



# Salt iodization: a brighter future for Africa

# Foreword

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**USI is critical for child growth and development**

From the burial sites of Egyptian pharaohs to the camel caravans of the great Mali trading empire, salt has historically been a prized commodity across Africa. Adding to its value, iodized salt now is playing a central role in controlling iodine deficiency in Africa. Descriptions of endemic goiter caused by iodine deficiency in the ‘IDD belt’ along Eastern and Southern Africa date back to the early 1800s. Iodine deficiency impairs brain development and decreases IQ, and also impairs growth leading to stunting. These effects culminate in decreased education and reduced work capacity, slowing social and economic development of many African countries. But this ancient scourge is in retreat, as universal salt iodization (USI) programs spread across Africa.

Salt iodization in Africa has its roots in a seminal meeting hosted by WHO and ICCIDD in Yaoundé, Cameroun in 1987, with participation from 22 countries. The success of this initiative over the past 25 years has been dramatic: today, over 50 countries on the African continent have salt iodization programs, and 70% of all Africans have regular access to iodized salt.

This special issue of the IDD Newsletter takes a close look at salt iodization programs in Africa. Using national examples from across the continent, it focuses on the remaining challenges. African countries have a broad range of iodine programs at different stages of evolution and maturity. From these, there are many lessons to learn and successes to celebrate. Overall, we are optimistic that with commitment from national governments, supported by strong policies, programs and monitoring, sustainable elimination of IDD across all of Africa can be achieved by 2020.

# Iodine nutrition in Africa: where are we in 2013?

Despite recent progress, 11 African countries remain iodine deficient in 2013. The largest burden of iodine deficiency is in Ethiopia, Algeria, Sudan, Morocco, Angola, Ghana and Mozambique.

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The elimination of iodine deficiency is a health priority for many countries (1,2). Worldwide, salt iodization programs in nearly 150 countries have markedly improved iodine status over the past two decades (3). Against this background, what are the trends in Africa?

The 54 countries included in this review are all the countries of the WHO African Region, plus 8 countries of the WHO Eastern Mediterranean Region on the continent. Currently, the global dataset on iodine status in countries is managed and updated by the ICCIDD Iodine Network Secretariat in Zurich, Switzerland, and it was used for this review (4). The median UIC was used for the classification of iodine status of countries, as follows: moderate iodine deficiency (20–49 µg/L), mild iodine deficiency (50–99 µg/L), optimal iodine nutrition (100–299 µg/L), and risk of adverse health consequences (≥300 µg/L) (1,4). National data on household coverage of iodized salt was obtained from the UNICEF Global Database 2013.

## Coverage of household salt

Household coverage of iodized salt by country varies widely in Africa (6) (Figure 1). Countries with successful iodized salt programmes achieving a household coverage of more than 90% are (data from 2007–2011): Burkina Faso, Burundi, Kenya, Malawi, Nigeria (see page 14), Rwanda, Uganda, and Zimbabwe. Countries with promising household coverage rates of between 70 and 90% are: Benin, Sao Tome & Principe, Lesotho, Comoros and Egypt. The challenge, of course, is for countries to sustain this excellent level of household coverage

Figure 1 Household consumption of adequately iodized salt in Africa (2007-2011)

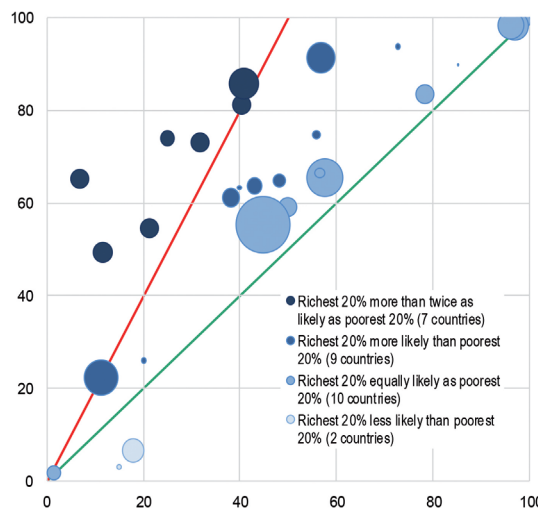
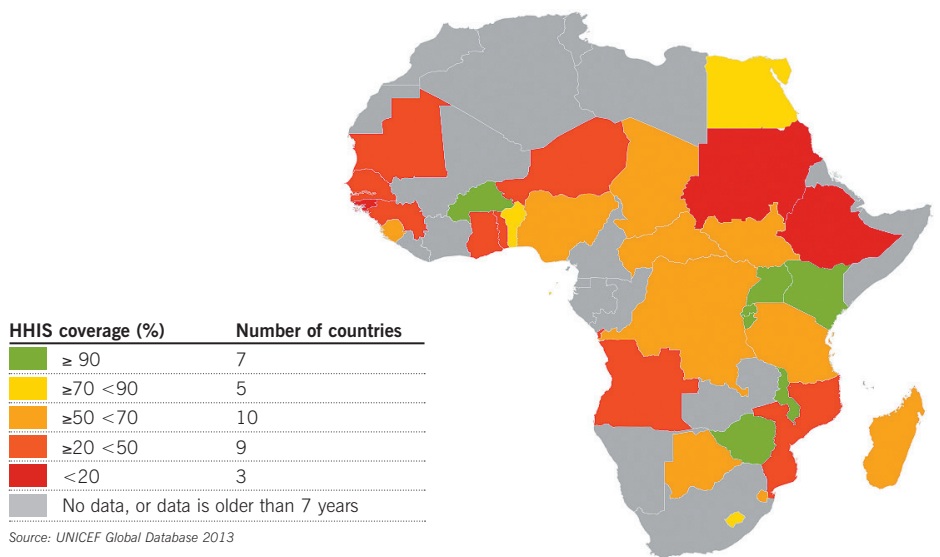
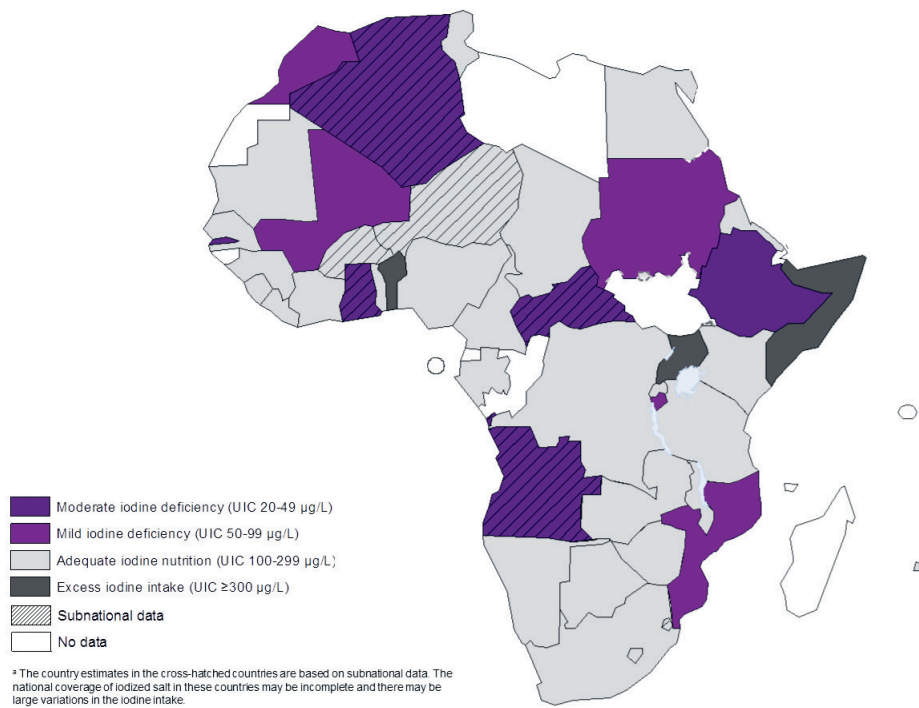


Figure 2 Disparity in access to iodized salt

Each circle represents data from one country. The size of a circle is proportional to the size of the country's population. The horizontal axis represents the percentage of the poorest 20 per cent of households consuming adequately iodized salt, while the vertical axis represents the percentage of the richest 20 per cent of households. Circles along the green line represent countries in which the likelihood of consuming adequately iodized salt is similar among the richest and the poorest households. Circles above or below the green line suggest disparity. The closeness of circles to the upper-left corner indicates greater advantage for the richest households in that country (greater disadvantage for the poorest households). Source: UNICEF Global Database, 2012.

**Figure 3 Iodine deficiency at the national level based on the median urinary iodine concentration in school-age children, 2013.**



and not to allow their programmes to weaken over time. At the other end of the scale, 20 of 54 countries (40%) had household coverage rates of less than 50%. These 20 countries represent 325.6 million people, or 31.9% of the population on the African continent.

Another challenge is the disparities among different population groups accessing iodized salt (Figure 2). Analysis by UNICEF indicates that richer households are more likely to access adequately iodized salt as compared to poor households. Even in some mature programs with high coverage, disparities may be hidden within national survey results. Thus, for example in Egypt, where national household coverage with iodized salt is 79%, households in the richest wealth quintile are 1.6 times more likely to access iodized salt as compared to households in the poorest wealth quintile. In countries like Ghana and Mozambique, the richest households are more than twice as likely to access iodised salt than the poorest households.

### Iodine status based on urinary iodine concentrations

#### Iodine status in 2013

In 2013, iodine survey data was available for 44 out of the 54 African countries (Figure 3), covering 95.6% of the African population, compared to 75% in 2007 and to 81% in 2013. Recent surveys, carried out from 2003 to 2013, are available in 27 countries, and 25 of them were national surveys. Data is entirely lacking for ten countries, although the majority of them are small (<1 million inhabitants). Madagascar and Libya are two

large countries without UIC data, but national UIC surveys are planned. New national surveys are underway in Tunisia and Djibouti as well as data from a recently conducted national survey in Ghana.

Notable shifts occurred in the iodine status of many countries on the African continent over the past 5 years. Table 1 shows that the number iodine deficient countries decreased from 15 in 2007 to 11 in 2013. The number of countries with iodine sufficiency on the national level increased from 22 to 30 since 2007 (Table 1).

Despite the improvements in iodine status between 2007 and 2013, a significant burden of iodine deficiency still remains in Africa. It should be noted that 11 countries are still iodine deficient in 2013: 6 countries are moderately iodine deficient and 5 countries have mild iodine deficiency. The largest burden of iodine deficiency in 2013, because of large populations, remains in Ethiopia, Algeria, Sudan, Morocco, Angola, Ghana and Mozambique.

### References

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3. Andersson M et al. Global iodine status in 2011 and trends over the past decade. J Nutr. 2012;142(4):744-50.
4. Zimmermann MB et al. Thyroglobulin is a sensitive measure of both deficient and excess iodine intakes in children and indicates no adverse effects on thyroid function in the UIC range of 100-299 µg/L: a UNICEF/ICCIDD study group report. J Clin Endocrinol Metab. 2013;98(3):1271-80.

**Table 1 Iodine status of African countries in 2007 and 2013.**

Iodine status	Median urinary iodine concentration (µg/L)	Countries, n (%) <sup>1</sup>	
		2007	2013
Moderate deficiency	20-49	4 (10%)	6 (14%)
Mild deficiency	50-99	11 (28%)	5 (11%)
Adequate iodine nutrition	100-299	22 (55%)	30 (68%)
Excessive iodine intake	>300	3 (8%)	3 (7%)
Countries with current data		40	44
No data		13	10
Countries in region		53	54 <sup>2</sup>

<sup>1</sup> Percentages (%) refers to number of countries in each category out of the total number of countries with data. <sup>2</sup> Sudan was divided into North and South Sudan in 2007.