Situation of Women and Children in Southern Tanzania:

From questionnaires in Ifunda, Iringa with focus on food-intake and health

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I. Introduction

1. Health and nutrition status in Tanzania

Zero hunger, good health, and well-being are important goals for the Sustainable Development Goals (SDGs), yet many people have not been able to fulfill this situation. In Tanzania, on the east coast of Africa, great improvement has been seen in Under-5 Mortality Rates (U5MR) and Infant Mortality Rate (IMR) at 66.5 and 46.2 per 1,000 births respectively, almost reaching the Millennium Development Goal (MDG) of 64 and 38 per 1,000 births[1]. However, MDG to reduce hunger shows a mixed picture. The prevalence of underweight for children under-5 is 13.4% which is close to reaching the target of 12.5%, as well as the Global Acute Malnutrition (GAM) or wasting measured by weight-for-height at 3.8%. However, chronic malnutrition or stunting measured by height-for-age remains at 34.7%.[2]

Regional disparities are also prevalent in Tanzania. According to the 2012 Census, national life expectancy at birth is 61.8, but Njombe Region, which has previously been part of Iringa Region, has the lowest life expectancy at 52.8 years, followed by Iringa Region at 55.4 years. Highest is Arusha at 70.5 years. Similarly, Njombe Region, has the highest Crude Death Rate (CDR) of 13.5 deaths per 1,000 persons followed by 12.5 of Iringa, whereas Arusha had the lowest 5.4 and the national average was 9.3.[3]

Regions with a higher adult mortality rates were Njombe (13 deaths per 1,000 persons), Pwani (11.5 deaths 1,000 persons), and Iringa (11.3 deaths per 1,000 persons), whereas the national average was 8.3 deaths

per 1,000 persons, and the lowest was Arusha at 4.9[4].

As for U5MR, Kagera (93.9 per 1,000), Iringa (90.7), Katavi (88.0), Zanzibar Kusini Unguja (85.9), and Njombe (81.4) Regions have the highest rates and have not reached the MDG. Similar tendency is seen in the IMR with Kagera (61.8 per 1,000), Iringa (59.8), Katavei (58.2), Zanzibar Kusini Unguja (56.8), and Njombe (54.5) Regions with the highest rate. Lowest U5MR and IMR are in Arusha (37.3, 29.0 respectively) and Kilimanjaro (38.5 and 29.6 respectively) Regions[5].

Chronic malnutrition also prevails diversity and dynamics between regions. In the 2010 Tanzania Demographic Health Survey (TDHS, Map 1), Dodoma (56%), Lindi (54%), and Iringa (57%) Regions have the highest percentage of stunting over 50%[6]. TFNC survey 2014 earmarks Kagera (51.9%), Njombe (51.5%), and Iringa (51.3%), as regions of stunting over 50%.[7]
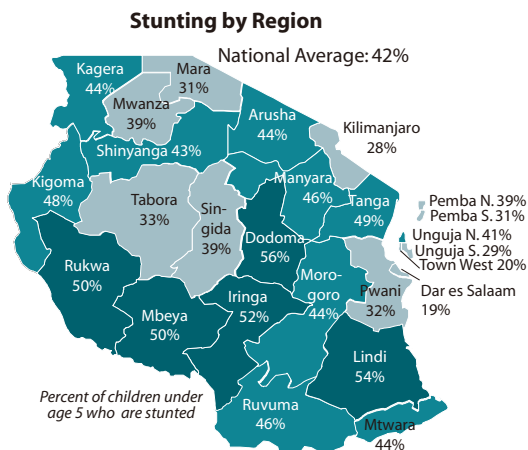
On the other hand, Iringa has the lowest rate of acute malnutrition (GAM, wasting) at 0.7%, whereas Zanzibar (7.2%), Dodoma (5.2%), Tanga (4.8%), Mara (4.9%), and Singida (4.7%) have the highest[8]. As for underweight, Kagera (22.2%) and Dodoma (21.8%) Regions have the highest, followed by Kigoma (18.8%), Pemba South (18.1%), Pemba North (16.7%), and Iringa (15.5%). Dar es Salaam has the lowest percentage of underweight (6.6%)[9].

Tanzania has improved children's mortality and underweight at the national level, but has high level of chronic malnutrition. Furthermore, there are steep disparities among regions. Iringa Region has high mortality (crude, adult, under-5, and infant) with

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Map 1. Stunting of children by Region (2010)

Stunting by Region

National Average: 42%

Kagera 44%
Mara 31%
Mwanza 39%
Arusha 44%
Kilimanjaro 28%
Shinyanga 43%
Manyara 46%
Kigoma 48%
Tabora 33%
Sin-gida 39%
Tanga 49%
Pemba N. 39%
Pemba S. 31%
Unguja N. 41%
Dodoma 56%
Unguja S. 29%
Town West 20%
Rukwa 50%
Moro-goro 44%
Pwani 32%
Dar es Salaam 19%
Iringa 52%
Mbeya 50%
Lindi 54%
Percent of children under age 5 who are stunted
Ruvuma 46%
Mtwara 44%

Source: Tanzania 2011, p.10.

short life expectancy rate. It continues to have high percentage of chronic malnourished children, but has the least acute malnutrition.

2. Research area

Iringa Region has been the first pilot project of the UNICEF nutrition programme that started in the 1980s, where malnutrition and child mortality was understood as manifestations of various immediate, underlying, and structural causes, and the method of children's growth monitoring at the community level was taken[10]. This method has been considered successful, and the growth monitoring has gone in scale, not only nation-wide in Tanzania, but also globally. The author has done a comprehensive study to identify the influencing factor on child mortality in deprived regions of Tanzania as of the 2002 census data[11], but has not looked into the reasons for the situation of Iringa Region which has become a region with high U5MR and IMR as of 2010 census data. The southern highland is considered as cultivating ample food, yet the statistical health and nutrition situation indicate that food availability is not the only determinant for their situation. One previous study in the Iringa Region with high health facility delivery coverage indicated that poorer women were less likely to deliver their babies at a health facility[12]. Furthermore, DHS survey indicated that Iringa Region has the second highest high HIV prevalence rate of 13%[13]. However, baseline information is not enough to

Map 2. Ifunda Village, Iringa in Tanzania

Source: Created by the author from google map.

understand and explain the situation of Iringa Region, which will be one of the objective of this research.

The research took place in Ifunda Ward, Iringa District, Iringa Region, and collected information of respondents from Ifunda (63%) and Bandabichi (35%) Villages of the same ward, and also women from Ibumila (1%) and Malandege (0.6%) Villages from other wards in Iringa District who used the health services in Ifunda Ward. The location of Ifunda is about 40km away from Iringa City indicated in Map 2. The population of Ifunda Ward is 12,199 (as of 2012), Ifunda Village is 2,630 (673 households) and Bandabichi is 3,067 (811 households, as of 2018). The majority are the Hehe ethnic group, who are famous for fighting the Germans during the colonial rule. Ifunda has also welcomed the Polish refugees during the Nazi invasion, and this built a relationship up to today for the Polish to contribute to the Ifunda Technical Secondary School.

The research area Iringa District has IMR and U5MR of 56.1 and 84.7, which is slightly lower than the regional average[14]. According to a nurse, patients came to the dispensary for diarrhea, Urinary Tract Infection (UTI), skin infection or rashes, upper respiratory infection, and abscesses. Health workers indicated malaria, HIV/AIDs, tuberculosis, diabetes, blood pressure, and pneumonia as common diseases.

3. Methodology

The questionnaire interview was based on a comprehensive questionnaire in Swahili. The questions included 75 questions about the respondents, marriage and family, livelihood, groups, mutual assistance, children, health, and food intake. Questions on health is based on the standardized SF-12, and the Swahili translation has been based on the verified Swahili SF-36[15]. Questions on food intake frequency has been based on research in Japan[16], adjusted to food in Tanzania based on *Tanzania Food Composition Tables*[17] and discussions with nutrition specialists in Tanzania. Questions on groups and mutual assistance has been formulated with reference to *Measuring Social Capital*[18]. Other questions have been formulated

based on the author's previous questionnaire interviews[19].

The questionnaires were targeted to mothers with small children to understand the situation of children and young women, especially mothers, and done on the day when mothers came to weigh their children. Questionnaire nos. 1 to 63 were done in a dispensary located in Kibaoni Hamlet on 10 June 2019. Questionnaire nos. 64-127, 171 were done in Ifunda Technical Secondary School on 19 June 2019. Questionnaire nos. 128 to 170 were done again in a dispensary in Kibaoni on 6 July. The objective was explained with the support of a health worker, and the answers were written either by the respondent or the health worker. Total 171 questionnaires were registered: 108 women from Ifunda Village (at least 41 from Kilimehawa A Hamlet, 39 from Kibaoni A, 6 from Ulolage, 4 from Mgondo, 2 from Kipera, and 1 from Mlafu), 60 from Bandabichi (28 from Bandabichi Hamlet, 12 from Ifunda Secondary, 6 from Kibaoni B, 6 from Kilimahewa B, 5 from Kivavali A, and 1 from Kivavali B), 2 from Ibumila, and 1 from Mlandege. The sample does not represent any of the villages nor hamlets, but purposively selected to capture the situation of women (or parents) with children under-5 who utilized the services in Kibaoni Hamlet and Ifunda Technical Secondary School of Ifunda Ward.

Research ethics were followed in accordance to the rule and regulations of the Utsunomiya University (permission granted as H18-0008), such as asking prior approval to interview. In this paper, result of a preliminary compilation of the answers to the questions will be reported, followed by its analysis and summary.

I. Results

The Original Swahili questionnaire, English translation, and the major results are indicated in Table 1. Results of questions indicated with "+" are indicated elsewhere, either in the text or other tables. Percentage is calculated based on the total valid answers for each question. All the table are created by the author based on the questionnaire unless otherwise stated.

Table 1. Questionnaire interview (Swahili and English) and its major results

Swahili original	Entry code	English translation	+	0 No (Hapana)	%	1 Yes (Ndiyo)	%	2	%	3	%	4	%	5	%	Total n	Average
Swahili		[Translation omitted when No/Yes question]															
Mkoa:	**Mkoa**	Region	+													171	
Wilaya:	**Wilaya**	District	+													171	
Kijiji:	**Kijiji**	Village	+													171	
Kitongoji:	**Kitongoji**	Hamlet	+													141	
Jina ya Mhojaji:	**Jina ya Mhojaji**	Interviewer	+													171	
Tarehe:	**Tarehe**	Date	+													171	
Taarifa binafsi		**About yourself**															
1. Jina:	1.Jina	Name	-													171	
Jinsia: □1 Ke □2 Me	Jinsia	Sex: 1 Female 2 Male				128	96%	6	4%							134	
2. Mwaka wa kuzaliwa? 19___	2	Year born? 19___	2+													151	
a) umri: ___	a	age														151	28.36
□ b) sijui	b	don't know				5										5	
3. Dini yako? □ 1 Muislam □ 2 Mkristo □ 3 Nyingine ___	3	Your religion? 1 Islam 2 Christian Other	3+			12	7%	148	91%	3						163	
4. Kabila: ___	4	Ethnic group	3+													171	
(5) Umechezwa unyago au jando? □ 0 Hapana □ 1 Ndiyo	5	Have your had your initiation?		114	81%	27	19%									141	
6. Ulisoma shule? □ 0 Hapana □ 1 Ndiyo:	6	Did you study in school?		7	4%	158	96%									165	
□ 1 msingi tu	6.1	Elementary only		69	57%	52	43%									121	
msingi		Elementary (all)		14	12%	107	88%									121	
□2 sekondari	6.2	Secondary		59	52%	55	48%									114	
□3 madrasa	6.3	Madras		112	98%	2	2%									114	
□4 nyingine	6.4	Other	+	107	94%	7	6%									114	
Kuhusu ndoa na familia		**About marriage and family**															
7. Umewahi kuoa/ kuolewa? □ 0 Hapana →Q11 □ 1 Ndiyo →Q8	7	Have you ever been married?		40	25%	119	75%									159	
(8) Je nani alitoa maamuzi ya wewe kuoa/ kuolewa?: □ 1 Wazazi □ 2 Mwenyewe	8	Who decided about your marriage?: 1 Parents 2 Yourself				32	24%	104	76%							136	
(9) Je familia yako (au wewe mwenyewe) ilipokea au kulipa mahari? □ 0 Hapana →Q11 □ 1 Ndiyo	9	Have your family or yourself receive or paid bridewealth?		45	32%	95	68%									140	
(10) Je walipata/ kulipa nini kwa ajili ya mahari yako? □1 Pesa:	10.1	What did they receive/pay as bridewealth? Money		18	14%	111	86%									129	
___ TSh	10.1(2)	TSh	+													66	743,182
□2 Mifugo:	10.2	Livestock		55	46%	65	54%									120	
gani mingapi?	10.2(2)	How many of what kind?	4+													64	
11. Sasa ndoa yako ni ipi? □ 1 Hamna ndoa (unmarried) □ 2 Umeo(le)wa (married) →Q11b □ 3 Mmeachwa (Mtaliki divorced) □ 4 Unakaa mahali tofauti (separated) □ 5 Mjane/ Mgane (widowed)	11	How is your marriage now? 1 Unmarried 2 Married →Q11b 3 Divorced 4 Separated 5 Widowed				30	21%	92	65%	4	3%	12	8%	4	3%	142	
(11b) Je ndoa yako ni ya mke mmoja au zaidi matala (polygamy): Wangapi?	11b	Is your marriage of one wife or more (polygamy): How many?	4+													144	1.10
12. Je unaishi pamoja na mume/mke au mwenza wako? □ 0 Hapana □ 1 Ndiyo	12	Do you live with your husband/wife or partner?		43	30%	101	70%									144	
13. Je unaishi na watu wangapi nyumbani? a) Jumla wangapi: ___	13a	How many people live in your house? Total:	4+													138	4.55
b) Watoto chini ya miaka 5 ni wangapi: ___ 0→Q14	13b	How many children under-5?	4+													138	1.45

Swahili original	Entry code	English translation	+	0 (No/Hapana)	%	1 (Yes/Ndiyo)	%	2	%	3	%	4	%	5	%	Total (n)	Average
(13c) Hali ya lishe (uzito) ya mtoto chini ya mwaka 5: □ 0 Sijui □ 1 Inatosha/Kijani (Green) □ 2 Haitoshi kiasi/Kimanjano (Yellow) □ 3 Haitoshi kabisa/Nyekundu (Red)"	13c	[Translation omitted when No/Yes question] Nutrition status of children under-5: 0 Don't know 1 Sufficient (Green) 2 Could become insufficient (Grey) 3 Insufficient (Red)		20	16%	93	73%	11	9%	3	2%					127	
14a. Je una watoto watiofariki chini ya miaka 5? □ 0 Hapana →Q15 □ 1 Ndiyo	14a	Do you have children who died under-5?		148	90%	17	10%									165	
Wangapi? ____ →Q14b	14a1	How many?		148	92%	8	5%	4	2%	1	1%					161	
(14b) Sababu gani? □0 Sijui □1 Mgonjwa: malaria □2 Magonjwa mengine: ____ □3 Ajali □4 Nyingine ____	14b	What was the reason? 0 Don't know 1 Sickness: malaria 2 Other sickness 3 Accident 4 Other		6	40%	2	13%	5	33%	1	7%	1	7%			15	

Kuhusu maisha / About livelihood

Swahili original	Entry code	English translation	+	0	%	1	%	2	%	3	%	4	%	5	%	Total	Average
15. Kazi yako? □ 1 Mkulima	15.1	Your occupation? Farmer		39	23%	128	77%									167	
□2 Biashara	15.2	Business		144	86%	23	14%									167	
□3 Ufugaji	15.3	Livestock keeping		161	96%	6	4%									167	
□4 Nyingine	15.4	Other	+	151	90%	16	10%									167	
16. Una mifugo? □ 0 Hapana □ 1 Ndiyo:	16	Do you have livestock?		83	56%	65	44%									148	
Ngapi? Ngombe: ____	Ngombe	How many? Cows?	4+													6	4.17
mbuzi: ____	mbuzi	Goat	4+													5	2.60
kuku: ____	kuku	Chicken	4+													51	4.61
17a. Una shamba? □ 0 Hapana □ 1 Ndiyo	17a	Do you have a farm?		41	26%	114	74%									155	
b. Una bustani? □ 0 Hapana □ 1 Ndiyo	17b	Do you have a garden?		42	40%	64	60%									106	
18. a Mazao makuu ya shambani kwako ni yapi? □ 1 Mahindi	18a1	What is your major crop? 1 Maize		4	3%	153	97%									157	
□2 Mpunga	18a2	Rice		156	99%	1	1%									157	
□3 Mtama	18a3	Sorghum		156	99%	1	1%									157	
□4 Muhogo	18a4	Cassava		155	99%	2	1%									157	
□5	18a5	Other	+	151	96%	6	4%									157	
b Je ni nini sababu ya kulima mazao hayo? □ 1 Chakula	18b1	What is the reason for you to cultivate the above crop? 1 Food		7	5%	124	95%									131	
□2 Biashara	18b2	Business		126	96%	5	4%									131	
□3 Mazingira inafaa	18b3	Environments suits the crop		129	98%	2	2%									131	
□4	18b4	Other	+	128	98%	3	2%									131	
19. Nani anaamua kuhusu matumizi ya mazao? □ 1 Mwanamke tu □ 2 Mwanaume tu □ 3 Mwanamke na mwanaume	19	Who decides about the use of the crop? 1 Women only 2 Men only 3 Women and men				14	9%	10	6%	132	85%					156	
20. Kwa siku hizi chakula kinatosha kwa mwaka mzima nyumbani? □ 0 Hapana □ 1 Ndiyo	20	Do you have sufficient food in the house these days to last a year?		49	30%	113	70%									162	
21. Ni mwezi upi chakula hakitoshi? Mwaka 2018/Mwezi 1	21.1	Which months did you have insufficient food? 0=Insufficicinet, 1=Sufficient 2018/1st month		30	20%	117	80%									147	
2	21.2	2		51	32%	107	68%									158	
3	21.3	3		38	26%	108	74%									146	
4	21.4	4		23	16%	123	84%									146	
5	21.5	5		18	12%	128	88%									146	

Swahili original	Entry code	English translation	+	No / Hapana (0)	%	Yes / Ndiyo (1)	%	2	%	3	%	4	%	5	%	Total (n)	Average
		[Translation omitted when No/Yes question]															
	21.6	6		19	13%	128	87%									147	
	21.7	7		12	8%	138	92%									150	
	21.8	8		12	8%	134	92%									146	
	21.9	9		13	8%	140	92%									153	
	21.10	10		16	11%	131	89%									147	
	21.11	11		19	13%	128	87%									147	
	22.12	12		31	21%	116	79%									147	
Jumla		Total	4+													160	9.80
Kama chakula hakitoshi; a) Umepata chakula cha porini? □ 0 Hapana □ 1 Ndiyo	21a	When food was insufficient: Did you get food from the forest?		69	62%	42	38%									111	
b) Umepunguza idadi ya milo kwa siku? □0 Hapana □1 Ndiyo	21b	Did you decrease the number of meals?		74	73%	27	27%									101	
c) Umeuza mifugo □0 Hapana □1 Ndiyo	21c	Did you sell livestock?		76	83%	16	17%									92	
d) Mtoto amekula kwa ndugu au jirani? □0 Hapana □1 Ndiyo	21d	Did children eat at relatives or neighbors?		87	93%	7	7%									94	
22. Ni yapi matumizi muhimu ya mapato yako? □ 1 Chakula	22.1	What are the important use of your income? 1 Food		40	25%	119	75%									159	
□ 2 Nguo	22.2	Clothes		144	91%	15	9%									159	
□ 3 Elimu	22.3	Education		135	85%	24	15%									159	
□ 4 Afya	22.4	Health		118	74%	41	26%									159	
□ 5 Shamba	22.5	Agriculture		141	89%	18	11%									159	
□ 6 Mengineyo	22.6	Other	+	145	91%	14	9%									159	
23. Nani anamaamuzi kuhusu matumizi ya fedha? □ 1 Mwanamke tu □ 2 Mwanaume tu □ 3 Mwanamke na mwanaume	23	Who decides about the use of income? 1 Women only 2 Men only 3 Women and men				14	9%	15	9%	129	82%					158	
24. Chunguza hali ya familia yako kati ya vijiji: □ 1 Maskini □ 2 Wastani □ 3 Tajiri	24	Chose the situation of your family within the village: 1 Poor 2 Average 3 Rich				21	15%	117	82%	4	3%					142	
Kuhusu kikundi		**About groups**															
25. Je umejiunga kwenye kikundi au vikundi vya kijamii vingapi?	25	How many groups are you participating in within the community?		71	58%	42	34%	9	7%	1	1%					123	
26. Je kikundi gani kina umuhimu zaidi kwako? Jina:	26	What is the name of the group?	-													46	
27. Je shuguli ya kikundi hicho ni nini? □ 1 Kilimo	27.1	What is the activity of this group? 1 Agriculture		48	63%	28	37%									76	
□ 2 Dini	27.2	Religion		74	99%	1	1%									75	
□ 3 Ngoma	27.3	Musical performance		76	100%	0	0%									76	
□ 4 Mkopo	27.4	Saving and borrowing		32	42%	44	58%									76	
□ 5	27.5	Other	+	68	89%	8	11%									76	
Kusaidiana nje ya familia (=nyumba)		**About mutual assistance outside the family**															
28. Katika kipindi cha mwaka moja je kuna watu wa nje ya familia wamesaidia wakati umepata shida ya chakula? □ 0 Hapana □ 1 Ndiyo	28	Within this month, has anyone outside of your family help you when you needed food?		99	63%	58	37%									157	
29. Katika kipindi cha mwaka moja je umewahi kusaidia watu wengine nje ya familia wakati wamepata shida ya chakula? □ 0 Hapana □ 1 Ndiyo	29	Within this month, have you helped anyone outside of your family when they needed food?		59	39%	94	61%									153	
30. Katika kipindi cha mwaka moja je kuna watu nje ya familia wamesaidia wakati umepata shida ya pesa? □ 0 Hapana □ 1 Ndiyo	30	Within this month, has anyone outside of your family help you when you needed money?		68	45%	83	55%									151	
31. Katika kipindi cha mwaka moja je umewahi kusaidia watu wengine nje ya familia wakati wamepata shida ya pesa? □ 0 Hapana □ 1 Ndiyo	31	Within this month, have you helped anyone outside of your family when they needed money?		52	34%	99	66%									151	
32. Unafikiri watu wa kijiji chako wanasaidiana? □ 0 Hapana □ 2 Ndiyo	32	Do you think people in this village help each other?		36	25%	108	75%									144	

Swahili original	Entry code	English translation	+	0 No Hapana	%	1 Yes Ndiyo	%	2	%	3	%	4	%	5	%	Total n	Average
Kuhusu watoto		**About children**															
33. Wakati ulipokuwa (mwenza wako) mjamzito ulipata chakula cha kutosha? □ 0 Hapana □ 1 Ndiyo	33	When you (or your partner) was pregnant did you (or your partner) get sufficient food? □ 0 Hapana □ 1 Ndiyo		18	12%	137	88%									155	
34. Maziwa ya mama yanatosha? □ 0 Hapana □ 1 Ndiyo	34	Was breastmilk sufficient?		12	8%	139	92%									151	
35. Watoto walianza kula chakula gani? □ 1 Uji wa:	35.1	What was your child's first food? 1 Porridge of:		7	4%	159	96%									166	
□ 1 mahindi	35.11	maize		12	12%	89	88%									101	
□2 mchele	35.12	rice		95	95%	5	5%									100	
□3 mtama	35.13	sorghum		96	96%	4	4%									100	
□4 muhogo	35.14	cassava		98	98%	2	2%									100	
□5 _____	35.15	other	+	88	87%	13	13%									101	
□ 2 Kingine:	35.2	2 Other	+	146	88%	20	12%									166	
36. Chakula cha watoto kinatosha? □ 0 Hapana □ 1 Ndiyo	36	Was children's food enough?		25	16%	130	84%									155	
37. Nani anaamua mtoto mgonjwa apelekwe wapi? □ 1 Mke/mwanamke tu □ 2 Mume/mwanamme tu □ 3 Mume na mke/wote	37	Who decided to send the children where when s/he was sick? 1 Wife/women only 2 Husband/men only 3 Husband and wife/all				10	6%	3	2%	149	92%					162	
Kuhusu Afya		**About health**															
41. Je kwa ujumla unaonaje hali yako kiafya? □ 5 Nzuri kupita kiasi □ 4 Nzuri sana □ 3 Nzuri □ 2 Ya wastani □ 1 Mbaya	41	[GH: General Health] In general would you say your health is: 5 Excellent 4 Very good 3 Good 2 Fair 1 Poor				3	2%	35	22%	83	52%	34	21%	4	3%	159	3.01
Shughuli zilizoorodheshwa hapa chini ni shughuli unazoweza kuzifanya kila siku. Je afya yako hivi sasa inakuzuia kufanya shughuli hizi? Kama ndivyo kwa kiasi gani? 42. Kazi za kawaida kama kuchota maji, kufua nguo, kubeba mtoto: □ 1 Ndiyo, Inazuia sana □ 3 Ndiyo, Inazuia kiasi □ 5 Hapana. Haizuii kabisa	42	[PH: Physical Functioning] The following questions are about activities you might do during a typical day. Does your health now limit you in these activities? If so how much? 42. Moderate activities such as carrying water, washing clothes, and carrying children: 1 Yes, very limited 3 Yes, limited a little 5 No, not limited at all				14	9%			44	30%			90	61%	148	4.03
43. Kufanya kazi nzito; Kupanda mlima mkali: □ 1 Ndiyo, kupita sana □ 3 Ndiyo, Inazuia kiasi □ 5 Hapana. Haizuii kabisa	43	Heavy activities; To climb a steep mountain: 1 Yes, very limited 3 Yes, limited a little 5 No, not limited at all				17	14%			34	28%			72	59%	123	3.89
Katika kipindi cha mwezi mmoja uliopita je umewahi kupata moja ya matatizo yafuatayo katika utendaji wako wa kazi ikiwa ni matokeo ya matatizo ya afya yako? 44. Umetekeleza machache kuliko ulivyotaraja? □ 1 Ndiyo □ 5 Hapana	44	[RP: Role Physical] During a month have you had any of the following problems with your work or other regular daily activities as a result of your physical health? 44. Accomplished less than you would like? 1 Yes 5 No				76	52%							71	48%	147	2.93
45. Umeshindwa kufanya baadhi ya kazi au shughuli? □ 1 Ndiyo □ 5 Hapana	45	Were limited in the kind of work or other activities? 1 Yes 5 No				53	38%							85	62%	138	3.46
Katika kipindi cha mwezi mmoja uliopita uliwahi kupata moja ya matatizo yafuatayo katika utendaji wako wa kazi ikiwa ni matokeo ya mawazo? 46. Umetekeleza machache kuliko ulivyotaraja? □ 1 Ndiyo □ 5 Hapana	46	[RE: Role Emotional] During a month have you had any of the following problems with your work or other regular daily activities as a result of any emotional problems (such as feeling depressed or anxious)? 46 Accomplished less than you would like? 1 Yes 5 No				82	55%							68	45%	150	2.81

Swahili original	Entry code	English translation	+	0 No Hapana	%	1 Yes Ndiyo	%	2	%	3	%	4	%	5	%	Total n	Average
[Swahili]		[English] / [Translation omitted when No/Yes question]															
47. Hukufanya kazi au shughuli zako kwa uangalifu kama ilivyo kawaida? □1 Ndiyo □5 Hapana	47	Did work or activities less carefully than usual? 1 Yes 5 No				58	42%							79	58%	137	3.31
48. Katika mwezi mmoja uliopita maumivu yalikuzuia kwa kiasi gani kufanya kazi zako za kila siku (ndani na nje ya nyumbani kwako)? □5 Hayakunizuia kabisa □4 Yalinizuia kiasi kidogo □3 Yalinizuia kwa wastani □2 Yalinizuia kwa kiasi □1 Yalinizuia kwa kiasi kikubwa sana	48	[BP: Body Pain] During a month how much did pain interfere with your normal work (including work outside the home and housework)? 5 Not at all / 4 A little bit / 3 Moderately / 2 Quite a bit / 1 Extremely				2	1%	16	11%	39	27%	28	19%	62	42%	147	3.90
49. Maswali yafuatyo yanahusu jinsi unavyojisikia kiafya vile vile jinsi gani shughuli zako zilivyofanikiwa kwa kipindi cha mwezi mmoja uliopita. Kwa kila swali tafadhali toa jibu lililo karibu na jinsi livyokuwa unajisikia. Je ni muda gani kwa kipindi cha mwezi mmoja uliopita umekuwa na yafuatayo: 49. Je ulijisikia mtulivu na wenye amani? □5 Muda wote □4 Muda mwingi □2 Muda mchache □1 Hakuna muda wowote	49	[MH: Mental Health] These questions are about how you have been feeling during the past one month. For each question please give the one answer that comes closest to the way you have been feeling. 49 Have you felt calm & peaceful? 5 All of the time / 4 Most of the time / 2 Some of the time / 1 None of the time				10	7%	49	34%			31	22%	53	37%	143	3.48
50. Je ulikuwa na nguvu nyingi? □5 Muda wote □4 Muda mwingi □2 Muda mchache □1 Hakuna muda wowote	50	[VT: Vitality] Did you have a lot of energy? 5 All of the time / 4 Most of the time / 2 Some of the time / 1 None of the time				6	4%	52	39%			23	17%	54	40%	135	3.50
51. Je ulijisikia kusononeka? □1 Muda wote □2 Muda mwingi □4 Muda mchache □5 Hakuna muda wowote	51	[MHI] Have you felt down-hearted and blue? 1 All of the time / 2 Most of the time / 4 Some of the time / 5 None of the time				15	12%	14	11%			53	41%	46	36%	128	3.79
52. Katika mwezi mmoja uliopita ni kwa muda gani matatizo ya kiafya au kimawazo yameathiri shughuli zako za kijamii (kama kutembeleana na marafiki ndugu na jamaa nk)? □1 Muda wote □2 Muda mwingi □4 Muda mchache □5 Hakuna muda wowote	52	[SF: Social Functioning] During the past one month how much of the time has your physical health or emotional problems interfered with your social activities (like visiting friends relatives etc)? 1 All of the time / 2 Most of the time / 4 Some of the time / 5 None of the time				10	7%	13	9%			63	45%	53	38%	139	3.98
Kuhusu chakula		**About food**															
61. Chagua yote: Unakula chakula (nafakara, mizizi, ndizi) gani? 1 Wali/Mpunga	61.1	Choose all: What kinds of food do you eat (cereals, tubers, bananas)? 1 Rice		86	57%	64	43%									150	
2 Mahindi	61.2	Maize		12	8%	138	92%									150	
3 Mtama	61.3	Sorghum		123	82%	27	18%									150	
4 Uwele/Ulezi	61.4	Millet		117	78%	33	22%									150	
5 Ungano	61.5	Wheat		118	78%	33	22%									151	
6 Mhogo	61.6	Cassava		115	77%	35	23%									150	
7 Viazi	61.7	Tubers		75	50%	75	50%									150	
8 Ndizi	61.8	Bananas		93	62%	57	38%									150	
9 Kingyine	61.9	Others	+	143	95%	7	5%									150	
62. Mboga yako ni nini? 1 Nyama	62.1	What is your relish? 1 Meat		86	59%	59	41%									145	
2 Samaki	62.2	Fish		67	46%	78	54%									145	
3 Maziwa	62.3	Milk		89	61%	56	39%									145	
4 Mikunde	62.4	Beans		106	73%	39	27%									145	
5 Mboga mboga	62.5	Vegetables		20	14%	125	86%									145	
6 Kingyine	62.6	Others	+	139	96%	6	4%									145	

Entry code	Swahili original	English translation	+	0 No Hapana	%	1 Yes Ndiyo	%	2	%	3	%	4	%	5	%	Total n	Average
	Swahili	English															
		[Translation omitted when No/Yes question]															
63	Chagua moja tu kwa kila swali: Wakati ya kiangazi … Unakula chakula (nafakara, mizizi, au ndizi) mara ngapi? *0 Sili 1 Chini ya siku 3 kila wiki 2 Siku 4,5,6 kila wiki 3 Mara 1 kila siku 4 Zaidi ya mara 2 kila siku"	Choose one answer for each question: During the dry season: How many times do you eat staple food (cereals, tubers, or bananas)? *0 Don't eat 1 Less than 3 days a week 2 4,5,6 days a week 3 Once every day 4 More than 2 times a day		6	4%	39	27%	25	17%	21	15%	53	37%			144	2.53
64	Unakula mboga mboga mara ngapi? *	How many times do you eat vegetables? *		4	3%	17	12%	23	16%	32	23%	66	46%			142	2.98
65	Unakula nyama mara ngapi? **0 Sili 1 Mara 1 au chini kila wiki 2 Siku 2,3 kila wiki 3 Siku 4,5,6 kila wiki 4 Kila siku	How many times do you eat meat? **0 Don't eat 1 Once or less then once a week 2 2,3 days a week 3 4,5,6 days a week 4 Every day		9	6%	64	45%	55	38%	11	8%	4	3%			143	1.56
66	Unakula samaki au dagaa mara ngapi? **	How many time do you eat fish or small fish? **		6	5%	43	33%	67	52%	8	6%	5	4%			129	1.71
67	Unakunywa maziwa mara ngapi? **	How many times do you drink milk? **		23	17%	48	36%	38	28%	11	8%	15	11%			135	1.61
68	Unakula mikunde mara ngapi? **	How many time do you eat beans? **		25	19%	42	31%	47	35%	10	7%	11	8%			135	1.56
69	Unakula mbegu mara ngapi? **	How many times do you eat seeds? **		36	27%	29	21%	41	30%	14	10%	15	11%			135	1.58
70	Unakula matunda mara ngapi? **	How many times do you eat fruits? **		8	6%	25	19%	47	35%	25	19%	29	22%			134	2.31
71	Unakula chakula nyinginyi ya pori mara ngapi? **	How many times do you eat other food from the forest? **		40	29%	30	22%	30	22%	15	11%	21	15%			136	1.61
72	Unatumia mafuta mara ngapi? *	How many times do you use oil? *		10	7%	16	12%	28	20%	35	25%	49	36%			138	2.70
73	Unatumia chumvi mara ngapi? *	How many times do you use salt? *		6	4%	7	5%	29	21%	37	27%	60	43%			139	2.99
74	Untumia sukari mara ngapi? *	How many time do you use sugar? *		7	5%	15	11%	26	19%	52	37%	40	29%			140	2.74
75	Wakati ya masika… Unakula chakula (nafakara, mzizi, au ndizi) mara ngapi? *	In time of rainy season…. How many times do eat staple food (cereals, tubers, or bananas)?*		8	6%	22	17%	27	21%	33	25%	41	31%			131	2.59
76	Unakula mboga mboga mara ngapi? *	How many times do you eat vegetables? *		5	4%	18	13%	31	23%	24	18%	57	42%			135	2.81
77	Unakula nyama mara ngapi? **	How many times do you eat meat? **		7	6%	56	44%	43	34%	11	9%	9	7%			126	1.67
78	Unakula samaki au dagaa mara ngapi? **	How many time do you eat fish or small fish? **		7	5%	43	33%	55	43%	12	9%	12	9%			129	1.84
79	Unakunywa maziwa mara ngapi? **	How many times do you drink milk? **		14	11%	45	35%	33	26%	10	8%	26	20%			128	1.91
80	Unakula mikunde mara ngapi? **	How many time do you eat beans? **		22	17%	34	27%	40	31%	12	9%	19	15%			127	1.78
81	Unakula mbegu mara ngapi? **	How many times do you eat seeds? **		25	22%	24	21%	33	28%	13	11%	21	18%			116	1.84
82	Unakula matunda mara ngapi? **	How many times do you eat fruits? **		7	6%	29	23%	37	30%	12	10%	39	31%			124	2.38
83	Unakula chakula nyinginyi ya pori mara ngapi? **	How many times do you eat other food from the forest? **		40	32%	26	21%	25	20%	7	6%	26	21%			124	1.62
84	Unatumia mafuta mara ngapi? *	How many times do you use oil? *		10	8%	17	14%	24	19%	26	21%	48	38%			125	2.68
85	Unatumia chumvi mara ngapi? *	How many times do you use salt? *		5	4%	15	12%	26	21%	29	23%	51	40%			126	2.84
86	Untumia sukari mara ngapi? *	How many time do you use sugar? *		6	5%	14	11%	21	17%	39	31%	46	37%			126	2.83

Note: + Further information available; Number+= Information available in the respective table; - = Confidential

Table 2. Age groups of respondents (2ab)

Age groups	Frequency	Valid Percent
10s	9	5.3
20s	94	55.0
30s	37	21.6
40s	8	4.7
60s	2	1.2
Unknown	21	12.3
Total	171	100.0

Table 3. Ethnic groups of respondents (4)

Ethnic groups	Frequency	Valid Percent
Hehe	102	59.6
Bena	26	15.2
Kinga	5	2.9
Wanji	5	2.9
Nyiha	4	2.3
Other	17	9.9
n.a.	12	7.0
Total	171	100.0

Table 4. Numerical results of the questionnaire

Entry code	English translation	Average	Unspecified	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	20	30	50	Total
10.2	How many livestock for bridewealth? (livestock unspecified)					3	3		2						1				1			**10**
	Cow		8		4	21	4	4	3													**36**
	Chicken		2			2			3		1											**6**
	Goat		4																			**0**
	Sheep		1																			**0**
11b	Is your marriage of one wife or more (polygamy): How many?	1.10		4	93	6	0	1	0	1												**105**
13a	How many people live in your house? Total:	4.51			5	3	39	33	21	20	6	4	3	1	0	0	1	1				**137**
13b	How many children under 5?	1.45		5	86	35	8	2	1	0	1											**138**
16	Do you have livestock?			83	65																	**148**
ngombe	How many? Cows	4.17			2	0	1	1	0	1	0	0	0	1								**6**
mbuzi	Goat	2.60			4	0	0	0	0	0	0	0	1									**5**
kuku	Chicken	4.61			29	6	1	1	5	0	0	0	0	5	0	1			1	1	1	**51**
21.1	Which months did you have insufficient food?		30	117																		**147**
	Total sufficient months	9.17	12	5	0	0	4	2	13	4	9	8	12	48	52							**169**

1. About the respondents

Most (96%) of the respondents are women as targeted. Majority of the respondents are in their 20s (55%), followed by those in their 30s (22%, Table 2). Most of their religions are Christians (91%). The majority ethnic groups are the Hehe (60%), followed by Bena (15%), Kinga (3%), Wanji (3%), and Nyiha (2%, Table 3). There were 2 respondents of Luguru, Makonde, Pare, and Romani, and 1 respondent each of Kifumi, Matengo, Ndali, Ngoni, Nyakyusa, Pagwa, Sagala, Siyamu, and Zanaki, indicating a variety of ethnic groups.

Only 19% participated in their initiation, but most studied in school (96%). Among those who went to school, majority went to elementary school (88%), and among them 43% finished their education at the elementary level, whereas 48% progressed to secondary. Two percent went to madras, and 6% went to other schools including 1 to university, and 2 to higher technical schools.

2. About marriage and family

Among the respondents, 75% have the experience of being married. Majority (76%) decided their marriage on their own, but 24% had their marriage decided by their parents. Most (68%) of their family received bridewealth: 86% of them received money and 54% livestock. Average amount of bridewealth in money was TSh743,182, ranging from TSh20,000 to TSh9,000,000. The most frequent amount of livestock received was 2 cows common to 21 respondents, and ranged from 1 to 5, but possibly 10 or 20 (if responses with type of livestock unspecified are cows). Others received chicken ranging from 2 to 7, or combination of chicken, goat, cow, and sheep (Table 4).

Presently, majority of respondents were married (65%), but 21% were unmarried, 8% were separated, 3% were divorced, and 3% were widowed. Most of their marriages were monogamy, but 6 of the husbands had 2 wives, 1 had 4 wives and another had 6 wives (Table 4). Majority (70%) lived with their spouse or partner. Average of 4.51 people lived in the same house, but ranging from 1 to 14, and the most common number of people were 3, followed by 4, 5, and 6 (Table 4). Most of the respondents (62%) had one child under-5 in the house, followed by 2 (25%), and also up

to 7 (Table 4).

As for the nutrition status (weight) of children under-5, 73% considered it sufficient (green), 9% considered that it could become insufficient (gray), and 2 % considered it insufficient (red). Total of 16% did not know the status.

Among the respondents, 10% experienced death of children under-5: 8 (5%) respondents lost one child, 4 (2%) respondents lost 2 children, and 1 (1%) respondent lost 3. Most of them did not know the reason (6, 40%), but 2 (13%) indicated malaria, pneumonia, and jaundice each, and 1 indicated convulsion at pregnancy.

3. About livelihood

Majority are farmers (77%), but 14% do business, 4% are pastoralists and teachers each, and a few are employees (2) or waiting to be recruited (3). Although many did not consider themselves pastoralists, 44% had some kind of livestock. Only 6 respondents had a cow, and the number ranged from 1 to 10 (Table 4). Five respondent had goats, 4 of them only 1 goat, but 1 respondent had 9 goats. Fifty-one respondents had chicken: 29 respondents had 1 chicken, 5 respondents had 5 and 10 chickens each, and 1 respondent had 3, 4, 12, 20, 30, and 50 chickens each (Table 4). Others had duck (3 respondents), pigs (3 respondents), sheep, and guinea pig (*simbilisi*, 1 respondent).

Majority had a farm (74%) and/or a garden (60%). The major crop was maize (97%), but a few cultivated cassavas, potatoes (*viazi*), kidney beans (*maharage*, 2 respondents each), rice, and sorghum (1 respondent each). Majority cultivated for food (95%), and some for business (4%). Majority answered that they made decisions about the crop with women and men together (85%).

Majority (70%) indicated that they had sufficient food these days to last a year. Most respondents (92%) had enough food during July to September 2018. February was the month when relatively more respondents (32%) lacked food the most, followed by March (26%), December (21%), and January (20%, Table 1). Average month of food sufficiency was 9.8

months. Fifty-two respondents had food throughout 12 months a year, 48 had for 11 months, 12 for 10 months, 13 for 6 months, and 12 for none of the months (Table 4).

When food is insufficient, 38% got food from the forest, 27% decreased the number of meals, 17% sold livestock, and 7% let children eat at relatives of neighbors. Majority consider that food (75%) is the most important use of income, followed by health (26%), education (15%), agriculture (11%), and clothes (9%). Majority answered that they made decisions about the cash with women and men together (82%). Majority considered their situation as average (82%) within the village, whereas 15% considered themselves poor, and 3 % rich.

4. About groups

Majority were not participating in any group (58%), but 34 % participated in 1 group, 7% in 2 groups, and 1% in 3 groups. Some of the names of the groups were: Village Community Bank (*Kikoba* or *Vikoba*) with 15 respondents, Agriculture (*Kilimo*) with 4, and 3 were "Ujirani Mwema", but there were many other group names. Major objectives of the groups were savings and borrowing (58%), followed by agriculture (37%).

5. About mutual assistance

Among the respondents, majority considered that they were not assisted when they needed food (63%), but majority considered that they helped others (61%) when others needed food. On the other hand, relatively more people considered that they were helped when they needed money (55%), and that they also helped when they needed money (66%). The majority generally considered that people helped each other in the village (75%).

6. About children

Majority also considered that they had enough food when they were pregnant (88%), and breastmilk was also sufficient (92%). The most common children's first food was maize porridge (88%), but porridge

of "nutrition" (*uji wa lishe*, 8 respondents), rice (5), sorghum (4), finger millet (*ulezi*, 3), cassava (2), and soya beans were also given. Other food such as fruits (4), peanuts (3), milk (3), breastmilk (2), small fish (*dagaa*), vegetables, mixture, banana, and stiff porridge were also given.

Majority considered that children's food was sufficient (84%). Majority (92%) answered that both husband and wife decided to send the children where when the child is sick.

7. About health (SF-12)

[**GH: General Health**] In general, 52% considered that they had good health, 22% fair, and 21% very good. Only 3% answered that they had excellent health and 2% as poor health.

[**PH: Physical Functioning**] In relation to moderate activities, 61% felt that they were not limited at all, 30% as limited a little, and 9% very limited. As for heavy activities, 59% were not limited at all, 28% were limited a little, and 14% were very limited.

[**RP: Role Physical**] However, relatively more felt that they accomplished less than they would like (52%), in comparison to those disagreeing (48%). On the other hand, relatively more were not limited in the kind of work or activities (62%), in comparison to those who were (38%).

[**RE: Role Emotional**] As for emotional problems also, relatively more felt that they accomplished less that they would like (55%) in comparison to those disagreeing (45%). However, more indicated that they were not less careful than usual (58%) in comparison to those who felt that they were less careful (42%) also due to emotional problems.

[**BP: Body Pain**] Many of the respondents indicated that pain did not interfere with their normal work at all (42%), 19% indicated a little bit, 27% moderately, 11% a little bit, and 1% extremely.

[**MH: Mental Health**] In regard to feelings, 37% felt calm and peaceful all the time, 22% most of the time, 34% some of the time, and 7% none of the time. Those who felt down-hearted and blue none of the time were 36%, some of the time was 41%, most of

the time was 11%, and all of the time was 5%.

[**VT: Vitality**] Among the respondents, 40% felt a lot of energy all of the time, 17% most of the time, 39% some of the time, and 4% none of the time.

[**SF: Social Functioning**] In regard to physical health or emotional problems interfering with social activities, 38% considered it as none of the time, 45% as some of the time, 9% as most of the time, and 7% all the time.

8. About food intake

The most typical staple food was maize (92%), followed by tubers such as various potatoes (50%), rice (43%), bananas (38%), cassava (23%), millet (22%), wheat (22%), and sorghum (18%). Other food such as *kande* (cooked maize and beans), cowpea (*kunde*), fruits, and vegetables were mentioned, and 4 respondents specifically mentioned taro (*maghimbi*) registered as tubers. Two respondents indicated *ugali*, stiff porridge, a typical way of eating maize and other main food.

As for relish, 86% of the respondents indicated vegetables, 54% fish, 41% meat, 39% milk, and 27% beans. Other specific responses included vegetables such as carrots (4 responses) and ladies' fingers, cowpea (2), and small fish which have been counted in their respective categories.

During the dry seasons, 37% of the respondents eat staple food more than 2 times a day, 15% eat once every day, 17% eat 4-6 days a week, and 27% eat once a week or less. As for vegetables, 46% eat more than 2 times a day, 23% eat every day, 16% eat 4-6 times a week, and 12% eat once a week or less. As for meat, 45% eat once or less than once a week and 38% eat 2-3 days a week. As for fish or small fish, 52% eat 2-3 days a week, and 33% eat once or less a week. For milk, 36% drink once or less a week, and 28% drink it 2-3 days a week. As for beans, 35% eat it 2-3 days a week and 31% once or less a week. Thirty percent eat seeds 2-3 days a week, and 35% eat fruits the same frequency. Food from the forest is eaten by 22% once or less, and 2-3 days a week respectively. Thirty-six percent use oil more than 2 times a day, and 43% use salt for the same

frequency, and 31% use sugar 4-6 days a week. Twenty-nine percent do not eat food from the forest, 27% do not eat seeds, and 19% do not eat beans.

During the rainy season, 31% eat staple food 2 times a day, 25% eat once a day, and 21% 4-6 days a week. As for vegetables, 42% eat it more than 2 times a day, and 23% eat it 4-6 days a week. As for meat, 44% eat it once or less a week and 34% eat it 2-3 days a week. As for fish, 43% eat it 2-3 days a week and 33% eat is once or less. Drinking milk is once or less a week by 35%, and 2-3 days a week by 26%. Thirty-one percent eat beans 2-3 days a week, 28% eat seeds and 30% eat fruits for the same frequency. Food from the forest is eaten once or less per week, or everyday by 21% respectively. Use of oil is more than 2 times a day for 38%, salt is 40%, and sugar is 37% for the same frequency. Thirty-two percent do not eat from the forest, 22% do not eat seeds, and 17% do not eat beans.

II. Analysis and Limitations

1. Under-5 Mortality and Underweight

Among the respondents, 17 people (10%) experienced the loss of a child before the age of 5. Number of children's death adds up to 19; if we calculate the 5 respondents who did not answer the number of children as 1 child each, it will at least add up to 24.

Two percent of children were severely underweight, and 9% were moderately underweight, which totals to 11% underweight. Although the cut-off point is likely to be different from the national data, it is lower than the national average of 13%, lower than the Iringa average of 15.5%, and below the target of 12.5%.

However, it is striking that 16% did not know the nutrition status of children under-5 in spite of the fact that the questionnaire was taken at the occasion when and where the children were weighed at the dispensary. It is important that mothers/parents understand the nutrition status of children so that measures can be taken by the family and community to improve them when necessary, and this is the main objective of growth monitoring. In case all 16% are underweight, the percentage will add up to 27%, which will be at an alarming situation.

2. Subjective health evaluation of adults

Scores of subjective health is calculated in reference to SF-12 (Diagram 1). According to the calculation, the score ranges from 34.62 to 52.52: Role Emotional (RE) is the lowest and Vitality (VT) is the highest.

3. Quantity and balance of food intake

Majority considered that they had enough food during pregnancy (88%), and that children had enough breastmilk (92%), and enough food for children (84%). Also a majority considered that they had enough food (70%). Food shortage was not a big issue for the majority throughout all the month (Diagram 2), and even in February during the rainy season when it is considered to have less food, 68% had enough food. Harvest season of maize is expected during July to September when 92% of the respondents had enough food, which matches with the general understanding.

Diagram 1. Subjective health evaluation of adults
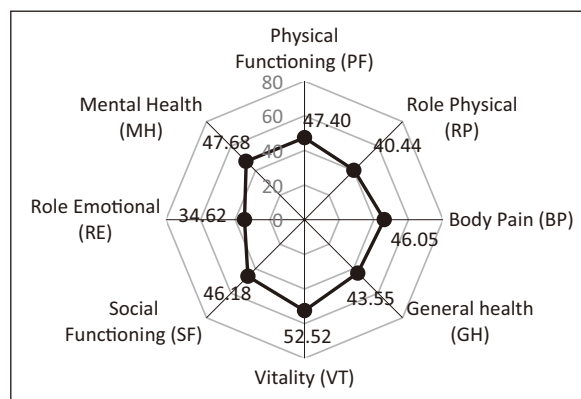
Source: Calculated by Ohmori with reference to SF-12

Diagram 2. Food sufficiency/insufficiency in 2018
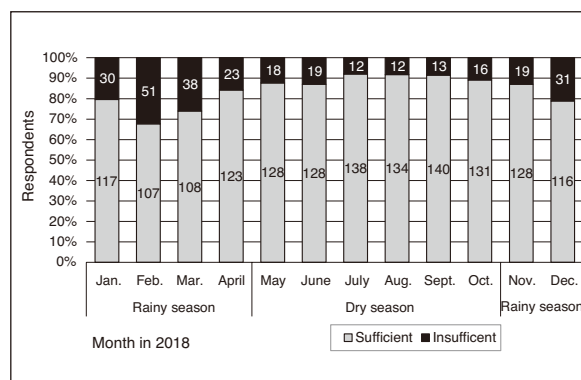
Diagram 3. Balance of food intake by seasons
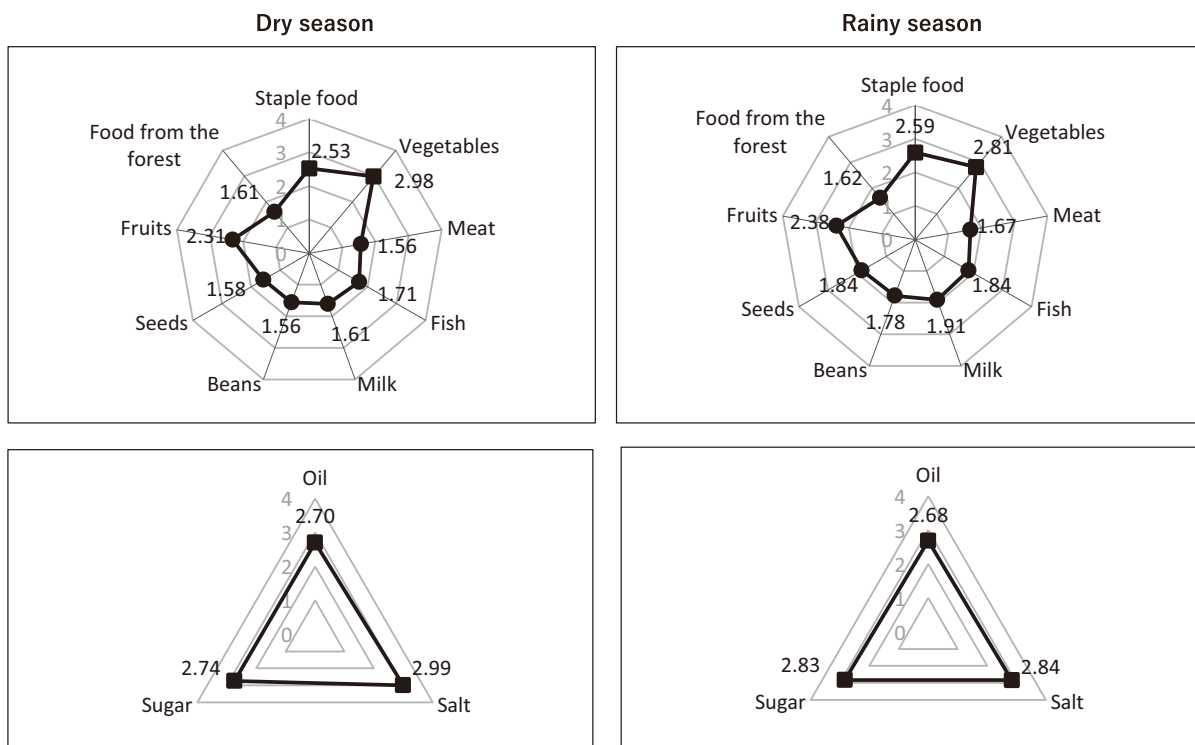
Note: ■ = 4: More than 2 times a day, 3: Once every day, 2: 4,5,6 days a week, 1: Less than 3 days a week, 0: Don't eat
● = 4: Every day, 3: 4,5,6 days a week, 2: 2,3 days a week, 1: Once or less than once a week, 0: Don't eat

According to the average of responses, many people eat vegetable and staple food almost every day. Salt, sugar, and oil are also taken almost every day, more frequently than staple food in average. Fruits are taken more than 2-3 days a week. Fish, milk, food from the forest, seeds, meat, and beans are taken more than once a week (the former more frequently in this order) during the dry season. The frequency does not drastically change in the rainy season, and rather increases in average and for all except vegetables. Order of average frequency change, and people eat/drink milk, fish, seeds, beans, meat, and food from the forest, the former more frequently. Eating food from the forest differ among the respondents: 29% don't eat but 15% eat every day. The difference becomes steeper during rainy season: 32% don't eat but 21% eat it every day.

The decrease of meat, fish, and milk during the dry season was not so obvious in daily life, nor to the dispensary nurse or a health worker. But further interviews to the health workers gave various explanation centering on the seasonal income and consumption of the villagers. A health worker indicated that villagers may buy less meat and fish during the dry season due to lack of money. Another health worker indicated that farmers do get money during August to October during the dry season by selling maize, potatoes, and beans, but they may lack money if men use up the money for buying alcohol. During the rainy season, there are expenditures such as fertilizers and school expenses in January. A different health worker indicated that since there are ample opportunity for casual labor in the rainy season, villagers get income, and some of them buy meat and fish. During the dry season, the expenditure is not as high, so they are able to buy vegetables.

However, at the same time, there were a few concerns regarding the questionnaire especially in relation to the results of seasonal food intake. Looking at the registered answers, question 21, and questions 63 to 86 may have been difficult to answer for some due to the way it was asked. Question 21 asked the insufficiency (or sufficiency) of food for each month by entering "X" (or "O"), but some answered it with

a tick. Questions 63 to 86 asked the frequency of each food categories for each season, but some probably became tired and did not answer the situation in the rainy season. The categorization of the frequency, and categorization of food may also have been difficult. Therefore, the results need to be interpreted with cation.

4. Decision making and social capital

Majority make decision within the household together with men and women, especially to decide where to send children where when s/he is sick (92%), followed by usage of crops (85%) and usage of income (82%). Majority of respondents generally help each other, especially with money, 55% being helped and 66% to help. Most popular group for participation is savings and borrowing (58%) followed by agriculture (37%). A related background may be that majority (82%) consider themselves average, not rich nor poor.

Less people get help for food (37%), most probably since majority have enough food. People also tend to emphasize the answer that they help others, rather than being helped. In any case, majority also consider that people in the village help each other.

Conclusion, and Future Analysis

Iringa Region had high mortality at all ages, and this case study of Ifunda also indicated incidents of death of children under-5. The study also underlined the general understanding of the Iringa Region for having ample food especially maize. The relatively sufficient food in Iringa solves the problem of acute malnutrition (wasting), but not necessarily chronic malnutrition (stunting) nor mortality. Stunting is likely to be the result lack of protein, and further analysis is necessary to underpin the reason. In regard to mortality, it is difficult to conclude since it is a manifestation of various reasons including sickness (e.g. the high HIV prevalence), but the frequent usage of salt, sugar, and oil (which is more frequent than eating staple food) could be one of the factors influencing mortality.

These findings are not conclusive, but preliminary.

The following analysis are planned to further understand the situation: (i) In-depth analysis of food intake and subjective health situation; (ii) Analyzing correlations between manifestation of health/nutrition status and other factors; (iii) Comparison with other regions based on the same questionnaire. Furthermore, individual responses on respondent's subjective health evaluation and food intake will be provided as feedback so that it may give an opportunity for improvement of individual health.

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Situation of Women and Children in Southern Tanzania:

From questionnaires in Ifunda, Iringa with focus on food-intake and health

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Abstract

The Iringa Region is considered to be a major producer of staple food in Tanzania and has the lowest acute malnutrition rate among children (0.7%), yet is one of the regions with high chronic malnutrition (51.3%), underweight (15.5%), IMR (61.8 per 1,000), U5MR (90.7), adult mortality (11.3 per 1,000), and low life expectancy (55.4). Questionnaires to 141 parents (mostly women) of children in the Iringa Region on the occasion of child growth monitoring in Ifunda confirmed that majority of the respondents had enough food throughout the year (70%), during pregnancy (88%), and for children (84%), and had enough breastmilk (92%). Under-5 underweight was 11%, but 16% did not know their children's nutrition status. Total of at least 24 children of 10% of the respondents have died under-5. Self-evaluation of their health is balanced on the average, but has relatively high Vitality (VT) and low Role Emotional (RE). Most of the people grow (97%) and eat (92%) maize. The frequency of various nutrition group is relatively balanced, but (i) fish is more frequently eaten than meat, (ii) vegetable is eaten more frequently in the dry season, (iii) other foods including fish and milk are eaten more frequently in the rainy season, (iv) salt, sugar, and oil is frequently taken. Further analysis is needed to understand the consequences of their food intake, and excessive intake of salt, sugar, and oil needs to be given attention.

要約

イリンガ州は、タンザニアの食糧庫と認識されるほど充分な農作物を生産し、最も低い子どもの急性栄養失調（0.7%）を誇るが、慢性栄養失調（51.3%）、低体重（15.5%）、乳児死亡率（1,000 人中 61.8 人）、幼児死亡率（同 90.7）、成人死亡率（同 11.3 人）は最も高い州の一つであり、平均寿命も 55.4 歳と低い。イリンガ州のイフンダにおける子どもの体重測定の日に合わせ、141 名の親（主に女性）に対して質問票調査を行った結果、回答者のほとんどは一年間充分な食料があり（70%）、妊娠中の食事（88%）も、子どもの食料（84%）も、授乳（92%）も充分であったと感じていた。5 歳未満児の低体重は 11% であったが、加えて 16% が体重を把握していなかった。成人の健康の自己評価は、一般的にバランスがとれていたが活力（VT）は高く、日常役割機能（精神，RE）は低かった。ほとんどの人はトウモロコシを生産し（97%）、主食としていた（92%）。食事の栄養素もバランスが取れているが、(i) 肉よりも魚の摂取が多く、(ii) 野菜は乾季に、(iii) 魚や牛乳を含む他の栄養素は雨季により頻繁に食され、(iv) 塩・砂糖・油の使用頻度は高かった。これらの特徴の影響については、更なる調査が必要となるが、過度な塩・砂糖・油の接種の影響については注視する必要がある。