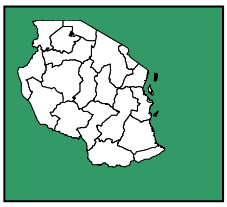
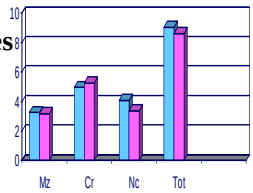


United Republic of Tanzania

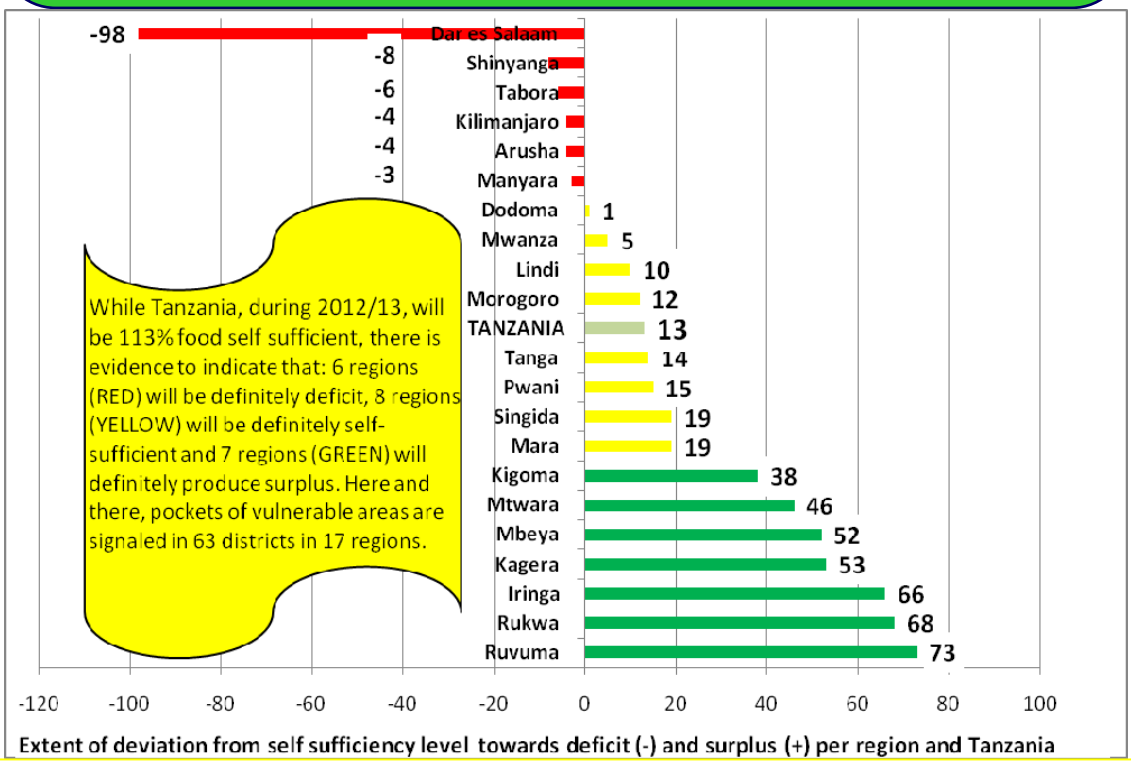
Ministry of Agriculture Food Security and Cooperatives



AGSTATS FOR FOOD SECURITY

VOLUME 1: The 2011/12 Preliminary Food Crop Production Forecast for 2012/13 Food Security

EXECUTIVE SUMMARY



Crop Monitoring and Early Warning
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Dar es Salaam, Tanzania

Dar es Salaam **June, 2012**

Main Highlights

- ***The 2011/12 Preliminary Food Crop Production Forecast amounts 13,572,804 tonnes grain equivalent of which 7,558,342 tonnes constitute cereals and 6,014,463 tonnes comprise non-cereals. Requirement for 2012/13 marketing year amounts 11,990,115 tonnes of which cereals make up 7,551,244 tonnes and non-cereals constitute the rest 4,438,870 tonnes. Based on these availability and requirement figures, a self sufficient status of 113% is attainable in terms of total food crops whereby cereals make up 100% and non-cereals make up 135%. In terms of gap/surplus analysis, this is respectively, 1,582,690 tonnes surplus of total food, of which 7,097 tonnes constitutes cereals and 1,575,592 tonnes surplus is non-cereals.***

- ***At sub-national level, there is evidence to indicate that: 7 regions will be definitely surplus, 8 regions will be definitely self-sufficient and 6 regions will be definitely deficit. Here and there, pockets of vulnerable areas are signaled in 63 LGAs in 17 regions. The identified vulnerable areas will need to be subjected to an in-depth vulnerability assessment towards a necessary intervention.***

- ***Compared to previous season, production increase of 5% has been observed in total food (1% increase in non-cereals and 7% increase in cereals). Specific cases of increase were mainly notable in double digits percentage values in maize (21%), cassava (20%) and pulses (12%), while the decline was also evident in double digits in rice (23%) millets (22%) potatoes (16) and bananas (14). Other single digit changes are as per Appendix 8. The 5% broad gain is due to, among others, improved rains in respect of timely onset and a fairly appropriate distribution experienced over the season. Other factors like input subsidies particularly in cereals could as well have a stake in this respect.***

- ***An analysis of carryover stocks (COS) shows that, on the eve of new marketing year 2012/13 (i.e. the midnight of 1/06/12) a total of 462,213 tonnes food stock was carried over into 2012/13 marketing year of which 77,935 tonnes was held in NFRA (National Food Reserve Agency) warehouses while 153,172 tonnes was held by private stockists and 231,107 tonnes was estimated as farm retention. Together with the 1,582,690 tonnes of food surplus arrived at as above, the total food availability, over and above national requirement becomes 2,044,903 tonnes.***

- ***It is however cautioned that the forecast is sensitive to vuli performance and about 451,352 tonnes is likely to deplete off substantially reducing the amount in forecast. The Vuli contribution which would normally be 2,360,483 tonnes is currently predicted to stand at 1,909,131 tonnes signifying a possible draw-down impact as indicated if trends maintain the usual performance.***

- ***It is highly recommended that the earmarked food surplus areas and food deficit areas are seen as opportunities and challenges that need to be appropriately addressed. Local market potential as per deficit signals should be well exploited prior to external orientation of surplus food as comparative advantage opens doors in the context of food and seed without borders especially around integrated EAC and SADC regions. And, the local import-export interaction points currently under establishment should be enhanced for transparency purposes and in an endeavour to clear off unofficial entry-exit points through ever increasing border porosity.***

Background

During the month of June, 2012 the National Food Security Division (Crop Monitoring and Early Warning) carried out a regular preliminary food crop production forecast survey to ascertain food crop harvest status for 2011/12 and the corresponding availability for 2012/13. While the main objective was to determine the preliminary status concluded through capturing the effect of influential crop production factors that ruled over the growth stages from seed germination to maturity, specific objectives were threefold: **first,** to establish statistically if food crop production has a substantial influence in agricultural performance, **secondly,** if national and local level food security status can be accounted for using the forecasts and, **thirdly,** if food security vulnerability is adequately detected to warrant vulnerability assessment.

The exercise involved collection of the 2011/12 data and information from all 133 LGAs of mainland Tanzania in collaboration with Regional Agricultural Advisors (RAAs) and the District Agricultural and Livestock Development Officers (DALDOs) partly through routine crop monitoring and early warning tools and partly through actual fielding of MAFC teams of experts to ground proof crop performance in both unimodal and bimodal areas correspondingly in respect of *msimu* and *vuli* rainfall patterns of the 2011/12 crop season. Comprehensive analyses covering different retrievals were undertaken and results are presented in this report. The results concentrate on national and regional level food status with main highlights of regions and districts bearing vulnerable areas.

Methodology

Briefly, the methodology of crop forecasting essentially combined 3 consecutive steps, Eye estimation approaches (EEM) used by DALDOs, Projective-forecasting (PFM) used by MAFC and the Food crop production forecasting sample survey (FCPFS) with background of joint design, test and approval by NBS and MAFC under the technical guidance of FAO and later manned by MAFC. Later on, in the process of analyzing Self Sufficiency Ratios (SSR) and National Food Balances (NFBS) also following the technical guidance of FAO, the methodology extends to the calculation of food production in grain equivalent terms.

While Area and Production estimates largely borrows from DALDO estimates and partially improved by projective forecasting methods, Yield is largely improved by Agrometeorological approaches that borrow from plant-water-satisfaction indices and Production is computed and presented in grain equivalent terms. Self Sufficiency Ratio (SSR) calculations follow a simple food adequacy principle whereby production is related with requirement encompassing consumption and other uses based on requirement parameters employed by CMEW (See Appendix 8) and is presented in percentage terms.

Findings

SSR shows the extent of deficits and surpluses as a locally available and accessible surplus sink and emergency based vulnerability management before considering external market opportunities available in neighbouring countries or elsewhere. From the analysis, it has been found that **13,572,804** tonnes of food crops will be available from farm production comprising **7,558,342** tonnes of cereals[1] and **6,014,463** tonnes of non-cereals[2] (Table 1, Figure 1, Appendix 1 and Appendix 2) and will meet national food requirement amounting **11,990,115** tonnes of food by 113

1 The cereal crops covered under CMEWS include maize, sorghum, millets, rice and wheat.
2 The non-cereals include pulses, cassava, banana and potatoes

percent implying a **1,582,690** tonnes of surplus food (Table 1, Appendix 2). An alternative approach is the national food balance sheet which relates country to country food balance status to guide policies of whether to export or import and the extent thereof.

Figure 1a: Tanzania Preliminary Food Crop Production Forecast for 2012/13 (With Cropwise Proportional Contribution)

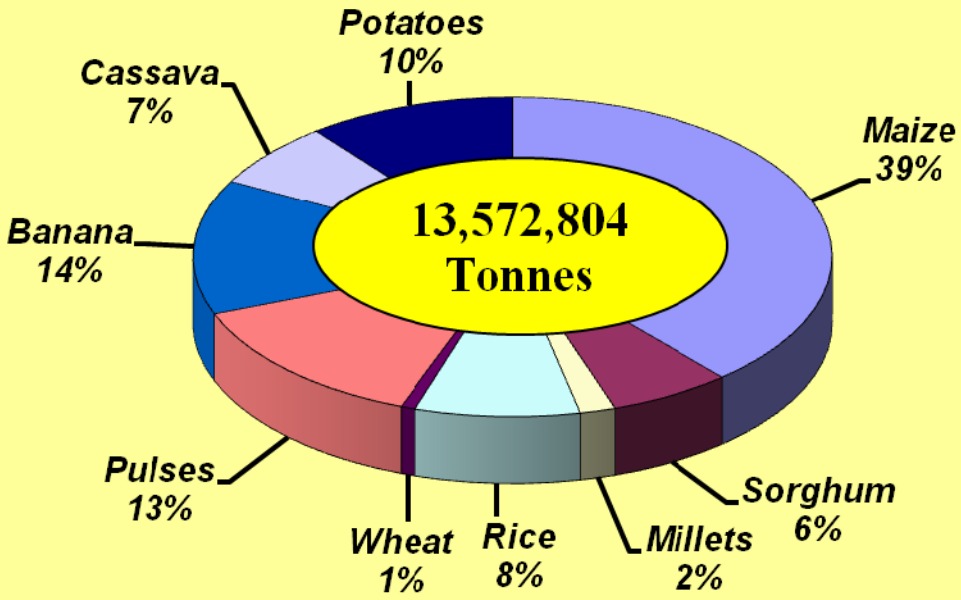


Figure 1b: Tanzania Preliminary Food Crop Requirement Forecast for 2012/13 (With Cropwise Proportional Contribution)

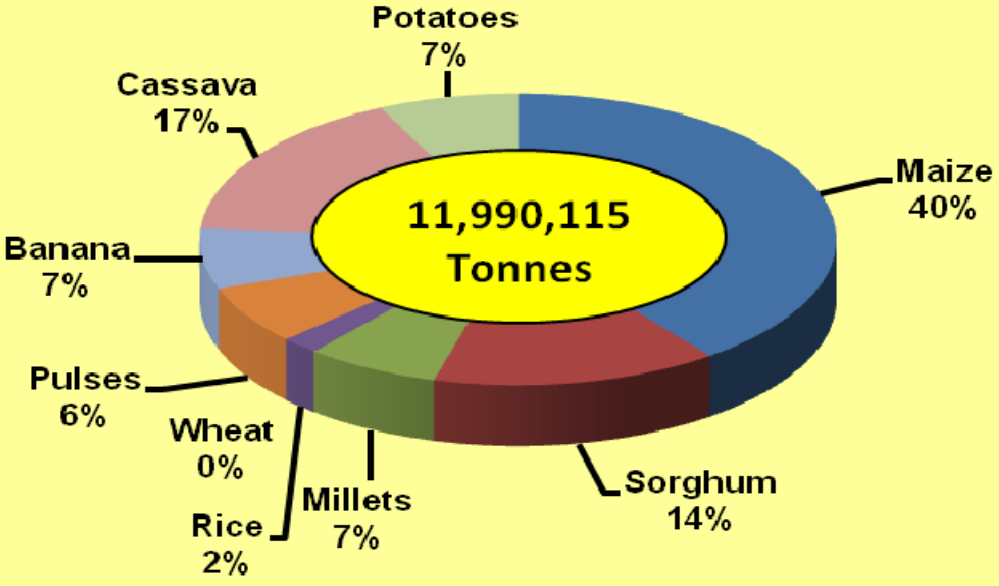


Table 1: The 2011/12 National Level Preliminary Food Crop Production versus Requirement and gap(-)/surplus(+) analysis for 2012/13 (Grain Equivalent tonnages)

Cereals	**Maize**	**Sorghum& Millets**	**Rice**	**Wheat**	**Cereals**
Production	5,240,001	1,087,177	1,128,326	102,837	7,558,342
Requirement	4,764,612	1,740,245	815,841	230,546	7,551,244
Gap (-)/ Surplus(+)	**475,389**	**-653,068**	**312,485**	**-127,709**	**7,097**
SSR (%)	**110**	**62**	**138**	**45**	**100**
Non-cereals	**Pulses**	**Banana**	**Cassava**	**Potatoes**	**Non-Cereals**
Production	1,824,178	896,853	1,857,156	1,436,275	6,014,463
Requirement	780,000	802,008	2,002,425	854,438	4,438,870
Gap (-)/ Surplus(+)	**1,044,178**	**94,845**	**-145,268**	**581,837**	**1,575,592**
SSR (%)	**234**	**112**	**93**	**168**	**135**
TOTAL	**Cereals**	**Non-Cereals**			**TOTAL**
Production	7,558,342	6,014,463			13,572,804
Requirement	7,551,244	4,438,870			11,990,115
Gap (-)/ Surplus(+)	**7,097**	**1,575,592**			**1,582,690**

Carryover Stocks Analysis and its reflection to total surplus availability

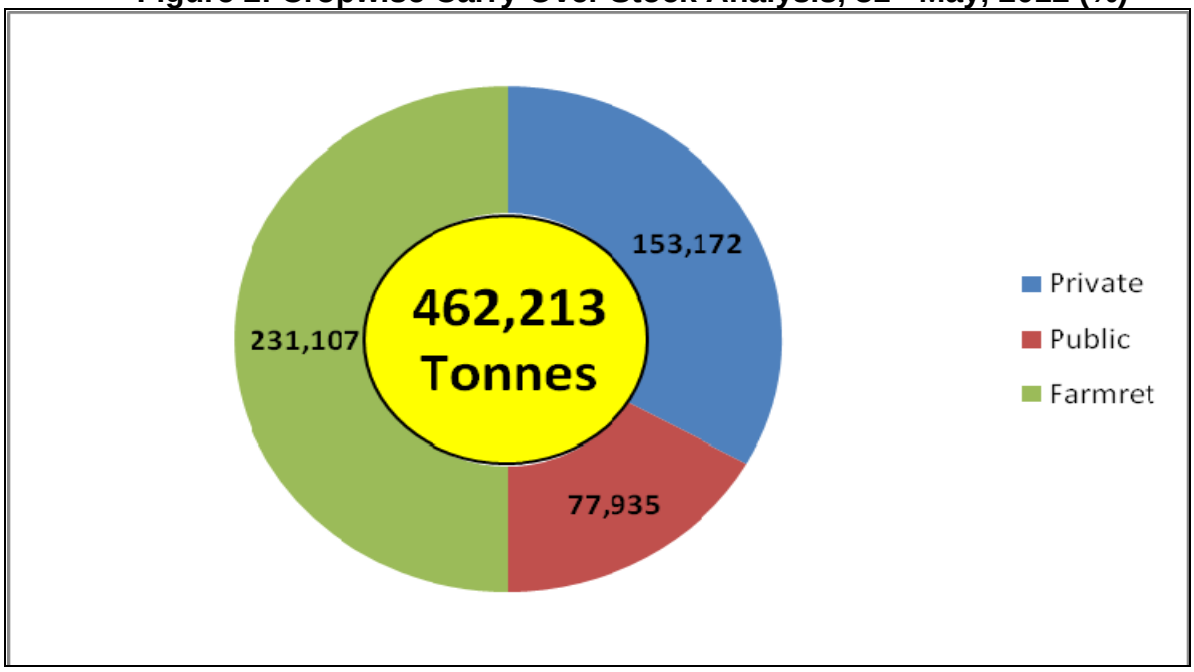
An analysis of Carryover Stocks (COS) shows that, on the eve of new food marketing year (1st June, 2012) a total of **462,213** tonnes of food stock was carried over into 2012/13 marketing year, of which 77,934.937 tonnes was held in NFRA premises while **153,172** tonnes was held by private stockists and **231,107** tonnes was estimated as farm retention (Table 2 and Figure 2).

Table 2: Carryover Stocks Analysis, 1 June, 2012 (Tonnes)

May, 2012	**Private**	**Public**	**Farmret**	**Total Stocks**
Maize	8,710	77,935		86,645
Rice	93			93
Wheat	123,578			123,578
Sorghum	-	-		-
Pulses	20,791			20,791
COS	**153,172**	**77,935**	**231,107**	**462,213**

Added to the 1,582,690 tonnes preliminary forecast of food surplus arrived at as above, the total food available, over and above national requirement is **2,044,903** tonnes. On the cropwise basis, wheat is the largest followed by maize, pulses and rice is the smallest (Fig. 2).

Figure 2: Cropwise Carry-Over Stock Analysis, 31st May, 2012 (%)



Time series analysis

Time series analysis shows that, compared to previous season, production increase of 5% has been observed in total (7% in cereals and 1% in non-cereals). Cropwise swings vary from -23% in rice to +21 in maize with other crops standing as per Table 3 below and Appendix 6.

Table 3: Time Series Analysis of Production of Major Food Crops in Tanzania, based on available series (1986/87 - 2011/12) (Thousand Tonnes and Percentages as indicated)

Year	Maize	Sorghum	Millets	Rice	Wheat	Cereals	Pulses	Cassava	Bananas	Potatoes	Non-cereals	Total	Year
2011/12 (Preliminary)	5,240	843	244	1,128	103	7,558	1,824	1,857	897	1,436	6,014	13,573	2011/12 (Preliminary)
Trend Values	3,992	774	268	1,239	96	6,368	1,422	1,721	1,065	1,601	5,808	12,176	Trend Values
%age change from Trend Values	31	9	-9	-9	7	19	28	8	-16	-10	4	11	%age change from Trend Values
%age change from year t-1	21	5	-22	-23	-9	7	12	20	-14	-16	1	5	%age change from year t-1

Compared to trend values computed from 1992/93-2011/12 (a reasonable period of reliable food crop statistics), total tonnage stands up by 11% while total cereals stand up by 19% and non-cereals stand up by 4%. Individual crops swing between +31% in maize and -16% in bananas with bananas, potatoes, rice and millets showing negative swings and maize, pulses, sorghum, cassava and wheat showing positive swings. Comparisons with other measures in trend analysis such as 25 years average and 5 years average for total food crops, cereals and non-cereals as well as for different crops are as per Appendix 6. SSR vitiations overtime back to 1994/95 shows t hat except for 5 years where food shortage was nationally felt, the country was on average self sufficient in the range of 102-117%.

Vuli Contribution

Based on this preliminary forecast, the normal vuli contribution to total food crop production revises to 32% bimodal area perspective or 17% national aggregate perspective. As of current availability, it contributes 26% bimodal areas perspective or 14% national aggregate perspective. In tonnage terms, the amounts which would normally amount 2,360,483 tonnes currently stands at 1,909,131 tonnes. Notably, a possible draw-down impact of about 451,352 tonnes is predicted (Table 3).

Table 3: Vuli contribution to 2011/12 Preliminary Forecast – Current vs Normal Production (*Based on 2011/12 Preliminary Food Crop Production Forecast)*

REGION	Total Production (T)	Normal Vuli contribution		2011/12 Vuli contribution	
		(%)	(T)	(%)	(T)
Bimodal-Tz	7,336,743	32	2,360,483	26	1,909,131
Total-Tz	13,572,804	17	2,360,483	14	1,909,131

The bimodal regions in order of falling strengths (80%-5%) are normally Kagera, Mwanza, Mara, Kilimanjaro, Arusha, Tanga, Morogoro, Coast, Dar es Salaam, Shinyanga and Mbeya. (It should be noted that Mbeya and Shinyanga are largely unimodal with traces of bimodality tendency) - See Appendix 2. Based on these percentage vuli contribution strengths, the 11 regions aggregate to 32% normally and 26% currently taking the proxy values of current production year. Since the vuli production that is relevant for 2012/13 consumption year actually comes from 2012/13 production season the figures will be revised along the final forecast survey which will be conducted in November/December 2012.

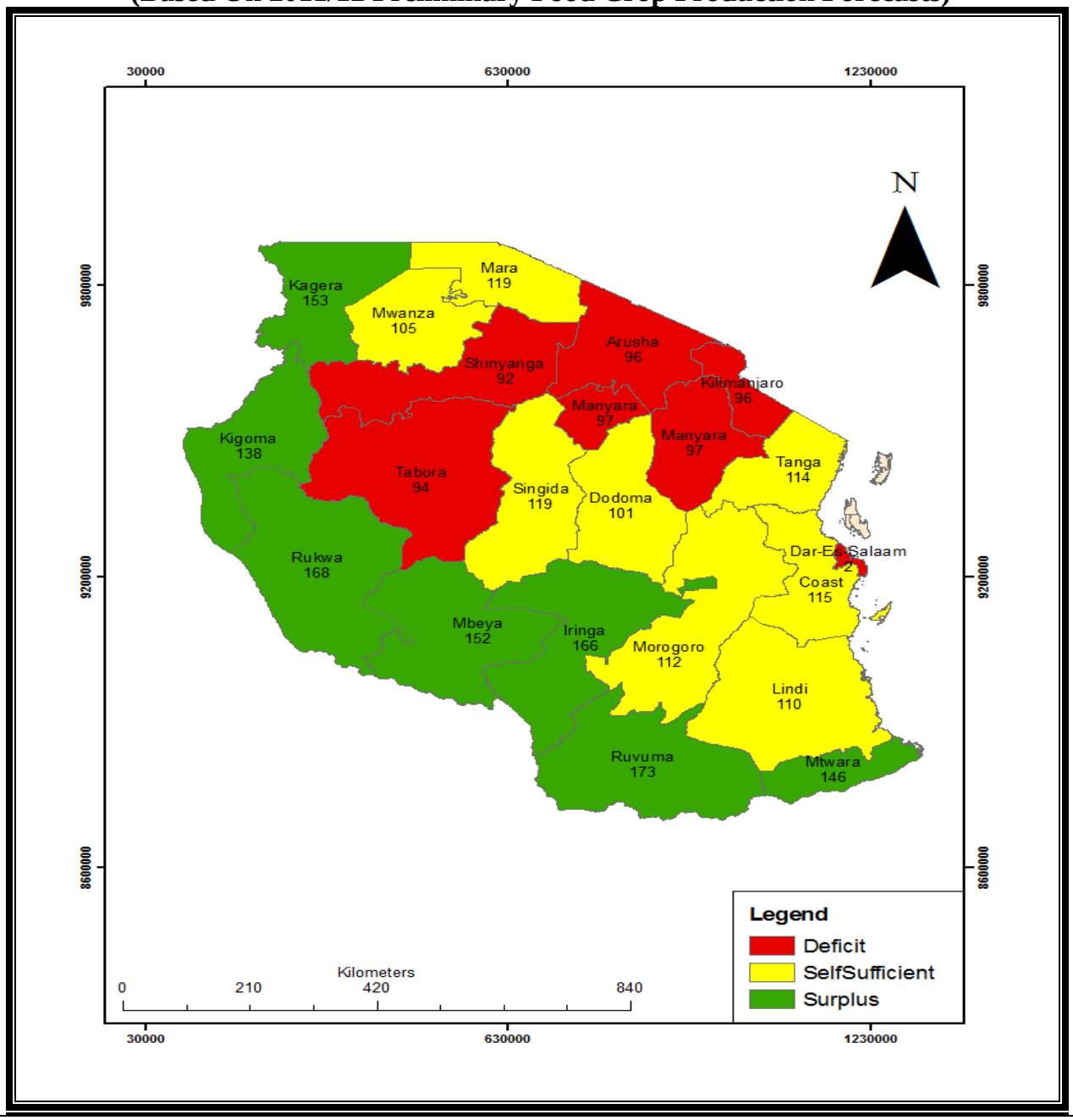
The possible draw-down impact of about 451,352 tonnes is estimated if trends maintain the usual performance and accordingly, it is cautioned that the forecast is possibly likely to experience this draw-down and hence the need for preparedness.

Sub-national level Food Security

At sub-national level, the 2011/12 production is expected to meet food requirement for 2012/13 marketing year in 15 regions of which 7 will produce surplus with SSR of 138% upwards to 173% and 8 regions which will produce at SSR of 101%-119%. The rest 6 regions will be produce at a definitely deficit status with SSR of 2%-97% (See Fig. 3). Notwithstanding, here and there, pockets of vulnerable areas are scattered over 63 LGAs in 17 regions of which 4 will produce surplus, 8 will only meet local demand and 5 will produce at deficit levels. Implicitly, 4 regions are declared free of agriculture related vulnerability (See Appendix: 3).

Figure 3: Total Food Supply Forecast at Regional level for the 20120/13 Marketing Year

(Based On 2011/12 Preliminary Food Crop Production Forecasts)



Vulnerability

From the above, it is notable that except for Dar es Salaam, which is largely non-agricultural, the deficit regions (5 therefore) bear 31 districts with high level vulnerability. Furthermore, though self sufficient or surplus, further warnings are focused to 12 additional regions bearing pockets of food shortage in 32 additional districts 28 from definitely self sufficient regions and 4 from 4 definitely surplus regions. The rampant vulnerability amidst self sufficient and surplus food security status indicate that, the lower down the level from national the worse and the national self sufficient status mask the true colors that are better reflected at lower levels down towards household/individuals. Accordingly the following recommendations are worth working on.

Recommendations

- From above, a total of 63 districts in 17 regions identified to bear vulnerable areas will need to be subjected to an in-depth vulnerability assessment for necessary intervention by Government.

- The food surplus areas and food deficit areas should be seen as opportunities and challenges that need to be appropriately addressed. Local market potential following deficit signals should be well exploited prior to external orientation of predicted surplus as comparative advantage opens doors in the context of food without borders as well as seed without borders especially around integrated EAC and SADC regions.

- The local import-export interaction points currently under establishment should be enhanced for transparency purposes and in an endeavour to clear off unofficial entry-exit points through ever increasing border porosity. This should not take a business as usual style anymore but rather a business unusual Endeavour as local initiatives are high and foreign market sinks are encouragingly widening in favour of national growth potential.

Appendix 1: Tanzania Preliminary Food Crop Production Forecast by Region - 2011/12 (as of 31/05/2012)

(Area and Production in Hectares and Tonnes Respectively, Yield in Tonnes per Hectare)

Cereals

Region	Maize			Sorghum			Millets			Rice			Wheat			Cereals		
	Area	Yield	Production	Area	Yield	Production	Area	Yield	Production	Area	Yield	Production	Area	Yield	Production	Area	Production	
Arusha	124,552	1.7	211,738	2,662	0.7	1,863	13,000	0.8	10,400	122,857	0.9	110,572	19,486	0.9	17,538	282,558	352,112	Arusha
Coast	52,114	0.3	15,634	10,624	0.5	5,312		-	-	59,918	0.8	47,934		-	-	122,656	68,881	Coast
Dar es Salaam	5,124	0.6	3,074		-	-		-	-	2,820	1.0	2,820		-	-	7,944	5,895	Dar es Salaam
Dodoma	141,870	0.5	70,935	241,795	1.0	241,795	93,388	0.7	65,371	10,825	0.6	6,495		-	-	487,877	384,596	Dodoma
Iringa	491,135	1.3	638,475	10,145	0.9	9,131	2,588	0.7	1,812	10,380	1.0	10,380	41,102	1.0	41,102	555,351	700,900	Iringa
Kagera	153,890	2.0	307,779	26,569	1.1	29,225	14,713	1.0	14,713	6,447	1.0	6,447		-	-	201,619	358,165	Kagera
Kigoma	262,265	2.0	524,531	20,587	1.0	20,587	5,912	1.0	5,912	43,500	1.5	65,249		-	-	332,264	616,279	Kigoma
Kilimanjaro	120,371	1.0	120,371	2,819	0.9	2,537	1,057	0.9	952	12,170	1.3	15,820	9,958	1.0	9,958	146,375	149,638	Kilimanjaro
Lindi	101,739	0.4	40,696	69,228	0.7	48,460	19,515	0.9	17,563	12,494	0.9	11,245		-	-	202,976	117,963	Lindi
Manyara	245,780	0.7	172,046	8,948	0.9	8,053	3,323	0.9	2,990	2,356	0.9	2,121	22,079	1.0	22,079	282,487	207,290	Manyara
Mara	69,407	2.3	159,637	56,706	1.6	90,730	7,393	0.9	6,653	9,495	1.3	12,343		-	-	143,001	269,363	Mara
Mbeya	367,900	1.8	662,220	39,832	1.1	43,815	16,598	1.0	16,598	69,096	2.0	138,191	5,906	1.1	6,497	499,332	867,322	Mbeya
Morogoro	385,351	0.8	308,281	9,637	1.0	9,637	5,381	0.8	4,305	106,393	1.3	138,311	166	0.4	66	506,928	460,600	Morogoro
Mtwara	58,393	0.4	23,357	26,376	0.8	21,100	365	1.0	365	27,357	1.0	27,357		-	-	112,490	72,180	Mtwara
Mwanza	212,590	1.4	297,627	94,008	1.1	103,409	6,320	1.0	6,320	95,396	1.6	152,633		-	-	408,314	559,989	Mwanza
Rukwa	249,583	2.1	524,124	52,266	0.9	47,040	20,057	1.1	22,063	38,516	1.6	61,625	13,140	0.4	5,256	373,561	660,107	Rukwa
Ruvuma	183,999	2.3	423,197	3,635	1.1	3,999	4,408	1.1	4,849	38,822	1.2	46,587		-	-	230,864	478,631	Ruvuma
Shinyanga	417,492	0.8	333,994	59,473	0.9	53,526	21,219	0.9	19,097	73,510	1.3	95,562		-	-	571,694	502,179	Shinyanga
Singida	163,833	0.5	81,917	72,681	0.9	65,413	43,772	0.7	30,640	5,858	0.6	3,515		-	-	286,144	181,485	Singida
Tabora	232,592	1.0	232,592	37,752	1.0	37,752	14,209	0.9	12,788	92,894	1.7	157,920		-	-	377,447	441,052	Tabora
Tanga	87,777	1.0	87,777	90	0.7	63	337	1.0	337	13,816	1.1	15,197	379	0.9	341	102,399	103,716	Tanga
Total	4,127,757	1.3	5,240,001	845,835	1.0	843,449	293,554	0.8	243,729	854,919	1.3	1,128,326	112,216	0.9	102,837	6,234,282	7,558,342	Total

Non-cereals

	Pulses			Cassava			Banana			Potatoes			Non-cereals		Food		
	Area	Yield	Production	Area	Yield	Production	Area	Yield	Production	Area	Yield	Production	Area	Production	Area	Production	
Arusha	79,087	0.8	63,270	1,492	2.1	3,133	37,239	1.9	70,945	1,146	1.9	2,177	119,064.4	139,525	401,623	491,636	Arusha
Coast	12,023	0.5	6,012	86,411	2.0	172,822				41,035	1.7	69,759	139,468.7	248,592	262,125	317,473	Coast
Dar es Salaam	2,092	0.3	627	4,225	1.9	8,027	537	1.6	859	4,595	1.4	6,433	11,449	15,947	19,393	21,842	Dar es Salaam
Dodoma	225,852	0.5	112,926	35,151	1.1	38,666				28,809	1.2	34,571	289,812.6	186,164	777,690	570,760	Dodoma
Iringa	46,201	0.9	41,581	958	2.1	2,013	429	1.6	686	60,568	2.1	127,194	108,156.8	171,473	663,507	872,373	Iringa
Kagera	199,833	0.9	179,850	93,678	2.3	215,458	139,660	2.3	321,218	21,471	2.2	47,237	454,641.7	763,763	656,261	1,121,928	Kagera
Kigoma	153,435	0.9	138,092	18,947	2.1	39,788	115,407	1.6	184,651	32,301	2.0	64,602	320,090.0	427,133	652,354	1,043,412	Kigoma
Kilimanjaro	51,607	0.9	46,447	3,531	2.2	7,768	82,951	1.8	149,312	24,036	1.8	43,265	162,124.9	246,791	308,500	396,429	Kilimanjaro
Lindi	65,429	0.6	39,257	42,147	2.4	101,154							107,576	140,411	310,552	258,374	Lindi
Manyara	162,734	1.1	179,007	223	2.0	445	4,172	1.9	7,927	2,949	1.9	5,604	170,078	192,984	452,565	400,273	Manyara
Mara	32,167	1.0	32,167	87,223	2.1	183,169	5,441	1.9	10,339	26,104	2.0	52,208	150,936	277,883	293,937	547,246	Mara
Mbeya	54,443	1.1	59,887	7,804	2.3	17,950	29,565	2.2	65,043	67,864	2.1	142,515	159,676	285,395	659,009	1,152,717	Mbeya
Morogoro	64,215	0.9	57,794	37,116	2.0	74,232	25,850	1.4	36,191	27,173	2.0	54,347	154,355	222,562	661,283	683,162	Morogoro
Mtwara	80,795	1.0	80,795	173,598	1.9	329,837				2,847	1.6	4,555	257,240.6	415,187	369,731	487,367	Mtwara
Mwanza	91,043	1.1	100,147	105,969	2.0	211,937	5,542	3.0	16,626	105,589	2.0	211,179	308,142.7	539,889	716,457	1,099,878	Mwanza
Rukwa	79,894	0.9	71,904	14,626	2.5	36,566	9,234	2.0	18,467	21,968	2.1	46,133	125,722	173,070	499,283	833,177	Rukwa
Ruvuma	63,502	1.1	69,852	71,476	1.9	135,804	862	1.5	1,293	20,962	2.1	44,020	156,801	250,969	387,665	729,600	Ruvuma
Shinyanga	104,408	1.0	104,408	62,580	1.7	106,386	64	1.0	64	163,100	1.3	212,030	330,152.1	422,888	901,846	925,068	Shinyanga
Singida	160,611	0.9	144,550	48,850	1.4	68,390				32,422	1.2	38,906	241,882.6	251,846	528,027	433,331	Singida
Tabora	47,163	1.0	47,163	41,926	0.7	29,348				69,101	1.3	89,831	158,190.2	166,343	535,637	607,394	Tabora
Tanga	310,555	0.8	248,444	32,289	2.3	74,264	9,452	1.4	13,233	73,531	1.9	139,708	425,826.1	475,649	528,225	579,365	Tanga
Total	2,087,088	0.9	1,824,178	970,219	1.9	1,857,156	466,505	1.9	896,853	827,573	1.7	1,436,275	4,351,385	6,014,463	10,585,668	13,572,804	Total

Appendix 2: Vuli contribution to 2011/12 total production - Normal and Current

REGION	2011/12 Production (T)	Normal Vuli contribution (%)	Normal-Vuli contribution (T)	Current-Vuli contribution (%)	Current-Vuli contribution (T)
Arusha	491,636	20	98,327	16	79,526
Coast	317,473	10	31,747	8	25,677
Dar es Salaam	21,842	10	2,184	8	1,767
Dodoma	570,760		-	-	
Iringa	872,373		-	-	
Kagera	1,121,928	80	897,543	65	725,922
Kigoma	1,043,412		-		-
Kilimanjaro	396,429	35	138,750	28	112,219
Lindi	258,374		-	-	
Manyara	400,273		-	-	
Mara	547,246	45	246,261	36	199,173
Mbeya	1,152,717	5	57,636	4	46,615
Morogoro	683,162	15	102,474	12	82,880
Mtwara	487,367		-	-	
Mwanza	1,099,878	55	604,933	44	489,262
Rukwa	833,177		-	-	
Ruvuma	729,600		-	-	
Shinyanga	925,068	7	64,755	6	52,373
Singida	433,331		-	-	
Tabora	607,394		-	-	
Tanga	579,365	20	115,873	16	93,717
Bimodal-Tz	7,336,743	32	2,360,483	26	1,909,131
Total-Tz	**13,572,804**	17	**2,360,483**	14	**1,909,131**

Appendix 3: Tanzania Food Supply Analysis and Self Sufficiency Ratio for 2012/13

(Based on the 2011/12 Preliminary Food Crop Production Forecasts)

REGION	Total Cereals				Total Non-cereals				Total Food					REGION
	Production (T)	Requirement (T)	Gap (-)/ Surplus (+)- (T)	SSR-(%) (Cer)	Production (T)	Requirement (T)	Gap (-)/ Surplus (+)- (T)	SSR-(%) (Nce)	Production (T)	Requirement (T)	Gap (-)/ Surplus (+)-(T)	SSR-(%) (Tot)	*Deficit indicator (*)*	
Ruvuma	478,631	279,720	198,911	171	250,969	142,128	108,840	177	729,600	421,849	307,751	173		Ruvuma
Rukwa	660,107	333,248	326,859	198	173,070	161,538	11,533	107	833,177	494,786	338,391	168		Rukwa
Iringa	700,900	357,784	343,115	196	171,473	167,445	4,028	102	872,373	525,230	347,144	166		Iringa
Kagera	358,165	454,916	-96,750	79	763,763	279,701	484,062	273	1,121,928	734,617	387,311	153		Kagera
Mbeya	867,322	502,870	364,452	172	285,395	253,809	31,586	112	1,152,717	756,679	396,038	152		Mbeya
Mtwara	72,180	199,778	-127,599	36	415,187	133,787	281,401	310	487,367	333,565	153,802	146		Mtwara
Kigoma	616,279	485,633	130,646	127	427,133	270,951	156,182	158	1,043,412	756,583	286,829	138		Kigoma
Mara	269,363	289,783	-20,419	93	277,883	168,658	109,225	165	547,246	458,440	88,806	119		Mara
Singida	181,485	220,989	-39,505	82	251,846	143,650	108,196	175	433,331	364,639	68,692	119		Singida
Coast	68,881	168,581	-99,701	41	248,592	106,897	141,695	233	317,473	275,479	41,994	115		Coast
Tanga	103,716	297,478	-193,762	35	475,649	209,650	265,999	227	579,365	507,128	72,236	114		Tanga
Tanzania	**7,558,342**	**7,551,244**	**7,097**	**100**	**6,014,463**	**4,438,870**	**1,575,592**	**135**	**13,572,804**	**11,990,115**	**1,582,690**	**113**		**Tanzania**
Morogoro	460,600	389,433	71,167	118	222,562	220,732	1,830	101	683,162	610,166	72,997	112		Morogoro
Lindi	117,963	144,720	-26,757	82	140,411	89,309	51,102	157	258,374	234,029	24,345	110		Lindi
Mwanza	559,989	653,611	-93,622	86	539,889	391,955	147,934	138	1,099,878	1,045,566	54,312	105		Mwanza
Dodoma	384,596	351,565	33,031	109	186,164	212,444	-26,280	88	570,760	564,009	6,751	101		Dodoma
Manyara	207,290	250,136	-42,846	83	192,984	161,754	31,229	119	400,273	411,891	-11,617	97	*	Manyara
Kilimanjaro	149,638	254,125	-104,487	59	246,791	156,978	89,812	157	396,429	411,104	-14,675	96	*	Kilimanjaro
Arusha	352,112	322,555	29,556	109	139,525	188,606	-49,082	74	491,636	511,161	-19,525	96	*	Arusha
Tabora	441,052	408,742	32,310	108	166,343	237,044	-70,702	70	607,394	645,786	-38,392	94	*	Tabora
Shinyanga	502,179	631,032	-128,853	80	422,888	378,797	44,091	112	925,068	1,009,829	-84,762	92	*	Shinyanga
Dar es Salaam	5,895	554,543	-548,648	1	15,947	363,035	-347,088	4	21,842	917,578	-895,736	2	*	Dar es Salaam

Note: * General food deficit indicator

Appendix 4: Vulnerable Areas 2012/13

According to the 2011/12 Preliminary Forecast

S/N.	Region *(Ranked by extent of districts containing vulnerable areas)*	SSR Status	Districts (Number in list)	Districts *(Listed in order of dicreasing vulnerability)*
1	Shinyanga		7	Bariadi, Kishapu, Meatu, Maswa, Kahama, Shinyanga M, Shinyanga (V)
2	Arusha		7	Karatu, Monduli, Meru, Ngorongoro, Longido, Arusha MC, Arusha DC
3	Kilimanjaro		6	Hai, Mwanga, Moshi DC, Moshi TC, Rombo, Same
4	Tabora		6	Nzega, Igunga, Tabora (M), Uyui, Sikonge, Urambo
5	Dodoma		6	Bahi, Chamwino, Dodoma (M), Kondoa, Kongwa, Mpwapwa
6	Tanga		6	Tanga (M), Mkinga, Pangani, Korogwe(M), Korogwe (V), Handeni
7	Manyara		5	Babati DC, Hanang, Kiteto, Mbulu, Simanjiro,
8	Singida		4	Manyoni, Iramba, Singida (V), Singida (M)
9	Mwanza		3	Magu, Kwimba, Misungwi
10	Coast		3	Kibaha (M), Mafia, Rufiji
11	Mara		2	Musoma V, Rorya,
12	Lindi		2	Kilwa, Lindi
13	Morogoro		2	Morogoro (V), Mvomero
14	Iringa		1	Kilolo
15	Kagera		1	Chato
16	Mbeya		1	Mbozii
17	Mtwara		1	Masasi
18	Dar es Salaam		-	
19	Kigoma		-	
20	Rukwa		-	
21	Ruvuma		-	
	Total		63	Total

TANZANIA: Food Security Status: Self Sufficient (SSR=113%), Vulnerability 17 regions, 63 districts

Regions containing Vlnerable areas 17: 5 Deficit, 8 Self Sufficient, 4 Surplus

Districts containing Vulnerable areas 63: 31 deficit, 28 self sufficient, 4 Surplus

In general, While at national level Tanzania during 2012/13 will be 113% food self sufficient, 17 regions contain vulnerable areas in 63 districts….=>=> **Hence an early warning against likely misfortunes!!**

Appendix 5: Recall food situation at regional and district levels back to 2007/08

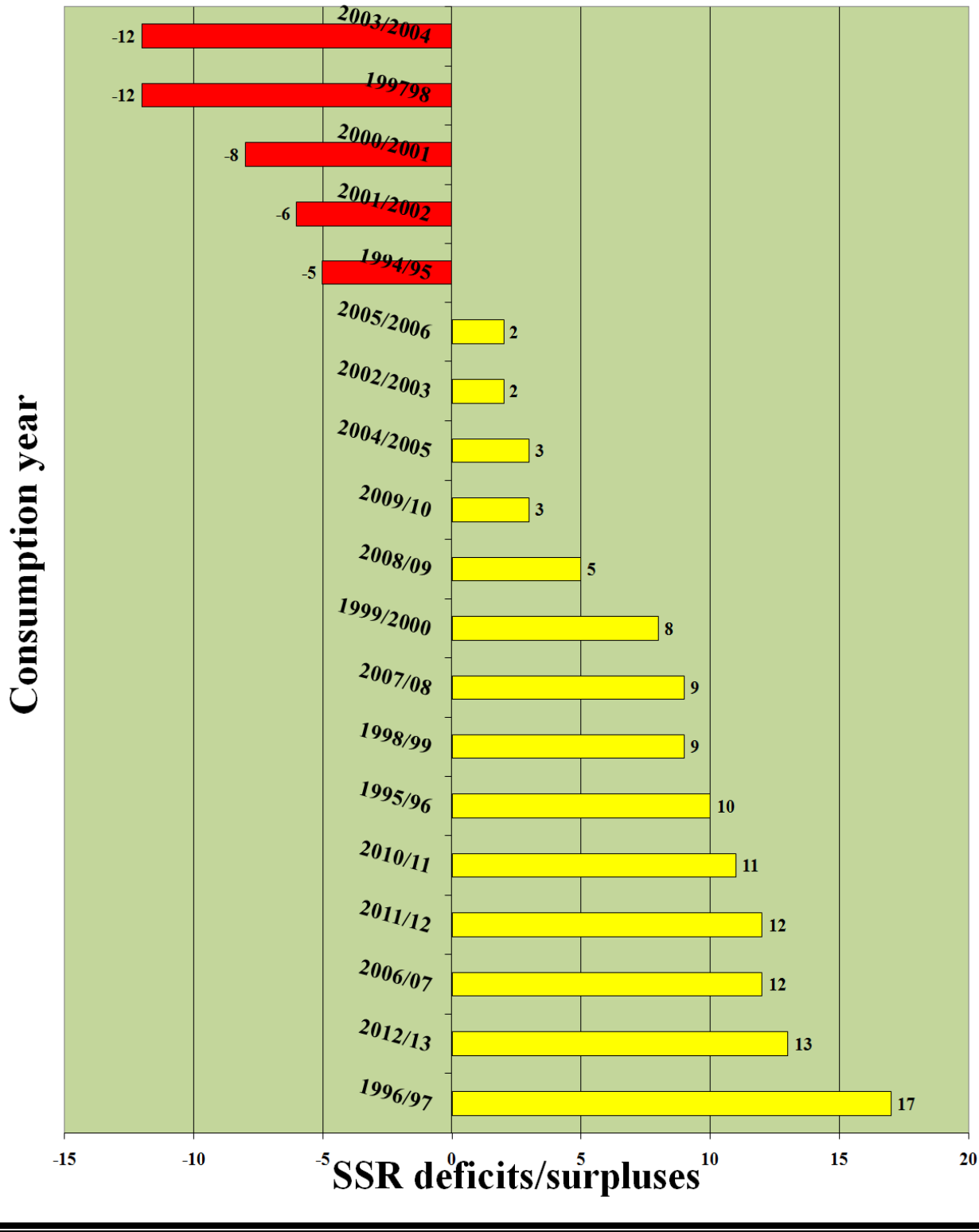
REGION	2007/08		2008/09		2009/10		2010/11		2011/12		2012/13		REGION
	Deficit regions (*)	Districts with Vulnerable areas	*Deficit regions (*)*	Districts with Vulnerable areas	*Deficit regions (*)*	Districts with Vulnerable areas	*Deficit regions (*)*	Districts with Vulnerable areas	*Deficit regions (*)*	Districts with Vulnerable areas	*Deficit regions (*)*	*Districts with Vulnerable areas*	
ARUSHA & MANYARA	*	1-Monduli *(Later, 6: Ars M, Ars V, Longido, Meru, Monduli, Ngorongoro)*	*	3- Arusha, Longido, Monduli	*	5-Longido, Monduli, Arusha, Ngorongoro, Meru		1: Longido	*	7: Arusha DC, Arusha MC, Karatu, Longido, Meru, Monduli, Ngorongoro	*	7: Karatu, Monduli, Meru, Ngorongoro, Longido, Arusha MC, Arusha DC	ARUSHA
COAST		1-Rufiji *(Later, 0)*	*	1- Mafia	*	4-Kisarawe, Bagamoyo, Kibaha (V), Mafia				5: Kibaha TC, Kibaha DC, Bagamoyo, Mafia, Rufiji		3: Kibaha (M), Mafia, Rufiji	COAST
COAST &DSM	*		*		*		*		*		*		DAR ES SALAAM
DODOMA					*	5-Bahi, Chamwino, Kondoa, Kongwa, Mpapwa	*	5: Mpwapwa, Kongwa, Chamwino, Bahi, Dodoma M				6: Bahi, Chamwino, Dodoma M, Kondoa, Kongwa,	DODOMA
IRINGA				1-Njombe		2-Iringa (V), Kilolo		1: Iringa (V)				1: Kilolo	IRINGA
KAGERA										2: Muleba, Bukoba V		1: Chato	KAGERA
KIGOMA													KIGOMA
KILIMANJARO	*	3-Same, Mwanga, Hai *(Later, 4: Hai, Mwanga, Same, Moshi V)*	*	2- Same, Rombo	*	6-Same, Rombo, Mwanga, Siha, Hai, Moshi		1: Mwanga		5: Hai, Moshi V, Mwanga, Same, Siha	*	6: Hai, Mwanga, Moshi DC, Moshi TC, Rombo, Same	KILIMANJARO
LINDI		2-Kilwa, Liwale *(Later, 0)*				4-Lindi(V), Ruangwa, Nachingwea, Kilwa		2: Lindi (V), Liwale				2: Kilwa, Lindi	LINDI
MANYARA		2-Mbulu, Simanjiro *(Later, 5: Bbt M, Bbt V, Hanang, Mbulu, Simanjiro)*		5- Babati, Hanang, Kiteto, Mbulu, Simanjiro	*	5-Simanjiro, Kiteto, Babati V, Mbulu, Hanang				3: Babati DC, Mbulu, Simanjiro,	*	5: Babati DC, Hanang, Kiteto, Mbulu, Simanjiro,	MANYARA
MARA			*	1- Bunda	*	3-Rorya, Bunda, Musoma (V)			*	3: Musoma V, Musoma M, Bunda		2: Musoma V, Rorya,	MARA
MBEYA						1-Mbarali						1: Mbozi	MBEYA
MOROGORO		*(Later, 3: Ulanga, Morogoro V,*		*2- Morogoro R, Mvomero*		*3-Ulanga, Morogoro V, Kilosa*		*2: Mvomero, Morogoro (V)*				2: Morogoro V, Mvomero	MOROGORO
MTWARA						2-Nanyumbu, Masasi		2: Mtwara (V), Masasi		1: Masasi		1: Masasi	MTWARA
MWANZA		*(Later, 1: Magu)*	*		*	*4-Magu, Misungwi, Kwimba, Ukerewe*		*1: Kwimba*	*	5: Magu, Ilemela, Nyamagana, Geita, Misungwi		3: Magu, Kwimba, Misungwi	MWANZA
RUKWA													RUKWA
RUVUMA						1-Tunduru							RUVUMA
SHINYANGA		3-Bariadi, Kishapu, Meatu *(Later, 2: Kishapu, Meatu)*	*	2- Bariadi, Meatu	*	6-Maswa, Shinyanga(M), Kishapu, Kahama, Shinyanga(V), Meatu		4: Shinyanga (V) Kishapu, Meatu, Shiyanga (M)	*	5: Shinyanga M, Shinyanga V, Kishapu, Kahama, Meatu	*	7: Bariadi, Kishapu, Meatu, Maswa, Kahama, Shinyanga M,	SHINYANGA
SINGIDA	*	4-Singida R, Iramba, Singida U, Manyoni *(Later, Wahadzabe ethnic group who are wholly hunters and gatherers)*	*		*	2-Iramba, Manyoni						4: Manyoni, Iramba, Singida V, Singida M	SINGIDA
TABORA	*	1-Uyui *(Later, 0)*	*			2-Uyui, Igunga		1: Nzega		4: Nzega, Igunga, Sikonge, Tabora M	*	6: Nzega, Igunga, Tabora M, Uyui, Sikonge, Urambo	TABORA
TANGA				4-Kilindi, Korogwe, Lushoto, Mkinga		6-Kilindi, Handeni, Pangani, Korogwe V, Lushoto, Mkinga		1: Tanga (M)		5: Lushoto, Mkinga, Pangani, Kilindi, Tanga TC		6: Tanga M, Mkinga, Pangani, Korogwe M, Korogwe V, Handeni	TANGA
TOTAL	5	21 *(Prel2007: 17)*	9 (Prel2008: 14)	21 (Prel2008: 29)	10	57 districts (Prel2009: 61)	2	22 districts (Prel2010: 36)	5	45 (Prel2011: 56)		63 districts:17 regions	TOTAL

Appendix 6: Time Series Production of Major Food Crops in Tanzania, 1986/87 - 2011/12

(Thousand Tonnes and Percentages as indicated)

Year	Maize	Sorghum	Millets	Rice	Wheat	Cereals	Pulses	Cassava	Bananas	Potatoes	Non-cereals	Total	Year
2011/12 (Preliminary)	5,240	843	244	1,128	103	7,558	1,824	1,857	897	1,436	6,014	13,573	2011/12 (Preliminary)
25yaverage	2,795	725	186	647	82	4,436	680	1,684	831	755	3,950	8,386	25yaverage
5yaverage	3,800	827	260	1,155	89	6,132	1,257	1,703	1,021	1,407	5,388	11,520	5yaverage
TrVt	3,992	774	268	1,239	96	6,368	1,422	1,721	1,065	1,601	5,808	12,176	TrVt
%age change from 25y-average	87	16	31	74	26	70	168	10	8	90	52	62	%age change from 25y-average
%age change from 5y-average	38	2	-6	-2	16	23	45	9	-12	2	12	18	%age change from 5y-average
%age change from TrVt	31	9	-9	-9	7	19	28	8	-16	-10	4	11	%age change from TrVt
%age change from year t-1	21	5	-22	-23	-9	7	12	20	-14	-16	1	5	%age change from year t-1

APPENDIX 7: Self Sufficiency Variations Overtime in Tanzania, 1994-2013 (Percentage deviation from 100%)



Appendix 8: Methodological Considerations.

Production expressed in T – (Grain Equivalent) = Area (Ha) * Yield (T/Ha). NB: **Grain equivalent calculations** assume a common denominator among all cereals while roots, tubers and plantains compare at 1:3 ratio.

Requirement R = Average Per capita Consumption requirement of 650g/day + Parameter % estimates of production that is committed to other uses. Consumption requirement is estimated as average kg. per person per crop as follows: Maize 86kg, Millet18, Rice16, Sorghum 18, Wheat 5, Bananas18, Cassava 44, Potatoes 19, Pulses 13 totaling up to 237kg. Respective "other uses" are estimated as percentage extraction from produced crop that is used for mainly seed, feed, losses and trade as shown on the Table below.

Food Requirement Table
Parameters used for estimating food requirement per cop

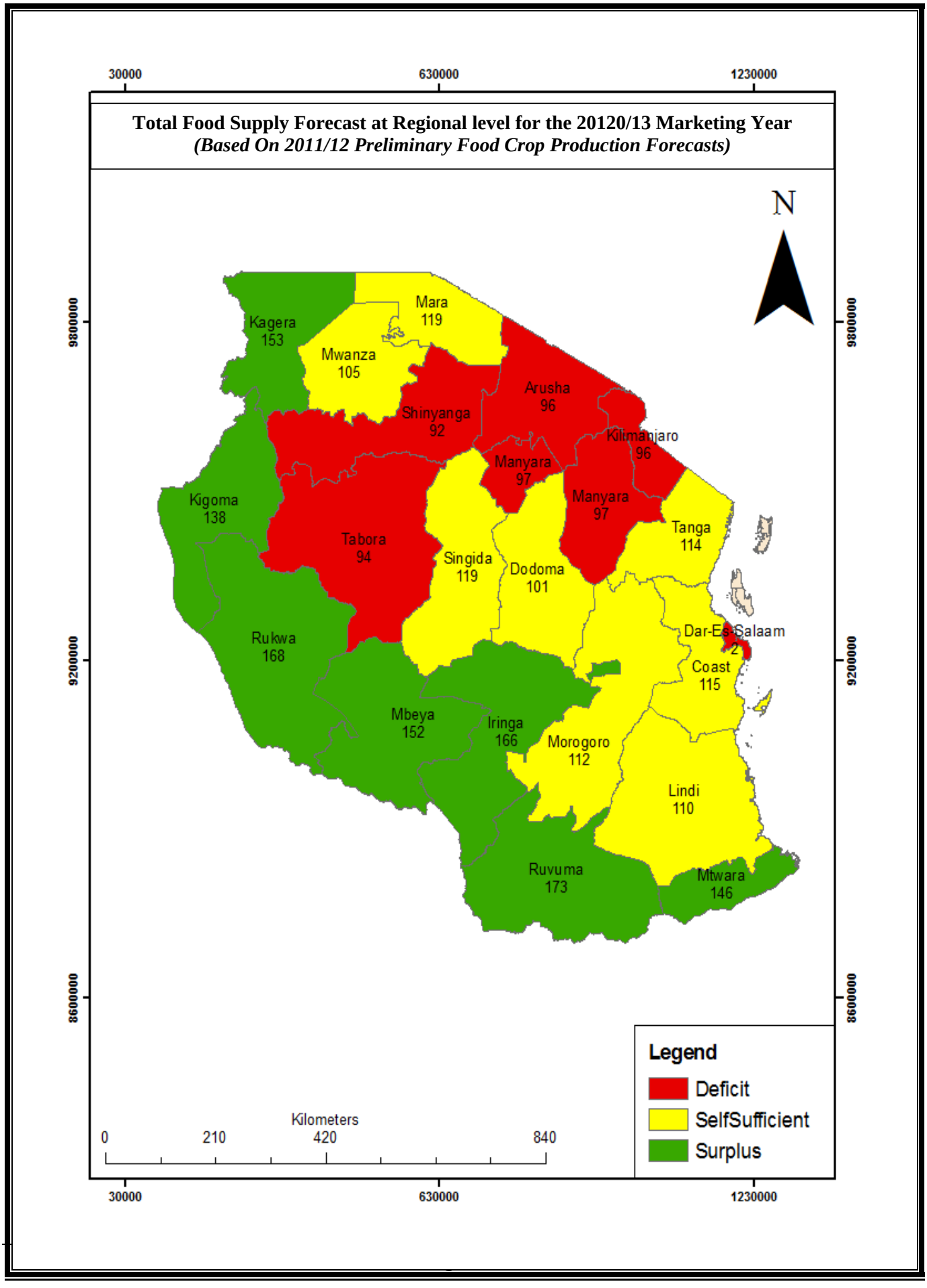
Crop		Consumption Requirement per capita	Other uses (% removed from Production)				
			Seed[2]	Feed[2]	Losses[2]	Trade[2]	Total
		Kilograms	Percent	Percent	Percent	Percent	% removed
Cereals	Maize[3]	86	1.3	2	8.7	4.4	16.4
	Millet[5]	18	2.3	0.6	7.7	0	10.6
	Rice[4]	16	2.5	0	2.5	1.8	6.8
	Sorghum	18	1.5	0.6	8.5	0	10.6
	Wheat	5	2.5	0	2.5	0	5
Non-Cereals	Bananas[7,8]	18	0	0	0	0	0
	Cassava[7]	44	0	0	0	0	0
	Potatoes[7,9]	19	0	0	0	0	0
	Pulses[6]	13	5	0	2.5	2.5	10
Total		237					

P/R=SSR (expressed in %). SSR Categories are: Deficit (<100%), Self Sufficient <=100<120%, Surplus >=120%)

Vulnerable areas (VA): derived directly from RRS1 questionnaire as filled-in by DALDO statistical experts.

Requirement per day per person = 0.650 kilograms Cereal Equivalent
1 = Per capita annual consumption Cereal Equivalent
2 = Percent used from total production
3 = Whole grain
4 = Paddy converts to rice at 65 percent ratio.
5 = Includes bulrush and finger millet
6 = Mainly beans but other pulses (groundnuts, peas, grams etc) included
7 = Based on dry weight from which waste is already subtracted
8 = Includes sweet and cooking bananas
9 = Includes round and sweet potatoes.

Source: Ministry of Agriculture and Cooperative, Dar es Salaam, Food Security Bulletin, July 14, 1993


Total Food Supply Forecast at Regional level for the 20120/13 Marketing Year
(Based On 2011/12 Preliminary Food Crop Production Forecasts)
N
30000
630000
1230000
9800000
9200000
8600000
Kagera 153
Mara 119
Mwanza 105
Arusha 96
Shinyanga 92
Kilimanjaro 96
Manyara 97
Manyara 97
Kigoma 138
Tabora 94
Singida 119
Dodoma 101
Tanga 114
Dar-Es-Salaam 2
Coast 115
Rukwa 168
Mbeya 152
Iringa 166
Morogoro 112
Lindi 110
Ruvuma 173
Mtwara 146
Legend
Deficit
SelfSufficient
Surplus
Kilometers
0
210
420
840