

# From severe endemic cretinism to iodine sufficiency: an IDD success story in the Democratic Republic of the Congo

A decade of conflict has displaced millions and damaged health structures, schools and basic services. Four out of five people live on much less than \$1 a day. Yet the Democratic Republic of the Congo (DRC), once among the countries most severely affected by iodine deficiency, has made enormous progress against IDD.



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Two decades ago the DRC was among the countries most severely affected by IDD in Africa. In 1990, a national survey conducted by the Ministry of Health found the goiter rate was as high as 80% in certain regions, and the prevalence of endemic cretinism in several provinces was as high as 12% (see photo next page). In October 1993, with publication of an inter-ministerial order regulating production, quality control and

**THE INTERNATIONAL COUNCIL FOR CONTROL OF IODINE DEFICIENCY DISORDERS (ICCIDD)** is a nonprofit, nongovernmental organization dedicated to sustained optimal iodine nutrition and the elimination of iodine deficiency throughout the world. Its activities have been supported by the international aid programs of Australia, Canada, Netherlands, USA, and also by funds from UNICEF, the World Bank and others.

trade of iodized salt, the DRC adopted a USI strategy to control IDD. This national regulation has been implemented since 1994, particularly the prohibition of the import of noniodized salt and the control of salt iodine levels at retail points in the country and in households.



In 1994, the sensitization of salt importers and a mass campaign were organized to create the demand for iodized salt. Promotion included a tax reduction for iodized salt for the importers. However, in 1995, a UNICEF MICS survey found only 12% of households had access to iodized salt. A monitoring system was introduced in 1996 and inter-sectorial follow-up committees in each province and sentinel zones at the peripheral level in certain health districts were established. Dramatic progress was reported: >90% of household salt was iodized by 1997. In January 1998, an evaluation of the program was done in the Province of Nord Kivu, and found the availability of iodized salt in households was 99% and the goiter rate was only 5%. This was in sharp contrast to a goiter rate of 48.7% in 1990.

In 2000, a national evaluation of the IDD situation was done. Because of the armed conflict, this study was conducted in only 8 of the 11 pro-

vinces of the country. The results of this study showed that 96.7% of household salt was iodized, the median UI was 495 µg/L, 10.1% of subjects had a UI <100 µg/L and the goiter rate was 5.7%. In 2003, a revision of the national regulation on iodized salt was issued, to adjust iodine salt levels to obtain a median UI of 100–200 µg/L. In 2005, the operators involved in the trade of salt were sensitized regarding the new recommended norm for salt iodine levels.

Over the past few years, the socio-economic and political situation in DRC has continued to deteriorate due to armed conflicts in certain provinces. This situation could have allowed the entrance of noniodized salt into the country.

According to the recommendation of the World Health Assembly calling on all Member States to report on progress towards the elimination of IDD, in 2007 the Ministry of Health completed a representative national survey. This was done to evaluate the current IDD situation in the DRC, 13 years after the introduction of iodized salt. This study was conducted from July–August in 2007, in all 11 provinces of the DRC.

In August 2007, Dr. Ntambwe Kibambe was awarded a certificate of special merit from the government of the DRC for his exceptional service in the control of IDD.

### Study Coordination

The survey was financed by the Ministry of Public Health. A Steering Committee assured its coordination; the Steering Committee is presided over by the General Secretary of Public Health and includes delegates from the Ministries of Health, Agriculture, Planning, Higher University Education, External Trade, and Finances, together with partners from UNICEF, WHO, the Micronutrient Initiative and Helen Keller Inter-



**An older cretin in the Wamba Luadi Health Zone, DRC**

national. The technical organization of the study was assigned to a national consultant, recruited by UNICEF.

### Objectives

**Specific objectives were the following:**

- to determine the availability of iodized salt in households
- to assess the adequacy of iodization of the salt consumed by the population
- to determine the extent of correction of iodine deficiency
- to determine goiter prevalence
- to determine the prevalence of cretinism
- to assess the knowledge of health workers and the population regarding IDD
- to assess the functioning of the tracking system for iodized salt in the households and on the market



## Methods

This study was conducted in all provinces of the country. A cross-sectional design using cluster sampling (30 clusters) with random selection at 4 levels was done. Several target populations were sampled, including:

### At the level of health areas:

- Head of households to determine the availability of iodized salt
- Children from 6 to 12 years (in their households) for the screening of goiter and cretinism, and the collection of urine samples, since this target population better reflects the current iodine status situation
- Titular Nurses of the Health Centers, for the tracking of iodized salt in the households and the assessment of the knowledge of health workers on IDD
- Salt vendors, for the tracking of iodized salt at the market and retail level
- Adult population (women and men) as a focus group regarding IDD

### At the level of the administrative seat of the Health Zone:

- Management of the central office of the Health Zone (nutritionists, supervising nurses, workers in the hygienic service), for the tracking of iodized salt and the assessment of the knowledge of health workers regarding IDD

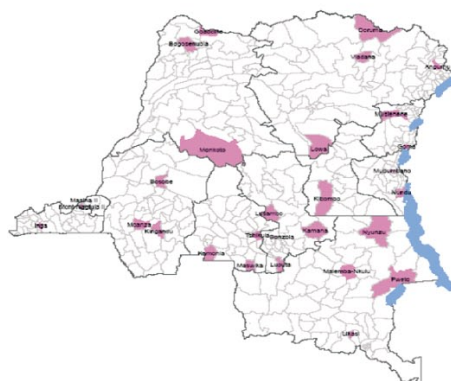
### At the level of health inspections of provinces and districts:

- Provincial coordinators of nutrition, for the functioning of the inter-sectorial follow-up committee of iodized salt at provincial and district level.

Different means of transportation (air planes, cars, motorbikes, pirogues, bicycles, feet) have been used by the investigators to reach the scattered survey sites. The administrative and health authorities supported the survey work. The information on knowledge, attitude and practice regarding IDD were collected

through the organization of focus groups (1 focus group per health zone), respecting gender parity, by male groups and female groups, with a total of 15 focus groups with men and 15 with women. The supervisors reported good team spirit between the various co-workers who came from different levels of the national health pyramid.

Some difficulties were encountered, notably the resistance of the adherers of the church Bundu Dia Kongo, in the health zone of Inga (Bas-Congo), to accept the survey in their households. Also, some children fled when seeing the coolbox carried by the investigators, due to the fear of getting a vaccine or injection.



**Health zones in IDD survey, DRC 2007, are shown in purple**

## Results (see tables 1 and 2)

- The proportion of households using iodized salt was >90% for all provinces.
- The goiter prevalence rate was <5% for all provinces.
- The goiter prevalence was <5% at all ages and there was a similar goiter prevalence among girls and boys.
- There was no cretinism found among 6-12 y-old children
- In general, the population recognizes goiter, but does not know the causes. Dirty water from the river or rain is often blamed for goiter;

microbial or parasitic contamination, enchantment and heredity are also among the cited causes.

■ The benefits of iodized salt are poorly known by the population; its advantages and its sources of supply were unrecognized by the majority of the population. Many did not know that iodized salt is available on the local market. The women did not have preferences for the purchase of salt. It appeared that men have a better knowledge regarding the IDD problem than women.

■ People with goiter are stigmatized, and may be given sympathy or mocked; some people stay away from goiter due to fear of being contaminated. The men generally had a better attitude towards people with goiter than women. The majority of the population is not aware of a local drug to treat goiter. Some indicated traditional medicine practices were beneficial, such as scarification or crushing of herbs on the goiter, or wearing of special necklaces.

■ Level of functioning of the control system for the iodization of salt at entry points into the country appears adequate. But in the surveyed Health Zones the tracking of iodized salt is not performed in households or at the market, usually because of lack of test kits. The local IDD committees are currently not operational in almost all provinces and districts.

**Table 1: Proportion of households with access to iodized salt, DRC 2007**

Provinces	Tested salt samples	Proportion of iodized salt
11	2927	97,5 %

**Table 2: Prevalence of cretinism and goiter, DRC 2007**

Provinces	Children 6-12 y-old	Prevalence of cretinism	Goiter prevalence
11	3240	0,0 %	1,0%

Tables 3 and 4 show the enormous progress made against IDD in the DRC since the early 1990s. The availability of iodized salt in households in DRC has increased from 12% to 97.5% from 1995–2007, while the goiter rate has normalized.

## Conclusions

■ In 2927 salt samples, using rapid test kits in the field, the availability of iodized salt in households is 97.5% at the national level. The availability of iodized salt was >90% in all provinces and also in all surveyed Health Zones; the only exception being the Zone of Pweto where the availability of iodized salt is 75% due to consumption of rock salt produced in this area.

■ The goiter rate is <1% at the national level, reflecting the virtual absence of iodine deficiency in the country. There was a mild goiter endemicity (5,6 %) in the Health Zone of Pweto.

■ The group discussions on the knowledge of IDD in the communities revealed that the majority of the population is not well informed on this health problem



■ There is a lack of the control of salt iodization at the retail level and a lack of regular tracking of iodized salt in households.

■ There is a lack of regular collaboration between the different public services in charge of IDD control, and little functioning of the local IDD committees.

of the Health Zone of Pweto);

■ to assure follow-up of salt iodine content and iodine status in the sentinel zones each year

■ to assure evaluation of the IDD situation on the national level every 3 years

■ to encourage operational research on control of IDD

### For the cooperation partners:

■ to support the activities of the annual plans to control IDD in DRC

■ to support the functioning of the IDD committees at central and decentralized level

### At the salt importers:

■ to assure quality control prior to purchase from the factories or from artisanal production units

■ to organize themselves in decentralized associations

■ to make available only iodized salt

### To the media, NGOs, consumer associations, opinion leaders:

■ to get involved in the promotion of iodized salt over the whole country, in collaboration with the health services

**Table 3: Availability of iodized salt in households in DRC, 1995-2007**

Year	Survey	Availability of iodized salt in households
1995	MICS I	12 %
2000	Survey TDCI	96,0 %
2001	MICS II	93,0 %
2007	Survey TDCI	97,5 %

**Table 4: Goiter prevalence in children 6 to 12 year-old in DRC, TDCI Surveys, 1990-2007**

Year	Goiter prevalence rate
1990	42,0 %
2000	5,7 %
2007	1,0 %

## Recommendations

### For the Government:

■ to reinvigorate the functioning of the local IDD committees and to provide them with the required resources at the central, provincial and district level

■ to reinforce the control of iodized salt at import and on the retail market, with rigorous application of disciplinary measures in case of infraction

■ use appropriate media to arouse the awareness and the active participation of the population in IDD control

■ to study the feasibility of the iodization of rock salt produced in DRC (particularly case