# Sudan National S3M: key results

- The Sudan National S3M[1] used a spatial sampling method to measure a range of indicators (health, WASH and nutrition) over small geographical areas, giving results at locality level and lower. It has identified where the children who are most in need in Sudan are living ensuring evidence based equity programming in Sudan. Results were endorsed by Federal Ministry of Health on 30 December 2013 and have been in use throughout 2014. All results are presented at locality level.

- Sudan is made up of 18 states and 184 localities with an estimated population of 31 million people. Sudan is part of the Sahel belt and suffers from recurrent drought-years and poor harvests. Sudan has the highest rate of acute malnutrition in the Middle East region.

**Figure 1[2]:** Map showing distribution of stunted children
(Orange areas on map show where more than 30% of children are stunted, green shows areas where less than 20% are stunted).
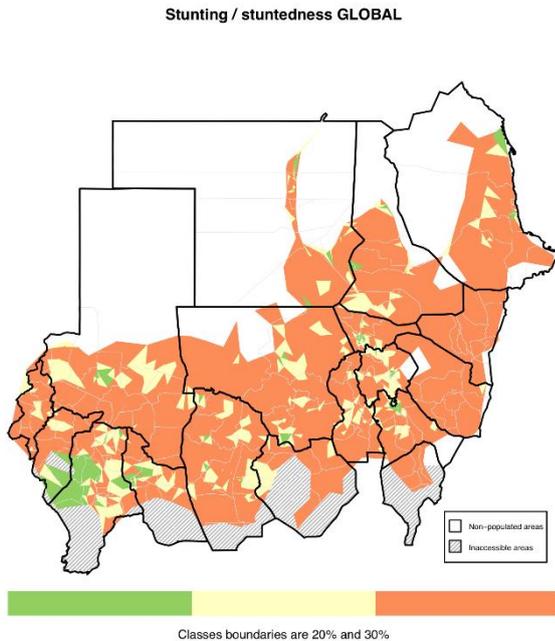
- More than two million children in Sudan are already stunted and unlikely to ever reach their full growth and development potential. With the results of this survey we know where they are living (Figure 1).

- State-level estimates mask huge disparities in most indicators. 128 of the total 184 localities have a stunting rate classified as high[3] (above 30%). There are pockets of very high stunting rates, found mostly in the eastern states of Red Sea, Kassala and Gedaref, with a high of 73% in Gedaref state.

- Sudan has a huge burden of acute malnutrition and the S3M showed that over half a million[4] children will suffer from life-threatening severe acute malnutrition during one year.

- 53 of the 184 localities have a severe acute malnutrition rate (measured by MUAC) that is classified as very critical (above 3%). Highest SAM measured was above 20% in three localities in South Darfur and Red Sea.

Figure 2: Number of children with severe acute malnutrition by locality
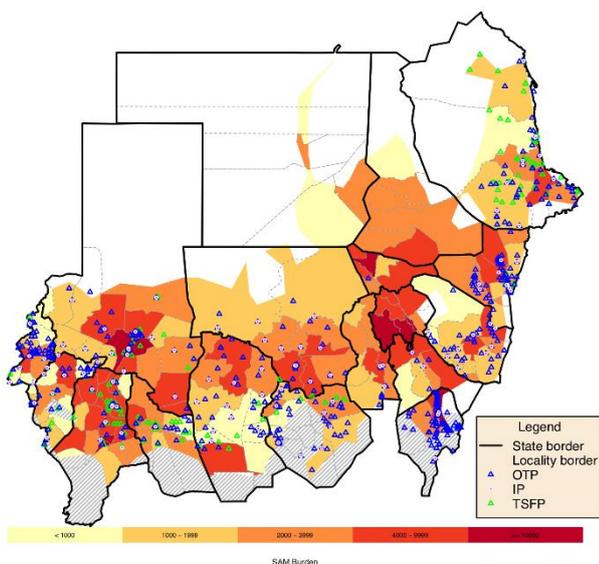
- The number of children with SAM depends on the population number, highly populated states with a lower prevalence still carry a very high burden of children with SAM. Most of the children with SAM are found in North Darfur, Gezira, South Darfur, Khartoum and Gedaref. These five states carry 51% of the national SAM burden (Figure 2).

- Exclusive breastfeeding rates have improved across the country since the last survey and are above 70% in 89 of the 184 localities.

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[1] Sudan National S3M (2013): Report of a Simple Spatial Surveying Method (S3M) survey in Sudan. Federal Ministry of Health, Sudan. 2013. Survey was carried out by the Federal Ministry of Health with technical support from UNICEF and Valid International.
[2] Results maps at national level are classified into three groups of low, medium and high for every indicator. Cut-offs used for each indicator are based on international public health recommendations or national program targets. Green colour on the maps indicates a 'good' situation (as determined by the cut-offs used), yellow indicates 'acceptable' and red indicates a 'poor' situation.
[3] Physical Status: The use and interpretation of Anthropometry. Report of a WHO expert committee, 1995. Chapter 5, p208 & 212.
Stunting cut-offs: very high = >40%; high = 30-40%; medium = 20-29%; low = <20%.
[4] S3M prevalence estimates, by MUAC or WHZ (whichever estimate is higher – MUAC in Red Sea, Kassala and South Kordofan; WHZ in all other states) and EPI 2013 population estimates of children 6-59 months. Burden calculated as prevalence + incidence, where incidence = prevalence x1.6.

Figure 3: Map showing distribution of maternal under nutrition
(Orange areas are where more than 15% of mothers are under nourished, green shows areas where less than 5% are under-nourished)

**Mother undernourished (MUAC < 230mm)**

Classes boundaries are 5% and 15%
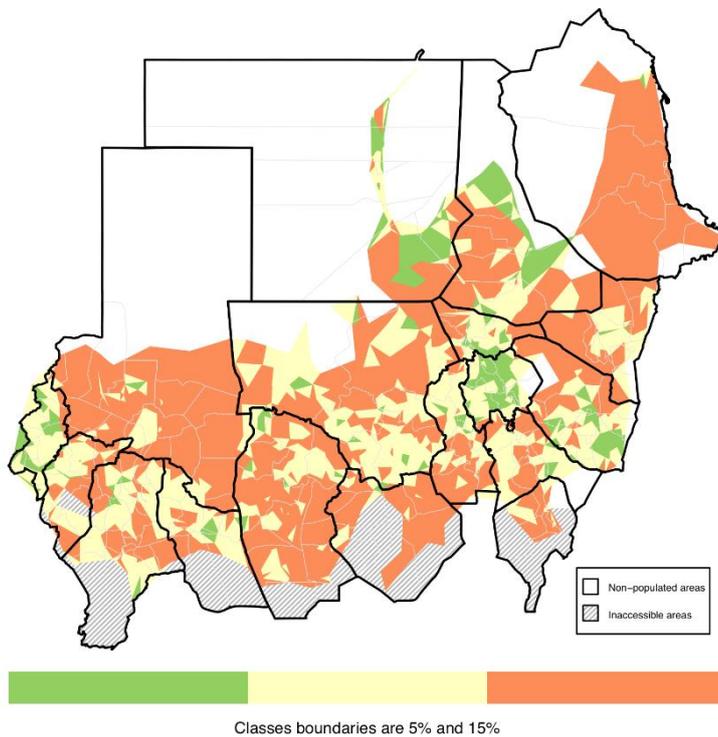
- Maternal under-nutrition is very high in Sudan and up to 62% of mothers in some locations are under-nourished, classified as 'extreme'[5], and highest in the Eastern state of Red Sea (Figure 3).

- There are areas of low Vitamin A supplementation. 52 localities recorded coverage of less than 75%, with a low of 2.3% in one locality in South Kordofan.

- There are a total 65 localities with a vaccination coverage of less than 75% (age-appropriate fully vaccinated). Lowest coverage is 13% in one locality in Red Sea.

- Coverage with improved sanitation facilities and improved sources of drinking water is low in most locations, including towns and cities – use of improved sanitation facilities in Khartoum state is less than 50%.

Figure 4: Map showing distribution of household use of adequately iodised salt (>15ppm)
(Orange areas are where less than 20% of households use adequately iodised salt, green shows areas where more than 50% of households use adequately iodised salt).

Adequately iodised salt

Classes boundaries are 20% and 50%
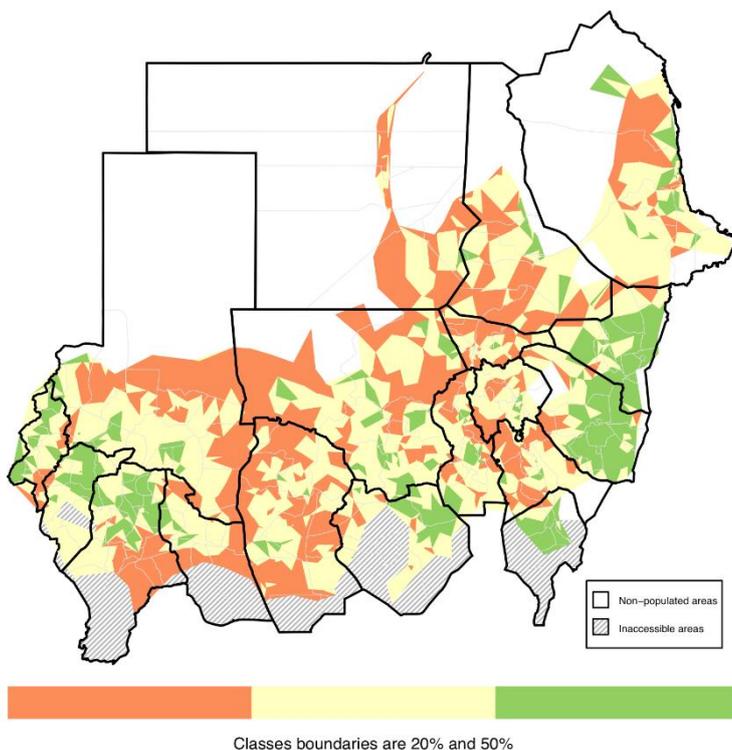
- Household use of iodised salt has improved since the last national survey (SHHS 2010, where the national average was 9.5%). There are 42 localities where more than 50% of households are using iodised salt (Figure 4).

Use of results:
Sudan National S3M results have been used throughout 2014 to re-target the national Maternal and Child Health Acceleration Plan, to review the Humanitarian Needs Overview for 2014, as a basis for a national CMAM Scale-up Strategy, and to determine the Humanitarian Needs Overview for 2015, ensuring geographical convergence within and between sectors.

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[5] MUAC <23cm , >50% classified as extreme, Food Security Nutrition Assessment Unit – Somalia http://www.fsnau.org/