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Acronyms

NWAP  North-West Agro-Pastoralist
CBPP  Contagious Bovine PleuroPneumonia
CCPP  Contagious Caprine PleuroPneumonia
CFSAM  FAO/WFP Crop and Food Supply Assessment Mission
UN  United Nations
WFP  World Food Programme
FAO  Food and Agriculture Organisation
MoA  Ministry of Agriculture
FSNAU  Food Security and Nutrition Assessment Unit
PET  Pictorial Evaluation Tool
PPR  Peste de Petits Ruminants
HQ  Headquarters
SWALIM  Somalia Land and Water Information Management
UNDP  United Nations Development Programme
GDP  Gross Domestic Product
NDP  National Development Plan
GNP  Gross National Product
NGO  Non-Governmental Organisation
ToT  Terms of Trade
GoS  Government of State of Somaliland
North West Agro Pastoralist Zone Crop Assessment Mission Highlights

1. The cereal harvest for the North-West Agro-Pastoralist zone of the State of Somaliland completed in November 2011 is estimated at 66,451 tonnes comprising 60,997 tonnes of gu-karan sorghum grain and 5,454 tonnes of karan maize grain.

2. The estimated level of cereal production is similar to last year’s UN (WFP/FAO) estimate, with an average sorghum yield estimated at 1.79 tonnes/ha, similar to levels of production noted in the NWAP zone in the early 1980s, significantly more than recent MoA estimates.

3. For completeness of understanding of North West Agro Pastoral (NWAP) zone domestic production, a further 650 tonnes of maize harvested at the end of the gu season 2011 (August) as assessed by FSNAU, should be added to the total to complete the NWAP domestic production assessment of the year estimated at 67,101 tonnes.

4. In 92 villages assessed in the NW Ag-Pastoralist Zone, 5 villages will have produced no or next to no cereals, 3 villages will be in cereal deficit unless they have stocks un-noted by the Mission; and five will be in balance. The remaining 79 villages will have surplus production for storage or sale.

5. The village level synopsis does not preclude hh in deficit.

6. In 2010/2011, 275,277 tonnes commercial cereal imports (grain equivalent) were recorded through Berbera and Togwajaale, of which 22,781 tonnes were re-exported through Togwaajale from January to October 2011.

7. If the same level of re-export is sustained, cereal imports in grain equivalents of 232,344 tonnes will be required to meet domestic and re-export demands in the state.

8. Livestock condition is currently excellent in the NWAP, with breeding stock numbers sustained and late rains supporting forage and browse availability.

9. In addition to commercial imports, some 4,100 tonnes of maize were imported in 2011 as food aid, for despite the apparent state balance, IDPs and deprived and disadvantaged households need aid, which may not necessarily be easily sourced locally from domestic production or imports. Such demands are expected to continue and may increase depending on events.

1.0 OVERVIEW

1.1 The good harvests experienced last year in the North-West Agro-Pastoralist zone (NWAP) resulting from two consecutive good rains in 2010, were followed in mid-2011 by disappointing gu rains prompting a thorough assessment of the performance of the two main home-grown cereals, sorghum and maize, over production year 2011 (gu and karan seasons) and a rapid appraisal of the livestock sector.

1.2 FAO-Somalia and FAO’s Food Supply and Nutrition Assessment Unit (FSNAU) combined with the WFP and Ministry of Agriculture (MoA) to organise a full-scale post harvest Assessment Mission (MISSION’S) in the NWAP zone in October / November to cover farms in the rainfed production localities of Gabiley, Hargeisa, Borama and Baki districts with a view to determine the cereal balance in State of Somaliland; and evaluate the livestock production status.
1.3 The MISSION took place after an intensive 10-day practical training programme for 21 Somali assessors in the use of the PET (Pictorial Evaluation Tool) approach for rapid assessment of cereal production and livestock body condition scoring¹ using manuals prepared for FAO- Somalia by AA International Ltd during the 2009 and 2010 seasons.

1.4 Following training, which included instruction and supervised practice in:

- estimating yields of fields using PET manual photo-indicators during driven and walking transects,
- taking samples by crop-cutting to cross-check estimates made using the photo-indicators,
- grain and forage sample dry-matter determination (drying to constant weight),
- assessing browse tree density,
- calculating results for each technique,
- incorporating PET into MISSION’S case–study procedures

the trainees sat tests to establish levels of competence and confidence in the use of PET Livestock and for PET Crops manuals and procedures. All trainees successfully passed the tests and received certificates of competence, exhibiting substantial improvement in understanding of MISSION’S purpose and procedures during the training courses.²

1.5 From the 21 assessors trained, 16 were assigned to conduct a MISSION in the NWAP zone. The assessors were organised into four balanced teams based on background and experience, and assigned to team-specific routes throughout the 4 districts. All teams worked in each district with each team working for two days in contiguous localities in Gabiley, Hargeisa, Borama and Baki. In each case, two days field work was followed by a day’s analysis in FAO HQ in Hargeisa to discuss the findings and finalise the returns. The team component of the rapid assessment was completed between October 26th and November 5th.³

1.6 The teams:-

- covered four districts;
- during vehicle transects, some 4000 fields were scored qualitatively at four levels according to the three PET colour codes and zero production to establish the order of performance in all the localities;
- during walking transects, c.1500 fields were assessed at close quarters and ascribed a PET quantitative field score from 19 possible options including the 9 PET scores determined from photo-indicators, 9 inter-score values and zero;
- conducted 115 separate case-studies;
- each day teams took two crop-cut, cross-check samples and dried them to constant weight⁴ to determine dry-matter content of the crops estimated.

1.7 Secondary data used to substantiate the MISSION’s empirical findings from the case-studies and PET returns were collected by specific team members and included-

- dekadal rainfall data from March to October from rain gauges managed by Somalia Land and Water Information Management (SWALIM) in Gabiley, Hargeisa, Borama and Baki,
- market prices for cereals and selected classes of livestock collected by FSNAU,

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¹ Also incorporating the introduction to forage and browse assessment.
² All trainees were required to complete two general tests on entry.
³ Analysis and report writing was conducted by the Senior Consultant from AA International Ltd, who also conducted the training, in Nairobi.
⁴ Evening exercise at the end of each day using micro-wave ovens to dry but not transform.
• *Gu* Season Report, FSNAU,
• tractor owner reports on land cultivation for each district collected by District Agricultural Officers,
• key informant interviews of market traders.
• key informant interviews from each MoA District Agricultural Officers,

1.8 The findings culminate in a cereal balance indicating the estimated condition of food supply (cereals) from the NWAP zone for the coming marketing year (2011/12 October- November).

- In the NWAP zone, sorghum and maize areas of around 44,000 ha are estimated to have been planted despite a late and uncertain start to the *gu* rains that, unfortunately, heralded a shortened *gu* season with an uneven distribution of less rain than usual in all four districts.
- Fortunately, following breaks in precipitation in June and July, the *karan* rains began well in late July and August and were sustained in the main production areas, supporting the satisfactory growth and development of *gu*–sown, late-maturing sorghum and *karan* sown maize.
- A comparatively pest and disease-free year resulted in the estimated production of 67,100 tonnes (including 650 tonnes of *gu*-maize harvested in August).
- Given the level of dependency of the economy on the livestock industry, the Mission regards the threat to browse and pasture production by two pernicious and highly invasive weeds cause for serious concern. Indigenous browse trees are clearly threatened by mesquite (*Prosopis* spp) in locations in the NWAP; and general grazing pastures (local stock) throughout the NWAP and holding/finishing pastures for imported cattle in transit are invaded by what appears to the Mission to be Congress weed (*Parthenium hysterophorus*).  

1.9 Irrespective of the state balance, food insecurity possibly triggered by more difficult access to cereals in the coming year, may be a problem for increased numbers of households in 2011/12 if there are more households in crisis due to, for instance, to military interventions. In this regard, the Mission anticipates food aid, at least similar to the 4,100 tonnes of maize distributed in 2011, is likely to be required.

2. SOCIO ECONOMIC CONTEXT

2.1 General

2.1.1 State of Somaliland is in its second decade of administrative independence from the two other administrative zones of Somalia, Puntland and South-Central Somalia. Comprising an area of 0.1376 million square kilometres with population estimates ranging from 1.8 million people (UNDP 2005) to 3.5 million people (Government of State of Somaliland, 2010) the autonomous (unrecognised) state is located in the North West corner of the Horn of Africa bordering Ethiopia, Djibouti, the partner regions of Somalia and Gulf of Aden.

The socio-economic context of the State of Somaliland, although easy to experience and appreciate when visiting Hargeisa and noting a) rapid expansion of buildings, b) bustling markets, c) busy arterial roads linking Berbera port to the capital and to the Ethiopian border; d) active internal commercial centres in the rural areas, and e) ubiquitous, highly-sophisticated, telecommunications and money market networks, is much harder to define in strict economic terms. Enduring peace and political stability in State of Somaliland since 1995/6, fostered by functioning governmental structures, has enabled private enterprise to flourish, the export trade of livestock to prosper, and an import (with re-export) trade to become firmly

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NB: needs urgent confirmation by a weed specialist; but the look and nature of the weed, reports of milk and meat taint, plus reports of allergic reactions from some householders, suggest that Congress weed has invaded from Ethiopian pastures and farmland, where it is already of serious concern.
established, all facets supporting numerous private development initiatives in recent years supported by the Diaspora and placing the State of Somaliland in a far superior situation to the partner administrations of Somalia with regard to economic growth.

2.1.2 Although the absence of specific macro-economic data for Somalia in general and the State of Somaliland in particular, makes estimating the Gross Domestic Product (GDP) difficult, given the description above, it is widely accepted (World Bank (2002); World Bank (2006)) that the State of Somaliland’s per capita GDP is greater than those of the populations in the two Somalia partner administrations. From data that are available\(^6\), assuming an average nominal per capita income of $300, and $600 at purchasing parity price (PPP), and a population of 1.8 million (using UNDP 2005 value), the State of Somaliland’s GDP would be about $0.5 billion in nominal prices and $1.05 billion in PPP terms; the figures are approximately doubled, when the higher population estimate of 3.5 million, noted in 2.1.1, is applied. However, in accordance with UN policy, the population estimate applied in this report is the lower estimate of 1.8 million people.\(^7\)

2.1.3 Due to the same dearth of macroeconomic data, extrapolated estimates of the contributions by sector viz agriculture –predominantly livestock, services and industry to the national economy are equally difficult to find and just as difficult to confirm. The State of Somaliland’s National Development Plan (NDP) 2012 – 2016 identifies recent contributions to GDP as 65% from livestock (with agriculture), 25% from services and 10% from industry. However, the same document also identifies the significant contribution of remittances, citing studies in Hargeisa and Bor‘ao indicating that remittances a) constitute nearly 40 percent of the income of urban households, b) account for roughly 14 percent of average rural consumption; and c) contribute 20% to the GDP\(^8\). It has not been possible to reconcile the 120% total resulting from the addition of each of the components noted above. Perhaps it would be better to include remittances in a statement of Gross National Product (GNP) with a concomitant reduction in the percentages of the other components. In any event, remittances are clearly an integral component in revenues at all levels of the economy.

2.1.4 Government revenue\(^9\), formalised via a State of Somaliland Ministry of Finance established in 1995, has increased significantly in the past three years with contributions from customs duties comprising some 50%, sales taxes 16%, income and corporation taxes 9%, other miscellaneous taxes 11% with government sales of goods, services, licenses, fines and other income making up the remaining 14%. The Ministry of Finance is responsible for budgeting and fiscal affairs of the government, with public expenditure predominantly for staff salaries and recurrent administrative costs based on submissions from Ministries. Security dominates public expenditure accounting for 49.67% of the 2011 budget. Social services and production sectors are only allocated 12.36% and 3.17% of the budget respectively, however, actual expenditure in these two categories are much higher than the budget indicates because all projects/programmes supported by international organisations and donors focussing on education, health, water, agriculture and livestock (social services and production sectors) are funded via the international agency implementers or through such agencies acting as “gatekeepers” to implementing non-governmental organisations, with Ministries performing monitoring functions.

2.1.5 As a traditional pastoral economy, with livestock contributing to 65% of the GDP, live animals and livestock products constitute the principal exports from the State of Somaliland. The main destination of the exports of cattle, sheep, goats and camels is Saudi Arabia, with Yemen in second place. Such livestock

\(^6\) CIA (2011) World fact Book  
\(^7\) Adjusted to 1.99 million as mid-marketing year population 2011/12 for the cereal balance in Table 11.  
exports were seriously affected by a 9-year ban on exports to Saudi Arabia, which was lifted in November 2009. The removal of the ban, ostensibly in place due to the presence of Rift Valley Fever, has since resulted in a surge in the number of livestock exports that has continued until today. After hides and skins, frankincense and other natural gums and resins constitute the third largest export commodity as noted in Table 1.

Table 1: Exports through Berbera Port (2005-2010)

<table>
<thead>
<tr>
<th>Year</th>
<th>Livestock (head)</th>
<th>Hides &amp; skins(pieces)</th>
<th>Gums (Beeyo) (kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2005</td>
<td>1183225</td>
<td>3123723</td>
<td>272720</td>
</tr>
<tr>
<td>2006</td>
<td>1321107</td>
<td>2090620</td>
<td>423011</td>
</tr>
<tr>
<td>2007</td>
<td>1452442</td>
<td>2609375</td>
<td>614706</td>
</tr>
<tr>
<td>2008</td>
<td>1332077</td>
<td>4041121</td>
<td>883677</td>
</tr>
<tr>
<td>2009</td>
<td>1675410</td>
<td>3522565</td>
<td>-</td>
</tr>
<tr>
<td>2010</td>
<td>2747120</td>
<td>4784041</td>
<td>307005</td>
</tr>
</tbody>
</table>

2.1.6 The State of Somaliland imports comprise food, manufactured goods, building materials and fuel purchased from trading partners including near neighbours in the Horn and East Africa, China, Brazil, Middle East, India, Pakistan, Malaysia and Italy. Official food imports, shown in Table 2 from 2005 to 2009, indicate the high level of dependency on commercially imported cereals and cereal products, noted to be 247,600 tonnes in 2009.

Table 2: Food Imports (tonnes) through Berbera Port (2005-2009)\(^\text{10}\)

<table>
<thead>
<tr>
<th>Year</th>
<th>Sugar</th>
<th>Rice</th>
<th>Wheat &amp; W flour</th>
<th>cooking oil/beans</th>
<th>Pasta</th>
<th>Dates</th>
<th>Biscuits</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>2005</td>
<td>129441</td>
<td>50555</td>
<td>48927</td>
<td>28031</td>
<td>14114</td>
<td>2305</td>
<td>2842</td>
<td>276215</td>
</tr>
<tr>
<td>2006</td>
<td>126037</td>
<td>87996</td>
<td>51319</td>
<td>22571</td>
<td>19544</td>
<td>3045</td>
<td>3666</td>
<td>314178</td>
</tr>
<tr>
<td>2007</td>
<td>174076</td>
<td>89762</td>
<td>50228</td>
<td>33388</td>
<td>19033</td>
<td>3866</td>
<td>3548</td>
<td>373901</td>
</tr>
<tr>
<td>2008</td>
<td>194523</td>
<td>61288</td>
<td>63105</td>
<td>38538</td>
<td>18903</td>
<td>3474</td>
<td>5575</td>
<td>385406</td>
</tr>
<tr>
<td>2009</td>
<td>155965</td>
<td>59645</td>
<td>169187</td>
<td>30148</td>
<td>18776</td>
<td>3015</td>
<td>4232</td>
<td>440968</td>
</tr>
</tbody>
</table>

2.1.7 The State of Somaliland financial system is highly dollarized due to a free-trade policy and the consequent substantial presence of US Dollars in the economy. The average exchange rate over the past 5 years, as reported by the Ministry of Planning, is shown in Table 3 juxtaposed with the Ministry’s consumer price index, and shows a surprising stability.

Table 3 Average Exchange Rate and Price Index (2007-2011)

<table>
<thead>
<tr>
<th>Year</th>
<th>US $ in SLSH(^\text{11})</th>
<th>Forex Index</th>
<th>General consumer price (The cost of a basket in SLSH)</th>
<th>Price index</th>
</tr>
</thead>
<tbody>
<tr>
<td>2007</td>
<td>6288</td>
<td>100</td>
<td>69878</td>
<td>100</td>
</tr>
<tr>
<td>2008</td>
<td>6168</td>
<td>98</td>
<td>72258</td>
<td>103</td>
</tr>
</tbody>
</table>


\(^\text{11}\) SLSH =Somaliland shillings.
2.2 Agriculture and Livestock Sectors

2.2.1 As noted, the economy of State of Somaliland depends, to a great extent, on livestock production, which has historically and culturally been the mainstay of livelihoods for the majority of the people. The pastoral / agro-pastoral systems involve over 70% of the population, contribute 65% of the GDP and about 85% of export earnings, provide employment to a wide range of professionals and other service providers, and contribute 50% of Government revenues\(^\text{12}\). The main outlet of the livestock sector, live animal export to Saudi Arabia, Yemen and the Gulf States through Berbera port, has, however, been regularly disrupted by a series of trade embargos. Such bans adversely affect the national economy as well as the livelihoods of pastoralist families. The latest ban ended in 2009; since the ban was lifted, livestock exports have grown dramatically as shown in Table 1.

2.2.2 The pastoralist / agro pastoralist system comprises herds and flocks of indigenous cattle, sheep, goats and camels utilising grazing and browse through varying degrees of migration to and from traditional, clan-based, seasonally-foraged ranges. Cattle are found more frequently in the western parts of the country, which receive relatively large amounts of rainfall, while goats, sheep, and camels are bred mainly in the drier central and northern regions of the country. However, most pastoralist herds are mixed, a strategy which enables herders to exploit different types of rangeland, hedging bets against disease challenges and maximising survival and recovery rates following droughts.

2.2.3 Increasingly, agro-pastoralism, rather than nomadic pastoralism, the former characterized by maintenance of a permanent home, and, as well as keeping livestock that may or may not be transhumant- \( i.e. \) move between seasons along prescribed routes’ growing rainfed cereals during at least one of the two main seasons (\( gu \) or \( deyr \)) in a farming area, is becoming the farming system of choice in all parts of the State of Somaliland\(^\text{13}\), as access to pasture and the previously-enjoyed freedom of untrammelled movement of the nomad, disappears.

2.2.4 Under agro-pastoralist systems, livestock ownership varies from a few resident animals on the farm producing milk, ghee and live animals for home-use and sale, to the transhumant management of hundreds of head of various livestock according to wealth, agro-ecology, location and preference. According to “the State of Somaliland in Figures” (Ministry of National Planning and Development), there were 18,570,000 head of livestock in the country in 2009 (Table 5). However, as many of such livestock move in waves into Ethiopia at the beginning of the \( gu \) rainy season in April and return to the State of Somaliland at the start of the Ethiopian dry season in September, numbers are speculative. Elsewhere, internal movement takes place in Togdeer from North-West to South-East regions and animals normally stationed along the coast move inland at the start of the rains and head back to the coast again in December.

<table>
<thead>
<tr>
<th>Year</th>
<th>Goats</th>
<th>Sheep</th>
<th>Camels</th>
<th>Cattle</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>2009</td>
<td>6749</td>
<td>107</td>
<td>86093</td>
<td>123</td>
<td></td>
</tr>
<tr>
<td>2010</td>
<td>6422</td>
<td>102</td>
<td>84618</td>
<td>121</td>
<td></td>
</tr>
<tr>
<td>2011</td>
<td>5747</td>
<td>91</td>
<td>72449</td>
<td>116</td>
<td></td>
</tr>
</tbody>
</table>

Source: Ministry of National Planning and Development, Hargeisa


\(^{13}\) Most effectively practised in the eponymous North-West Agro- Pastoralist Zone.
2.2.5 The main (*gu*) rainy season extends from April to September. For rainfed cropping purposes, in the western regions there are two distinct seasons, *gu* (April to June) and *karan* (late July to September); and, in the eastern regions *gu* (April to June) and *deyr* (September to November). The western regions receive the highest amount of rainfall, which can reach over 500 mm annually and supports the bulk of the State of Somaliland’s cereal production in the North-West Agro-Pastoralist (NWAP) zone encompassing the four main rainfed-cereal producing districts of Borama and Baki in Awdal, and Gabiley and Hargeisa in Woqooyi Galbeed.

2.2.6 Described as predominantly subsistence in nature in that the principal crops, sorghum and maize, are grown under input-free conditions mostly for house-hold consumption, the description masks the production, in sizeable locations, of large surpluses of grains from high-yielding, local, late-maturing sorghum landraces, whose products are a) consumed as the main staple, b) sold locally to others and c) stored in underground pits to provide food security for the producer households.

2.2.7 In all areas, crop residues and failed sorghum and maize sowings contribute significantly to livestock feeding and the heavy sowing rates used for both crops reflect the dual–purpose nature of household planting policies.

2.2.8 Spate irrigation, so-common and well-developed in Eritrea and Eastern Tigray, is limited in the State of Somaliland to very small areas in Beer and Oodweyne districts where a few hundred of hectares of cereals and fodder are grown for sale; and even fewer hectares in Alaybaday, south-west of Hargeisa, which produce small areas of vegetables and fruits. Pump-set irrigation is limited to small, commercial units near the major towns producing vegetables and fruits In general, irrigated agriculture occupies less than 2000 ha of the area cultivated.

### 3.0 AGRICULTURAL PRODUCTION FOR MARKETING YEAR 2011/12

<table>
<thead>
<tr>
<th></th>
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<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>7,341</td>
<td>7,906</td>
<td>1,578</td>
<td>373</td>
<td>17,198</td>
</tr>
<tr>
<td>2006</td>
<td>7,517</td>
<td>8,041</td>
<td>1,596</td>
<td>378</td>
<td>17,532</td>
</tr>
<tr>
<td>2007</td>
<td>7,698</td>
<td>8,178</td>
<td>1,614</td>
<td>384</td>
<td>17,873</td>
</tr>
<tr>
<td>2008</td>
<td>7,883</td>
<td>8,317</td>
<td>1,630</td>
<td>389</td>
<td>18,219</td>
</tr>
<tr>
<td>2009</td>
<td>8,072</td>
<td>8,458</td>
<td>1,646</td>
<td>394</td>
<td>18,570</td>
</tr>
</tbody>
</table>

2.2.1 Regarding factors affecting production, the provision of short-term agricultural credit through Non-Governmental Organisations (NGOs) or banks has not been a feature of agricultural production in the State of Somaliland for some 25 years. The concept of self-help and family support genuinely dominates the approach to finance. In any event, cereal production in the NWAP zone is essentially low-input with no use of improved seeds, fertilisers, herbicides or pesticides. Funding is based on with paying cash with very little, if any, external assistance, however, remittances feature markedly and have clearly played a role in creating a distinction, in all localities, between tractor-owner farmers and those who hire the tractor services by the hour. Mechanised land preparation is the norm supported through the private tractor-hire services noted above. Consequently, the major influences on production are: - rainfall- its quantity and distribution, the type and quality of local seeds used, the timing and quality of cultivation and any other husbandry operations, weeding and pest and disease challenges.
3.2.1 Average annual rainfall in the NWAP is in the order of 400 mm to 500 mm as noted in Figure 1. The pattern is bimodal beginning with gu rains in March/ April, followed by a short dry period in June/ July; and restarting with karan rains in August that end in October/ November.

Figure 1: Long term average monthly rainfall (mm) in NWAP

3.2.2 This year, the rainfall as measured in the SWALIM (FAO) weather stations and confirmed by the 115 farmer case-studies showed different patterns and variations from the norm as exhibited in Figures 2 and 3.

3.2.3 In Figure 2, compared to the long term average (LTA), the gu rains in Borama and Gabiley are shown to start late at the end of April, be sustained in May; be noticeable, albeit with breaks, in June and July; and continue as the karan rains into October. Shown by dekad in graph form, they present a widely fluctuating picture throughout the season, a fluctuation matched by typical spatial variation common in semi-arid areas, with neighbouring villages often experiencing very different rainfall patterns.

3.2.4 In Figure 3, the Gu rains in Hargeisa and Dilla in Baki are also shown starting late at the end of April, then are recorded as being very heavy in May in Hargeisa, but much less heavy in Dilla; disappearing in June and July and restarting as useful karan rains in August, to end in September in both districts.

3.2.5 The patterns recorded at the weather stations are confirmed in the 115 farming case–studies conducted by the Mission, and, as noted by the good performance of April- May sown, late-maturing sorghums that withstood early water logging and the often-prolonged dry-spells noted in June and July that virtually eliminated the gu sown maize. The farmer observations summarised in Figures 2 and 3 in tables below the dekadal rainfall data, summarise the farmer reports on the occurrence of a) the onset of gu rains, b) occurrence of dry-spells, c) the onset of karan rains and d) the end of the season. It must be noted that rain fell after the Mission had left the area and that such rains have not been included in the summaries.

3.2.6 In summary, the late start, lower than average rains in June and July were less than satisfactory for most areas, but the season was rescued by heavier than usual rains in August that continued into September in all areas and are noted to have continued into October/ November supporting grain-fill of later-sown sorghum and seed set and grain-fill of karan maize.

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14 FSNAU, Gu season report, 2011.
Figure 2  Dekadal Rainfall (mm) in 2011 vs Long term averages (LTA) Borama and Gabiley
Figure 3 Dekadal Rainfall (mm) in 2011 vs Long term averages (LTA) Hargeisa and Dilla

Farmers' Rainfall Summary

<table>
<thead>
<tr>
<th></th>
<th>March</th>
<th>April</th>
<th>May</th>
<th>June</th>
<th>July</th>
<th>August</th>
<th>Sept</th>
<th>Oct</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hargeisa</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Start</td>
<td>66%</td>
<td></td>
<td>33%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Break</td>
<td></td>
<td>25%</td>
<td>100%</td>
<td>100%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Restart</td>
<td></td>
<td>33%</td>
<td>66%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>End</td>
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<td>25%</td>
<td>75%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
3.3 Area planted.

3.3.1 In the absence of cadastral surveys or fully-functional MoA information retrieval services from farming families, rapid assessment missions, including the MISSION, need to rely on a variety of sources to determine the best estimates of planted or harvested area of cereals under investigation. The FAO (2009) Joint Guidelines for the MISSION identifies possible sources of area sown or harvested as contractors including tractor-hire services, and harvesting or threshing contractors, as well as identifying possible lines of progressive derivation from such data as are available e.g. developed from a) population statistics, b) numbers of households farming, c) areas normally farmed, d) traditional cropping patterns - all conditioned by factors affecting such characteristics for the seasons under investigation through case-studies and key informant interviews. In this case the Mission collected and collated data from:-

- District Agricultural Officers in Hargeisa, Boroma/ Baki, Gabiley listing the number of farms recorded in each district, estimated areas of cereals planted.
- Numbers of functioning tractors in each district, demands for services, details of working practices (cultivation norms, hours per day); notions of availability of fuel, spare-parts; prices charged.
- Numbers of households farming from FSNAU livelihood surveys, areas cultivated, crops grown.
- 115 case – studies to determine factors affecting area planted this year;
- Key informant interviews- MoA District Agricultural Officers, market traders, tractor ploughing contractors.

3.3.2 In each district, the late start to the gu rains delayed most ploughing until April-May resulting in local bottle-necks as farmers queued for tractor services once the rains had started. Inevitably, as demand grew prices increased from 60,000 SSL / hour (10 US $) to 65,000 SSL (12US$). Delays of 8-10 days in a queue were the norm rather than the exception and payment was required in advance to guarantee services within that time span. According to the data collected from tractor owners, ploughing began in March and continued in April and May. With units working double shifts, services were offered 7 days a week at a stated work-rate of 18 hours a day for three months, therefore, according to the contractors a possible 1620 hrs per unit might have been provided. Table 6 provides a summary of estimates per district, including data adjusted by the Mission for a 90 day operational period, 1 day/week reserved for breakages-repairs, maintenance; and 20% time for movement between fields.

<table>
<thead>
<tr>
<th>District</th>
<th>Tractors</th>
<th>Av.hours (owners)</th>
<th>Av.hours (Mission)</th>
<th>Total hours (Mission)</th>
<th>Total area (ha)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Borama/Baki</td>
<td>41</td>
<td>1,500</td>
<td>1170</td>
<td>47,970</td>
<td>10,660</td>
</tr>
<tr>
<td>Hargeisa</td>
<td>35</td>
<td>1,500</td>
<td>1170</td>
<td>40,950</td>
<td>9,100</td>
</tr>
<tr>
<td>Gabiley</td>
<td>107</td>
<td>1,620</td>
<td>1170</td>
<td>125,190</td>
<td>27,820</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>47,580</td>
</tr>
</tbody>
</table>

Average ploughing rate in the predominantly silty-loam soils is 4.5 hrs/ ha.

3.3.3 The area estimated at 47,580 ha excludes areas ploughed by oxen and areas ploughed or re-ploughed in August for karan crops. Further, given the good main roads and easy access, tractors are known to plough out of their districts and even to leave State of Somaliland and plough across the border in Ethiopia. By the same token, tractors from Ethiopia also plough in the NWAP zone. It is important, therefore, to triangulate area estimates with other sources. In this regard, returns from the 115 case-studies provide an updated key to current practices. The returns show that a) most farmers only ploughed
once; b) average areas sown per farm to sorghum, immediately after ploughing, are noted as 1.6 ha in Hargeisa; 1.7 ha in Gabiley; 1.46 ha in Baki and 2.0 ha in Borama. Similar figures for late-sown (karan) maize are 0.57 ha in Hargeisa; 0.5 ha in Gabiley; 0.44 ha in Baki and 0.36 ha in Borama. Such reported areas are greater than the 1.2 ha of sorghum and 0.3 ha of maize determined by FSNAU in the long-standing livelihoods’ analysis used in previous assessments and are considered by the Mission to be a better reflection of area planted this year and have, consequently, been adopted for use in calculating district area estimates, that are cross –checked against the tractor-use data to determine their feasibility/credibility. The resulting total NWAP zone area estimates at 43,820 ha, are provided by farming location in Annex 1 and are summarised by district in Table 7 below, the estimate used falls easily within the tractor-use based estimate of 47,580 ha.

3.3.4 FAO’s public- private, tractor supply initiative under the EC Food Facility, required tractor-owners benefitting from the sale of 10 tractors through the MoA at a subsidized rate, to provide free-services to selected needy farm families. The Mission can confirm that such services were provided and were reported to the Mission by case-study farmers in Hargeisa district, who were considered in need of such support.

3.3.5 Given that all sorghum and maize seeds used in the NWAP zone, as identified during the Mission case – studies, are local seeds, the sorghum universally carried over from the previous harvest in 2010 and the latter- purchased in local markets, appropriate seeds are noted to have been readily available at sowing time. Sorghum seed rates provided to the Mission at 10- 32 kg/ha for both cereals reflect over-sowing rather than under-sowing, explained, by the farmers, as a means of a) maximising germination-given that the seeds are not certified/ tested and are kept for a year on- farm; b) combating competition from weeds and c) providing forage for livestock as both thinning during dry spells in the rainy season; and as stover after harvest. In any event, there was no suggestion that sorghum seeds this year were in short supply, therefore, ability to find seeds is unlikely to have inhibited area planted. Maize seeds, sown at similar rates per hectare, albeit over a much smaller area per farm, were mostly purchased from local markets reflecting the poorer keeping quality of maize, and the failure of the gu crop in the area.

3.3.6 Dry spells in May, June and July, prompted replanting of sorghum in 40% of case-studies in Hargeisa, 17% of case-studies in Borama/ Baki but only in 10% of case studies in Gabiley, where the preferred local varieties of sorghum are mostly late-maturing, goose- neck landraces of the “adengap” type that withstand marginal conditions of both water-logging and protracted dry spells during development, making replanting unnecessary. The numerous gu maize failures were not replanted, although a greater area of second season maize was planted with the karan rains in August particularly in Hargeisa and Gabiley as noted in Table 7.

3.3.7 Using the tables presented in Annex 1, areas sown to sorghum and maize have been estimated from the UNDP 2005 population statistics, updated i) by District Agricultural Office 2011 farm registrations for the villages omitted from the original surveys; and ii) by case–study area data. The estimated areas by district are summarised in Table 7, juxtaposed with estimates for 2010 prepared by the FAO- WFP Rapid Surplus Supply Mission.

3.3.8 This year, total area sown to cereals summarised in Table 7 at 43,820 ha is c. 6,500 ha lower than the 50,290 ha estimated in 2010. This is because the calculations this year are based on a total of farms drawn from a) previous village rainfed farms noted last year from the UNDP 2005/ FSNAU livelihoods analysis, plus b) MoA “new” village rainfed farm registrations -confirmed as active in November 2011 by each of the District Agricultural Officers and the FSNAU Senior Agronomist. In 2010, the area planted was

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15 FSNAU (2011) NW Gu/ Karan Crop Establishment Estimates
computed from a total drawn from a) previous village UNDP (2005)/ FSNAU rainfed farms, supplemented by b) Mission estimated numbers of “urban” or “unattached” farmers from Hargeisa Town (5% households), Borama Town (70% households), Dilla and Gabilley towns and urban centres (100% households). It is anticipated that each year, information flows will improve as cadastral surveys and regular planting assessments are extended to cover all agro-pastoralist villages.

Table 7 Sorghum and maize area (ha) 2011/10

<table>
<thead>
<tr>
<th>District</th>
<th>Sorghum '11</th>
<th>Sorghum '10</th>
<th>Maize 2011</th>
<th>Maize 2010</th>
</tr>
</thead>
<tbody>
<tr>
<td>Borama</td>
<td>5,541</td>
<td>8,691</td>
<td>688</td>
<td>2,028</td>
</tr>
<tr>
<td>Baki</td>
<td>2,282</td>
<td>4,320</td>
<td>997</td>
<td>1,008</td>
</tr>
<tr>
<td>Hargeisa</td>
<td>7,261</td>
<td>8,829</td>
<td>2,587</td>
<td>2,060</td>
</tr>
<tr>
<td>Gebiley</td>
<td>18,904</td>
<td>19,725</td>
<td>5,560</td>
<td>3,629</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>33,988</strong></td>
<td><strong>41,565</strong></td>
<td><strong>9,832</strong></td>
<td><strong>8,725</strong></td>
</tr>
</tbody>
</table>

3.4 Agricultural inputs / activities.

3.4.1 The farming systems described in Section 2 indicates that 90% of the agriculture in the NWAP is rainfed and is based on a low-input: low-output premise conditioned by the unreliable nature of the rain; cheap access to land allowing unlimited horizontal expansion for farmers investing in mechanised services; historically available fuel, readily available household labour and the tradition of guz labour/ oxen sharing for weeding and harvesting as required.

3.4.2 The main staples, sorghum and maize and occasional stands of pearl millet are sown to local seeds at reasonably heavy rates following minimal cultivation, one pass and sow, in most cases. Mission case studies confirm that this year, local seeds, either kept from the previous year or bought from local markets, were the only seed source, sown in the NWAP zone at rates that varied from 10-32 kg/ha. Sorghum was sown in April and May; and re-sown in late July / August following dry-spells in June and July, particularly in locations in Hargeisa district.

3.4.3 No inputs such as fertilisers, manure, soil conditioners, pesticides or growth promoters for are used by cereal growers or noted to be available in the markets. The case-studies show that field operations in the cereal sector following tractor ploughing comprise only a) oxen harrowing “baq-baq”, b) weeding, c) bird-scaring and d) harvesting. The secondary cultivation, harrowing, being undertaken by most farmers to reduce weeds, thin over-planted sections of the fields and aid rainfall distribution in the shallow ridge and furrow systems that result from the harrowing; weeding used to reduce weed competition and to collect fodder for livestock; and the others to secure the harvest. The very best farmers, producing upwards of 5 t/ha of "adengap" sorghum are noted to have ploughed twice, harrowed at least once and weeded two or three times during the season. Their crops would not have been out of place anywhere in the world.

3.5 Weeds, pests and diseases.

3.5.1 Weeds are noted to be considered the most difficult pest this year; fewer than 3% of the farmers interviewed failed to weed, with most weeding accomplished under conditions of reciprocal support (guz). Whereas weeds are often considered useful as fodder by the agro-pastoralist, one weed in particular in
NWAP zone is cause for concern. The weed for which a high proportion of farmers requested support to eliminate appears, to the Mission, to be “Congress weed” (*Parthenium hysterophorus*)16 imported into Ethiopia in the 1980s with food aid wheat from the USA, which now seems to have crossed the border and is invading the NWAP zone farmland and pastures, rapidly replacing the indigenous grasses following cultivation or over-grazing.

3.5.2 Other pest and disease problems in 2011 are noted to be *normal or mild* in most districts with, no confirmed outbreaks of migratory pests; and few reported outbreaks or incidents of non-migratory pests of any consequence *i.e.* although most pests are noted frequently as present; levels of infestation are reported as low and are not causes for concern. In this regard the Mission notes the following exceptions:-

- Local birds –*local quelea* require bird scaring early in the morning and in the early evening in all areas where production of grain, particularly sorghum, is considered a serious enterprise. Failure to scare away local birds is noted to have reduced crop production by at least 2 tonnes per ha in the worst cases seen near woodland during walking transects in Hargeisa District.

- Stalk borer- infestations in Hargeisa District, coupled with poor rainfall, are noted to have reduced crops to unharvestable levels (Annex 1- see zeros).

- Smut, sorghum head smut is noted to be present in all districts. The current practices of saving smut-contaminated heads and using home-saved seed with no seed treatment suggest that the problem of head smut will only get worse.

- Although the woody weed mesquite (*Prosopis spp.*) is outlawed nationally as a noxious species in Sudan, and has devastated the rangelands in western Eritrea, it’s presence in State of Somaliland appears to be tolerated and, possibly, even encouraged in peri-urban areas. Although any attempt to eliminate mesquite is probably now impossible in Hargeisa, serious consideration should be given to stopping its spread to the ranges and farms before it presents an overwhelming challenge to the well-established browse trees in the whole NWAP zone.

3.6 Yields

3.6.1 This year, yields of harvestable crops have been estimated using the PET approach (Pictorial Evaluation Tool – crop photo indicators). Sight of the PET manual and its photo-indicators was also offered by the assessors to farmers interviewed during the case studies for them to select their choice of photo-indicator from the selection available, and comment on the yield associated with their pick.

3.6.2 The PET approach required the four assessing teams to:-

- identify levels of production in all fields passed during movement in vehicles throughout their localities according to the PET colour codes and zero;
- quantify estimates of yields of cereals in all fields passed during walking transects in each sampled area, within their pre-coded localities according to a range of 19 possible options (9 PET photo-indicator standards, 9 inter-score values and zero);
- prepare weighted averages of scores from the walking transects for each village included in the sample;
- extrapolated from the scores to include adjacent areas with similar characteristics.

3.6.3 In such a way, sorghum production in all localities in the NWAP zone was classified by colour code; and some 1500 sorghum fields were independently scored, within the localities, to determine average yield

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16 Mission identified, NB- identification needs confirmation by a taxonomist/ weed specialist. When eaten by livestock when mixed with fodder or in times of duress, when eaten by ruminants the weed taints milk and meat and causes dermatitis in humans. All such effects were reported to the Mission.
estimates. The estimates obtained were cross-checked against the returns from 115 case-studies including farmer estimates both with and without PET; and from 1 square metre, crop-cut sample yields of grain that were dried to constant weight.

3.6.4 Regarding sorghum yields, the results of the assessment show weighted average yields for all locations ranging from zero to over 3 tonnes per hectare. Some individual farm / field yields were assessed by the teams at more than 5 tonnes using PET photo-indicators, levels that were confirmed the same day from dry matter analyses of the samples taken from such fields. By the same token, other fields were assessed using PET photo-indicators at 0.25 tonnes per hectare, resulting in an overall average yield in the NWAP zone of 1.79 t/ha.

3.6.5 Regarding maize yields, as noted in the earlier FSNAU (2011) report, the gu planted maize was unsuccessful resulting in only 645 tonnes of grain that had already been harvested by the time of this Mission. The karan planted maize was, for the most part tasselled but not silked. Consequently, as PET photo-indicators are designed to assess harvestable crops using plant density and quality/ size of harvestable products per plant, and as the latter component – the maize cobs were clearly absent, conservative estimates based on plant size and density alone have been made with most crops in the blue colour code, with a range of zero to 1.0 tonnes per hectare and with a weighted average of c. 0.5 t/ha. It is recommended that a further visit by two certified PET assessors is made to the main maize areas in Gabiley and Hargeisa, where the greatest areas are reported, in 4-6 weeks time to review the situation.

3.6.6 Estimates for all locations for both crops are presented in Annex 1 and are summarised by district in the relevant columns in Table 8 in the next section.

3.7 North-West Agro-Pastoralist zone Cereal Production, 2011.

3.7.1 Cereal production from Borama, Baki, Hargeisa and Gabiley districts of the NWAP zone for the gu-karan sorghum and karan maize is estimated at 66,451 tonnes of which 60,997 tonnes are sorghum from an estimated 33,988 ha and 5454 tonnes are maize from 9832 ha. Gabiley is estimated to be by far the biggest producer of both crops providing 66% of both sorghum and maize from 55% of the total area.

3.7.2 Table 8 provides as summary of production by district, and indicates how the estimate has been made from population data, supplemented by new farm registrations from the DAOs. Further details, by rainfed farming village in each district, are presented in Annex 1.
Table 8 NWAP zone cereal production (sorghum and maize), 2011\textsuperscript{17}.

<table>
<thead>
<tr>
<th>District</th>
<th>Farming hh\textsuperscript{1}</th>
<th>Sorghum Area/hh (ha)\textsuperscript{2}</th>
<th>Sorghum Area (ha)</th>
<th>Sorghum yield (t/ha)</th>
<th>Sorghum prod. (t)</th>
<th>Maize Area/hh (ha)</th>
<th>Maize Area (ha)</th>
<th>Maize yield (t/ha)</th>
<th>Maize Prod. (t)</th>
<th>Cereal Prod. (t)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Borama</td>
<td>2,770</td>
<td>2</td>
<td>5,540</td>
<td>1.55</td>
<td>8,587</td>
<td>0.36</td>
<td>997</td>
<td>blue</td>
<td>0.43</td>
<td>432</td>
</tr>
<tr>
<td>Baki</td>
<td>1,563</td>
<td>1.46</td>
<td>2,282</td>
<td>1.82</td>
<td>4,155</td>
<td>0.44</td>
<td>688</td>
<td>blue</td>
<td>0.54</td>
<td>373</td>
</tr>
<tr>
<td>Hargeisa</td>
<td>4,538</td>
<td>1.6</td>
<td>7,261</td>
<td>1.06</td>
<td>7,711</td>
<td>0.57</td>
<td>2587</td>
<td>blue</td>
<td>0.40</td>
<td>1,024</td>
</tr>
<tr>
<td>Gabiley</td>
<td>11,120</td>
<td>1.7</td>
<td>18,904</td>
<td>2.14</td>
<td>40,544</td>
<td>0.5</td>
<td>5560</td>
<td>blue</td>
<td>0.65</td>
<td>3,625</td>
</tr>
<tr>
<td>NWAP</td>
<td>19,991</td>
<td>1.7</td>
<td>33,987</td>
<td>1.79</td>
<td>60,997</td>
<td>0.49</td>
<td>9,832</td>
<td>blue</td>
<td>0.55</td>
<td>5,454</td>
</tr>
</tbody>
</table>

1. Derived from MoA, Hargeisa listings (2011); UNDP 2005 popn data, FSNAU livelihoods analysis.
2. Derived from Mission case-studies.

3.7.3 These data compare favourably with the production estimates in the forecasts made by FSNAU earlier in the year at crop establishment, and are similar to production levels noted last year by the WFP/FAO Surplus Sorghum mission for sorghum (59,734) tonnes but are substantially less than the 14,185 tonnes expected from maize in 2010. Sorghum production is also far closer than previously thought to levels of production reported in the 1980s, when cereal production on the plateau averaged 2.00 tonnes per hectare\textsuperscript{18}, than to recent estimates from the MoA, as shown in Table 9.

Table 9 MoA, Hargeisa Crop Production – Maize, Sorghum (2007-2009)

<table>
<thead>
<tr>
<th>Crops</th>
<th>Indicator</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maize</td>
<td>Area (ha)</td>
<td>6384</td>
<td>2680</td>
<td>1075</td>
</tr>
<tr>
<td></td>
<td>Production(t)</td>
<td>4022</td>
<td>1252</td>
<td>330</td>
</tr>
<tr>
<td></td>
<td>Yield (t/ha)</td>
<td>0.6</td>
<td>0.5</td>
<td>0.3</td>
</tr>
<tr>
<td>Sorghum</td>
<td>Area (ha)</td>
<td>31179</td>
<td>24750</td>
<td>21870</td>
</tr>
<tr>
<td></td>
<td>Production (t)</td>
<td>22722</td>
<td>16275</td>
<td>10526</td>
</tr>
<tr>
<td></td>
<td>Yield(t/ha)</td>
<td>0.7</td>
<td>0.7</td>
<td>0.5</td>
</tr>
<tr>
<td>Total</td>
<td>Area (ha)</td>
<td>37563</td>
<td>27430</td>
<td>22945</td>
</tr>
<tr>
<td></td>
<td>Production (t)</td>
<td>26744</td>
<td>17527</td>
<td>10856</td>
</tr>
</tbody>
</table>

3.8 Other crops.

3.8.1 Apart from the two main cereals, other cereals reported to the Mission as growing this year are pearl millet and rice. Only one field of pearl millet in Gabiley, and a few harvested fields of pearl millet in Borama District were noted. No rice was noted during the Mission or reported to Mission teams. Consequently, neither cereal is noted to have been grown sufficiently to be included in the assessment.

\textsuperscript{17} PET codes refer to PET colour codes for photo-indicators. See PET Crops Somalia, 2010.
\textsuperscript{18} Abdi Musa (Personal communication) 2011
3.8.2 Historically, the main cash crops in Somalia have been grown in other regions. State of Somaliland, as noted in Section 2, has been always been associated with pastoralism and livestock production, therefore the history of cropping has been limited. Recent introductions of rainfed sesame and cowpeas are noted and may expand in future years but are currently insignificant in terms of area or impact.

3.8.3 Regarding fruit and vegetables, presently less than 2000 ha are cultivated under irrigation, producing limited quantities of fruit and vegetables for the commercial centres. Presently, no data are available regarding performance; however, the Mission is making recommendations for installing a simple recording system based on indicator units on selected farms, to provide annual snap-shots of production to monitor development of the sub-sector.

3.8.4 Of greater significance in the NWAP zone are the widespread acacia forests whose stocks of Acacia bussei and Acacia etbaica throughout State of Somaliland are well known and appreciated and support millions of browsing goats and camels. At the same time, the widespread presence of Ziziphus and Balanites species offer wild-fruit marketable options for herders. It is noted that charcoal making threatens A. bussei and Balanites spp; however, the Mission notes that all indigenous trees are more seriously threatened by the uncontrolled expansion of Prosopis species that will eventually invade the NWAP zone if left unchecked.

3.9 Livestock

3.9.1 Livestock in the NWAP zone are raised extensively under systems with various degrees of transhumance ranging from settled farmers to nomads crossing borders between states. Numbers are, therefore, extremely difficult to estimate and are usually derived from numerical progressions from the latest census, cross-matched with vaccination campaign records. The latest estimates available to the Mission come from the Ministry of Planning, Hargeisa and show a steady increase up to 2009 as noted below in the extract from Table 5 presented earlier in the report:

<table>
<thead>
<tr>
<th>Year</th>
<th>Goats</th>
<th>Sheep</th>
<th>Camels</th>
<th>Cattle</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>2009</td>
<td>8,072,000</td>
<td>8,458,000</td>
<td>1,646,000</td>
<td>394,000</td>
<td>18,570,000</td>
</tr>
</tbody>
</table>

3.9.2 Since 2009, the buoyant export trade with the Gulf States has fostered livestock production, so despite the sale of millions of head each year, it is probable, from the returns from the 115 case-studies that the numbers of breeding stock are increasing, indicating of a healthy industry. Production characteristics are not known and should be made the subject of a comprehensive livestock recording scheme using indicator units, within herds, to determine performance. In the meantime, data regarding breeding performance have been collected during the 115 Mission case-studies. These data are given in Table 10 and are likely to represent the cattle, sheep and goats kept under the more residential agro-pastoralist systems.

3.9.3 In addition to case study data, livestock were condition-scored during driven and walking transects according to PET protocols. Weighted average and modes of PET scores by species and by district are also included in Table 10. The returns show that throughout the NWAP zone livestock are in very good condition before they enter the coming dry season with what is estimated to be plenty of forage (stover) and browse, although pastures are less well-conserved and are seriously affected by what appears to be
Congress weed in many grazing areas. Due to the nature of semi-arid areas, water supplies vary according to location from being plentiful to already depleted.

Table 10 Livestock indicators (transects and case-studies), 2011

<table>
<thead>
<tr>
<th></th>
<th>Borama/Baki</th>
<th>Gabiley</th>
<th>Hargeisa</th>
<th>NWAP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transhumance</td>
<td>30% herds/flocks</td>
<td>5% herds/flocks</td>
<td>50% herds/flocks</td>
<td>26%</td>
</tr>
<tr>
<td>Cattle</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Calving %</td>
<td>61%</td>
<td>62%</td>
<td>73%</td>
<td>65%</td>
</tr>
<tr>
<td>PET condition</td>
<td>Av 3.1; mode 3-4</td>
<td>Av 3.3; mode 3-4</td>
<td>Av 3.3; mode 3-4</td>
<td>Av 3.2; mode 3-4</td>
</tr>
<tr>
<td>Sheep / goat</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lamb/kid %</td>
<td>67%</td>
<td>74%</td>
<td>73%</td>
<td>71%</td>
</tr>
<tr>
<td>PET condition</td>
<td>Av 3.0; mode 3-4</td>
<td>Av 3.3; mode 3-4</td>
<td>Av 3; mode 3-4</td>
<td>Av 3.2; mode 3-4</td>
</tr>
<tr>
<td>Camels</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PET condition</td>
<td>Av 3.0; mode 3</td>
<td>Av 2.8; mode 2-3</td>
<td>Av 2.5; mode 2-3</td>
<td>Av 2.8; mode 2-3</td>
</tr>
</tbody>
</table>

3.9.4 The common livestock diseases of PPR, haemorrhagic septicaemia, blackleg, anthrax, sheep pox, CBPP, CCPP were all obvious by their absence in case-study reports. All such diseases have, apparently, been kept effectively under control through vaccinations, seemingly sought out by the farmers themselves. With the exception of abortions in small ruminants reported around Baki/ Borama border, no serious outbreaks of diseases are noted.

3.9.5 In conclusion, animals are in good condition, healthy and are sustaining incomes of agro-pastoralists in a firm market made buoyant by exports.

4.0 FOOD SUPPLY SITUATION

4.1 Current market situation

4.1.1 The livestock export market chain culminating in Berbera, which for 50% of small ruminants and most of the cattle begins in Ethiopia, provides a suitable corridor for the reciprocal movement of foodstuffs and other goods across State of Somaliland, particularly imported cereals and fuel.

4.1.2 Somalia generally imports commercially around 60% of its cereal requirements. In 2011, around 408,000 tonnes of cereal equivalents of rice and wheat were registered as imported between January and July through Bossasso, Berbera and Mogadishu of which a substantial proportion has been coming through Berbera. For instance, data from the Ministry of Planning for 2009 show that gross cereal imports into Berbera were 247,000 tonnes comprising wheat and wheat flour at 169,000 tonnes, rice at 59,000 tonnes and pasta at 19,000 tonnes. Despite worsening conditions reported in the press, commercial imports through the 3 ports are noted to have increased by 36% this year to July, so it may be expected that cereal flow through Berbera has also increased. But where does it go? Re-export figures through Tog Wajaale show that the greater amount of rice is exported but very little wheat flour and no wheat leaves to

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20 Compare to 2011 imports in paragraph 4.2.2.
Ethiopia, so may we assume that such quantities are consumed locally? There are no figures available for cereal flow from Berbera into Puntland or South-Central Somalia, however, given the role of the other two ports they are for the sake of the following cereal balance, considered to be negligible.

4.1.3 Under the umbrella of a free and open market, self-regulation by brokers apparently stabilises the cereal market, which shows very little fluctuation, at least in Hargeisa, given the turmoil surrounding the greater state of Somalia and its government.

4.1.4 Figure 4 provides a 3 year view of market prices in Borama and Hargeisa of 50kg bags of sorghum and maize. Interestingly, the September price illustrates a culmination of a downward trend and complete convergence over the period starting in January 2009 to arrive, using the official exchange rates shown in Table 3, at 522 US$ / tonne in September 2011 for both commodities (one tonne of white sorghum and white maize), having started the period in Hargeisa at 889 US $ /tonne in January 2009, and peaked in May 2010 in Borama at 1012 US $ /tonne for white sorghum and 833 US$ per tonne for white maize.

4.1.5 Market prices for livestock for the same two markets over similar periods are given in Figure 5. Again both pairs of graphs exhibit similar trends, but upward this time compared to the downward trend of grain prices, with Borama prices fluctuating due to being a smaller market with less certain supply and demand characteristics.

Figure 4a Borama Market; - Sorghum and maize 2009/10/11 monthly average price (SLSH).

Figure 4b Hargeisa Market; Sorghum and maize 2009/10/11 monthly average price (SLSH).
4.1.6 Downward trends in cereal prices and upward trends in livestock prices translate to favourable terms of trade (ToT) for agro-pastoralists who keep grain and sell livestock. The prices shown below present such a favourable picture in 2011, as shown in Figure 6 where ToT for a local slaughter goat vs 50 kg bag white sorghum increasing from 1:1 to 2:1 over the 3 year period, peaking at 3:1 in October (just before Haj period) in 2011; and, at a similar time in 2010.

**Figure 6** Terms of Trade, local slaughter goat vs 50 kg bag white sorghum

<table>
<thead>
<tr>
<th>Terms of Trade: Local Quality Goats versus White Sorghum (50 Kg)</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
</tr>
</thead>
<tbody>
<tr>
<td>JAN</td>
<td>FEB</td>
<td>MAR</td>
<td>APR</td>
</tr>
<tr>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>

4.2 State of Somaliland NWAP Cereal Supply/National Demand Balance 2011/12
4.2.1 The NWAP zone projected cereal supply for the 2011/12 (31\textsuperscript{st} October 2011 to November 1\textsuperscript{st} 2012) marketing year is summarised in Table 11.

4.2.2 The domestic cereal production estimate for marketing year from the NWAP zone of the State of Somaliland 2011/2012 is 67,101 tonnes from the evaluated harvest sorghum and maize, November 2011 harvest of 60,997 tonnes of sorghum and 5,454 tonnes of maize (66,451 tonnes); plus 650 tonnes for gu maize to be harvested next August (based on this year’s low estimate by FSNAU, 2011 and no inclusion of Togdheer crops).

4.2.3 Table 11 suggests that out of 92 villages, 5 villages will have produced no or next to no cereals, 3 villages will be in cereal deficit unless they have stocks; and five will be in balance. The remaining villages will have surplus production, which does not preclude hh in deficit.

Table 11 Cereal production from NWAP villages.
Annex 1 Further assumptions to be considered for the whole State of Somaliland based on production noted above are:-

- Mid-year 2012 population in State of Somaliland is estimated at 1.99 million people extrapolated from 1.8 million (UNDP 2005) increased by 1.5% per annum.
- Average per caput mixed cereal consumption in 2011/12 is assumed to be 135 kg/annum\(^{21}\);
- Food grain domestic consumption requirement 2011/12 is 268,650 tonnes cereal grains.
- No grain is used for livestock feed consumption.
- Seed requirement of 1000 tonnes for the next season; based on 2011 cropped areas plus 10% and 15 kg/ha seed rates: sorghum requirement for 35,000 ha is 525 tonnes; maize- *gu* and *karan* requirement for 12,000 ha is 185 tonnes; plus further seeds a) 16,000 ha of possible reseeding and a possible 2,000 ha of cereals sown in other locations.
- 7014 tonnes domestic post-harvest losses; 10 percent domestic production sorghum and 15% domestic production maize. In the light of no information regarding losses in peasant farms in State of Somaliland, the Mission has adopted norms from studies carried out earlier and elsewhere (FAO 1977: Analysis of an FAO Survey of Post-harvest Crop Losses in Developing Countries).
- 209,563 tonnes net commercial cereal grain equivalent imports 2011/12
  - NB Compare with total commercial cereal grain equivalent imports in 2011 through Berbera and Togwajaale estimated at 275,277 tonnes a year of mixed cereals *viz*
    - c 60,000 tonnes of milled rice imported 2011 (extrapolated to December using data 2010); converted to paddy at 83,300 tonnes
    - c. 80,000 tonnes of wheat flour imported 2011 (extrapolated to December using data 2010) converted to wheat grain at 104,000 tonnes\(^{22}\).
    - 38,480 tonnes pasta, converted to wheat grain at 69,477 tonnes
    - Total Berbera import 256,777 tonnes grain equivalent.
    - 1,432 tonnes sorghum, extrapolated to December using 2010 data;
    - 17,343 tonnes maize, extrapolated to December using 2010 data;
    - Total Togwajaale import 18,500 tonnes.
  - Total re-exported cereals through Togwaajale are estimated at 22,781 tonnes
    - 4175 tonnes of wheat flour converted to wheat grain at 5,430 tonnes;
    - 10,726 tonnes of milled rice converted to paddy rice at 14,801 tonnes;
    - 1,412 tonnes pasta converted to wheat grain at 2550 tonnes.
  - Net cereal imports 2011 are estimated at 252,496 tonnes of cereal grain equivalents.
- Closing stocks of cereals for marketing year 2011/12 are estimated to be the same as opening stocks 2011. Although formal sorghum stocks are reported by MoA to be minimal, it is highly likely that, after three good sorghum harvests long-term stocks of sorghum are held in private underground stores.
- Therefore, in the partial cereal grain balance below “\(x\) opening stocks = \(y\) closing stocks.”

Given that the required net imports at 209,563 tonnes are estimated below the commercial imports recorded in 2011, it is anticipated that a) if livestock prices stay firm and b) if the level of remittances are sustained, State of Somaliland will have the revenue to import enough grain commercially to make good domestic production shortfalls.

However, at the household level, incomes vary, necessitating support for those in precarious food situations and abysmal living conditions. Food aid in 2011 is noted to have been 4,100 tonnes of maize in addition to the commercial imports. Such needs are to be determined in conjunction with WFP and may again be supported by food aid imports if local purchasing proves too complicated.

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\(^{21}\) No disaggregated data by cereal type available

\(^{22}\) NB Government of Somaliland (GoS) data show 150,000 tonnes of wheat/ wheat products- 2009 data.