	<1.20	>1.20	
			0	2	6	20	**0** (0.99)
Skewness WHZ	Excl	#	<±1.0	<±2.0	<±3.0	>±3.0	
			0	1	3	5	**0** (-0.04)
Kurtosis WHZ	Excl	#	<±1.0	<±2.0	<±3.0	>±3.0	
			0	1	3	5	**0** (-0.03)
Poisson dist WHZ-2	Excl	p	>0.05	>0.01	>0.001	<0.000	
			0	1	3	5	**0** (p=0.144)
Timing	Excl	Not determined yet					
			0	1	3	5	
OVERALL SCORE WHZ =			0-5	5-10	10-15	>15	**4** %

At the moment the overall score of this survey is 4 %, this is excellent.