Section III

The Global Partnership

People & Governments/Salt Industry
UN System/AusAID/CIDA/
Kiwanis International/Global Network/
ICCIDD/IRLI/Research Centres/MI

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1. Introduction

Great progress has been made in the development of IDD Elimination Programs through an informal Global Partnership that has developed following the World Summit for Children in 1990.

In this Section III the various partners describe their role which has led to the development of coordination and effective action towards the great goal of elimination.

The partnership includes the following -

2. **People** in countries where IDD is a public health problem.
3. **Governments of countries** where IDD is a public health problem.
4. **Salt Industry** has an important role to play in achieving effective Salt iodization
5. **The Role of the UN System** particularly WHO and UNICEF, which are specifically committed to assisting countries achieve the goal of elimination of IDD. The World Bank has provided major funding support to the development of the salt industry in Indonesia and China. The United Nations Agencies FAO, WFP and UNIDO have also been involved.
6. **Bilateral Aid (Development) Agencies** of developed countries which have included support of national programs for IDD control in their development programs. These include Australia, Belgium, Canada, Germany, Holland, Italy, Sweden and the United States of America. The role of Australia and Canada will be described in detail.
7. **Kiwanis International**-an international world service club which has adopted the elimination of IDD, through UNICEF, as its First worldwide service project.
8. **Global Network for the Sustainable Elimination of Iodine Deficiency,** including the Salt Industry at international level.
9. **International Council for Control of Iodine Deficiency Disorders (ICCIDD)** which has provided an expert scientific advisory role in the establishment of effective national programs and in the monitoring of progress towards the goal of elimination of IDD at country level.
10. **International Resource Laboratories for Iodine (IRLI) Network** has at international and national levels been recently established to assist the development of laboratories for the determination of salt iodine/urine iodine within national elimination programs.

11. **Research Centres** where important IDD research has been carried out that has made possible this global program for the elimination of brain damage due to iodine deficiency. These institutions are situated in both developed countries and developing countries.
12. **The Micronutrient Initiative (MI)** was established in 1992 as an international secretariat by its principal sponsors: Canadian International Development Agency (CIDA), International Development Research Centre (IDRC), United Nations Children's Fund (UNICEF), United Nations Development Program (UNDP) and the World Bank. The mission of the MI is to facilitate the achievement of the goals related to elimination of micronutrient malnutrition accepted by the World Summit for Children.

2

People in Countries where IDD is a Public Health Problem

The leaders in this partnership are clearly the people themselves who have the problem. It is a tragic fact that the people of many countries including both the developed and developing countries are not fully aware of the problem that they have. The deadening effects of iodine deficiency combined with the geographic isolation of so many iodine deficient communities mean that the problem is just not known to the people most affected. This is even true of Europe where there is still widespread ignorance of the effect of iodine deficiency on brain development in foetal life and early infancy.

This indicates that arousing community awareness is a major step required in country programs. This applies to the local community and to the wider regional and international community. Different methods of awareness are required at each level.

The tragic situation shown in the photograph (Section I) of the Chinese mother with four sons, three of them cretins, is reproduced over and over again throughout the large populations at risk all over the world.

The message that such situations can be totally prevented needs to be broadcast using every media resource. Now that transistor radios and television are so widely available there are new opportunities for effective media campaigns. Such campaigns are of course already operating in developing countries for the sale of aerated beverages, cigarettes, beer and other widely used products of Western civilization and are very effective!

There should be no hesitation in spelling out the personal and social dimension of the tragedies consequent on mental deficiency as the major effect of iodine deficiency on human development.

The impact of iodine deficiency on a village community and the benefits of its correction are vividly shown from the experience of the villages in Indonesia, China and India that is reported in Section I.

There are significant community groups, which could provide leadership in arousing awareness about IDD. The problem is above all one affecting women and children. The IDD problem is now being taken up by well-organised women's movements in many countries.

Another resource would be groups of disabled persons. An example is the Chinese Disabled Persons Federation of which the Chairman is Mr. Deng Pu-fang, son of Deng Tsaioping the former paramount leader of China.

In the field of mental deficiency there is the International League against Mental Handicap composed of national groups in both developed and developing countries. These groups often include people in leadership positions.

A well informed community can apply significant political pressure for effective IDD control programs at regional and national level. This has already been noted in considering the model of a national program. The perception of IDD at community level as affecting productivity, quality of life, and the school performance of children can be very persuasive with politicians especially when accompanied by data on the economic costs of not having an IDD control program as outlined in Section I of this book.

An educated community will create demand for iodized salt and the salt industry will respond to this demand as has occurred in developed countries. The consumer organizations and social educationists play a very important role in this aspect. They communicate easily and directly with people at all levels transcending socio-economic and academic barriers.

The achievement of correction of iodine deficiency is often not sustained due to political instability affecting the public health sector, or there may be ineffective and inefficient monitoring and many other problems may occur. The only insurance in the long term is the awareness of the community at risk of the proven means by which this risk can be removed. This question of sustainability is considered fully later in this book in Section IX.

An adequate dietary intake of iodine is just as important for the maintenance of health and wellbeing as many other public health measures such as clean water, clean food and public hygiene.

In concluding this discussion of the "People" it is useful to remind ourselves of the new importance of "People Power" in causing social and political change in our world today. The collapse of the communist regimes in Eastern Europe and the former USSR, the collapse of the Marcos dictatorship in the Philippines and more recent developments in a number of countries, all indicate the "power of the people". The influence

of the international media has undoubtedly been very important in all these developments. At their best, they indicate awareness of human values as being in the end the highest priority.

We can confidently expect an increasing momentum in the drive for improved public health including the elimination of IDD as a result of this new climate of "people power".

3

Governments of Countries where IDD is a Public Health Problem

The responsibility for decision about the introduction and maintenance of an effective national IDD elimination program rests ultimately with the government of the country. Governments are sovereign and it is to governments that the case has to be made and won! Governments in their decision making are influenced by community perceptions as well as the advice of professionals, together with economic considerations.

As already pointed out one reason for the neglect of the IDD problem has been the fact that it is often found in the more remote parts of a country-where people have little political influence. Another reason has been the lack of perception of the importance of the IDD problem in human, social and economic terms. This limited perception has now been revised as the evidence mounts of the personal and social and economic cost of IDD to the people of the country affected. This cost has been spelled out in detail in Section I of in this book–costs are very high for developed countries as well as developing countries as the data already cited from Germany indicates. By contrast the cost of IDD control programs is indeed modest. The cost of **not** having a program is very very great compared to the cost of the program. Using the most conservative estimates, Pandav et al. (Pandav, 1997) calculated the cost benefit ratio of IDD Elimination Programmes implementing Universal Salt Iodization (USI) is 1:3. If benefits related to education and livestock populations are included, the ratio is likely to be 1:8. Thus, IDD Elimination Programmes provide a convincing oppurtunity of a worthwhile investment in improving the health and nutrition of populations. Governments need to be aware of these major advantages of the prevention of IDD.

The decision of a government to have a national IDD control program involves the setting up of a multisectoral IDD control council or commission. This involves health, education, salt industry, planning, finance, commerce, education and media sectors. The key figure is the Chairman of the Commission who should be at ministerial level if possible, with the political authority and support of the Cabinet. Similar considerations apply to other health problems as the WHO has been

pointing out for some years. Health problems require a multisectoral approach-It is not just "public health policy" but a "healthy public policy"-and such policy belongs to the main stream of government body.

Of course pressures for expenditure come from areas other than health-these include defense needs-armaments of various types which consume so much of the health budgets of many developing countries.

In developing countries, according to the UNDP, some 20% of central government expenditure is devoted to defense. In the mid 1980s military spending in developing countries exceeded spending on health and education combined. At a time of national budget cuts in the developing world there has been protection of the large sums provided for the military. The last decade has witnessed a further escalation in military expenditure. Arms are often a major source of external debt-military debt accounts for more than a third of the total debt in several large developing countries.

These are the realities that need to be borne in mind in relation to future health and education expenditure by developing countries. There is an urgent need for a more human approach to national budgets in many developing countries. But the same applies to developed countries!

It has been estimated by UNICEF that all child malnutrition could be ended by an additional expenditure of US$25billion which would remove widespread illiteracy and preventable disease. Such a big figure has to be compared with other big items in the costs of development. It is slightly greater than the expenditure incurred for the new Hong Kong airport. It is about the same as the agreed support package to be provided by the group of seven (G7) for Russia alone. It is less than Europeans spend on wine and less than Americans spend on beer each year!

The control of IDD is in fact rather cheap by comparison with so many other problems! The extra cost of salt iodization is low-normally in the range of 2-7 US cents per person per year which is less than 5% of the retail price of salt in most countries (see further Section V). This means that the cost of salt iodization can sooner or later be transferred to a large extent to the salt industry and the consumer.

A major step forward in securing a higher priority for expenditure on children's health and education was the World Summit for Children held at the United Nations on 30 September 1990. This was attended by 71 Heads of State together with senior representatives of 88 other governments. This meeting was convened by a group of six Heads of State under the chairmanship of the President of Mali and the Prime Minister of Canada.

At the World Summit the 71 Heads of State followed by 88 other governments signed a Declaration and approved a new program for the improved health and education of children throughout the world. This list of goals included the virtual elimination of IDD by the year 2000.

This was an unprecedented commitment by Heads of State to give priority to the needs of children.

The World Summit for Children in 1990 was followed by a further commitment by 55 Heads of State who nominated delegations to the Policy Conference on Micronutrient Malnutrition held in Montreal, Canada (October 1991). This was followed by the International Conference on Nutrition (Rome, December 1992) which was attended by government delegations from 160 countries. At the level of Ministers of Health of more than 160 governments, the World Health Assembly in 1990 also adopted the goal of elimination of IDD as a public health problem by the year 2000. This commitment was reaffirmed by the 1996 World Health Assembly.

This new level of political commitment at national level has led to more rapid progress towards the goal of elimination of IDD than ever before.

Examples are provided by Indonesia, the Philippines and China.

In Indonesia, President Suharto announced trebling of the expenditure on IDD control in January 1992.

In the Philippines, President Fidel V Ramos, speaking at a National Advocacy Meeting on "Ending Hidden Hunger" in June 1993, noted recent progress in ensuring no baby is born physically or mentally handicapped because of iodine deficiency and called on his government to fully support IDD elimination.

In China a National Advocacy Meeting on the Elimination of IDD was held in the Great Hall of the People with the sponsorship of the Premier Li Peng (21-24 September 1993).

All Provincial Governors with their staffs attended the meeting in addition to representatives of the international agencies including WHO, UNICEF, UNDP, World Bank and the ICCIDD. The meeting was chaired by Madame Peng Pei Yung-one of five members of the State Council. The Vice Premier, Mr Zhu Rong Ji made a commitment on behalf of the Chinese government which was followed by speeches of support from the international agency representatives including particularly UNDP and the World Bank. Mr Zhu subsequently, at a special meeting of the Provincial Governors, assured them that the central government would

provide the necessary funding to secure an effective elimination program. The remarkable progress of the National Program in China (Section VIII) followed the recognition by the Chinese Government of the major hazard of the effects of iodine deficiency on early brain development in the light of its one child family policy.

At a Regional level this commitment to the elimination of IDD has also been made by the South Asian Association for Regional Cooperation (SAARC, - 1992, 1996) including Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan and Sri Lanka. It has also been made by the Organisation for African Unity (OAU) in Cairo (1993) and the Organisation of American States in Latin America (Bogota 1992).

4

The Salt Industry

C.S. Pandav

Iodine deficiency has afflicted humanity from ancient times. Throughout the millennium behind us, iodine deficiency has been a stealthy drag on the physical, mental and social development of millions upon millions of families and their children, by sapping their cognitive performance and their productivity, and by undermining their reproduction and survival. A prompt and effective remedy, seaweed, which as we know earlier is rich in iodine was already in use over the millennia by physicians in China. We have since learned through a series of scientific studies that the solution to the global public health problem of iodine deficiency lies in the delivery of addition iodine to all members of society. This can be achieved effectively and efficiently only by Universal Salt Iodization.

At this point in time, it is important to note that salt producers everywhere are key partners of the global IDD alliance. The responsibility of salt producers is to provide iodine by adding to common salt. As a result, all people of the world can have adequately iodized salt for all times to come so as to prevent Iodine Deficiency Disorders.

Annual salt production has increased over the past century from 10 million tons to over 200 million tons today. According to US Geological Survey Mineral Commodity Summaries, January 2003, the world salt production stood at 225 million metric tons, in 2002. Nearly 100 nations have salt producing facilities ranging from primitive solar evaporation to advanced, multi-stage evaporation in salt refineries.

The formation of a working relationship between the ICCIDD and the international salt industry dates from a meeting held at the 7th International Symposium on Salt, held in Kyoto (6-9 April 1992). The Symposium brought together about 600 delegates from the salt industry and the related activities all over the world.

A special symposium was held on the iodine deficiency disorders for the information of all the delegates. An informal special meeting then took place which was attended by 16 representatives of the international salt industry who were particularly concerned about the production of iodized salt for human consumption. The representatives present agreed to remain in communication with the ICCIDD on all the technical aspects of salt iodization. A roster of consultants was established for technical

advice to the ICCIDD and to agencies. It was pointed out that the demand for iodized salt was increasing and so there was a need to increase production.

A subsequent resolution by the International Board of the ICCIDD in 1993 has recommended the iodization of all salt for human consumption which is exported to countries with an IDD problem. Letters with this recommendation have been sent to the senior executives of major international salt companies.

It is clear that the salt industry has an important role to play in achieving effective salt iodization. ICCIDD / UNICEF / WHO / CIDA workshops in Africa for the salt industry held in Botswana (April 1992) and in Senegal (October 1992) have led to an increased demand for the production of iodized salt.

The 8th World Salt Symposium was held in The Hague, the Netherlands from 7th to 11th May, 2000. Much progress has been achieved in the intervening eight years from the last symposium.

The papers at the 8th symposium dealt with all aspects of salt and show how important salt is for mankind. 'Salt : life depends on it' - , considered earlier as a catchphrase has now become a simple fact. The role of salt as a carrier for many micronutrients was re-emphasized.

The food supply of more than 2 billion people is lacking in adequate levels of iodine, resulting in the widespread prevalence of spectrum of iodine deficiency disorders (IDD). This public health problem can be corrected by the regular delivery of small doses of iodine to the population through commonly eaten foods or condiments. Salt is an excellent carrier for iodine and other nutrients as it is consumed at relatively constant, well-definable levels by all people within a society, independently of economic status.

Once established in a country, salt iodization is a permanent and long-term solution to the problem. It eliminates iodine deficiency and continues to provide each individual with his/her daily iodine needs and prevents recurrence. Within one year of iodized salt the required iodine being widely available and consumed in a community, there will be no further birth of cretins or children with subnormal mental and physical development attributable to iodine deficiency. Goiter in primary school children and adults will have started to shrink and even disappear altogether. Children will be more active and perform better at school.

The range and variety of scientific contributions in this salt industry-sponsored Symposium *(2000)* will testify to the many accomplishments

of the last decade. In summary, this decade will be remembered for the history of how UN agencies, the salt industry and its allied businesses, NGO, specialist scientists and practitioners from all sectors have collaborated in the global effort to reach the common goal of IDD elimination.

Much progress has been made since Salt-2000. The important role of industry in the stake has been acknowledged. The industry has responded in equal measure. The chapter by Mr. David P. Haxton in this Section dwells in detail on this and related aspects.

It is pertinent to remember Gro Harlem Brundtland, Director General of WHO when she said, " When elimination of IDD is achieved, it will be a major and total public health triumph, ranking with small pox and poliomyelitis". (WHA-1999)

Table 1. *World Salt Production (in million metric tons)*

Country	2002	2001	2000	1999	1998	1997	1996
United States	43.9	44.8	45.6	45.0	41.3	41.5	42.3
China	35.0	31.0	31.3	28.1	22.4	30.8	29.0
Germany	15.7	15.7	15.7	15.7	15.7	15.8	15.9
India	14.8	14.5	14.5	14.5	12.0	14.3	14.5
Canada	13.0	12.5	11.9	12.7	13.3	13.3	12.2
Australia	10.0	9.5	8.8	10.0	8.9	8.8	7.9
Mexico	8.7	8.9	8.9	8.2	8.4	7.9	8.5
France	7.1	7.0	7.0	7.0	7.0	7.1	7.9
Brazil	7.0	6.0	6.0	6.9	6.5	6.5	5.4
United Kingdom	5.8	5.8	5.8	5.8	6.6	6.6	6.6
All other	64.5	69.3	58.5	58.0	59.1	54.4	53.8

Source : U.S. Geological Survey Mineral Commodity Summaries, January-2003

5

The Role of UNICEF and WHO in Eliminating Iodine Deficiency Disorders

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5.1 Summary

The importance of iodine deficiency disorders (IDD) to UNICEF and WHO was clearly demonstrated by the inclusion of a specific goal for IDD elimination in the World Summit for Children in 1990, the Joint WHO/FAO International Conference on Nutrition in 1992 and several resolutions of the World Health Assembly. Most recently, the UN System as a whole, at the Special Session on Children of the United Nations General Assembly in 2002, reinforced the need for continued efforts towards the elimination of iodine deficiency disorders and other micronutrient deficiencies, in ensuring a 'World Fit for Children'.

Impressive progress has been made since 1990 towards eliminating iodine deficiency disorders. UNICEF and WHO have played a critical role in advocating for, and raising awareness of, these issues at the international, regional, and national levels among policymakers and helped to increase awareness and consumer demand among populations. Using a rights-based approach, UNICEF with the support of other UN agencies has been instrumental in elevating to the highest political level the discussion of every child's right to adequate nutrition. This right includes that of young women to have adequate iodine status to ensure optimal neuro-intellectual development in their children, from the time of conception through to birth, and into the child's subsequent life.

UNICEF and WHO have particularly emphasized the role of Universal Salt Iodization (USI) as the main strategy to achieve this at a public health level. UNICEF and WHO have also been very supportive at the national level in providing technical guidance to national programs, including monitoring and evaluation. UNICEF has also played a special role, reflecting its comparative advantage in terms of field presence and expertise among the partners in engaging the cooperation of other partners, including bilateral donors, non-governmental organizations, and the private sector for IDD elimination. WHO has played a key role in coordinating and mobilizing national decision-makers on the public health dimension of iodine deficiency. WHO has also coordinated technical expert groups to provide guidance to countries on the indicators to assess iodine deficiency, the criteria to track progress towards the elimination of iodine deficiency and a strategy for the prevention and control of iodine deficiency. WHO maintains a global databank on IDD and other micronutrients.

Great progress has been made over the last decade towards improving the iodine status of populations around the world which has resulted in a

reduction by half of the number of countries with iodine deficiency as a public heath problem and almost 70% of households in the world using adequately iodized salt. However, iodine deficiency is still a public health problem in 54 countries, and 30% of households still do not use adequately iodized salt. This is the challenge for the coming years. As such, all agencies must continue to be heavily involved in programs to achieve the UN goal of sustainable elimination of IDD by 2005. Whereas USI will remain UNICEF's and WHO's key strategy over this time and in the future for sustainability, complementary approaches will be needed in the hardest to reach populations and in emergency situations.

5.2 Global Goals for Eliminating IDD

At the beginning of the 1990s, three important conferences took place to draw the attention of the international community to the pubic health dimension of iodine deficiency. First, the World Summit for Children (WSC) established for the first time specific global goals and targets for reducing micronutrient deficiencies and improving child nutrition (UNICEF 1990). At the WSC in New York, the single largest gathering of world leaders up to that time, government leaders representing 71 countries committed themselves to achieving several goals, three of which were directly related to the elimination of micronutrient deficiencies in women and children:

(i) reduction of iron-deficiency anaemia in women by one-third of the 1990 levels;
(ii) virtual elimination of iodine-deficiency disorders (IDD); and
(iii) virtual elimination of vitamin A deficiency and its consequences, including blindness (UNICEF 1990).

This global momentum around IDD awareness was followed in Montreal (October 1991) by another historic conference convened by the World Health Organization (WHO) and the United Nations Children's Fund (UNICEF) on "Ending Hidden Hunger", a policy conference on micronutrient malnutrition which brought together 300 ministers, policy leaders and scientists from all over the world (UNICEF/WHO/ICCIDD 1991). This conference encouraged many countries to initiate and reinforce efforts towards IDD prevention and control as a national priority. The World Declaration and Plan of Action for nutrition, endorsed by almost all countries at the International Conference on Nutrition organized by WHO and FAO in Rome, 1992 further emphasized the feasibility and the commitment of the global community to eliminating IDD by the year

2000, and provided pragmatic guidelines on how this could be achieved (FAO/WHO 1992).

In 2002, the Special Session on Children of the United Nations General Assembly (UNGASS) adopted a comprehensive set of goals, the World Fit for Children Goals (WFFC) that focussed on reducing malnutrition in children under 5 years of age by at least one-third through supportive strategies that include 'achieving the sustainable elimination of iodine deficiency disorders by 2005 and accelerate progress towards the reduction of other micronutrient deficiencies, through dietary diversification, food fortification, and supplementation" (United Nations 2002).

There are good reasons why such an ambitious agenda for improving nutrition was adopted. First, there was recognition that all children have a right to adequate nutrition. This was first articulated in the Universal Declaration of Human Rights adopted in 1948, and later expressed in the Convention on the Rights of the Child (CRC) which has been ratified by 192 countries (UNICEF 1989). Second, there was strong scientific evidence that nutrition is the foundation for survival, growth, and development of children. Well-nourished children have improved health, perform better in schools, grow into healthy adults, and have longer life expectancy. Well-nourished women face fewer risks during pregnancy and their children start life both physically and mentally healthier. In that context, iodine deficiency has been increasingly recognized as a cause for a wide spectrum of health consequences including poor pregnancy outcomes with increased rate of stillbirth, perinatal mortality, low birth weight, impaired growth and hypothyroidism all included in IDD. However, the main consequences of iodine deficiency is associated with brain damage during the fetal life resulting in disorders in neuro-intellectual and cognitive development in children (Pelletier et al 1995). Iodine deficiency is the main cause of preventable damage in children. Third, in the early 1990s, it was estimated that approximately 655 million people or 12% of the world's population were affected by clinical disorders associated with iodine deficiency due to a lack of iodine in the diet (WHO 1993). Finally, the economic impact of micronutrient deficiencies, and more specifically of iodine deficiency on poorer countries' development and economic wellbeing became more established and modeled, including primarily for iodine (World Bank 1994) (see Section I).

5.3 Recommended Strategy to Combat Iodine Deficiency

In 1993, the Joint WHO/UNICEF Committee on Health Policy recommended Universal Salt Iodization (USI), i.e., the iodization of all edible salt including that used in animal feed and salt used for food processing the main strategy to prevent and control iodine deficiency (UNICEF/WHO Joint Committee 1994). This was further reinforced in 2002 at the UNGASS, which adopted the IDD elimination goal by the year 2005 with USI as the main strategy.

While other food products can also be iodized, salt is widely consumed and inexpensive to iodize. Salt has successfully been iodized in industrialized countries since the 1920s and therefore has a proven track record. Prior to 1990, few developing countries had large-scale salt iodization programs and it was estimated that less than 20% of edible salt was iodized (UNICEF 1989).

5.4 Progress Toward Eliminating IDD

Since the adoption of the USI strategy, dramatic progress has been made towards improving iodine nutrition status through the consumption of iodized salt. Household consumption of iodized salt more than tripled during the last decade. In 2002, 66% of households in the developing world were estimated to consume adequately iodized salt (**fig. 1**). The countries of Latin America and the Caribbean achieved the highest levels of iodized salt coverage (84%) followed closely by East Asia and the Pacific at 82%. Middle East and North Africa stood at 51%, followed by sub-Saharan Africa at 66%. South Asia lags behind at 49% mainly due to slow implementation in India and Pakistan. In central and eastern Europe/ Commonwealth of Independent States, close to 40 per cent of households consume iodized salt (UNICEF 2004). The last region has shown a particularly impressive increase after falling to very low levels (from previously high ones) in the 1990s. As a result, the number of countries where iodine deficiency is a public health problem decreased by nearly half from 110 in 1993 to 54 in 2003 (WHO 1993, 2004). Despite this impressive progress worldwide, there are still 38 countries where less than half of the population uses iodized salt, and 41 million babies are still born every year unprotected from iodine deficiency and its lifelong consequences (UNICEF 2004) (**fig. 2**). It is critical that the gains made thus far are sustained and the availability and use of iodized salt increases in countries that have low coverage.

Furthermore, it is important to note, that while the goal includes all edible salt i.e. table and animal salt, and salt for use in processed foods,

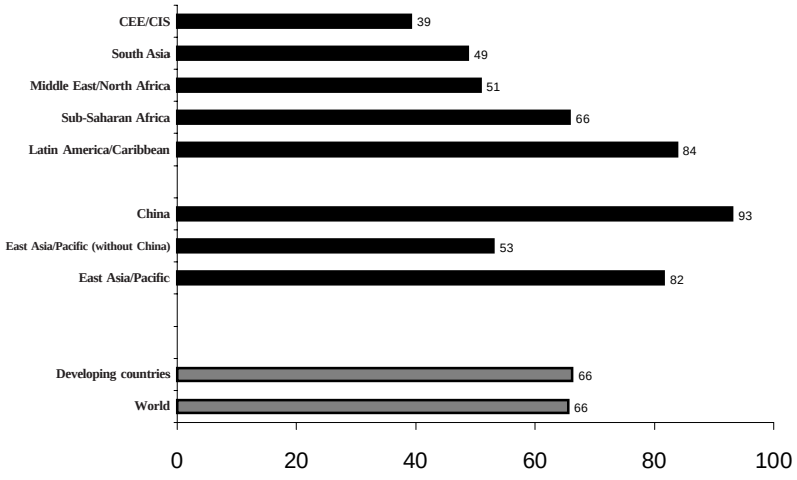

Fig. 1 *Levels of household consumption of iodized salt (1997-2000) by UNICEF region.*

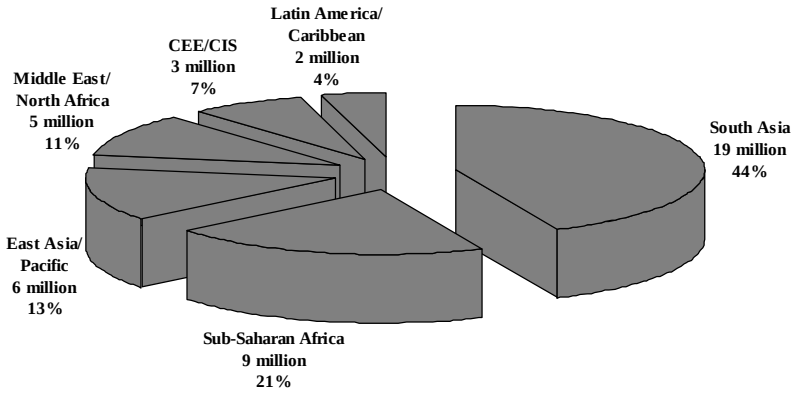

Fig. 2 *Forty-one million newborns still unprotected from learning disabilities.*

most countries are only mandating the iodization of table salt. It is increasingly recognised that a significant proportion of total salt consumed comes from other sources than table salt, mainly for processed food. Since approximately 80% of salt is consumed in processed foods such as in breads, sausages, canned and other ready-to-eat foods in western and central Europe, it is critical for these countries to start using iodized salt for food processing. However, currently only a few countries mandate the use of iodized salt in food processing including Denmark, Germany, the Netherlands, and Switzerland (WHO 2004). There has also been some reluctance on the part of the food industry to change their practices due to concerns about the negative impact of iodized salt on the taste and appearance of foods. Recognising this situation, UNICEF commissioned a literature review and studies on the use of iodized salt in pickling and meat curing in 1994, which showed that there was no significant impact of iodized salt usage on the organoleptic properties of food (UNICEF 1994). This has recently been repeated for Chinese foods (Global Network 2004). Since then, UNICEF offices have also supported small studies using local foods such as soy and fish sauce. Another issue that needs to be considered is the public health concern of the role of salt as a risk factor for cardio-vascular diseases which is resulting in a decline in the consumption of salt (WHO 2003). However, it is important to state here that a Joint WHO/FAO Expert Consultation on, "Diet Nutrition and the Prevention of Chronic Diseases" (WHO 2003) clearly stated the following with respect to salt intake while suggesting ranges of population nutrient intake goals. To quote, "Salt should be iodized appropriately. The need to adjust salt iodization depending on observed sodium intake and surveillance of iodine status of the population should be recognized." This trend represents a real constraint for the implementation of the USI strategy. An alternative would be to increase the level of iodine fortification in salt. Lastly, there is very little information on the use of iodized salt for animals, which means that a critical opportunity of ensuring iodine through the food chain is being missed.

The task of sustaining iodine deficiency elimination necessarily requires vigilance. Experience has shown that in the absence of adequate monitoring and continued political support, iodine deficiency can resurface as witnessed in Guatemala and Bolivia (UNICEF 2002), and during times of civil strife such as Sierra Leone where coverage fell from 75% to 23%. It is therefore imperative that salt iodization is continuously monitored along with the iodine status of populations. Strong partnerships between

salt producers, governments, scientific groups, and civil society organizations at the national level will be key to ensuring that salt iodization is sustained and that iodized salt reaches everyone who needs it. Consumer demand has been an under-appreciated but critical component of sustainable USI.

5.5 Achievements and Opportunities

Past experience shows that the progress made by countries towards IDD elimination was the result of strategic programmatic shifts combined with effective advocacy and effective partnerships. The availability of low-cost and technology-driven interventions, such as iodized salt, played an important part in the progress achieved. Furthermore, the development of clear and simple messages about the importance of iodine for optimal function outcomes (e.g., brain development), and the feasibility and cost-effectiveness of these interventions made it easier to convince decision makers and donors to invest in salt iodization programs. The rapid success that followed shows that with a combination of factors—political will, availability of national and international resources, scientific leadership national and international partnerships including the private sector, capacity development and monitoring—positive results could result in a relatively short span of time. The lessons of the last decade, both the successes and failures, in addressing the goal of IDD elimination will be critical in defining how the international nutrition community, governments, and our other partners move toward sustaining the gains and further reducing the burden of iodine deficiency.

Finally, an important achievement of this decade has been the increased awareness of the role of nutrition on early child development as well as on human development and poverty alleviation. A major opportunity to make further progress in this regard is provided by the Millennium Development Goals (MDGs) and the World Fit for Children goals (WFFC).

Eliminating iodine deficiency disorders has the potential to make a significant contribution to the achievement of the MDGs, adopted at the UN General Assembly in 2000, particularly in the following five that implicate nutrition:

(i) Eradicate extreme poverty and hunger: Eliminating IDD through USI will ensure that children are able to learn better and therefore are more productive as adults. This in turn will contribute to poverty alleviation.

(ii) Achieve Universal Primary Education: Children will be able to learn better and therefore be more ready to attend schools once their iodine status is normal. School attendance will also improve when children have improved cognitive function and intellectual capacity.
(iii) Promote gender equality and empower women: While IDD affects everyone, eliminating it will ensure that women do not have children who are affected and require more care so as not to be a drain on the household resources and so allow them to take up income-generating work.
(iv) Reduce child mortality: It is a well-established fact that IDD contributes to increased infant mortality. Eliminating IDD will ensure that children are born healthier and better able to thrive.
(v) Improve maternal health: Eliminating IDD in women will surely improve their health and ability to be more productive and also affect their ability to bear healthier children.

5.6 The role of UNICEF and WHO

In reviewing the experiences of the last decade, it is clear that UNICEF and WHO played an essential role in the prevention and control of iodine deficiency disorders. However, the success is also due to the combined efforts of other international organizations such as the International Council for Control of Iodine Deficiency Disorders (ICCIDD), the Micronutrient Initiative (MI), academic institutions, donors, foundations, the World Bank, and the Regional Development Banks, Kiwanis international, and salt producer associations, all of which played a significant role in achieving the progress made so far.

UNICEF as part of the UN system has played a special role in eliminating IDD given its mandate to improve the welfare of children and women. UNICEF's involvement with IDD dates back to about 1950 when the FAO/WHO commission advised UNICEF that 'in areas where soil and water are deficient in iodine, iodized salt needs to be provided,' and the use of iodized salt in school meals was recommended. UNICEF was also active in the 1960s in providing technical support and hardware to countries in Asia and Latin America, and even had an engineer with experience in such matters stationed in New York. However, it was not until 1990 at the UNICEF Executive Board that the goal of 'eliminating IDD' was adopted and then further endorsed at the World Health Assembly that May, and then later at the WSC.

UNICEF has been able to play a significant role in IDD elimination mainly due to its extensive field presence in 158 countries around the world. At the country level, the UNICEF Representative has both the authority and autonomy to negotiate programs of cooperation with the government based on the priority needs defined by UNICEF's Executive Board. This structure has allowed UNICEF to play an active role in providing support to governments in terms of meeting the needs of children and women in countries everywhere. It is this very system that has enabled UNICEF to take on a significant role in supporting IDD programs in over 100 countries worldwide.

WHO's role in relation to IDD elimination goes back to the 1960s with the publication of the first compilation of data on goitre prevalence throughout the world (WHO 1960). This review was instrumental in drawing attention to the public health dimension of iodine deficiency. Later in 1985, at a historic Joint WHO/UNICEF inter-country workshop on IDD elimination held at the WHO South East Asia Regional office in New Delhi, ICCIDD was proposed and then formally inaugurated in Kathmandu the following year. With the adoption of a resolution on the prevention and control of IDD by the World Health Assembly in 1986, IDD elimination was collectively recognised by all member states as a high priority, preventable cause of brain damage and mental impairment affecting millions worldwide (WHO 1986). In 1990, the World Health Assembly passed an historic resolution deciding that "WHO shall aim at eliminating IDD as a major public health problem in all countries by the year 2000". This was followed the same year by the World Summit for Children, which endorsed as one of its decade goals the "virtual elimination of IDD" (see Section II).

From 1986 onwards, it would be rather invidious to talk about WHO activities without referring to the close partnership with UNICEF and ICCIDD, as partners which have done so much to reinforce and spearhead the efforts for advocacy and prevention of IDD at global, regional and national levels. By the end of the 1990s, the role of other partners in IDD control, in particular the salt industry was fully recognised.

WHO's particular role in relation to health issues at global level including IDD has three main dimensions - its coordinating and regulatory role in international health, and in scientific aspects, and technical co-operation with Member States. With regard to its normative and regulatory role, WHO has convened expert consultations to establish nutrient requirements, in particular for iodine and then to derive the level of food

fortification with iodine, especially the level of iodine in salt that is both safe and effective for all the population group (WHO/UNICEF/ICCIDD 2001).

One of the main elements of a sustainable IDD program is an effective monitoring system, which considers both the quality of salt and the iodine status of the population. Accordingly, World Health Assembly resolutions have called upon WHO to provide guidance to member states on ways to assess the magnitude of iodine deficiency and monitor the effectiveness and the impact of the IDD control programs on the population iodine nutrition. WHO convened two major expert consultations, in collaboration with UNICEF and ICCIDD, which made recommendations on the indicators to be used to assess iodine deficiency, monitor IDD control programs and to establish criteria to define the severity of iodine deficiency as a public health problem which gives important indications to decide on an intervention, and for monitoring IDD elimination (WHO/UNICEF/ ICCIDD 1996).

Moreover, WHO has established a global databank compiling country data on the three major micronutrients - iron, iodine and vitamin A, to keep countries informed on the micronutrient status of the world population, assess the effectiveness and impact on population's micronutrient status of the strategies to control micronutrient disorders recommended by WHO, identify the emerging public health problems, track the progress made by countries towards the international goals and draw the attention of public heath authorities on the public health dimension of micronutrient deficiency. The WHO global databank on IDD was established in 1990 and the latest version was published in 2004 (WHO 2004). The full database is available on WHO's Web site (http://www3.who.int/whosis/micronutrient/).

5.7 Advocacy, Partnership and Alliance Building

The global conferences, summits and World Health assemblies held in the 1990s were significant opportunities for advocacy and alliance building around the importance of micronutrient malnutrition. They were successful in creating awareness of the global problem of iodine deficiency and its consequences and, in turn, triggering discussion at regional and national levels among policymakers in favor of eliminating iodine deficiency. It was realized early on that in order to have an impact on iodine deficiency, it would be critical to harness the technical expertise and resources of partners at all levels—international, regional, and national.

At the international level, UNICEF and Kiwanis International (KI), a leading international service organization, entered into a unique partnership to eliminate iodine deficiency. For the first time in the history of Kiwanis International, the entire Kiwanis world network rallied around a single cause and committed itself to mobilizing $75 million for IDD elimination. Furthermore, KI also made a commitment to increase public awareness of the problem and consequences of iodine deficiency and to promote the use of iodized salt. This experience with the Kiwanis International has been a striking example of the value of partnerships with civil society organizations for public health initiatives.

The Network for the Sustained Elimination of Iodine Deficiency ('the Network'), launched at a special session of the UN general assembly in May 2002 by the Director General of WHO, is a further example of an "alliance" of organizations, including UNICEF, WHO, international non-governmental organizations, including ICCIDD, research institutions, salt producers' associations and private foundations that are all committed to fulfilling the WFFC goal on IDD elimination. Among its various activities, the Network through its member organizations supports the formation of national IDD committees, bringing together government, international organizations, the salt industry, civil society organizations, and consumer groups in favor of sustained iodine deficiency elimination.

At the regional level, several alliances were forged and strengthened with organizations and groups, such as the South Asian Association for Regional Cooperation (SAARC), the Organization of African Unity (OAU), and the Economic Community of West African States (ECOWAS), to follow up on the commitments of the global summits and conferences. Regional technical meetings were also held to bring together key scientific groups and governments to discuss the issues of micronutrient malnutrition, often joint meetings of WHO, UNICEF and ICCIDD. Advocacy took place at the national level, bringing together scientists, civil society organizations, rights groups, government, and representatives of international organizations to galvanize public opinion around the need to tackle "hidden hunger." This advocacy in favor of iodine deficiency created a favorable policy environment at the national level, whereby action and programs in support of eliminating iodine deficiency became possible (see Section II, VIII).

5.8 Technical Support for Implementation of National Programs

At the national level, UNICEF and WHO in close collaboration with other international organizations have supported a variety of actions, such

as national surveys to document the extent of the problem. These surveys have also played a useful advocacy role in convincing governments to take action. Consensus-building workshops involving the private sector were also organized at the national level by international organizations to agree on the problem of iodine deficiency and to decide on actions. These workshops and national debates were successful in ensuring the inclusion of nutrition and micronutrients in national policy, such as National Plans of Action (NPAs) for Nutrition that emerged from one of the recommendations of the 1992 joint FAO/WHO International Conference on Nutrition.

5.9 Support for Monitoring and Evaluation

The WSC marked the first time that there was systematic follow-up and rigorous monitoring of countries implementation of their plan of action adopted by WSC. This monitoring process is based on the indicators and the criteria also established by WHO for monitoring national progress towards sustainable elimination of iodine deficiency as a public health problem (**Table 1**) (WHO/UNICEF/ICCIDD 2001).

A process indicator–the proportion (%) of households consuming adequately iodized salt-was established against which to measure progress toward eliminating iodine deficiency. This process-oriented indicator allowed UNICEF and its partners a way to rapidly measure progress toward the goal at the national level. The process indicator was selected for inclusion in the large household surveys such as DHS (Demographic Health Surveys by USAID) and MICS (Multiple Indicator Cluster Surveys of UNICEF). As previously mentioned, significant attention was paid to measuring progress toward the goal of IDD elimination, resulting in significant increase in the availability of data at the national level. As a result of the end-of-decade survey activity, there are more than 70 countries reporting updated figures on the consumption of iodized salt at the household level.

All of this attention to measuring progress resulted in significant efforts towards strengthening the capacity of laboratories around the world to measure micronutrients. The establishment of clear indicators by WHO greatly assisted in this process. The US Centers for Disease Control and Prevention along with several international agencies, including UNICEF, WHO, MI, and ICCIDD, recently took the lead in creating the network of the International Resource Laboratories for Iodine (IRLI). At a conference in Thailand in May 2001, it was agreed that an international network of

Table 1. *Criteria for monitoring progress towards sustaining elimination of iodine deficiency disorders*

Indicators	Goals
Salt Iodization coverage	
• Proportion of households consuming adequately iodized salt	>90 %
Urinary iodine	
• Proportion of population with urinary iodine levels below 100 µg/L	<50 %
• Proportion of population with urinary iodine levels below 50 µg/L	<20 %
Programmatic indicators	At least 8 of the 10
• National body responsible to the government for IDD elimination. It should be multidisciplinary, involving the relevant fields of nutrition, medicine, education, the salt industry, the media, and consumers, with a chairman appointed by the Minister of Health;	
• Evidence of political commitment to USI and elimination of IDD;	
• Appointment of a responsible executive officer for the IDD elimination program;	
• Legislation or regulation of USI;	
• Commitment to regular progress in IDD elimination, with access to laboratories able to provide accurate data on salt and urinary iodine;	
• A program of public education and social mobilization on the importance of IDD and the consumption of iodized salt;	
• Regular data on iodized salt at the factory, retail and household levels;	
• Regular laboratory data on urinary iodine in school-aged children, with appropriate sampling for higher-risk areas;	
• Cooperation from the salt industry in maintenance of quality control; and	
• A database for recording results or regular monitoring procedures particularly for salt iodine, urinary iodine and, if available, neonatal thyroid stimulating hormone (TSH), with mandatory public reporting.	

Source: *ICCIDD/UNICEF/WHO, 2001*

iodine resource laboratories would strengthen the capacity of individual country laboratories to accurately measure iodine in urine and salt (US Centers for Disease Control and Prevention 2003). Based on the recommendations of this meeting, 12 laboratories were selected from each of the 6 WHO regions on the basis of their laboratory performance, capacity and infrastructure, solid links to a national IDD programming body, and geopolitical representation. It is anticipated that in the future, the mandate of the IRLI groups of labs could be expanded further to include the other micronutrients.

5.10 Mobilisation of the Private Sector

Equally important was the realization that some of the solutions to the iodine deficiency problem lay outside the public-health sector and that it would therefore be crucial to work with the private sector to make a positive impact on a population's iodine status (Dalmiya and Schultink, 2004). In country after country, UNICEF has worked to convince salt producers of their "social responsibility" to iodize salt. Several meetings of salt producers were organized to bring together salt producers on a regional basis between 1999 and 2000 in Africa (Mombassa, Accra, and Dakar), Latin America (Bogota), and in eastern and central Europe/ Commonwealth of Independent States (Kiev). A mini-symposium on the benefits of iodized salt was also included at the Salt 2000 Symposium held in The Hague in May 2000.

The progress seen in salt iodization is testament to the success of this development approach, which recognizes the strategic importance of public-private alliances in addressing public health issues. Recently, in his address to the World Economic Forum in New York in 2002, UN Secretary General, Kofi Annan, encouraged the international community to look toward the Iodine Network's model for ways to make development programs more effective: "Take the case of the world's salt manufacturers. Working with the United Nations, they have made sure that all salt manufactured for human consumption contains iodine," he said.

UN agencies, and in particular UNICEF have also been able to work with and to convince private companies in industrialized countries to take interest in the issue of food fortification in developing countries. UNICEF, the MI, and others have organized training workshops and study tours, provided practical assistance, and facilitated technology transfer between large companies, such as Akzo Nobel in China to the national program in Tanzania for salt iodization.

UNICEF has also worked closely with manufacturers of food premixes and fortificants such as potassium iodate. Through the supply division in Copenhagen, UNICEF has worked with suppliers to secure competitive prices for potassium iodate, which has given a big boost to salt iodization programs at the national level. The longer-term goal is to allow countries to be self-supporting and for salt iodization to be sustainably continued by absorbing costs and/or passing them onto the consumer.

5.11Direct Fundraising and Leveraging of other Sources of Funding

In a number of countries, UNICEF has provided direct financial support for start-up costs of fortification, including equipment, fortificant, and laboratory supplies. This has been possible due to their direct fundraising efforts with a variety of donors, including bilateral donors (e.g. Australia, Canada, the Netherlands, and United States), Kiwanis International, MI, and the Bill and Melinda Gates Foundation. UNICEF has also served as a "broker" among governments, the private sector, and lending institutions (the World Bank and regional banks) to negotiate support for micronutrient programs. Innovative credit schemes and revolving funds have been set up in several countries to assist companies engaging in food fortification to cover capital and other recurrent costs, such as a premix. Through advocacy, the World Bank and regional development banks, such as the Asian Development Bank, have been convinced to invest in food fortification programs. A multi-million dollar loan from the World Bank to China helped to restructure and upgrade the salt industry there, resulting in more than 90% of Chinese households now consuming iodized salt (Chinese Centre for Disease Control & Prevention 2003). Similar success has also been achieved in Sri Lanka (Medical Research Institute 2001). Estimates indicate that private sector investments to salt iodization programs may have exceeded $1 billion in the last decade (UNICEF 1998). The conclusion is that advocacy work of international agencies and partners created a supportive climate for increased investment and commercial loans for food fortification in developing countries.

5.12 Promoting a Rights-based Approach

WHO and UNICEF have played a significant role in promoting a rights-based approach to eliminating iodine deficiency. By arguing the right of all children to adequate nutrition and including its provision in

the Convention on the Rights of the Child (UNICEF, 2002), these UN agencies have elevated the discussion to the highest political level and placed the national responsibility for ensuring that every child receives adequate nutrition on a legal footing. Furthermore, technical assistance has been provided to governments in numerous countries around the world on drafting of legislation and regulations around salt iodization and food fortification. In countries where such laws and regulations have been passed, they have served the useful purpose of creating a "level playing field" or operating standards for the food industry engaged in fortification, and have served as a method of enforcing those in the private sector who are non-compliant.

5.13 Reaching the Goal of Sustainable IDD Elimination in 2005 and beyond: A Stronger Role for UNICEF and WHO

With less than two years to go to reach the goal of IDD elimination, it is critical that UNICEF and WHO with all of the partners supporting the sustainable elimination of IDD takes stock of the progress achieved thus far, understand the gaps and constraints, and strategize on how to accelerate progress as the countdown begins towards 2005. UNICEF's Executive Director, Carol Bellamy, expressed her commitment to reaching this goal in her New Year's message to UNICEF staff (2004), "we need to re-energise the world to foster more effective action on young child survival and growth…and remember, the goal of Universal Salt Iodization by 2005 is well within reach–let's make it happen!" (UNICEF 2004). Translated into action, all countries where UNICEF supports national IDD programs are required to provide feedback to the Executive Director on proposed strategies and actions to reach the IDD goal and other goals. To support this process, WHO and UNICEF with support from the Network conducted a gap analysis using WHO indicators to determine the extent to which countries were on track to reach the goal of sustainable elimination of IDD and also understand the constraints faced (WHO/ UNICEF/ICCIDD 2001).

The results of the gap analysis indicate the need for a global strategy to accelerate progress towards the 2005 goal of IDD elimination. Using the analysis as a guide, criteria are proposed for prioritising interventions using indicators such as urinary iodine levels, iodized salt coverage, and the number of children born unprotected. Based on these criteria, several strategic approaches will be used to accelerate achievement towards the goal of sustainable elimination of iodine deficiency by year 2005. Strategic

countries will be targeted using the following criteria:

- Countries with the most unprotected infants
- Major salt exporting countries
- Countries where iodized salt coverage exceeds 90%
- Countries which are close to reaching the goal but need re-energising
- Countries with special needs such as emergencies
- Countries where USI is dependent on small salt producers

Evaluation of a decade of intense support to IDD elimination programs in over 100 countries points to some valuable lessons learned. Achieving the 2005 goal will clearly require the combined energies and resources of all the partners at all levels: international, regional and country level. A model for combining the talents and strengths of all the partners is provided in the Network, which must work more efficiently to provide support to countries and ensure the full participation of the private sector as was originally intended. At the international level, there will be a need to harmonise the plans of all the individual partners to ensure that when combined, they will have the desired effect of supporting national efforts. At the national level, the formation of national coalitions comprising of all sectors of society including public and private, but also the civic sector will ensure that there is ownership and vigilance, two key ingredients for sustainability since it is impossible to eradicate IDD. China's experience with periodic advocacy for IDD in the face of the political reality of changing leaderships is an example of how it managed to secure national resources and attention for IDD. Efforts will also need to be stepped up to ensure that populations are aware of the ongoing 'threat' of IDD particularly as visible signs of IDD such as goitre disappear. The initiative of some countries to include information about IDD and iodized salt in school curriculum is innovative and needs to be evaluated. Finally, salt producers need also take responsibility for informing the public about IDD and the need to consume iodized salt only.

Over the last ten years, UNICEF has allocated multi-millions of dollars towards the purchase and procurement of salt iodization equipment and potassium iodate, a trend, which continues. There are but a few countries, which have phased out support for equipment and potassium iodate. The cost of fortification including the cost of iodate must be absorbed by the industry and passed along to the consumer–and the sooner that this is done the better. UNICEF, WHO and their partners at the country level need to work more closely with salt producers to ensure that they have business plans for absorbing the cost of iodizing salt. Governments for

their part must be encouraged to waive the taxes and other tariffs imposed on so called 'value-added' commodities such as iodized salt as an incentive to salt producers. Considerable efforts still need to be made in some part of the world where previously made regional trade agreements on salt are not being adhered to.

Efforts need to be made to ensure that salt is effectively iodized so that people receive just the right amount of iodine required in their diets. For salt iodization to be effective, it is clear that more attention must be paid to quality assurance and control. In this respect, the formation of the IRLI laboratories is an important step forward. And lastly, given the reality of declining table salt intakes, more and more countries will be required to undertake urinary iodine surveys to determine the impact of salt iodization on the iodine status of populations, particularly on the status of pregnant women where the need for iodine is most critical.

5.14 Conclusion

The role of UNICEF and WHO and all the international NGOs has been pivotal as evidenced by the progress made toward eliminating iodine deficiency. With the commitment of the international community to the MDGs and the WFFC micronutrient goals, there is a new opportunity for UNICEF, WHO and the partners to continue making progress towards the sustained elimination of iodine deficiency and to address those most vulnerable. To do this, all the organisations dealing with IDD will need to work even more closely together for this common good.

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6

Bilateral Aid (Development Agencies): AusAID, CIDA

Alan March, Barbara Macdonald

6.1

The Role of the Australian Agency for International Development (AusAID) in the Global Program for the Elimination Of IDD

Alan March

6.1.1 Introduction

AusAID, the Australian Agency for International Development, is the Australian government's overseas aid program. Its current budget is A$1.8 billion. Each year the Australian aid program reaches more than 58 million people living in poverty around the world, with almost 80% of its activities taking place in the Asia-Pacific region.

Australia works with other governments, the United Nations, Australian companies, non-government organisations and individual experts to design and implement projects that tackle the causes and consequences of poverty in developing counties.

In 2002, a new policy document for the aid program was launched: Australian Aid: Investing in Growth, Stability and Prosperity. It reinforces the essential overarching objective of the aid program: to assist developing countries to reduce poverty and achieve sustainable development.

The provision of health aid is an important component of the Australian aid program as investment to improve health is a key factor in reducing poverty. Australia's health aid focuses on improving basic health for those most in need, with an emphasis on women's' and children's health. Access to health care together with good nutrition, basic education, clean water and adequate sanitation are essential cost-effective investments in reducing poverty and improving economic growth. Better nutrition and improved health increases the capacity of children to learn and of adults to participate in the economic and social development of their communities.

Millions of people in the developing world suffer ill health from diseases and conditions that can be prevented or controlled with early, low-cost interventions. Iodine deficiency is recognised as the world's greatest single cause of easily preventable mental and growth retardation. Low-cost, effective interventions such as salt iodization are key interventions supported by the Australian aid program. Australia's support of the work of the ICCIDD is an example of a collaborative international effort to provide basic cost-effective health care to improve the health, school attendance and learning capacity of millions of vulnerable children.

Since 1986 AusAID has supported IDD activities in China, India, Indonesia, Thailand and Vietnam. AusAID's core funding for ICCIDD has increased over the years (from $A165,000 in 1997-98 to $A470,000 in 2001-02). This support recognises the programs' achievements and the contribution-targeted support can make to increasing global awareness of IDD. The global partnership in which Australia is involved with

ICCIDD is achieving significant results towards the elimination of iodine deficiency disorders and its work has improved the quality of many people's lives.

6.1.2 The International Council for Control of Iodine Deficiency Disorders (ICCIDD)

AusAID support for the ICCIDD dates from 1984 when a grant was made to Dr BS Hetzel to prepare a Report of the Prevention and Control of the Iodine Deficiency Disorders, which had been commissioned by the UN Sub-Committee on Nutrition (SCN).

This Report was submitted to the SCN Secretariat in March 1985. After a global survey of the nature and magnitude of the Iodine Deficiency Disorders (IDD) it recommended the establishment of an international NGO to assist countries in the development of National Programs for the Elimination of Brain Damage due to iodine deficiency with iodized salt.

This recommendation was approved by the SCN and led to the establishment of the International Council for Control of Iodine Deficiency Disorders in 1985, with the support of AusAID, UNICEF and WHO. The Inaugural Meeting was held in Kathmandu, Nepal, in March 1986 with supporting statements from the Director General of the WHO (Dr Hafdan Mahler) and the Executive Director of UNICEF (Mr James P Grant).

The ICCIDD adopted a Constitution, appointed a Board and an Executive with a series of six Regional Coordinators for the six major WHO Regions.

Dr BS Hetzel was appointed Executive Director in 1985 and continued in this position until 1995 when be was appointed Chairman and served in this position until 2001.

AusAID (earlier known as AIDAB), continued to provide support with UNICEF and WHO, to be joined in 1991 by the World Bank and the Canadian International Development Agency and later the Dutch Government.

AusAID support increased from A$76,000 in 1987-88 to A$114,000 in 1990.

This level of support continued to 1992 providing 27% of the total ICCIDD income.

6.1.2.1 Review of ICCIDD (1992)

In 1992 a Review for AusAID was carried out by Dr Quentin Reilly, a public health specialist and former Secretary for Health in Papua New Guinea.

He found that 'ICCIDD, with few resources, has made a significant contribution to international public health and has been given an international mandate to continue its role. Its successes reflect well on Australia and it is recommended that ICCIDD should continue to be supported, with an increased contribution as budget circumstances permit'.

6.1.2.2 Recent Developments-Consolidation in Asian Countries

Since 1995 AusAID has provided increased support for the ICCIDD to assist consolidation of programs in Asian countries with specific funding for monitoring and evaluation (verification) of country programs.

This support has been allocated for the work of the two Asian ICCIDD Regional Coordinators – Dr CS Pandav from his office in Delhi, at the All India Institute of Medical Sciences (Centre for Community Medicine) and Dr ZP Chen, from an office in the Tianjin Medical University, where he is Director of the Institute of Endocrinology.

Dr Pandav is responsible for advising countries in South East Asia and the Pacific and Dr Chen advises China and Mongolia and the Democratic Republic of North Korea. He is also Chair of the Scientific Advisory Committee for the China National Program.

The importance of monitoring and evaluation of programs was emphasised in a 1996 WHA Resolution, which was strongly supported by Australia and 26 other countries in the Assembly Debate.

From 2000 this ICCIDD support including program evaluation for Asian countries has been further increased to A$470,000.

At the request of AusAID, arrangements have now been made to direct this entire AusAID Grant to ICCIDD activities in the Asian Pacific Region.

In 2002, the additional appointment, as Regional Coordinator, of Dr Creswell Eastman (Director of the Institute of Clinical Pathology & Medical Research, Westmead Hospital Sydney and Director of the Australian Centre for Control of Iodine Deficiency Disorders) has been made to advise a group of South Asian countries-Indonesia, Thailand, Vietnam, Laos, Cambodia, Philippines and Papua New Guinea. This means that Dr Pandav can now concentrate his efforts in Bangladesh, Bhutan, India, Maldives, Myanmar, Nepal and Srilanka.

6.1.3 China

6.1.3.1Monitoring Centres

A series of visits to China by Dr Basil S Hetzel in 1981, 1982 and 1984 revealed the massive problem of iodine deficiency in China with some 400 million at risk in a total population of 1 billion. A plan was developed (with AusAID support) to provide professional training for Chinese health professionals in the field of laboratory technology and in program monitoring in consultation with Dr Creswell Eastman, Director of the Institute of Clinical Pathology and Medical Research at Westmead Hospital, University of Sydney. Dr T Ma, of Tianjin Medical University, a great IDD figure in China was also consulted.

After approval by AusAID this program was directed by Dr Creswell Eastman, Director of the Australian Centre for Control of Iodine Deficiency Disorders (ACCIDD) with the assistance of Dr Glen Maberly at the Westmead Hospital, Sydney, with Dr Hetzel as Senior Advisor. It provided a grant of A$2.8 million over a 5 year period (1986-1991), with the training of some 40 Chinese laboratory technicians at Westmead Hospital. These Chinese technicians provided the staff for monitoring centres for the IDD Control Program (particularly the measurement of urine iodine and salt iodine) in Tianjin, (Central China); Harbin, (North China); Guiyang (South China) and Xining (Western China). This program was very important to the subsequent further successful development of the National China Program.

6.1.3.2 National IDD Reference Laboratory

A National IDD Reference Laboratory for China has been developed by Dr Eastman in close collaboration with the Chinese Ministry of Health. Major funding came from AusAID, with additional support from WHO and UNICEF. The laboratory was established in the Institute of Epidemiology and Microbiology within the Chinese Academy of Preventive Medicine in Beijing in 1998 and officially opened in June 1999. Staff were recruited and sent to Australia for laboratory management and technical training in Westmead Hospital, University of Sydney. The organisational structure of the laboratory was defined and implemented.

In its first 12 months, the National Reference Laboratory has established an IDD external quality control network, developed operational procedures for it and defined responsibilities and the reporting relationship with government administrative bodies and technical institutions. It has

also completed evaluations of 29 provincial surveillance laboratories, 19 UNICEF sponsored prefectural urinary iodine laboratories and 470 country level salt quality surveillance laboratories. It has also provided training for Tibet and other provinces and organised a workshop on laboratory management for provincial IDD laboratories in Fuzhou. The laboratory played an important role in the recently completed Third National IDD Surveillance Survey. It has become the central coordinating instrument for IDD surveillance in China and will continue to play this role in prevention and elimination of IDD in China for the foreseeable future (see further on China Program in Section VIII).

6.1.3.3 Tibet

In 1997, the 2nd Biennial National IDD Surveillance Survey in China revealed that the elimination program had achieved significant progress in most provinces, with the exception of Tibet, which was lagging well behind the national target and time frame for all control criteria. In June 1998, a request for support was submitted to WHO by the Tibet Department of Health. WHO responded positively, stating it would fund the activities proposed for the first year (1999) if other agencies provided evidence of continued support of the project in 2000 and beyond. UNICEF and AusAID agreed in principle to support the proposal and the Department of Disease Control in the Chinese Ministry of Health and the China National Salt Industry Corporation also made a commitment to participate and guarantee resources for the project.

WHO commissioned a Feasibility Study undertaken by a multidisciplinary team representing major stakeholders, and led by Dr Eastman. The team confirmed the magnitude and severity of the IDD problem in Tibet and further defined the support required in their report to WHO. AusAID commissioned ACCIDD, using its own resources, to develop the Project Design Document for a three-year project.

- The interim Project Design Document was submitted to AusAID in February 2000 and in March 2000 AusAID announced support of $2 million for a three-year project.

The project is being delivered by a multilateral organisational arrangement, involving AusAID, the Chinese government coordinating agency (The Ministry of Foreign Trade and Economic Cooperation) and WHO. The Institute of Clinical Pathology and Medical Research at

Westmead Hospital (Dr Eastman and Dr Mu Li) is responsible for project direction, technical support and external coordination under a Contractual Service Agreement with WHO.

Now, two years into project implementation, significant progress has been made. For example, IDD prevention, health promotion and education programs have been developed and implemented throughout Tibet. The Lhasa Salt Iodization Factory has doubled production of iodized salt. Eighteen professional personnel have been trained in Beijing, Hong Kong and Australia for health promotion, project management and laboratory management and project infrastructures have been installed. Most importantly about 75% of women of childbearing age and 60% of infants have received iodized oil supplements as part of the transitional strategy. The project is on time and on budget, but it is too early to assess the outcomes.

6.1.4 Other Country Support

6.1.4.1 Indonesia (1976-1981)

AusAID has provided support for the IDD Elimination Program since 1976. Initial projects were in Indonesia with support for an iodine laboratory in Semarang, Central Java, followed by assistance with research work (1980-1981), in collaboration with Dr R Djokomoeljanto, Dean of the Faculty of Medicine at Diponogoro University, Semarang. This study carried out by Dr Eric Dulberg, supervised by Dr Djokomoeljanto and Dr Basil Hetzel demonstrated the reduction in walking age of infants in iodine deficient mothers who had received iodized oil injection in pregnancy, compared to a control group who had not received iodized oil injections.

The AusAID contribution helped to consolidate the establishment of the village of Sengi in Central Java as the monitoring centre for the National Program. A new proposal has now been developed (2002) for the establishment of an Academic Centre for IDD at Diponogoro University in Semarang, the capital of Central Java with the leadership of Dr Djokomoeljanto.

6.1.4.2 Vietnam (1993-1998)

In 1993 Vietnam had a population of 70 million with an estimate of 94% at risk of IDD both in the hills and flooded Mekong Delta. AusAID support (A$4m) was provided over 5 years (1993-1998). This support covered the monitoring of iodized salt (quality and distribution) and urine

iodine determinations. Three iodine laboratories in Hanoi, Da Nang and Ho Chi Minh City were established. In addition a communication program was focussed on women in the villages.

The Vietnamese Government adopted a Universal Salt Iodization (USI) strategy by decree of the Prime Minister and establishment of the National Committee for IDD Control (NCIDDC) in 1994. Four years later, the annual survey in 1997 showed that people in 43 out of 61 provinces in the country have median urinary iodine levels higher than 100µg/L and median household salt levels higher than 16 parts per million (ppm). Based on the experience gained in the first years of USI implementation, the National IDD Control Committee (NIDDCC) has issued a stronger government decree on USI.

6.1.5 International Seminar

An ICCIDD/AusAID Seminar was held on 3rd March 2000 in Adelaide, South Australia with an attendance of approximately 100.

This Seminar was organised by ICCIDD with support from AusAID on March 3, 2000. The plenary session was keynoted by the Honourable Alexander Downer, Minister for Foreign Affairs of Australia. He discussed the importance that the Australian government puts on its commitments to furthering health in Asia and cited the generous continuing investment by AusAID towards this objective including the control of IDD.

Dr Basil Hetzel, Chairman of ICCIDD discussed the global partnership and the role of the ICCIDD, reviewing the founding of ICCIDD 15 years ago as an expert group committed to helping countries in the initiation, monitoring and evaluation of programs. Since then, remarkable progress has been made through the intense efforts of many organisations and particularly in partnership with UNICEF and WHO. He emphasised the role of the ICCIDD in conducting independent evaluations of progress at country level, at government invitation and in collaboration with UNICEF and WHO.

The Seminar next heard short presentations from ICCIDD Board Members involved in specific country programs in Asia: Dr Zu-pei Chen (China), Dr Sangsom Sinawat (Thailand); Dr CS Pandav (India) and Dr R Djokomoeljanto (Indonesia). These experts summarised their country programs and the importance of external, including ICCIDD, assistance in fostering them. (Two of these speakers, Dr ZP Chen and Dr Sangsom Sinawat had had past graduate experience in Australia with AusAID support).

A special session was devoted to the technology of IDD Assessment-including the methods for measurement of urine iodine, (Dr John Dunn) the establishment with AusAID support of iodine laboratories in Vietnam (Dr ML Wellby) the new Hitachi Microplate Method for measurement of urine iodine (Dr M Karmarkar) and the establishment, with AusAID support, of the National Reference Laboratory in China (Dr C Eastman).

6.1.6 Conclusion

IDD is a major problem for Asian countries with more than half the global population of (2 billion) at risk.

AusAID is committed to support for IDD elimination programs as a health and development priority.

AusAID is proud of its initial and continuous support of the ICCIDD since its establishment in 1985.

In 1990 The World Summit for Children set the ambitious target of the year 2000 for the virtual elimination of IDD. Despite significant progress this was not achieved and more work needs to be done to reach approximately 1 billion people who remain unprotected by iodised salt.

Although the elimination target was not met, ICCIDD has a positive record of achievement. As a result of its work with global partners, approximately 70% of households in the 130 IDD-affected countries now consume some iodized salt, where ten years ago fewer than 20% of people at risk had access to it. 28 developing countries have achieved 90% salt iodization and 36 more countries have over 50% coverage.

As an advocate for universal salt iodization and a source of unrivalled scientific expertise for iodine deficiency elimination programs worldwide, the ICCIDD has been vital to the achievements made towards global elimination. The Council has been instrumental in translating into action the knowledge that adding iodine to salt or vegetable oil can prevent mental and physical disability. It has successfully prompted and assisted national governments to adopt the formal regulatory procedures, community education and primary health care activities that are essential to combat iodine deficiencies.

The Council would not have got off the ground without the driving force of a truly distinguished Australian - Dr Basil Hetzel. Dr Hetzel has worked tirelessly on iodine deficiency for over 35 years. He presided over the expansion of ICCIDD into a multidisciplinary force bringing together the talents of public health and nutrition professionals, planners, technicians, educators, the salt industry and professional communicators.

Although now retired, Dr Hetzel remains involved in the ICCIDD and the Council will continue to benefit from his vast experience and his scientific and administrative skills.

The Australian Government is proud to have joined UNICEF and the World Health Organization in providing financial support for the ICCIDD from its conception. The results achieved towards IDD elimination could not have been attained without the establishment of the global partnership, which ICCIDD has spearheaded. This partnership includes the people and governments of the 130 countries affected by IDD; the major international agencies - WHO, UNICEF and the World Bank; the ICCIDD in its technical role; countries like Australia, Canada, and the Netherlands providing direct aid to country programs; and the salt industry itself. What has been learned through the experience of iodine programs is that each of these partners has an indispensable role to play and the global goal of elimination will never be reached without their continued commitment.

Australia is pleased to support IDD efforts, particularly in the Asia Pacific region where the need for iodised salt is greater than anywhere else in the world. With a commitment by international partners to work closely together with ICCIDD and continued mobilisation of political will and resources, no child and no family anywhere in the world should have to suffer the terrible and entirely avoidable consequences of iodine deficiency. Australia is proud to be part of the work to achieve this important goal.

6.2

Support for the Elimination of Iodine Deficiency Disorders at the Canadian International Development Agency

Barbara Macdonald

6.2.1 Introduction

Throughout the 1990s, programs to eliminate iodine deficiency disorders (IDD) formed a cornerstone of the Canadian International Development Agency's (CIDA) strategy to combat hunger and malnutrition. CIDA has long recognized that ensuring optimal nutrition is critical for achieving the Agency's mandate of poverty reduction. To this end, along with programs to reduce food insecurity and chronic undernutrition, CIDA has made significant contributions to efforts to eliminate micronutrient malnutrition or "hidden hunger".

Salt iodization programs have been a particular area of focus. Spurred on by World Bank analyses demonstrating that each $1 dedicated to IDD prevention would yield productivity gains of $28, the Agency made coordinated investments across its bilateral, multilateral and partnership branches. National programs were supported in over 40 countries, and core funding was provided to the International Council for the Control of Iodine Deficiency Disorders (ICCIDD) and the Micronutrient Initiative (MI). These Ottawa-based organizations, in turn, led advocacy, technical assistance and technology development efforts. UNICEF estimates that over 7 million children have been protected from IDD as a result of this Canadian support.

6.2.2 A Short History of Canada's Role

The Canadian Government has its own history of tackling goitre and other manifestations of iodine deficiency through salt iodization. Soils found in the prairies and surrounding the Great Lakes are long known to be low in iodine. To prevent IDD, in 1949, the Government of Canada introduced regulations under the Food and Drugs Act to mandate the iodization of salt sold for household use. Endemic goitre was virtually eliminated soon thereafter.

In the 1990s, support for this public health intervention was broadened to other countries. The Government of Canada laid the groundwork for its international efforts to reduce iodine deficiency by co-chairing along with Mali the World Summit for Children in 1990. At this historic event, 73 countries committed themselves to eliminate iodine deficiency disorders by the year 2000, a number that reached 167 countries by the year 1996.

Quick on the heels of the Summit, Canada responded with several political and financial initiatives.

Within 2 years, Canada:

- Announced new funding to achieve the micronutrient goals set at the Summit (October 16, World Food Day, 1990)
- hosted the Montreal Conference on Ending Hidden Hunger (1991)
- initiated support to the ICCIDD to ensure that the international community had strong scientific grounding
- co-founded the Micronutrient Initiative; an international secretariat focused on mobilizing action to eliminate micronutrient malnutrition (1992)

CIDA also rapidly commenced its support for UNICEF's country programs. Over $12 million was provided to 13 Asian countries matched by an additional $12 million for 32 African countries. Countries as diverse as Indonesia, Nigeria and Chad all received CIDA support.

UNICEF generated a breadth of experience in collaborative development through these country programs. It was recognized that getting iodine to the millions of individuals affected globally would require a broad-based action-oriented partnership. Governments would need to work with industry and with consumer groups. National organizations would need to simultaneously engage their own communities and reach out across borders to address funding shortfalls and salt importation issues. All would need to coordinate their efforts to ensure that the right support reached the right people at the right time.

For donors such as CIDA, flexibility of funding at the national level would be key. Funding might be required by governments to enact legislation or to launch public health communications efforts. However, the recipient of support might equally be industry who needed seed funds for iodization equipment or potassium iodate. Examples of the varied inputs provided include Bolivia's product labelling and massive public education campaigns and China's salt industry training and logistics improvement. Despite the programmatic differences, both countries rapidly succeeded in their efforts. Bolivia was the first developing country to be certified for Universal Salt Iodization and iodized salt reached 94% of China's massive population by the end of the decade. Africa also made great strides but here again, the models were distinct. At times, massive imports of salt across borders were leveraged to carry much-needed iodine to countries with limited domestic production. In other cases, small-scale producers were equipped with skills and supplies, thus ensuring a level playing field with larger industry. With such diverse strategies, Africa now protects 285 million people in over 32 countries from IDD.

An important role for the Agency's country-level work has been the provision of *early seed funds*. In the early 1990s, the universal salt iodization campaign was at a stage where smaller investments made across several countries could test financing and partnership models preparing the ground for larger financial commitments by governments and industry (see **fig. 1** for financing details in several Asian countries). The Agency learned that backing good ideas even with a modest amount of strategic funds could encourage confidence. As a result, UNICEF estimates that CIDA's initial contributions of approximately US$20 million to country programs were followed by over US$1 billion invested by national governments, the World Bank, civic organizations such as The Kiwanis Clubs and perhaps most significantly, the salt industry. Salt iodization has since been celebrated as exemplifying public - private sector collaboration by United Nations Secretary General Kofi Annan at the 2002 World Economic Forum.

More recently, on the technology front, the Agency has been encouraged by innovative work conducted by the Micronutrient Initiative and the University of Toronto on the double-fortification of salt with iodine and iron. Equally committed to the sustainable elimination of anemia as to the elimination of IDD, CIDA is keen to back a program that may bring additional nutritional benefits to the most vulnerable groups.

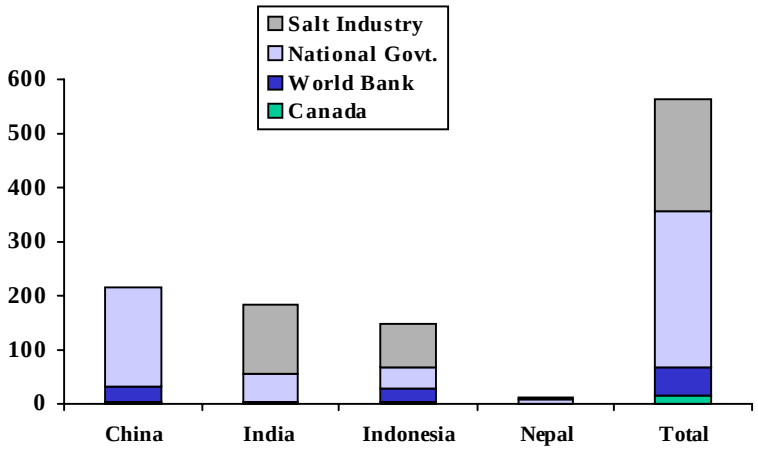

Fig. 1 *Resources for IDD investment in Asia (1990-99)(US$ millions)*

With efficacy now established, we look forward to seeing the results of large-scale production and commercialisation trials currently underway in Indonesia, India, Nigeria and Kenya.

6.2.3 Moving Forward

Progress in advancing children's rights was gauged in 2002 at the United Nations General Assembly Special Session (UNGASS) on Children. Iodine programs were heralded as one of the most important global achievements for children since the World Summit for Children. Canada's Minister for International Cooperation was on hand to congratulate the international community on its success and to re-commit CIDA to help reach the remaining 40 million children born each year without access to iodized salt. We look forward to working with governments, non-governmental organizations, and the salt industry in achieving that goal.

7

Kiwanis International First Worldwide Service Project

Juan F Torres Jr

7.1 Introduction

Founded in 1915, Kiwanis International consists of a network of chartered local Kiwanis clubs made up of Kiwanis members. The clubs enjoy a large degree of autonomy. They are organized by the basic governance, meeting attendance, dues, and fiscal accountability prescribed by the charter, but they are free to adopt their own language and culture and to initiate any service projects chosen by their own members. Today, Kiwanis includes nearly 600,000 members in more than 85 nations around the world The men and women of the Kiwanis family of clubs range in age from very young schoolchildren to members who are well past retirement.

Kiwanis International is governed by a Board of Trustees and supported by an International staff and the Kiwanis International Foundation. An International President, who is elected yearly, presides over the International Board. The International Office is in Indianapolis, Indiana, U.S.A. Kiwanis International is organized into regions and districts with the territorial boundaries established by the International Board, and they are governed by their own elected officers.

Through the years, Kiwanis International promoted its motto "***We Build***" by working in concert to address a specific service need. The International Committee on Underprivileged Children Work, for example, was organized in 1923. However, the procedures of selection often were informal, the kinds of projects varied according to perceived need with little analysis or planning, and the project duration rarely survived beyond the term of the sponsoring officer. The participation of local clubs was low and short-lived.

In subsequent years, Kiwanis launched annual service themes to unite Kiwanis clubs behind defined national and international purposes. By 1970, the themes had grown in scope and became known as Major Emphasis Programs, complete with supporting manuals and suggested activities. During the 1980s, these programs nearly always focused on children. These decades also brought other important changes. Kiwanis transformed from a North American club to a truly international organization, embracing clubs in European, Latin American, African, and Asia-Pacific countries. Kiwanis also actively recruited youth, women, and minorities as club members and leaders.

In 1990, Wil Blechman, MD was elected International President. He and other thoughtful International leaders recognized that the annual

Major Emphasis Program was neither cost efficient nor effective. On October 1, 1990, Dr. Blechman led Kiwanis International to embark on a three-year initiative, titled "Young Children: Priority One," to promote early intervention of health and education among children: prenatal to five years old. Though the initial progress was slow, the new project led to contacts with likeminded organizations such as the Carter Center in Atlanta, Georgia, and to a recommendation for Kiwanis to be represented at two meetings starting on October 9, 1991, in Montreal, Quebec: "Protecting the World's Children: Keeping the Promise" and "Ending Hidden Hunger." These experiences brought to Kiwanis leadership a new vision of global service activity. Mr. James P. Grant, a visionary leader in nutritional disorders, had become the Executive Director of UNICEF. He pronounced in a 1986 address at the first ICCIDD meeting at Kathmandu, Nepal, "IDD is a good example of a major nutritional disorder for which the techniques of treatment, control, and prevention are easily available and affordable. All it takes is a strong will, wider awareness, and cooperation among those who hold a key to the solution of the problem." He admonished his audience, "Why has progress not been broader and more effective? The most probable answer is that the policymaking bodies in many countries were not fully aware of its health and development significance. The salt industry did not have sufficient incentives to cooperate, and the public did not know the root of the problem, its health hazards, and the ease of prevention."

It was at this time of renewed emphasis and advocacy when Kiwanis International appeared on the scene seeking a service need that Kiwanis clubs worldwide could support. At the 1993 Kiwanis International Convention in Nice, France, the House of Delegates adopted a resolution that encouraged the organization to develop a global service project.

Kiwanis and UNICEF developed a partnership and promulgated a set of goals. UNICEF prepared a list of options for potential Kiwanis participation. After extensive evaluation and discussion, including member surveys, focus groups and interviews, the Kiwanis International Board agreed to submit a proposal to the House of Delegates to join UNICEF in its effort to virtually eliminate iodine deficiency disorders (IDD) in the world by year 2000. Kiwanis chose the elimination of IDD because the science was known, the solution was extremely cost-effective, the amount of money needed was within the membership's capability to raise funds, and the solution would permanently improve the futures of millions of children.

Borne on this momentum, the House of Delegates, convened at the 1994 Kiwanis International Convention in New Orleans, Louisiana, overwhelmingly gave its approval of a Worldwide Service Project to protect newborns and young children from IDD.

At the beginning of the project, Kiwanis' intended role primarily was raising funds. Kiwanis International agreed to raise US$75 million to build salt-iodizing plants for the world at a unit price of US$50,000. Before long, it became clear that the needs of the national IDD-elimination programs vary. Most of the governments seek advice and assistance for public education, advocacy, and legislation. They need financial help to upgrade small, local salt producers and salt quality, as well as iodine procurement. The smaller countries in the developing world have little use of large, modern salt factories that require advance technology to operate and maintain. To meet the challenge of the Worldwide Service Project, Kiwanis International and the Kiwanis International Foundation upgraded its own systems for more efficient management of the donations. Kiwanis began to educate its officers and members about IDD as a cause of worldwide human suffering and a obstacle to social and economic development. Kiwanians began to learn about salt production, packaging, distribution, and marketing. They began to realize that a large number of players also were working to achieve universal salt iodization. Above all, they learned the important role of salt producers in eliminating IDD. The Worldwide Service Project—with its grand vision and lofty goal and the experience of all 8,000 clubs working to achieve a common goal—energized and united the members. This, perhaps, is the program's most lasting legacy to the entire Kiwanis family.

7.2 Kiwanis/UNICEF Worldwide Service Project Partnership

As the programs moved forward, UNICEF experts worked with salt producers, various government ministries, national government officials, nongovernmental organizations, schools, and others to develop a country plan to be submitted to Kiwanis for support. The UNICEF-approved proposals included detailed budgets and timetables, which were submitted to Kiwanis International for consideration. An allocations committee was formed, made up of officers of both Kiwanis International and Kiwanis International Foundation. The allocations committee made funding recommendations after review of each proposal. Once a proposal had been approved, the requested funds were transferred to UNICEF. It

is important to note that, by agreement, all Kiwanis funds were used to support approved projects; no money was retained by UNICEF headquarters or its various country committees for administration or other uses.

Kiwanis received regular progress reports from UNICEF. In addition, Kiwanis members conducted on-site reviews with UNICEF staff members in a number of countries. Often the visiting Kiwanians met with government leaders to reinforce the value of the countries IDD-reduction efforts.

The Worldwide Service Project was immensely popular among the club members. By 2002, the Worldwide Service Project for IDD elimination had received more than US$76 million in cash and pledges, and Kiwanis had contributed more than US$60 million to the national IDD elimination programs in 90 countries through UNICEF. Along the way, Kiwanis built partnership with the salt producers, the International Council for the Control of Iodine Deficiency Disorders (ICCIDD), the World Health Organization (WHO), the Micronutrient Initiative (MI), and other organizations. These achievements firmly established Kiwanis International as an international service organization for children, and the name of Kiwanis and its contributions to promote universal salt iodization became known throughout the world.

The scale of this global effort provided Kiwanis the opportunity to monitor the effectiveness of its contributions and to report progress to Kiwanis members and Kiwanis supporters. The ability for members and their supporters to see the results being achieved by their contributions was vital to the continued success of the Kiwanis campaign.

7.3 Engaging the Kiwanis Membership

Kiwanis International is divided into regions called districts. These areas vary widely in size. In some cases, they encompass a number of countries. Other districts are defined by states or provinces—either individually or in groups. As of October 2002, Kiwanis clubs are located in 86 nations. Kiwanis International has nearly 300,000 adult members and more than 250,000 youth members.

Though Kiwanis adult and youth clubs have a long history of service to others, they never had partnered with one another internationally in a single, focused project. To gain member support for the Kiwanis campaign, Kiwanis International produced brochures and videos in a

number of languages to show members the significance of their support. Meetings were conducted at every level to educate Kiwanis members and their supporters of the problems associated with IDD, how it could be eliminated, and how Kiwanis International would lead the international effort. They were shown how Kiwanis funds, Kiwanis advocacy, and Kiwanis hands-on efforts could help change the world forever.

In addition, Kiwanis members visited countries that suffered from IDD. As the project started to show results, visits were made to countries that had benefited from Kiwanis' support. These volunteers communicated their findings to the general membership, writing articles, taking photos, and making presentations to conventions, workshops, and meetings. In every case, they reported that the Kiwanis contributions were making a real difference in the countries visited. Often the relationships established during these visits resulted in long-term friendships between Kiwanians and the people they met.

The worldwide commitment of Kiwanis clubs to raise at least US$75 million to help eliminate IDD began a new era for Kiwanis International. It was the first time that Kiwanis members committed themselves to supporting projects outside of their communities and regions. It also was the first time that Builders Clubs (schoolchildren in middle schools), Key Clubs (high school students), Circle K clubs (college students), and Kiwanis clubs joined together to improve the lives of millions through one project. The Kiwanis Worldwide Service Project changed the definition of community for Kiwanians and unified the nearly 600,000 adult and youth members of the Kiwanis family.

The project energized the total organization. The Worldwide Service Project enabled the organization and its members to see the world as an opportunity for Kiwanis and its new partners to build a better world for children.

7.4 Kiwanis IDD Partnerships

Kiwanis money has been a catalyst for other investments, often leveraging private salt producer investments as well as supplemental aid from foundations and governments. Significant partnerships with non-Kiwanis organizations have been an important element of the progress Kiwanis has helped create.

As an example, Morton Salt, the largest salt producer in the United States, participated in the campaign in a number of ways. It produced 80 million boxes of iodized salt for sale to consumers and labeled each

container with information about the Kiwanis project. In addition, Morton made available 500,000 countertop and stand-alone collection canisters to help with fund-raising activities. One of the highlights of the Kiwanis-Morton partnership was a US$1,025,000 check presented to Kiwanis representing cash and in-kind donations made by Morton to the Kiwanis Worldwide Service Project.

Another early example of how the IDD program established important relationships was the development of its partnership with the Joseph P. Kennedy Jr. Foundation. Both groups are concerned about persons living with mental disabilities: the Kennedy Foundation through its support of Special Olympics and Kiwanis through its campaign to virtually eliminate IDD, the world's most prevalent, preventable cause of mental retardation.

After presenting the Kiwanis story to the UN Foundation, which administers Ted Turner's gift to the United Nations, the foundation provided Kiwanis a one-to-one $1 million matching grant. The resulting $2 million was used to fund projects in Africa's goiter belt (Guinea, Central African Republic, Angola, Congo, and Chad).

7.5 Kiwanis Public Education and Advocacy

Kiwanis members often played a role in securing governmental financial support of UNICEF IDD programs. As an example Kiwanis members met with their elected representatives to brief them on the need for governmental support of the Kiwanis IDD effort. In addition, Kiwanis staff conducted annual meetings with US Congressional committee staff members to brief them on global progress and the need to support international aid to fund IDD projects. To reinforce the need, Kiwanis officers regularly testified at Congressional committee hearings. Each year upon congressional allocation of funds to IDD projects, Kiwanis staff and UNICEF staff meet with the US Agency for International Development (USAID) to identify countries for US funding of IDD projects. Often projects have required both USAID and Kiwanis funding for full implementation.

Similar Kiwanis advocacy took place in countries were there is a strong Kiwanis membership base. Due, in part, to Kiwanis advocacy, the governments of Canada, Belgium, Germany, Netherlands, USA, Australia, Japan, and others contributed large sums to the effort. This support has been a vital part of the global successes to date.

Kiwanis members contributed to the progress of the global effort through their advocacy and hands-on support of iodization efforts.

Kiwanis members have visited Albania, Bangladesh, Bhutan, Bolivia, China, Costa Rica, Ghana, Guatemala, Madagascar, Nepal, Pakistan, Panama, Philippines, Russia, Senegal, Sri Lanka, Thailand, Ukraine, and Vietnam.

The value of these Kiwanis visits was demonstrated during a visit to Russia. Kiwanians learned that salt-iodization equipment was being held in customs and would not be released until substantial duty had been paid. Kiwanis leaders met with leaders of the Russian government and strongly advocated the finding of a solution to the impasse. This created a strong movement in the government to the point that the chief of the Customs Committee—a position comparable to that of a vice-prime minister—announced that the committee waived for one year all excise duties providing time for UNICEF to negotiate a permanent solution.

In addition, Kiwanis members have been strong advocates of universal salt iodization in their own countries. In the Philippines, for example, Kiwanians took an active hands-on role both at the local and national levels. Kiwanis leaders meet regularly with UNICEF and others to develop strategies that will result in their people getting adequate iodine in their diets. Kiwanians have conducted meetings with government leaders and they continue to lobby for strong enforcement of a commitment for salt iodization throughout their country.

Kiwanis International is an active partner in the global coalition of agencies that are united around the elimination of IDD. Kiwanis continues its support of regular monitoring of country-level salt-iodization levels and the effort to assure iodization sustainability. The Kiwanis partnerships with health experts, salt producers, and others provides Kiwanis the opportunity learn where advocacy of its members can help ensure continued success.

Speaking as part of a United Nations panel titled "A Smart Start for Children: The Launch of the Network for the Sustained Elimination of Iodine Deficiency," 2001-02 Kiwanis International Vice-President/ Treasurer Bob Moore said: "Our task is not complete. We need to continue until we reach our goal, and then we must continue to monitor, educate, and publicize the importance of maintaining the supply of iodine. Kiwanis and our partners have made significant strides in this project in time and money. To protect that investment and maintain its important benefits for the people of the world, Kiwanis is dedicated to sustaining the elimination of iodine deficiency by continuing to work with our partners in this endeavor."

Noting that Kiwanis believes children become the love they know, Moore emphasized that children should be given a chance to reach their full potential. "The elimination of iodine deficiency is a step in showing our love for children and giving them that chance."

8

The Global Network for the Sustainable Elimination of Iodine Deficiency

David P Haxton

8.1 History and Rationale

Plato is reported to have said:
"The beginning is the most important part of the work".

The history of national efforts to eliminate iodine deficiency disorders presents examples of progress that waned and failed. It is safe to say that the failures did not occur because of technical or scientific reasons. Rather, national vigilance declined due to little concern in political and industrial circles and limited public interest. A key underlying factor was the lack of persistent communication and education on the dangers particularly to the brain of iodine deficiency and the benefits of salt iodization in prevention.

Near the end of the last Century, it was clear that the health sector needed a success. Political and financial leaders were weary of annual appeals for illusive goals. Official development assistance was under heavy scrutiny in many Capitals. Theories of "development" itself were under analysis and early results indicated that new thinking and approaches were required to sort through the issues creating the differences between what was thought to be 'development' and what was called 'foreign aid'. (Haxton, 1992)

Emerging from these discussions and analyses was the growing realization that national endeavors that had good success were those that attracted and combined the interests of all sectors of society (public, private, civil, scientific, cultural, etc). Because of this societal approach the ability to effect change was demonstrated effectively. With regard to elimination of iodine deficiency, there was no doubt that where successful nationally it was due to the active support and investment of salt producers underpinned by the national investment in oversight and foreign aid to the country.

As this realization set in, it also became evident that success would depend on public awareness of the dangers of iodine deficiency and its insistence on ensured protection from preventable brain damage.

Civil society and the sectors of education and agriculture gradually took up leadership roles. While much of this emerged as a natural consequence of program planning nationally, a good bit of the understanding of the need for collaboration between national entities arose from National Advocacy Events in many countries following the Global Summit for Children in 1990. National Advocacy Events involving political, religious, public and private sector leaders were held in China, Mongolia, Philippines, India, Pakistan, Botswana, Bolivia, Indonesia, Russia, among others.

National Advocacy Events were not the only source for the understanding for the need for national entities to blend their activities in directing the common national good. Many governments accepted, or renewed, their obligation to create national policy on iodine nutrition and establish standards. Concurrently, salt producers and traders saw the advantages to their businesses and to the nation of the need for only iodized salt for human and animal consumption. Gradually working harmony was created and collaborative actions increased. Civil society became more aware of the magnitude of the challenge to eliminate the scourge of iodine deficiency and supported the endeavor. The scientific community lent its considerable support recognizing the need for alliances to achieve the goal. Thus, gradually it came to pass that each entity added value to the national effort and steady progress in many places was recorded.

That is not to say that progress was uniform. The hesitant starts, the sluggish acceleration of the tonnage of appropriately iodized salt, the difficulty of obtaining investment funds for the vital infrastructure of laboratories and monitoring facilities and modernized packaging and improved logistics had an effect on the speed with which things got moving nationally. Delays were occasioned also by attempting to get *all* things into place before starting *some* things. But governments and others slowly realized that the private productive producers of salt held the power and facilities to provide the daily needs for iodine and to realize that good nutrition is good politics. And the producers began to see that good public nutrition is good business. The scientific and civil communities saw the advantages to nutritional progress of working together.

The gradual way in which international development agencies began to blend their roles in these efforts with others was a mirror reflection of the requirements for success nationally. The international groups held the view that progress should not be allowed to wane and fail again. In order to achieve the goal of Universal Salt Iodization (USI) and to sustain it over time it was obvious that a network of interested parties, each doing what it does best would be vital and it would assure maximum use of resources.

8.2 Gradual Growth of the Idea

At a meeting in Atlanta in spring 1999 informal discussion suggested that the international development agencies approach the organizers of Salt 2000, a gathering of salt producers and traders that takes place every seven years and seek insertion in the discussions of the recognized

value of salt producers and traders to USI, the first plateau on the road to elimination of Iodine Deficiency Disorders. Dr. van der Haar at Emory University was designated as the focal point for approaching the Salt 2000 management. This author was asked to visit with Salt 2000 leaders as they attended another convention in Ft. Lauderdale, Florida, USA. From these two interventions, the idea of 'run up' meetings to Salt 2000 arose and became accepted among the concerned organizations and the Salt 2000 organizers.

Two series of meetings followed. One stream involved discussions related to the substance of insertions by UNICEF, WHO, MI, ICCIDD, and KIWANIS International to the Salt 2000 meeting and the predictable follow-up consequences. The other avenue was to encourage and support regional gatherings of salt producers, traders and food processors.

These latter gatherings were seen as ways to promote effective attendance at Salt 2000 in The Hague; as ways to bring salt producers and traders and policy people from neighboring countries together; and ways in which to review progress to the goal accepted by all: USI. "Salt Producers Meetings" were held in Bogotá, Colombia; Kiev, Ukraine; Dakar, Senegal; Mombasa, Kenya; Dubai, UAE. The results of these meetings demonstrated: an interest in continued inter organization collaboration; the importance of assuring optimal iodine in the daily diet and achievement of sustained USI in each country; the value of working together to form national groups to ensure that progress will be sustained.

It became evident that a new approach to international collaboration was needed to accelerate and strengthen the organizational interests priority for:

(a) reaching the goal of Universal Salt Iodization and virtual elimination of Iodine Deficiency Disorders and
(b) assuring the placement of appropriate means to sustain these over time nationally.

It was proposed that a Global Network of interested bodies be formed. UNICEF and MI saw the advantage of this kind of approach and in collaboration with the leadership of Salt 2000 proposed that discussions be held on achieving USI and Virtual elimination of IDD

Considerable detailed information is available at www.sph.emory.edu/ PAMM/Salt2000/salt3.htm

Elimination as part of the discussions of the technical issues of Salt 2000. KIWANIS saw the potential as additional assurance of sustaining national activities undertaken in many places with grants from their resources.

Not only would this be new in international public nutrition work, it would be a significant challenge to draw together organizations with dissimilar structures, corporate objectives, and operating procedures and cultures. Simultaneously, the Salt 2000 leadership and senior officials from UNICEF, WHO, MI, ICCIDD, USCDC and Emory University, and KIWANIS formed a working group to look at the potential for a global "network" following from Salt 2000. A main purpose would be to create an instrument to assist in sustaining progress where significant and to accelerate it where flagging. The working group Walter Becky, CEO of Morton Salt of the US; Nettles Brown, former President of Kiwanis International; Frits van der Haar of Emory University; David P Haxton, Advisor to Micronutrient Initiatives, Justus du Jong of Akzo Nobel Salt, Venkatesh Mannar, President of MI and Werner Schultink of UNICEF met in The Hague, Indianapolis and New York and exchanged ideas and concepts by electronic means.

8.3 Salt 2000 and the Round Table

The 8th World Salt Symposium, "Salt 2000", hosted by the salt industry in Europe, was held in The Hague in May 2000.

At the festive opening plenary session, Mr. Floris Bierman, President of Akzo Nobel Salt, speaking for the producers present from around the world, said, "The issue of salt and health has become a central theme of this Symposium. In this respect, the attitude of the salt industry has certainly changed. Ten years ago, when our collaboration was called upon, we pointed at the respective national governments and said, 'Let them prepare the laws and regulations, we will provide the product, and then all problems are solved'. Now, we know better. We go out and promote; we convey the message and we supply the technology." This set the stage for subsequent discussions aimed at suggesting how this might be done by better collaboration and what might be required to achieve the goal.

A 'Round Table' was organized jointly by Salt 2000 and MI to take up the challenge. The Round Table concurred that the major issues for sustained USI and virtual elimination of IDD were:

i) communication and education and improved consumer information;
ii) Government support with clear and applicable policies;
iii) expansion and appropriate use of technology; and
iv) modern monitoring linked to immediate action.

At the Round Table were representatives of ESPA (the Host with Salt 2000), Salt Institute of USA, UNICEF, WHO, ICCIDD, World Bank, Canadian CIDA, Dutch Foreign Aid, KIWANIS International, Russian

Salt Corporation, Salt Commissioner of India, Micronutrient Initiative, Emory University, PAMM and USCDC.

Most organization representatives spoke in favor of the idea of forming a Partnership, but some felt that joining a network was not possible within current organizational practice. A few required further internal discussions. The Round Table suggested that an organizational meeting be held to draft a Partnership Network at an early date. A working group was formed which met in New York and Indianapolis and electronically.

The European Salt Producers Association offered to be Host at such a gathering in the Headquarters of Solvay in Paris later that year to consider proposals of the working group. All organizations represented at the Round Table were invited to send a representative to Paris. A temporary Secretariat was appointed in Emory University in Atlanta charged with preparing the Meeting and providing the necessary documentation. Some committees were formed to sort out preliminary and basic issues: organizational structure and procedures; finances; membership.

The Paris Meeting in January 2001 quickly came to grips with the immediate needs and proposed that a Partnership be formed and that it be comprised of a "Summit" of Leaders that would meet every 2 or 3 years and 'The Alliance", a Representative of each Member who would meet periodically to take up work plans, plus handle regular operating matters and report to the Summit appropriately for policy guidance. The Board would be supported by a small Secretariat with defined duties. Task Forces of Board Members…and/or other associates of a Member Organization would take on special assignments. The Summit as proposed by the organizers held only the one meeting at Salt 2000 and has not met since. However, the "Alliance", later called the "Board", has met periodically to look at a range of policy issues, propose actions for national consideration, arrange national evaluations and assessments, and organize international meeting on matters of particular and specific priority need.

Some basic principles were quickly agreed upon and remain the guiding ethic. Among the most important:

- To apply lessons learned, to avoid recognized past failures with a determination to avoid repetition;
- To come to grips with the delicate process of blending international assistance and national support appropriately and in so doing, reduce dependency upon international assistance judiciously and in timely fashion.
- National ownership of the endeavors is a *sine qua non* for sustained success.

- A major goal will be formation of National Coalitions in each country.
- The main thrust will be to take full advantage of the attributes of each Member and thus assure added value to collaborative effort.
- A commitment to avoid getting lost in the rhetoric of the goal.
- Agreement that for most undertakings, one Member be designated as "Lead" for the activity.
- To keep a lean and functional structure and not be a source for funding (Working group, 2000)

8.4 The Global Network

The major activities proposed by the Board of the Global Network were:

8.4.1 National Coalitions

National ownership is an evident requirement of the effort to eliminate iodine deficiency and to do so in ways that sustain optimal iodine nutrition levels. Except for modest foreign aid, which might have stimulated action, supported postponed investments and trained some personnel, most of the investment in achievement of USI is national in origin.

History in this field is replete with national efforts that reached high levels of protection for the population, sustained a plateau of success for a period, but gradually waned and allowed iodine deficiency to return to plague the population. The history of this work is recorded elsewhere, but suffice it here to note that such failures were mainly due to:

i) lack of political commitment and political will to sustain success and
ii) failure to understand elimination of iodine deficiency requires sustained and persistent effort to assure optimal daily iodine in the diet of all the people for all time;
iii) lack of those that had the knowledge of the problems and the dangers adequately to communicate with those that could act on the problem
iv) lack of clear understanding of the need for private sector, public sector and professional sector interaction and collaborative support.

Thus, the Network pledged to direct its abilities toward these ends that would assure and sustain success. It asked each of its Members to encourage each of its national affiliates or outlets or subdivisions to seek out the equivalent units of other national entities and work out ways to form "National Watches" or "National Coalitions" where they do not exist, or to expand and strengthen such national IDD committees as may be found.

Permanence in elimination comes from a persistent regular concern for assuring quality and sufficiency. The most important is assurance of iodized salt production over time so that iodine levels in salt deliveries are always adequate; and that there is a sufficient supply for all at fair prices. Equally, there is a need for quality assured performance by the various elements of national society that support these continuous efforts: political commitment must be regularly renewed and invigorated; communications must be open, transparent and persistent over time. Finance is required for training and other support activity budgets –such as salt inspection and laboratory-based assessments. This needs constant management attention which might be called 'an entrepreneurial approach to iodine nutrition'; even handed and transparent law enforcement including import guidelines is essential; public education must be penetrated so that all children learn of the needs for iodine and the dangers for brain cells of its deficiency; agriculture leaders need constant reminding of the value of iodine for domestic animal feeding. Finally, but vitally, there is a need for persistent and professional measurement of the progress in human iodine nutrition and the public reporting of regular monitoring through salt iodine and urine iodine measurements. All of these are national responsibilities but may benefit from support or collaboration with Members of the Global Network and from experience elsewhere.

National coalition membership will vary country by country. The essential issue is to assure that the national leadership comprises those most likely to retain interest and to keep people informed of the dangers of a lapse in iodine nutrition. Simultaneously helping to sustain quality production, quality national efforts, and quality public monitoring of human nutrition improvement. These will include sports, culture, political, religious, civic, labour, and business, commercial, professional, scientific and other national entities.

8.4.2 Public Relations and Communications

Planning and providing these services are as vital to the life of the Network as they are to national endeavors. The Board is dependent upon the Members to undertake effective communication within each organization and, as well, to support public communications on iodine nutrition regularly. The Secretariat has effectively used the Internet to communicate on a range of subjects.

8.4.3 Advocacy and Organization

A formal inauguration ceremony of the Global Network to Sustain Iodine Nutrition was held as a special event at United Nations General Assembly Special Session on Children (UNGASS) in New York in May 2002.(5)

Attended by 300 members of official delegations to the UN General Assembly Special Session, the Panel for this event included, Dr. Gro Harlem Brundtland, Director General WHO; Mr. Roger Moore, UNICEF Goodwill Ambassador; Ms. Khaleda Zia, Prime Minister of Bangladesh; Mr. Beriz Belkic, Chair of the Presidency, Bosnia and Herzegovina; Dr. Ali Mohamed Shein, Vice President of Tanzania; Mr. Dong Zhihua, Chair, China Salt Producers' Association; Mr. Floris Bierman, President, Akzo Nobel Salt; Mr. Walter Becky, President, Morton Salt; Mr. Robert Moore, Vice President, Kiwanis International; Ms. Susan Whelan, Minister of International Cooperation, Canada; Ms. Eveline Herfkens, Minister of Development Cooperation, the Netherlands; Mr. Tommy Thompson, Secretary, Department of Health & Human Services, USA; Mr. Anatoly Karpov, UNICEF Goodwill ambassador and former World Chess Champion; and Hilary Bowker, CNN International (panel moderator)

Under the leadership of the Salt Institute of North America, a meeting comprised mainly of senior officials of major salt producers from all the countries of the Americas was held in Miami in March 2002. (8) In addition to the Producers, senior officials of some governments and development agencies attended.

The major purposes of the meeting were:

i) to consolidate leadership for sustained elimination in the private productive sector;

ii) re-enforce the priority for establishing National Coalitions to assure continued progress in the Region; and to review what might be done collectively in the countries having difficulty in reaching the goal of USI. UNICEF agreed to take a lead in most countries to pull together a national coalition. WHO/PAHO agreed to press for any existing Ministry of Health unit to be part of the effort.

8.4.4 Tracking Progress

The Secretariat produced a "Global Scorecard" showing how each country stood in the progress toward Universal Salt Iodization.(6) The Scorecard, based on the best available data and statistics from Members, is an advocacy and management tool, not the usual statistical tabulation.

It ranks countries by the number of families with access to iodized salt, and, thus, with children protected from brain damage. A review of the Scorecard gave the Board of the Network an overview of issues commanding its attention.

Countries in the group having achieved 90% household access or more were considered virtually successful and encouraged to seek a Network sponsored assessment to confirm the status using published UNICEF/WHO/ICCIDD standards.

Countries in a group with reported access to iodized salt of between 50% of households to 90% were encouraged to review their national efforts to assure that the strategic plans in place were adequate and on track and, if thought needed, to seek collaboration from the Network to make reviews, or adjustments.

Countries in a third category (less than 50%) were noted as obviously lagging behind expectations and needs. Each requires a different review taking the range of factors in each national situation into account. UNICEF and WHO in each country are asked to encourage such requests from governments and their partners.

8.4.5 National Assessments

The Secretariat, with the aid of a subcommittee of the Board, produced a "Guideline for National Reviews" which was approved by the Board. It was based on the assumption that a Government, before seeking foreign collaboration for a review would assure that all available data had been reviewed and the conclusion reached that such a review was indicated. Taking that into account, UNICEF and WHO Representatives would, if in agreement, forward the request to the Network Chair following which the ICCIDD would take the lead to solicit from all Members of the Board suggestions for the appropriate talent to meet the revealed demands of the national situation. A team would be named by the Chair of the Network, approved by the Government, a review undertaken and a report issued. Guidelines for undertaking the assessment were prepared and adjusted as progress unfolded. National Assessments under the aegis of the Partnership/Network have been completed in: Macedonia; Panama; Peru (April 2004); Thailand (2004); and Bhutan. Assessments of or technical assistance to specific elements in national endeavors have been provided by various Members of the Network (in addition to normal comitments) to: Central Asian Republics; Kazakhstan; India; Indonesia; Myanmar; Guatemala; Haiti; Dominican Republic; Lithuania and Russia.

Further to assist national reporting on progress and to suggest a uniform method of gathering information for analysis, the Network has designed a Matrix for reporting to be used by all Members.

8.4.6 Iodine Nutrition in Industrialized Countries

In the global thrust virtually to eliminate IDD, actions aimed at problems in Western Europe were never seen as priorities by development agencies. However, repeated reports from the European Salt Producers Association, from ICCIDD and from WHO indicated the significance of the problem in many countries. Constant vigilance in industrialized countries is as important as it is in developing countries. The myth that only poor countries suffer from the stealthy scourge of iodine deficiency is false. Encouraged by the undisputed evidence, the European Salt Producers Association (ESPA) suggested that the Network become involved in actions in Europe to address the situation. Discussions were held in Ghent, Belgium, (2002) and more recently (end 2003), ESPA proposed a joint approach by the Network to the European Union to seek attention to the problem. It needs also to be noted that evidence shows an increasing on the problem in Australia, New Zealand and other parts of the industrialized world.

The problems of IDD in Europe are described elsewhere in this book. Suffice here to indicate that the difficulties in achieving USI in Europe include a number of issues, all of which need to be addressed more or less simultaneously for maximum result. There are different laws and rules in each country, and the European Union is expanding its membership. Some countries use potassium iodate, others potassium iodide. In many places, iodine is added to other consumable products but this undermines USI and the concept of accepting the recognized norm for appropriate delivery to all people. Many food processors do not use iodized salt in their processing of manufactured food products. Consumers have the right to choose among a variety of products which presents a danger since consumer awareness of the dangers of iodine deficiency are not widespread. Moreover, many who now buy iodized salt do not know the underlining reasons for the purchase.

Even where national *average* data and information seems to indicate 'full protection', a look at the recommended diet and intake for pregnant women reveals that iodine intake is reduced in the very group most vital to prevention.

ESPA proposed at the Beijing Meeting of the Network Board that all Members agree on a common approach to the challenge of seeking

European Union support for USI while simultaneously encouraging public support for USI in each country. This is an approach that demands widespread participation and involvement of all Members of the Network with outlets in Europe and will entail close collaboration in each country for an effective public information / consumer awareness undertaking so that approaches to the EU are supported by an informed public opinion.

8.4.7 Special Situations

By 2005, each Government in the world is asked to prepare and share a plan for improved conditions of children and women as agreed at the UN Special Session on Children. This would be an opportune time to present significant and important information to each to assure protection from brain damage for succeeding generations. National constituents of Board Members can be most influential in making this happen especially if done through a National Coalition. Not only would it be useful in each nation, but it would create the tendency to assure cohesion among and between neighboring States Members of the Regional Bodies (like EU, SAARC, ASEAN and others) which would aid in getting standards and guidelines uniform.

8.5 The Beijing Conference

The Board of the Network in 2002 proposed to meet in Beijing, PRC, sometime during 2003 to coincide with the planned gathering in China of the leaders of the national effort to achieve USI and virtually eliminate IDD. Learning from lessons of experience was agreed as a guiding principle in Network policy, and the Board felt that significant lessons could be learned and shared from the experience in China. To connect the Board Meeting with the Re-advocacy Event in Beijing involved discussions with the Government of the PRC. UNICEF was asked to take the lead in this undertaking.

As planning for the meeting became accelerated, it was quickly concluded that a wider international gathering allowing others to exchange views on progress and obstacles would produce beneficial results. It would also add impetus to the acceleration of national efforts toward the goal of USI. While a small management team prepared a list of countries that might be invited and guidelines for reports to the meeting itself, UNICEF in the name of the Board invited each to send a delegation at the Ministerial level to discuss:

i) achievements toward USI and
ii) lessons learned in that process and
iii) proposals to overcome hurdles identified.

Each invited Government was asked to form a team representing the major interests in the effort, to prepare a short report on progress to date, and to highlight significant lessons learned and serious bottlenecks encountered. To assure maximum attention on the issues involved in the work while respecting diplomatic requirements and protocol, an agenda was agreed upon which derived its format from the lessons learned in the successful endeavor in China. (China IDD control programme, 2000) National reports were asked to use this guideline in preparation.

The topics covered in the Beijing Meeting were:

- The need to keep public and official consciousness high.
- The need to sustain political commitment.
- Lessons regarding Multi-Sector collaboration
- Lessons on law enforcement and regulatory practice regarding USI
- Experiences from information and consumer education and from social mobilization efforts
- Experience in maintaining good monitoring and evaluation
- Practice of good scientific prevention measures.
- Priority to improve quality and productivity of IDD elimination staff in all sectors.
- Experiences in strengthening scientific research

In summary, the reports and statements confirmed that progress is rapid and durable when open and collaborative relationships exist between public and private sectors nationally. Monitoring also improves. In order to sustain progress, it seems imperative to obtain the full support of the food processing industries. In addition, the agriculture sector can be a valuable ally. Unless the education system is fully penetrated with the knowledge of the value of iodine and the dangers of its absence and the value of persistent consumption of iodized salt, knowledge will not automatically transfer from one generation to the next.

It confirmed the lesson learned that there is a need to market even the most beneficial of services since it is clear that it is not sufficient to just design a service… or a program…. and propose it to officials, public and private, and hope for active political and other support for a decade or so. Just as immunizing children against disease and illness must be

promoted as regularly as the arrival of babies and mothers who bear them..…iodized salt must be marketed and the issues surrounding IDD must become market issues. Iodized salt needs to be the new norm.

Many national reports indicate major logistical challenges: need for road improvement; storage and logistics; modern packaging; reaching outlying population groups; border protection and control of entry of non-iodized salt. Unlocking the stalemate between lack of iodized salt and the need to expand markets in difficult to reach locations will require senior management and entrepreneurial attention, imaginative re-alignment of resource application, and improved monitoring.

A few reports tell of the formation of salt associations. Selling iodized salt to small, dispersed, nomadic, tribal or remote populations was not a feature of reports. In good part, absence of the product among such groups might relate to lack of incentive to sell it in those places. Perhaps this is a management and logistical challenge to address soon. Producers will provide the product, but they would prefer to do so at even a modest profit. (Governments might look at ways to collaborate in ways that assure that iodized salt is available in all locations in ways somewhat similar to police or army protection, mail delivery or voting activities.)

8.6 International Collaboration in Laboratory Services

Under the leadership of the Centre for Disease Control (CDC) (US Public Health Service, Atlanta), the Network assisted in expanding a global network of recognized laboratories that governments and others could use to confirm monitoring results and minimize operational costs. The International Resource Laboratories for Iodine (IRLI) sustains exchanges and contacts with 12 referral laboratories in 12 countries. (7)

The IRLI Network, although still in the embryonic stage of development has the potential to become self sustaining in 3 to 5 years and can serve as a valuable resource for other laboratories in their regions by providing the fundamentals of testing, providing knowledge of the latest developments in technology, such as the WYD Iodine checker, assuring the standardization of techniques between the countries of the region and, thus, quality assurance. The IRLI Network will provide a trusted and reliable source laboratory to which program managers in neighboring countries can periodically send urinary iodine samples for testing. The IRLI Network is promoting a paradigm shift in thinking and encouraging member labs to develop marketing plans for their services.

Such plans would emphasize the added value brought to labs in the region. In addition it is a way to set up fair and equitable cost recovery mechanisms for services rendered. CDC has furnished the Network labs with everything they need to launch this new approach and UNICEF is providing the necessary computer hardware.

8.7 Conclusions

In perspective of history, the developments in accurate understanding of the problem of iodine deficiency, the enormity of its human and economic impact, and the best ways of tackling it have undergone an extraordinary transition with an ever-contracting timetable. Iodine deficiency has been around for millennia; but it took several centuries for the conclusion to be reached that goiter, cretinism, and associated brain damage long depicted in historical paintings and statues was caused by a minute deficiency of a simple natural element in the daily diet. Realization of the unique effectiveness of the straightforward solution, universal salt iodization, took less time to take hold–a few decades only. It remains a challenge to meet the commitment within the time set by the UN to put the solution permanently in place for preventing the evil of this age-old stealthy scourge.

As development has taken hold and as old practices yield to unfolding knowledge and modern management, changes take place. In this process both the system involved and the people involved are changed both by external influence and by internal learning and application. With the push for accepting USI as the major strategy for achieving the goal of virtual elimination, rapid improvements were seen in salt iodization practices. The desire to expand and consolidate these gains, when combined with the imperative to ensure permanence, was the crucial underlying reason for close collaboration of concerned organizations and governments. This Chapter has set out to illustrate some of the more recent ideas, concepts, initiatives, agreements and events that took place during the short time of the past two decades. It now seems safe to suggest that the public sector…often in places hesitant to work directly with the private sector…has seen that the success of this venture to eliminate IDD depends upon recognition that the application of the agreed upon solution lies in private and civic hands. The private sector…equally hesitant about working on (what had been perceived as) public sector activities…sees that fair and transparent government oversight to protect public nutrition

is good and benefits all. Pulling divergent interests with different mandates into a cohesive network demands political leadership. The challenges remain of working together globally for identified goals, only achievable when national entities also pool resources for mutual benefit, and accepting each Member for what it can contribute best to the single vision. But much has been accomplished and upon that much can be built.

The resources of the combined members of the Network are available to collaborate with national efforts and in so doing will provide a wider range of assistance than heretofore available through any one entity interested in the work. For all too long there was an implicit assumption that if the technical advice provided to a program were sound the service or program would succeed. This assumption has been abundantly proven to be inadequate. There is a need to discuss operational issues; to understand the relationship between what is proposed and other priorities like poverty reduction, productivity, education; and a need to understand how things work nationally. To sustain success an entrepreneurial stance to public health nutrition will be beneficial and will help to meld the interests of the public and private sectors in this vital human endeavor.

The current Network ***is*** remarkable in its composition. There is no other operating collaboration comprising public, private, scientific, and civic and development aid entities in the field of nutrition. It is unique in this regard and it is also unique in that it does not finance national development activities but rather encourages national entities to undertake those responsibilities, perhaps with foreign development collaboration through some official channel.

(*) The text of this chapter was shared for comments with the Chair of the Network, Dr. Rainer Gross of UNICEF, the former Chair, Dr. Werner Schultink of UNICEF, and the Secretary, Dr. Frits van der Haar, of Emory University. The comments were enormously helpful but the author remains solely responsible for errors and omissions.

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9

The International Council for Control of Iodine Deficiency Disorders (ICCIDD)

B S Hetzel & J T Dunn

9.1 Founding of the ICCIDD

The international public health community, including the international agencies, needed to be made aware of the public health implications of the relation between iodine deficiency and brain damage. As described in Section II a beginning was made with a Symposium at the 4th Asian Congress of Nutrition in Bangkok (Lancet 1983). This aroused the interest of several prominent nutritionists. After this an invitation was extended by the UN Subcommittee on Nutrition (SCN) through the Australian Government for preparation of a Report on a proposed Global Program for the Elimination of Brain Damage due to Iodine Deficiency. This Report, which was later published (Hetzel 1988) included a review of the scientific evidence, a model for a national prevention program and then a proposal to establish the International Council for Control of Iodine Deficiency Disorders (ICCIDD) as an expert advisory group available to agencies and governments. Approval for the establishment of the ICCIDD was given in 1985 by the SCN at its meeting in Nairobi (Lancet 1986).

The ICCIDD was initiated in March 1985 at a Symposium in Delhi at the time of a WHO/UNICEF Intercountry Meeting. A group of 12 thyroid scientists and public health professionals, including WHO and UNICEF representatives, agreed to go forward with initial support from the Australian Aid Program (AusAID), UNICEF and WHO. The ICCIDD was formally inaugurated in Kathmandu, Nepal (March 1986) with messages of support from the Director-General of WHO (Dr Hafdan Mahler) and the Executive Director of UNICEF (Mr James Grant) (Lancet 1986).

In 1987 the ICCIDD was recognised as the expert group on all aspects of the iodine deficiency disorders (IDD) by the UN System through the UN Subcommittee of Nutrition (SCN). In 1994 the ICCIDD was officially recognised by WHO as an NGO working collaboratively towards the elimination of IDD by the year 2000 (Hetzel and Pandav 1996).

From its foundation the ICCIDD accepted technical assistance to national programs as the first priority. This led to a close working relationship with governments of countries with severe IDD (usually Ministries of Health) and with the leading international agencies WHO and UNICEF. The 1986 World Health Assembly (WHA) passed a Resolution sponsored by Australia, which noted this new aggressive approach to the prevention and control of IDD (WHO 1986).

This was followed by WHA Resolutions in 1990, calling for elimination of IDD by the year 2000 and a Resolution in 1996, calling for

sustainability of the program through systematic monitoring. Both included reference to the role of the ICCIDD and its availability to assist countries.

In 1990 the World Summit for Children accepted the goal of the virtual elimination of IDD by the year 2000, which provided major political support for country programs (see further Section II, VI and VII).

9.2 The ICCIDD Network

The ICCIDD now consists of a multidisciplinary global expert network of over 700 professionals from about 100 countries. This network includes scientists, public health administrators, technologists, communicators, economists, salt producers and other experts, who are committed to assisting national governments and international agencies in the development of national programs for the elimination of IDD. More than half, are from developing countries. Membership is free and open to qualified professionals with an interest in IDD.

The ICCIDD logo is shown in fig 1. It emphasises the relevance of the brain to its work.

The Inaugural Meeting took place in Kathmandu, Nepal in March 1986.

A review of all aspects of IDD public health programs was carried out, which led to the subsequent publication of a book entitled: "The Prevention and Control of Iodine deficiency Disorders" (Hetzel et al 1987).

A Constitution was adopted with subsequent registration of the ICCIDD as a Non-Government Organization (NGO) in Australia.

In accordance with the Constitution, an Executive Committee was elected which included a Chairman, Vice Chairman, Executive Director and Secretary.

The ICCIDD Founding Office Bearers and Board Members are listed in **Table 1**.

The ICCIDD was very fortunate to have Dr JB Stanbury and Dr V Ramalingaswami as Chairman and Vice Chairman respectively. Their international reputations for pioneering research on iodine deficiency provided an immediate boost to the scientific status of the organization, in both developed and developing countries.

The ICCIDD has been able to attract the support of a substantial group of scientists and public health professionals with experience of IDD over the nearly 20 years since its birth in 1985.

Table 1. *The ICCIDD Founding Office Bearers and Board Members (1986)*

The initial 'Office Bearers" were:

Chairman	JB Stanbury (USA)
Vice Chairman	V Ramalingaswami (India)
Executive Director	BS Hetzel (Australia)
Secretary	JT Dunn (USA)

The following were appointed as Regional Coordinators (following the WHO Regions)

African Region	OL Ekpechi (Nigeria)
SE Asian Region	CS Pandav (India)
American Region	E Pretell (Peru)
European Region	F Delange (Belgium)
Western Pacific Region	T Ma (China)

In addition Founding Board Members included the following:

M Benmiloud	(Algeria)
R Carriere	(UNICEF, Delhi)
N Chawla	(Consultant to UNICEF, India)
G Clugston	(WHO Delhi)
MC de Blanco	(Venezuela)
R DeLong	(USA)
E De Maeyer	(WHO Geneva)
R Djokomoeljanto	(Indonesia)
MH Gabr	(Egypt)
FP Kavishe	(Tanzania)
N Kochupillai	(India)
D Lantum	(Cameroon)
TZ Lu	(China)
MGV Mannar	(UNICEF Consultant, India)
R Manoff	(USA)
G Medeiros-Neto	(Brazil)
C Thilly	(Belgium)
F Van der Haar	(The Netherlands)

The ICCIDD has also enjoyed a close working relationship with the World Health Organization and UNICEF. This was initially established with Dr Graeme Clugston, Director of Nutrition and Development for WHO and Dr Peter Greaves, Senior Advisor on Micronutrients at UNICEF.

Notable contributions have been made by former senior UNICEF officers, Mr David Haxton and Professor Jack Ling.

The Executive Director's position has been full-time, the others being part time.

From 1986 to 2001 the ICCIDD Administrative Office was that of Dr Basil S Hetzel in Adelaide, South Australia who served as the Executive Director (1986-1995) and then Chairman (1995-2001). He also served as Treasurer for this period, assisted by an annual audit by Mr Peter Kirk of Deloitte Touche Tohmatsu, Adelaide.

In 1995 Dr Francois Delange (Belgium) became Executive Director and served until 2001.

In 2001 the office was transferred to Ottawa with the appointment as Treasurer of Dr Peter Walker, Dean of the Faculty of Medicine at the University of Ottawa, Ottawa, Canada. The ICCIDD Constitution was originally drawn up to meet the requirements of an Australian NGO. It has now been modified to meet the requirements of a Canadian NGO with the appointment of Directors instead of Board Members. The ICCIDD is now registered as a Canadian NGO with (in addition) approval as a Charitable Organization in Canada. The ICCIDD was indebted to Mr Robin Ritchie QC of Ottawa for the necessary legal advice to make this transfer.

The ICCIDD now has a Governing Board of Directors of 40 members, half from developing countries and the international agencies. The Board of Directors meets annually, usually in conjunction with a Regional meeting or a Special Workshop. The current Board of Directors is listed in **Table 2** with a photograph (April 2001) and brief biographies in **ICCIDD Appendix 1**.

In March 2001 Professor Jack Ling (USA) succeeded Dr Hetzel as Chairman and Dr John Dunn (USA) succeeded Dr Francois Delange as Executive Director.

Table 2. *ICCIDD Board of Directors (2001-2004)*

Executive Committee

- Prof. J Ling (Chair) (USA)
- Dr GN Burrow (Vice Chair) (USA)
- D JT Dunn (Executive Director) (USA)
- Dr PL Jooste (Secretary) (South Africa)
- Dr P Walker (Treasurer) (Canada)
- Mr MG Venkatesh Mannar (Canada)
- Ms J Mutamba (Zimbabwe)
- Dr S Sinawat (Thailand)

Chairman Emeritus

- Dr BS Hetzel (Australia)

Committee Chairs

- Dr H Burgi (Science/Technology) (Switzerland)
- Dr GN Burrow (Development)
- Mr R Hanneman (Salt) (USA)
- Mr D Haxton (Liaison) (USA)
- Prof J Ling (Communication)

Regional Coordinators

Africa

- Dr D Lantum (RC) (*Central Africa and Madagascar Subregion)* (Cameroon)
- Dr J Egbuta (*West Africa Subregion*) *(Anglophone*) (Nigeria)
- Ms J Mutamba (*South/East Subregion)*
- Dr T Ntambwe (*West Subregion) (Francophon*e) (Republic of Congo)

Americas

- Dr E Pretell (RC) (Peru)
- Dr E Boy (*Central American/Caribbean Subregion*) (Guatemala)

Asia Pacific

- Dr C Eastman (RC) (Australia)

China-East Asia

- Dr Zu-pei Chen (RC) (China)

Table 2. *ICCIDD Board of Directors (2001-2004) (Contd.)*

East Europe/Central Asia
- Dr G Gerasimov (RC) (Russia)

South East Asia
- Dr CS Pandav (RC) (India)

Middle East
- Dr F Azizi (RC) (Iran)

West/Central Europe
- Dr A Pinchera (RC) (Italy)

Other Directors
- Dr E Asibey-Berko (Ghana)
- Dr F Delange (Belgium)
- Dr GR DeLong (USA)
- Mr Z Dong (China)
- Ms AM Higa (Peru)
- Dr IS Hussein (Oman)
- Dr L Ivanova (Bulgaria)
- Mr L Locatelli-Rossi (Zambia)
- Dr G Maberly (USA)
- Mr RL McCurley (USA)
- Mr B Moinier (France)
- Dr CS Pittman (USA)
- Dr R Sheikholeslam (Iran)
- Dr C Thilly (Belgium)
- Dr C Todd (Belgium)
- Dr P Vitti (Italy)
- Dr Yan Yuqin (China)
- Dr M Zimmerman (Switzerland)

Table 3. *ICCIDD – Global Activities*

1. Technical advice and consultation to countries and agencies
2. Advocacy of the Goal of Elimination of IDD
3. Expert Consultative Group for UN System (WHO, UNICEF)
4. Training of Professionals
5. Applied Research and Development
6. Global Monitoring of Progress Towards the Goal
7. Publications
8. Liaison with UN and Bilateral Agencies
9. Leading Agency for National Program Evaluation by the Global Network for the Sustainable Elimination of Iodine Deficiency
10. General Coordination and Administration

9.3 The Activities of the ICCIDD

The work of the ICCIDD has developed at 3 different levels:
9.3.1 Global
9.3.2 Regional
9.3.3 National

9.3.1Global Activities

These are listed in **Table 3.**

At the global level the ICCIDD has been successful in greatly increasing the awareness of IDD as an international health problem of major importance within the UN System and beyond. It is now recognised by WHO that iodine deficiency is the single most important preventable cause of mental defect in the world today.

The ICCIDD has participated fully in a series of meetings with WHO and UNICEF concerned with different technical aspects of control programs such as the Methods of Assessment and the Criteria for Elimination (WHO/UNICEF/ICCIDD 2001). The ICCIDD plays a special role in adapting scientific information for public health recommendations.

Applied research has been another important activity including the determination of the optimal dosage level (duration and effectiveness) for iodized oil when given by mouth and a simplified method for the

determination of urinary iodine. These and other such studies have provided important guides for future public health practice.

The ICCIDD has collaborated closely with WHO and UNICEF in short term **training programs** for country program managers in technical procedures such as ultrasonography, the measurement of thyroid size, laboratory methods for the measurement of urinary iodine excretion and blood TSH. Multidisciplinary training for a longer term (up to six months) has been carried out by the Program Against Micronutrient Malnutrition (PAMM) jointly organised by the Centre for Disease Control (CDC) and the School of Public Health, Emory University in Atlanta, USA.

The ICCIDD maintains a **databank on Country Programs**, which is continuously updated. It provides monitoring details on progress towards the goal of elimination.

Current data are shown in the tables in **Appendix 1** of this book and in the global map on iodine nutrition for each country.

Finally, **publications** have been very important to the creation of an informed group of professionals throughout the world. These include the IDD Newsletter published by the ICCIDD quarterly since 1985 (edited by Dr JT Dunn) with a circulation of 4400. The IDD Newsletter has since 1985 provided a unique series of Reports on IDD at country level as well as scientific and technical developments.

9.3.2 Regional Activities

The ICCIDD has Regional Co-ordinators for Africa, America, Asia Pacific, South East Asia, China-East Asia, West and Central Europe, Eastern Europe and Central Asia and the Middle East **(Table 2)**. In Africa four Subregional Coordinators are responsible for countries in the West (one each) for Anglophone and Francophone, Central and Southern Eastern Regions. Each Regional and Subregional Coordinator is a member of the Board of Directors and makes an annual report on IDD activities in the region and also takes appropriate initiatives including consultancies to individual countries to promote national programs.

A significant factor in the development of national programs has been a series of Regional meetings held since 1986 throughout the world by the ICCIDD with the support of WHO and UNICEF. These meetings have been attended by country representatives, from the Ministries of Health and other important sectors, such as the salt industry and media in relation to National Programs. These meetings took place Yaounde (Cameroon) 1987, in Delhi (India) 1989, in Dar es Salaam (Tanzania)

1990, in Tashkent (Former USSR) 1991, in Brussels (Belgium) 1992, Alexandria (Egypt) 1993, Quito (Ecuador) 1994, Dhaka (Bangladesh) 1995, Harare (Zimbabwe) 1996, Munich (Germany) 1997 and Beijing (China) 1998. More recently a Regional Meeting was held in Chiang-Rai (Thailand 2003) and in 2004 will be held in Lima, Peru.

It is through these Regional meetings that the experts within the ICCIDD network have been able to communicate with professionals from many countries. This has subsequently developed further with consultancies and further contacts designed to identify obstacles to progress and remove them.

Progress has been notable in Africa. At the first African Regional meeting (Yaounde, Cameroon in 1987), only 22 countries were represented. In 1996, 45 countries were represented including Zaire, Angola, Mozambique and Eritrea in spite of the occurrence of civil war in these countries (WHO/UNICEF/ICCIDD 1997).

At these Regional meetings a model for a National Program (the 'wheel' model) has been presented to show its multisectoral nature and the relation between the different elements (see Sections II, VII, VIII)

The expertise required includes nutrition, endocrinology epidemiology, laboratories (salt iodine, urine iodine) advice regarding planning, education, communication, management, iodized salt and other iodine technologies relevant to National Programs. This is met by the ICCIDD multidisciplinary network.

9.3.3 National Activities

National activities have followed from the Regional Activities already described. In the last two years ICCIDD members have been appointed as National Representatives to provide advice and support for National Programs in their countries and to promote the formation of National Coalitions for sustainable optimal iodine nutrition. Such appointments have progressed in all Regions.

9.4 Sustainability

The next challenge being faced by the ICCIDD and its partners in relation to the success of universal salt iodization (USI) is the issue of sustainability. It is well known that past success has been followed by failure due to a variety of factors. In Guatemala and Colombia in South America, it was due to political changes and social upheaval, and in the former USSR countries, to complacency and apathy following initial

success. In China it was the Cultural Revolution. More recently in Brazil the federal government has relinquished responsibility for salt iodization to the salt industry as part of a policy of decentralization, which poses a threat to sustainability.

The list of the requirements for sustainability, are laid out in a recent Report (WHO/UNICEF/ICCIDD 2001) and they are fully discussed in Section IX.

The cooperation of the salt industry in providing good quality iodized salt is very important to the sustainability of the elimination of IDD. The Global Salt 2000 Symposium at The Hague, following an earlier ICCIDD Seminar at the previous Salt Symposium in Kyoto in 1992, resolved to support the elimination of IDD. Subsequently a Global Network for the Sustainable Elimination of Iodine Deficiency' has been established with the support of UNICEF, WHO, the Salt Institute (USA), ESPA (European Salt Producers Association), ICCIDD, CDC, MI and Kiwanis International. This Network was formally launched at the time of the UN General Assembly, Special Session on Children (UNGASS), New York (May 2002). Special efforts are now being made by the salt industry to ensure quality control and other measures (see further Section III Global Network).

The need for an independent evaluation of progress at country level was first raised by the ICCIDD with WHO and UNICEF in 1993. A Resolution was passed by the 1996 World Health Assembly pointing out the need for monitoring and evaluation in order to ensure sustainability of programs and the availability of the ICCIDD to assist. Since 2000 a series of country evaluations have been led by the ICCIDD including for the Global Network since 2002.

Reports on the Regions and Countries and Regions by ICCIDD Regional Coordinators are included in Section VIII. These indicate some successful programs but there is still some considerable distance to go before global elimination can be achieved.

A Conference of National ICCIDD Representatives from countries in Western and Central Europe held in Goteborg, Sweden (Vitti et al 2002) indicated that more than half the population in the Region is at risk of iodine deficiency. The Conference pointed out 'that most countries have weak to non-existent government programs to address the problem. Consequently much of the responsibility is shouldered by others especially thyroidologists, the health sector, academic institutions and the salt industry. National Coalitions of these groups can and should play a major

part in achieving and sustaining optimum iodine nutrition in the continent'. Similar considerations apply to the other regions, especially in Africa (see further Section VIII).

9.5 The Future

The need for an international non-government organization with relevant scientific expertise is indicated by the importance of the ICCIDD in the establishment of country programs throughout the world since 1986. Continued monitoring in order to ensure sustainability often requires international assistance–including that of WHO, UNICEF and the ICCIDD. It is not possible for WHO and UNICEF to provide IDD specialist staff in view of many other pressing needs. So the ICCIDD network plays an important complementary role to these major Agencies

The role of the ICCIDD in the global partnership has been discussed in a recent Round Table in the Bulletin of the WHO (Hetzel 2002). Emphasis was laid on the role of the ICCIDD in communication, advocacy, implementation and sustainability of country programs with UNICEF and WHO in the global partnership.

The ICCIDD has provided stability of personnel and purpose in contrast to national government and agencies where changes are more frequent.

An updated ICCIDD Mandate was adopted in April 2001, following a special Board of Directors consultation **(ICCIDD Appendix 2)**.

The maintenance of effective national programs for the elimination of IDD as a cause of brain damage is the responsibility of national governments. This emphasises the political aspect, which has been highlighted by the current situation in India. At the Federal Government level there has been a recent reversal of the ban on the sale of non-iodized salt, which had previously been approved in 22 States and 6 Union Territories. The ICCIDD Regional Coordinator for South-East Asia, with ICCIDD colleagues in Delhi, continues to maintain an active scientific advocacy dialogue with peoples representatives, policy makers and the media (see further Section VIII) A Public Interest Litigation (PIL) has been filed in the Supreme Court of India. An action to reinstate the ban awaits decision by the Supreme Court of India.

The ICCIDD expertise needs to continue to be available to governments and agencies, with continuity of existing funding sources or alternative sources of support.

The ICCIDD budget is modest-approximately $1million per year of which $500,000 to 600,000 is core–this is provided now mainly by the bilaterals, Australia, Canada, Holland, with past support by the World Bank, UNICEF and WHO. In recent years UNICEF and WHO support has been provided to assist the attendance of country program staff at meetings. UNICEF provides support for the *IDD Newsletter*. The ICCIDD also receives support for Special Projects. This modest support needs to continue for the ICCIDD itself to be sustainable!

There is a need for the continuing recruitment of new ICCIDD members. New members with relevant expertise in nutrition, epidemiology, endocrinology, salt technology, public health administration, education and communication are needed to continue the availability of the multidisciplinary expertise, which has been the great strength of the ICCIDD. To this end the ICCIDD has participated in a variety of international specialist meetings.

IDD Symposia have been provided by the ICCIDD at successive International Union of Nutrition Scientists (IUNS) Congresses since 1985 (Brighton, UK); in 1989 (Seoul, South Korea); in 1993 (Adelaide, Australia); in 1997 (Montreal, Canada); in 2001 (Vienna, Austria).

The ICCIDD contributed to the International Salt Symposium held in Kyoto (Japan) (1993) and in The Hague (2000). It also contributed to Regional Salt Meetings in Bogota, Colombia; Kiev, Ukraine; Dakar, Senegal; Dubai, UAE; Mombasa, Kenya before the 2000 meeting; and with the Western African Health Organization (WAHO) in Conakry, Guinea in 2003.

Contact with thyroid scientists has been continued through Satellite Meetings held with successive International Thyroid Congresses (The Hague 1991; Toronto 1995; Kyoto 2000). In addition more recently satellite meetings have been held with Regional Thyroid Associations, the European Thyroid Association (ETA) (Krakow 2002, Goteborg 2003); the Asia & Oceania Thyroid Association (AOTA) (Singapore 2003); and the Latin American Thyroid Society (LATS) (Cordoba 2003).

9.6 Conclusion

Our experience indicates that the NGO model can indeed be effective in assisting a global program, in making it initially effective and in making it sustainable. We hope this experience will assist the establishment of other NGO's in order to assist other global programs in collaboration with the UN Agencies in other areas of public health.

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ICCIDD Appendix 1

ICCIDD Board of Directors 2001-2004
Brief Biographical Data

Margaret N Asuquo (Nigeria)-Quality control expert, Union Dicon Salt PLC, Nigeria. Background in production and management of iodized salt in the private sector.

Fereidoun Azizi (Iran)-Professor of Medicine and Director of Endocrinology, Shaheed Behesti University, Tehran; Chairman, National Advisory Committee on iodine nutrition; frequent consultant on iodine nutrition in the Middle East; background as academic thyroidologist; Regional Coordinator for the Middle East (2001), ICCIDD.

Erick Boy (Guatemala)-Currently Program Officer, Micronutrient Initiative, Ottawa; formerly staff member, INCAP, Guatemala; training and background in nutrition, especially micronutrients; Subregional Coordinator for Central America and the Caribbean (1999-), ICCIDD

Hans Burgi (Switzerland)-Associate Professor of Medicine (Emeritus), Chief of Department of Medicine, Burgespital Solothurn, Switzerland (retired); Chairman, Swiss Iodine-Fluorine Commission; background in clinical thyroidology; long-term interest and research in iodine deficiency.

Gerard Burrow (USA/Canada)-Special Advisor to the President of Yale for Health Affairs, David Paige Smith Professor of Medicine, professor of Obstetrics and Gynaecology, and recent Dean, Yale University School of Medicine; background in academic thyroidology with a particular interest in the thyroid gland in pregnancy; Director of Development, Vice Chair 2001-), ICCIDD.

Zu-pei Chen (China)-Professor of Medicine, Director of Institute of Endocrinology, Tianjin Medical University, Tianjin, China; Chairman of National IDD Advisory Committee to the Ministry of Health; frequent consultant on IDD in China and other countries; background in thyroidology and pathophysiology, especially IDD; Regional Coordinator for China and Eastern Asia, ICCIDD.

Francois Delange (Belgium)-Consultant in Pediatric Thyroidology, Honorary Head of Clinics and Professor, department of Pediatrics, University of Brussels; full time activity at the Department of Pediatrics, Saint-Pierre Hospital, University of Brussels, 1960-1996; ICCIDD Executive Director (1995-2001) and Regional Coordinator for Europe (1985-2001).

Robert DeLong (USA)-Professor of Pediatric Neurology, Duke University Medical Center; formerly Chief of Pediatric Neurology, Massachusetts General Hospital and Duke University; Co-director, Xinjiang, China, Project on Timing of Brain Vulnerability to Iodine Deficiency during Development, and of Project on IDD Treatment by Iodination of Irrigation Water.

Zhihua Dong (China)-Manager, China National Salt Industry Corporation; leader in China's national implementation of salt iodization for correction of IDD; background in salt iodization management.

John T Dunn (USA)-Professor of Medicine, Divisions of Endocrinology and International Health, University of Virginia; background in laboratory work on iodine chemistry and metabolism and in clinical thyroidology, frequent contributor to scientific and other literature on thyroid and iodine and consultant to international agencies and individual countries on all aspects of IDD; Secretary (1985-2001); Executive Director (2001-); Editor, *IDD Newsletter* (1985-), ICCIDD.

Creswell J Eastman (Australia)-Professor of Medicine and Pathology, University of Sydney, Director of the Institute of Clinical Pathology and Medical Research at Westmead Hospital and Director of the NSW State Analytical Laboratories. Principal International Consultant in IDD to the Chinese Ministry of Health and consultant to WHO, Western Pacific Region. Director of the Australian Government-funded "Australia-China Technical Cooperation Project on IDD" from 1985-1991; Chairman and Project Director of the AusAID/WHO funded "IDD Elimination Project in Tibet". Regional Coordinator for Asia Pacific Region.

John Egbuta (Nigeria)-Formerly Senior Research Fellow, Department of Chemical Pathology, Faculty of Medical Sciences, University of Jos, Nigeria; Program Officer with UNICEF on the Elimination of Micronutrient Deficiencies (IDD, VAD and IDA) in Nigeria. Sub-regional Coordinator for Anglophone West Africa, ICCIDD

Gregory Gerasimov (Russia)-Professor of Medicine, recent Head of Thyroid Division of Endocrinology Research Centre, Moscow; independent public health consultant (micronutrients) for international agencies an countries of Eastern/Central Europe and Central Asia. Sub-regional Coordinator, later Regional Coordinator for Eastern Europe and Central Asia, ICCIDD.

Richard Hanneman (USA)-President and CEO, Salt Institute, the global association of salt manufacturers; for the past 15 years, involved in planning worldwide salt symposia in Kyoto (1992) and The Hague (2000). Chair, Salt Iodization Committee (2001-), ICCIDD.

David Haxton (USA)-Economist, former Regional Director of UNICEF; work in UNICEF to elevate priority for iodine nutrition and national efforts to eliminate IDD in Peru, Bolivia, Ecuador, Colombia, Paraguay and Brazil while serving in those countries; in Indonesia as UNICEF representative and as Regional Director in South Asia, collaborated with national efforts to accelerate progress in Nepal, Bhutan, India, Sir Lanka, Mongolia and China; advisor to Executive Director of MI on policy and programming and advisor to PAMM on Policy; Chair. Liaison Committee, ICCIDD.

Basil Hetzel (Australia)-Formerly Professor of Medicine, University of Adelaide; Professor of Social and Preventive Medicine, Monash University, Melbourne; Director, National Institute of Nutrition, Adelaide, Australia; background in public health, nutrition and epidemiology; author, editor or co-editor of 6 books on iodine nutrition; Chairman (1995-2001) and Executive Director (1985-1995); Treasurer (1985-2001) ICCIDD.

AnnaMaria Higa (Peru)-Nutritionist, former Director, National IDD Program, also UNICEF Consultant, Ministry of Health, Peru; background in management and surveillance of IDD programs, social marketing and communication.

Izzeldin S Hussein (Oman)-Secretary, Regional Association for Iodized Salt Producers in Middle East and North Africa, frequent consultant and temporary advisor, WHO/EMRO. Degrees in pharmacognosy and management (MBA); developed the salt industry of Oman in 1990, and partnerships between industry and health authorities in Middle East countries; frequent consultant on iodized salt situations and marketing.

Ludmila Ivanova (Bulgaria)-Associate Professor of Nutrition, National Centre of Hygiene, Medical Ecology and Nutrition, Sofia, Bulgaria; Head Laboratory Nutrition, Laboratory Manager, National IDD Elimination Program, Ministry of Health, Bulgaria.

Pieter Jooste (South Africa)-Nutrition Intervention Research Unit, Medical Research Council of South Africa. Work in laboratory assessment of nutritional disorders, including iodine deficiency, investigation into distribution and features of IDD in South Africa and frequent consultant to countries and international agencies on laboratory and epidemiologic assessment of IDD; Secretary (2001-), ICCIDD.

Daniel Lantum (Cameroon)-Professor of Public Health and Community Medicine, formerly Vice-Dean and Head of Department of Public Health Unit, Faculty of Medicine and Biomedical Sciences,

University of Yaounde; long time focal point for IDD in Cameroon. Chairman, Micronutrient Task Force for Africa; Sub-regional Coordinator for Central Africa and Madagascar (1987-present); Regional Coordinator for Africa (2000-), ICCIDD.

Jack Ling (USA)-Clinical Professor of Public Health and Director of International Communication Enhancement Centre, Department of International Health and Development, School of Public Health and Tropical Medicine, Tulane University, New Orleans. Previously Visiting Professor of Communication at the University of Louisiana at Lafayette and adjunct Professor at Columbia University and City University of New York. Worked as journalist, then 30 years with UN, including terms as Director, Division of Communication, UNICEF HQ (1972-1982) and Director, Division of Information and Education, WHO HQ (1982-1986). Chair, Communication and Education Committee (1995-) and Chair, Board of Directors (2001-), ICCIDD.

Lorenzo Locatelli-Rossi (Zambia/South Africa)-Background, through family, in the salt industry as international private producer and holder of several patents for salt refining; personally worked in several countries on salt production, sales and marketing of salt and has consulted in over 30 countries on the Universal Salt Iodization/IDD Project.

Glen Maberly (USA/Australia)-Executive Director, PAMM; Professor of International Health, Emory University School of Public Health; frequent consultant to international agencies on IDD and fortification; background in academic endocrinology in Australia.

MG Venkatesh Mannar (Canada/India)-Executive Director (now President), Micronutrient Initiation (MI) Ottawa; background in chemical engineering and salt production in India; extensive consultancies with UNICEF, CIDA and other agencies on salt fortification.

L Meftah (Algeria)-Frequent consultant in Middle East on salt iodization; background in engineering and salt production.

Bernard Moinier (France)-Secretary, European Salt Producers Association and Comite des Salines de France; background in management of trade associations; author of papers on dietary salt and its supplementation with iodine and fluoride.

Judith Mutamba (Zimbabwe)-Deputy Director (Principal Dietician), National Nutrition Unit, Ministry of Health and Child Welfare, Zimbabwe. Sub-regional Coordinator for Southern and Eastern Africa (1994-) and Executive Committee, ICCIDD.

Theo Ntambwe (DR Congo)-Director of National Nutrition Program, DR Congo; background in nutrition, especially control of iodine and other

micronutrient deficiencies, assessment of thyroid volume by ultrasonography. IDD initial evaluation and action plan elaboration in African Countries. Sub-regional Coordinator for Congo and Francophone West Africa, ICCIDD.

Chandrakant S Pandav (India)-Professor, Department of Community Medicine, All India Institute for Medical Sciences, New Delhi; postgraduate training in medical economics; extensive experience in India and other countries of Southeast Asia as consultant and advisor; also, consultant to IDD programs in Africa, Middle East, participant, editor and author for many publications on IDD and health economics; Regional Coordinator for Southeast Asia (1985-), ICCIDD.

Aldo Pinchera (Italy)-Professor and Director, Institute of Endocrinology, University of Pisa; a leader in thyroidology for Italy and internationally; extensive research, especially in autoimmune thyroid disease and effects of iodine on the thyroid. Regional Coordinator for Europe (2001-), ICCIDD.

Constance Pittman (USA)-Professor Emerita of Medicine at the University of Alabama at Birmingham; long experience in clinical and research thyroidology, with special emphasis on metabolism and activation of thyroid hormones; active in many professional and research organizations; member and consultant on IDD, Kiwanis International.

Eduardo Pretell (Peru)-Professor of Medicine, Faculty of Medicine, Head of Unit of Endocrinology and Metabolism, High Altitude Research Institute, Cayetano Heredia Peruvian University. Founding Director of the Peruvian IDD Control Program in 1983; Minister of Health, Peru 2000-2001; background in academic thyroidology, iodine chemistry, field-work on IDD. Regional Coordinator for the Americas (1985-), ICCIDD.

E Sigurdsson (Iceland)-Past President of Kiwanis International; leader in Kiwanis World Service Project to elimination IDD.

Sangsom Sinawat (Thailand)-Director, Division of Nutrition, Ministry of Public health; background as paediatrician and nutritionist; frequent consultant on micronutrient issues in Thailand and globally.

Soekirman (Indonesia)-Professor of Nutrition, Jakarta; long experience with micronutrients, especially iodine and Vitamin A.

S Sundaresan (India)-Deputy Salt Commissioner, Government of India; long experience with production and management of salt, including iodization.

Claude Thilly (Belgium)-Professor of Public health, Free University of Brussels; wide experience in epidemiology and management of iodine deficiency, especially in Africa and Vietnam.

Charles Todd (Zimbabwe)-Regional Health Advisor, European Commission, Harare, Zimbabwe; Associate Professor, University of Zimbabwe Medical School; medical general practitioner; background in operational research in IDD; consultant for WHO and UNICEF on implementation of IDD programs; formerly Africa Regional Coordinator ICCIDD.

Peter Walker (Canada)-Dean, Professor and former Chair of Medicine, University of Ottawa School of Medicine; background in endocrinology, internal medicine and medical school administration; Treasurer (2001-), ICCIDD.

Yan Yuqin (China)-Professor of Medicine, focusing on basic and applied research on iodine nutrition and in charge of Iodine Laboratory in Division of IDD Research, Institute of Endocrinology of Tianjin Medical University, Tianjin; member of National Advisory Committee on IDD of Ministry of Health; background in pathology, endocrinology, epidemiology and iodine chemistry.

Fig. 1 *Members of the Board present at the 2001 meeting near Ottawa: in front, Egbuta, Izzeldin; first row standing, Anne Hetzel, Pittman, Pandav, Higa, Dunn, Pretell, Ling, Chen, Yan; second row, Lantum, Burrow, Ntambwe, Haxton, Gerasimov, Mutamba, Hanneman, Hetzel, Walker, Azizi; last row, Burgi, Mannar, Jooste, Maberly, Thilly.*

ICCIDD Appendix 2

ICCIDD MANDATE

THE VISION OF ICCIDD IS A WORLD VIRTUALLY FREE FROM IODINE DEFICIENCY DISORDERS WITH NATIONAL ENDEAVORS IN EACH COUNTRY TO MAINTAIN OPTIMAL IODINE NUTRITION, PRIMARILY THROUGH UNIVERSAL CONSUMPTION OF IODIZED SALT.

THE MISSION OF ICCIDD IS TO ADVOCATE TO GOVERNMENTS, CITIZENS, AND DEVELOPMENT AGENCIES A PRIORITY COMMITMENT TO IODINE NUTRITION THROUGH A MULTIDISCIPLINARY APPROACH THAT INVOLVES ALL RELEVANT PARTNERS.

ICCIDD BELIEVES THAT COUNTRY PROGRAMS MUST BE FULLY SUPPORTED NATIONALLY FOR SUSTAINED SUCCESS, AND WILL WORK WITH ALL PARTNERS AND NATIONAL ENTITIES TOWARDS THAT END.

10

The International Resource Laboratories for Iodine (IRLI) Network

T Dearth-Wesley, C Pfeiffer, K Caldwell

The global goal to achieve sustainable elimination of iodine deficiency disorders (IDD) by 2005 requires verification that a population is receiving adequately iodized salt and its iodine status is adequate. However, several factors complicate proper monitoring of the salt situation and a population's iodine status:

i) use of various methods for determining both salt iodine (SI) and urinary iodine (UI),
ii) significant differences in the proficiency and capacity of laboratories throughout the world,
iii) lack of organized SI and UI external quality assurance programs, and
iv) limited access to resource laboratories for necessary technical and analytical assistance.

In response to these challenges, the International Resource Laboratories for Iodine (IRLI) Network was established.

The initial structure and early goals of the IRLI Network were determined at an international conference in Bangkok, Thailand (May 2001), hosted by Dr Emorn Wasantwisut and her colleagues of the Institute of Nutrition at Mahidol University. Nearly 100 researchers, policymakers, and public health professionals from 31 countries attended this meeting. The conference enabled participants to review and discuss country experiences and to address the technical and practical barriers to the analyses of UI and SI. The participants agreed that an international network of iodine resource laboratories would strengthen the capacity of individual country laboratories to accurately measure iodine in urine and salt.

Conference participants developed a plan of action for the IRLI Network. One or two laboratories from each of the six World Health Organization (WHO) regions were selected on the basis of laboratory performance, capacity and infrastructure, solid links to a national IDD programming body, and geopolitical representation. The Bangkok conference participants nominated the regional resource laboratories.

From these nominations, the IRLI coordinating body, which includes representatives from the Centers for Disease Control and Prevention (CDC), International Council for Control of Iodine Deficiency Disorders (ICCIDD), Micronutrient Initiative (MI), United Nations Children's Fund (UNICEF), and WHO, then selected 12 laboratories as resource laboratories of the initial IRLI Network (September 2002).

The initial IRLI Network included laboratories from 12 countries: Australia, Belgium, Bulgaria, Cameroon, China, Guatemala, India, Indonesia, Kazakhstan, Peru, Russia, and South Africa. Merely 2 months after the announcement of the initial IRLI Network, at least two IRLI Network laboratories received additional resources from their governments as recognition and reinforcement of their new regional function. These early successes validated the approval and support for the IRLI Network, which provided a positive platform for the IRLI Network's future success.

The 12 IRLI Network laboratories provide technical and analytical support and training to national and sub-national laboratories in their regions for the analyses of iodine in urine and salt. The IRLI Network laboratories also participate in the Ensuring the Quality of Iodine Procedures (EQUIP) program, an international external quality assurance program for UI measurements managed by CDC. Ultimately, the IRLI Network laboratories will establish their own regional networks of laboratories and will work to secure resources for their networks. Additional responsibilities of the IRLI Network laboratories include communication with the salt industry to ensure production and distribution of adequately iodized salt and advocacy to national and international partners to garner political support and raise awareness of IRLI Network activities.

To better prepare the IRLI Network laboratories for these roles and responsibilities, 28 representatives from the 12 IRLI Network laboratories and from the IRLI Network coordinating body convened for the IRLI Harmonization Workshop in Cape Town, South Africa, during November 10-14, 2002. CDC, ICCIDD, MI, UNICEF, and WHO co-sponsored the workshop, and Dr. Pieter Jooste and his colleagues of the Medical Research Council, Tygerberg, South Africa, hosted it. The goals of the workshop were to standardize the operating procedures among IRLI Network laboratories, equip those laboratories for their role as resource laboratories, improve communication among laboratories and with the coordinating body, plan next steps to implement network activities at the regional level, and develop long-range plans of action for the six regions.

Technical and operational considerations affecting the acceptance, viability, and sustainability of the IRLI Network were discussed openly throughout the workshop sessions. The workshop allowed the representatives to work together with other IRLI Network laboratories in their regions to brainstorm and develop early plans for the establishment and acceptability of regional networks. To gain acceptance in their respective regions, the IRLI Network laboratories recognized the need to develop marketing plans emphasizing the added value of their laboratories. The regional marketing plans will be used to gain support both from other laboratories in the region and also government to strengthen collaboration among multiple sectors.

A second major outcome of the workshop was acknowledgement that the IRLI Network laboratories must develop creative strategies resulting in financial sustainability within 3-5 years. These strategies are based on the notion that seed money from multilateral agencies will be available only for a limited time, so regional financial plans using the sliding scale model must be developed. Financial plans must emphasize a return on investment, and conference participants suggested exploration of a fee-for-service approach. The fee-for-service approach is one way for the laboratories to recover material, personnel, and overhead costs—progress toward financial sustainability.

From the discussions during the Cape Town workshop, CDC developed an *IRLI Network Operation Manual* as the basis for interactions among Network members and the technical development of the Network. Furthermore, the *Operation Manual* addressed the financial model for the IRLI Network laboratories and provided a framework and strategies—such as the development of marketing plans and establishment of regional networks—for other IRLI Network components.

To gain acceptance and raise awareness of the Network, the IRLI Network coordinating body distributed two advocacy letters. One letter to over 40 laboratories participating in CDC's EQUIP program introduced the IRLI Network laboratories, explained selection of the initial IRLI Network laboratories, and outlined the IRLI laboratories' roles and responsibilities. A second letter, sent to WHO and UNICEF country offices, also introduced the initial IRLI Network and advocated endorsement of efforts to strengthen political and agency support for the IRLI Network.

To standardize the training and technical assistance material used by IRLI Network laboratories, the *Laboratory Guide for the Measurement*

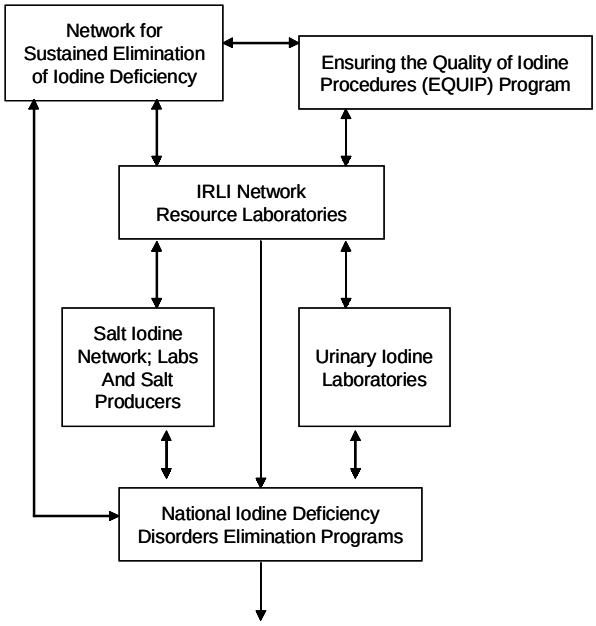

Fig. 1 *Relational Model for the International Resource Laboratories for Iodine (IRLI) Network*

Fig. 2 *In utero and postnatal protection of children's brains from losses in learning ability — improved economic and social development of nations*

of Iodine in Urine and Salt was developed. The ~300-page guide focuses on the preanalytical, analytical, postanalytical, and total quality management issues related to UI and SI measurements. IRLI Network laboratories assisted with the development of the *Laboratory Guide* and are encouraged to use the guide as a resource when conducting training and technical assistance to other laboratories.

All IRLI Network laboratories provide some form of technical or analytical support and training to other laboratories in their regions. The IRLI-Indonesia laboratory was chosen as the primary resource laboratory for the "Evaluation of Intensified Iodine Deficiency Control" project, which will collect ~17,000 UI samples from people in 28 provinces in Indonesia. IRLI representative Dr. Rachmawati Banundari was also selected as the National Laboratory Coordinator for the project, so she will conduct a standardization program for the three labs involved in the project.

The IRLI-Kazakhstan laboratory also serves as a technical resource for a large-scale project, entitled "Improving Nutrition for Poor Mothers and Children in Asian Countries in Transition." The project involves six countries: Azerbaijan, Kazakhstan, Kyrgyz Republic, Mongolia, Tajikistan, and Uzbekistan. IRLI representative Dr. Feruza Ospanova serves as the regional specialist on IDD and Universal Salt Iodization for the project.

Additional examples of the significant role of IRLI Network laboratories as technical resources include the IRLI-Australia laboratory assisting with a research study conducted by the Western Sydney Area Health Services on the iodine status of a large population in Australia and the IRLI-South Africa laboratory's involvement with a doctoral student from Lesotho. The IRLI-South Africa laboratory worked with the student to evaluate the IDD control program in Lesotho and analyzed the SI and UI samples from Lesotho in its lab. The collaboration increased knowledge about the IDD situation in Lesotho and strengthened the capacity in Lesotho to eliminate IDD.

With support from UNICEF and Bulgaria's Ministry of Health, the IRLI-Bulgaria laboratory analyzed UI samples from schoolchildren and pregnant women for a national survey evaluating the IDD status in Bulgaria. The IRLI-Guatemala laboratory provided analytical support to Nicaragua and Dominican Republic. The IRLI-Guatemala laboratory conducted training courses on SI and UI methodologies to laboratory representatives from Dominican Republic and Belize.

IRLI-China provided international training to laboratory representatives from Vietnam. The Vietnamese representatives participated in a 3-week training program funded by UNICEF-Vietnam. The training covered topics such as laboratory methods, IDD programming, establishment of a national network, and cooperation with the salt industry.

In addition to the IRLI Network laboratories' role as technical and analytical resources, some IRLI Network laboratories are working to establish or maintain regional networks. The IRLI-Belgium laboratory has submitted a proposal to the European Commission for funding for the "Iodine Validation for the European Laboratories" project, an interlaboratory comparison program for laboratories across Europe. The IRLI-Russia laboratory has identified five laboratories in Russia that are equipped for UI analysis, and IRLI-Russia plans to establish a regional external quality assurance program with these labs. Lastly, the IRLI-Peru laboratory plays a key role in coordinating the "Interlaboratories Assay for Urinary Iodine" program, an external quality control program for UI analysis comprising 19 laboratories in the Latin American region.

Communication with the salt industry to ensure production and distribution of adequately iodized salt is another important responsibility of IRLI laboratories. IRLI-South Africa prepared and distributed educational materials to all salt producers iodizing salt in South Africa; the laboratory conducted salt sampling and testing to investigate the loss of iodine from packaged salt under different climactic conditions. Representatives from the IRLI-Cameroon laboratory visited three major salt producers and a major salt importer in Cameroon to evaluate their quality control and quality assurance programs. The IRLI-Cameroon representatives reported much improvement in the programs from the previous year; the salt producers and importer agreed to send their laboratory technicians for training at the IRLI-Cameroon laboratory.

IRLI Network laboratories are also involved in advocacy efforts to national and international partners to build political support and raise awareness of the IRLI Network activities. The IRLI-India laboratory demonstrated this role by ensuring wide coverage of the IRLI Network at the WHO Bi-Regional Consultation to Promote Sustainable IDD Control Programmes in the South East Asian and Eastern Mediterranean regions. IRLI-India also presented information about the IRLI Network at the Second Inter-Country Workshop on Iodine Monitoring, Laboratory Procedures, and National IDD Elimination Programs, which WHO and ICCIDD organized.

Therefore, in the 1½ years since its formal inception, IRLI Network laboratories have embraced their roles and responsibilities as resource laboratories and have strengthened the capacity of laboratories to accurately measure iodine in urine and salt. As the first global network of iodine resource laboratories in support of national public health and industry monitoring, the IRLI Network is built on a strong foundation, backed by well-defined guidelines and goals, and comprising hard-working, committed representatives. The IRLI Network is an integral monitoring component that contributes to sustaining progress toward optimal iodine nutrition and Universal Salt Iodization.

11

Research Centres

Research Centres contributing significant research on IDD since 1950

The Global Program for the Elimination of Iodine Deficiency as a Cause of Brain Damage has rested on a strong foundation of international research extending throughout the world. A number of leading IDD Research Centres are listed in Table 1. A notable feature of this research is the amount of work being carried out in various academic centres in Asia, Africa and Latin America.

Many investigators from these centres have become members of the ICCIDD, a number have served on the Board of the ICCIDD and others have become ICCIDD Senior Advisors to assist IDD elimination programs in their regions and elsewhere.

It is appropriate to record here the pioneering role of Dr John B Stanbury, former Chief of the Thyroid Clinic, Harvard Medical School and former Professor of Experimental Medicine, Massachusetts Institute of Technology, Boston.

Dr John Stanbury was the first Chairman of the ICCIDD and served for a period of 10 years.

In addition to his own contributions he has been an inspiration of many young scientists throughout the world.

A similar inspirational role for the developing world has been provided by the late Professor V. Ramalingaswami.

There are many research workers all over the world now exploring different aspects of the Iodine Deficiency Disorders.

Table 1.: *List of Research Centres contributing sifnificant research on IDD since 1950*

Africa	Cameroon	University Centre for Health Sciences Yaounde, Cameroon
	Nigeria	University of Nigeria Enugu, Nigeria Jos, Nigeria
	South Africa	Medical Research Council Tygerberg, South Africa
	Zimbabwe	University of Zimbabwe Harare, Zimbabwe
Asia	China	Tianjin Medical University Tianjin, China
	India	All India Institute of Medical Sciences Ansari Nagar, New Delhi - India
	Indonesia	Diponegoro University Semarang, Indonesia
	Japan	Toho University Tokyo, Japan
	Thailand	Siriraj Hospital Bangkok, Thailand
Europe	Belgium	Hospital St Pierre University of Brussels Brussels, Belgium
	Italy	Institute of Endocrinolgia Actolologia Clinica E Medicina, De Lavoro Universita Degli Studi di Pisa Pisa, Italy
	Spain	Institute of Endocrinolgia Biomedicas del CSIC Madrid, Spain
	Switzerland	Swiss Federal Institute of Technology, Zurich, Switzerland
	The Netherlands	University of Leiden Leiden, The Nethelandss

Table 1.: *List of Research Centres contributing sifnificant research on IDD since 1950 (Contd.)*

Middle East	Iran	University of Tehran Eveen, Tehran, Iran
Oceania	Australia	The Queen Elizabeth Hospital University of Adelaide, Adelaide, Australia CSIRO Health Sciences and Nutrition Institute Adelaide, Australia Australian Centre for Control of IDD (ACCIDD), Westmead Hospital University of Sydney, Sydney Australia
	New Guinea	Institute of Medical Research Goroka, New Guinea
	New Zealand	MRC Unit Medical School Dunedin, New Zealand
The Americas	Canada	University of Toronto Toronto, Canada
	Brazil	Hospital das Clinicas University of Sao Paulo Sao Paulo, Brazil
	Ecuador	Central University Medical School Quito, Ecuador
	Peru	Universidad Peruana "Cayetano Heredia" Lima, Peru
	USA	Harvard Medical School Massachusetts Institute of Technology Boston, Mass, USA Program Against Micronutrient Malnutrition Emory University Atlanta Georgia, USA University of Virginia Charlottesville, Virginia, USA

12

The Micronutrient Initiative

Venkatesh Mannar

The Micronutrient Initiative (MI) was established in 1992 as an international secretariate by its principal sponsors. International Development Research Centre (IDRC), Canadian International Development Agency (CIDA), United Nations Children's Fund (UNICEF), United Nations Development Program (UNDP) and the World Bank.

The Mission of the MI then was to facilitate the achievement of the following goals related to the elimination of micronutrient malnutrtion by supporting effective and sustainable programmatic actions:

- virtual elimination of iodine deficiency disorders
- virtual elimination of vitamin A deficiency and its consequences, including blindness
- reduction of iron deficiency anemia in women by one-third of the 1990 levels

In March 2001 the MI changed its status from secretariat to an independent not-for-profit organization. MI is governed by an international Board of Directors. Presently MI is based in Ottawa, Canada and maintains regional offices in New Delhi, India and Johannesburg, South Africa. MI supports and promotes food fortification and supplementation programs in Asia, Africa and Latin America and provides technical and operational support in those countries where micronutrient malnutrition is most prevalent. MI carries out its work in partnership with other international agencies, governments and industry.

The Micronutrient Initiative's mission is to stimulate and support national actions to eliminate micronutrient malnutrition, assuring universal coverage and sustained impact on people's health and well-being.

Over the years, MI has grown. It began as an international commitment to remedy the widespread problems caused by micronutrient deficiencies. Today MI is an effective, robust organization that provides technical and financial assistance, secures services, develops solutions, and advocates on behalf of vulnerable populations, particularly the poor, women, and children.

Over the past decade, the Micronutrient Initiative (MI) and its many partners have devoted significant resources and effort to bring worldwide attention to micronutrient malnutrition, its consequences and solutions. These efforts have resulted in strong progress towards controlling widespread micronutrient malnutrition. With respect to virtual elimination of IDD, a campaign to iodize all of the world's edible salt, coverage has been expanded and now more than 70 percent of the global population have access to iodized salt; the Universal Salt Iodization (USI) effort has turned out to be one of the most impressive public health success stories of the latter half of the century.

Alongwith UNICEF, WHO, ICCIDD, The MI also played an important role at the United Nations General Assembly Special Session on Children convened in May 2002 where world leaders set the following targets:

- The sustainable elimination of iodine deficiency disorders by 2005;
- The sustainable elimination of vitamin A deficiency by 2010;
- Reducing anemia prevalence, including iron deficiency by a third by 2010;
- Accelerating progress towards the reduction of other micronutrient deficiencies through dietary diversification, food fortification and supplementation.

The MI has laid the foundation for major expansion in food fortification in the early years of the twenty-first century. MI has contributed to this progress by raising awareness and political commitment, initiating action, providing the tools for action, building consensus and networks, leveraging resources and transferring ownership, and working with its many partners to support programs in developing countries.