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**IODINE DEFICIENCY DISORDERS IN THE WHO AFRICAN REGION:
SITUATION ANALYSIS AND WAY FORWARD**

Report of the Regional Director

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BACKGROUND

1. Iodine deficiency disorders (IDDs) refer to a wide range of health problems associated with iodine deficiency¹ in a population. These health problems include goitre, stillbirth, stunted growth (cretinism), thyroid deficiency and mental defects (impaired neurocognitive development), and are preventable by ensuring adequate intake of iodine. Pregnant women and young children living in IDD-affected areas are particularly at risk.

2. Iodine deficiency is caused by low dietary intake of iodine. Populations living in areas where the iodine content in soil is depleted through repeated leaching by water and heavy rainfall are frequently affected. Crops produced on such soil have inadequate levels of iodine.

3. Iodine deficiency disorder is a public health problem in populations where the median urine iodine is less than 100 µg/l or where more than 5% of children aged 6 to 12 years have goitre. In areas of severe iodine deficiency, cretinism can affect 5% to 15% of the population and can cause a mean intelligence quotient loss of 13.5 points in the population.²

4. In 1990, World Health Assembly Resolution WHA43.2 endorsed the goal of eliminating IDD as a public health problem.³ In 1993, WHO, UNICEF and the International Council for the Control of Iodine Deficiency Disorders (ICCIDD) recommended universal salt iodization as the main strategy to achieve elimination of IDD.⁴ In high-risk areas, iodized oil is recommended for the most vulnerable groups such as pregnant women and young children.

5. Currently between one fourth and one third of the world's population is not protected from IDD. Consequently, in 2005 and 2007, the World Health Assembly resolutions WHA58.24 and WHA60.21 on sustaining the elimination of iodine deficiency disorders called on countries to establish multidisciplinary national coalitions to monitor the state of iodine nutrition every three years and to report progress to the World Health Assembly.

6. Elimination of iodine deficiency disorders will improve children's cognitive development, reduce stillbirths and reduce stunting. This elimination will contribute to improve quality of primary education, reduce undernutrition, reduce child morbidity and mortality, reduce miscarriages and improve maternal health, thus contributing to the achievement of the Millennium Development Goals (1, 2, 4 and 5).

7. In the African Region, steady progress made in IDD control occurred in the 1990s. Actions that contributed to this progress included advocacy, interagency collaboration, availability of iodized salts, awareness creation, effective monitoring, strong public-private partnerships and coordination by regional and national multisectoral IDD task forces.⁵

¹ World Health Organization, Executive Board EB103/27: Iodine deficiency, *Report by the Secretariat*, 1999.

² Bleichrodt N, Born MP, A meta-analysis of research on iodine and its relationship to cognitive development. In: Stanbury JB (ed), *The damaged brain of iodine deficiency*, New York, Cognizant Communication, 1994, pp. 195–200.

³ Resolution WHA43.2, The prevention and control of iodine deficiency disorders. In: Forty-third World Health Assembly, Geneva, World Health Organization, 1990.

⁴ WHO, UNICEF, ICCIDD, Assessment of iodine deficiency disorders and monitoring their elimination: a guide for programme managers, second edition, Geneva, World Health Organization, 2001.

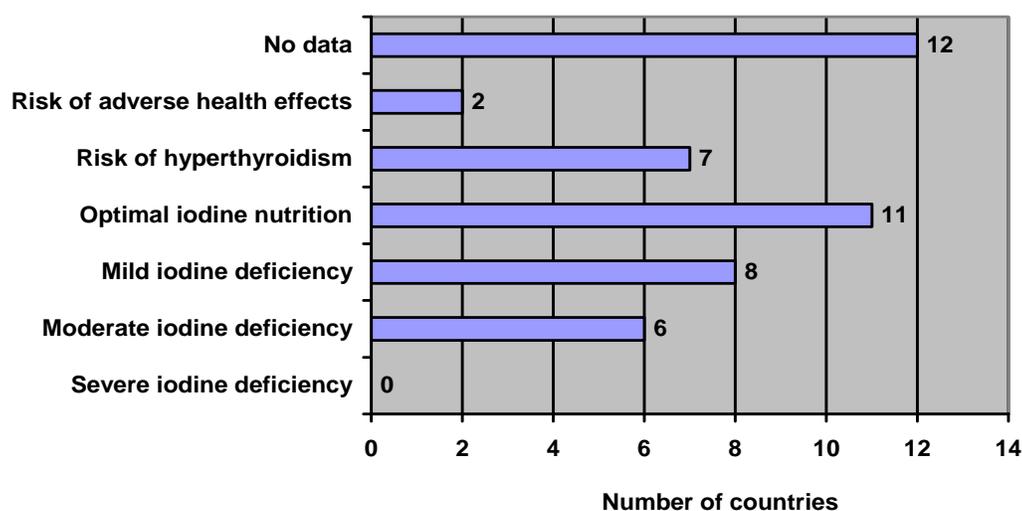
⁵ Hetzel BS et al (eds), *Towards the global elimination of brain damage due to iodine deficiency*, New Delhi, Oxford University Press, 2004.

8. Data from the WHO global database⁶ show that 54 countries worldwide have populations with insufficient iodine intake as indicated by median urine iodine below 100 µg/l. Of the 54 countries, 14 are in the African Region.

9. From 1997 to 2007 the percentage of households using iodized salt in the Region increased by 20%. However, 15% of this increase occurred between 1997 and 2000 and only 5% was from 2001 to 2007⁷ due to decreased IDD control efforts.

10. Eleven out of 34 countries that reported to WHO have optimum iodine nutrition (median urine iodine of 100–199 µg/l) as shown in Figure 1. Data were not available for 12 countries. No country in the Region has severe IDD; however, insufficient or excess iodine intake persists in many countries.

Figure 1: Number of countries classified by iodine nutrition in school children in the Africa Region



*Source: WHO, Iodine status worldwide, WHO Global database on iodine deficiency, Geneva, World Health Organization, 2004.

11. Currently, only Nigeria has been certified as having achieved the goals of sustained elimination of IDD in the African Region. This achievement was possible because of a decentralized monitoring system, an efficient ultra-modern analytical laboratory, sanitized salt market, strict inspection and enforcement of universal salt iodization laws, intensive mass communication, social marketing, public-private partnerships, collaboration with international organizations, and high-level advocacy.⁸

12. This document identifies issues and challenges and proposes actions to revitalize elimination programmes for iodine deficiency disorders in the African Region.

⁶ WHO, Iodine status worldwide: WHO global database on iodine deficiency, Geneva, World Health Organization, 2004.

⁷ Anon, UNICEF report suggests global progress against iodine deficiency is slowing, *IDD Newsletter* 23:10–11, 2007.

⁸ Akunyili DN, Achieving and sustaining universal salt iodization (USI): doing it well through regulation and enforcement. Lessons learned from USI in Nigeria, *SCN News* 35: 43–47, 2007.

ISSUES AND CHALLENGES

13. Although iodine deficiency disorder programmes in Africa have made some progress, a number of challenges continue to hamper elimination in the Region. The two main challenges are ensuring long-term sustainability of salt iodization programmes and providing iodized salt to all the target communities, including the poor, displaced and remote.

14. Harmonizing legislation on salt iodization to facilitate salt trade between countries has been difficult. Nevertheless, there is need to involve all the regional economic communities in the harmonization of regulations.

15. Inadequate capacity to enforce legislation makes it easy for some manufacturers and traders to sell non-iodized salt. Law enforcement agents may not have the required training and monitoring skills to effectively enforce regulations. Variations in legal requirements for salt iodization in different countries pose unwarranted difficulties for salt producers and exporters.

16. National multisectoral task forces or committees in some countries have become inactive or dysfunctional because some members are attracted by more lucrative programmes; hence, they have been unable to effectively advocate for sustained commitment to IDD elimination. The result has been limited ability to design, supervise and implement IDD control plans or to monitor and coordinate the activities of various participating sectors and partners.

17. The estimated cost of iodized salt is about US\$ 0.07 per person per year and that of iodized oil is US\$ 0.20 per person per year. The cost benefit from the prevention of IDDs has been recognized. The World Bank reported that an investment of US\$ 1.00 in IDD prevention leads to a return of US\$ 28.00.⁹ However, government and donor funds are limited and IDD programmes must compete with other priority health problems. The challenge is how to provide information and advocacy to encourage politicians to allocate adequate funds for IDD elimination programmes.

18. Many salt-producing countries have numerous small-scale salt producers whose operations are often difficult to control. Consequently, there is a wide variation in the quality of iodized salt in terms of iodine levels and salt purity.

19. Although previously eliminated in some countries, iodine deficiency is reappearing due to insufficient monitoring of salt iodization programmes. The issues are inadequate laboratory facilities for monitoring salt and urinary iodine levels, inadequate monitoring capacity and lack of staff motivation. Non-iodized or inadequately-iodized salts, therefore, often appear on the market without being detected.

20. Additional resources are needed for providing technical assistance to producers and regulators of iodized salt, strengthening quality control systems and improving laboratory services for the estimation of iodine intake. Further assistance is needed for building adequate national capacity for monitoring and evaluation.

21. In some countries, there has been an increase in the incidence of hyperthyroidism in susceptible individuals after the introduction of salt iodization. Excess median urine iodine indicates possible

⁹ Levin HM et al, *Enriching lives: overcoming vitamin and mineral malnutrition in developing countries*, Washington, DC, World Bank, 1993.

iodine toxicity. In 2006, a sentinel screening of iodine status in Cameroon indicated median urine iodine of 389 µg/l, whereas in 1991 the median urine iodine was 30 µg/l.¹⁰

22. The current recommended level of iodization by the International Council for the Control of Iodine Deficiency Disorders, WHO and UNICEF is 20–40 parts per million¹¹ iodine. Some countries are reluctant to alter previously enacted salt regulations which recommended higher levels of iodization. Another challenge is adjusting iodine levels to ensure that salt intake is in conformity with the WHO Global Strategy on Diet, Physical Activity and Health which recommends limited consumption of salt (sodium) from all sources.

23. Consumer resistance to change exists where the process of adding potassium iodate to salt is seen as the addition of unnatural substances. Misconception and misunderstanding may increase consumer resistance. There is little demand for iodized salt due to inadequate consumer knowledge on the benefits of iodine.

24. Creating awareness among populations which lack access to iodized salt and strengthening their commitment to increase intake continue to be challenges. Skills and determination are necessary for disseminating appropriate messages to counteract misconceptions and skepticism among consumers.

ACTIONS PROPOSED

25. Despite various efforts to address the elimination of iodine deficiency disorders in the African Region, major challenges remain. All stakeholders, including the community, governments and partners, need to work together to overcome these obstacles through the following concrete actions.

26. **Mobilize political support and commitment at all levels.** Political support should be mobilized by engaging with both the government and the community. Political commitment needs to be sustained through continuous advocacy and effective partnerships.

27. **Mobilize the international community and public health authorities.** Elimination of iodine deficiency disorders should be high on the international and national public health agendas. Advocacy with key leaders at national and international levels needs to be strengthened.

28. **Review and update existing legislation and policies on salt iodization.** In countries where IDD is a problem of public health significance, there is need to enact and enforce salt iodization regulations. Such regulations should also control the activities of small-scale salt producers and informal salt traders. Updated policies should clearly define the roles and responsibility of all stakeholders. New or revised laws and policies should reflect the level of iodization currently recommended by the WHO, UNICEF and ICCIDD.

29. **Establish or strengthen national multisectoral structures.** There is need to revitalize inactive national multisectoral task forces or committees. These groups should have the political and legislative authority to implement their mandate. They should provide practical and effective mechanisms to raise and sustain commitment to iodine deficiency disorder elimination through effective coordination at

¹⁰ Lantum DN et al, Sentinel screening of iodine status in western Cameroon finds excess iodine intake, *IDD Newsletter* 23:15–16, 2007.

¹¹ WHO, UNICEF, ICCIDD, *Progress towards the elimination of iodine deficiency disorders (IDD)*, Geneva, World Health Organization, 1999 (WHO/NHD/99.4).

various levels. The committees should monitor the state of iodine nutrition every three years and report on progress to the World Health Assembly.

30. **Consolidate collaboration with key stakeholders.** Collaboration should be strengthened with UN agencies such as WHO and UNICEF and with other key stakeholders such as the International Council for Control of Iodine Deficiency Disorders, Network for Sustainable Elimination of Iodine Deficiency, Micronutrient Initiative and Helen Keller International. Collaboration should support and mobilize financial and material resources for countries to implement IDD control programmes.

31. **Reinforce public–private partnerships.** Existing partnerships between the public sector, private sector and civil society should be strengthened through effective collaboration between the Ministry of Health and other relevant ministries. Partnerships between salt producers, consumer protection agencies, national food and drug authorities and development agencies are crucial for harmonization of regulations.

32. **Expand universal salt iodization programmes to reach populations at risk.** There is a need to develop plans to scale up universal salt iodization. The salt industry should be supported to produce quality affordable iodized salt. Small-scale salt producers should be supported through the formation of cooperatives to purchase potassium iodate, creation of revolving funds for the regular supply of iodine, local manufacturing of simple iodization machinery and establishing of distribution and marketing networks for iodized salt.

33. **Mobilize financial resources.** The social and economic benefits of IDD control must be advocated in such a way as to convince decision-makers to invest in IDD programmes. National committees should develop budgetted scale up plans which can be used for resource mobilization.

34. **Develop effective communication strategies.** The findings of IDD surveys must be disseminated to administrators, politicians, health professionals and the public. The impact of iodine deficiency on health, growth and development needs to be re-emphasized through appropriate health education. Awareness creation among the community and politicians should stress that the consequences of iodine deficiency are totally preventable. Consumer resistance should be investigated through research for better understanding which will lead to the development of appropriate messages. Such messages should take into consideration national factors and be communicated through interactive means to the communities at risk.

35. **Measure progress towards the goals of IDD elimination through regular monitoring.** Salt monitoring systems assure quality at production, wholesale, retail and household level. Monitoring system should be linked to information on iodine status and legal enforcement. Monitoring should therefore help to build awareness at various levels, including governmental, production, distribution and community.

36. **Provide essential elements for IDD surveillance.** Salt and urine iodine levels should be measured regularly to strengthen IDD surveillance. Reliable assessment of salt iodine at factory, retail and household levels needs to be ensured by regularly measuring urine iodine in samples from school children or households.

37. **Improve quality control systems.** WHO, UNICEF and ICCIDD should facilitate a network of reference laboratories for quality control of iodized salt and estimation of iodine intake. Capacity of

laboratory staff and other relevant health workers should be built. Appropriate equipment, reagents and supplies should be in place to measure normal range of iodine intake and to ensure that the necessary internal and external quality controls are used for reliable data collection.

38. **Dissemination of best practices.** Best practices in elimination of IDD should be documented and shared with countries in the Region to improve the outcome of national programmes.

39. The Regional Committee is invited to review and adopt the proposed actions.