DEVELOPMENT OF AN IDD CONTROL PROGRAM MONITORING AND EVALUATION SYSTEM FOR PAKISTAN

OVERVIEW OF SYSTEM & GUIDELINES

JUNE 1994

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BACKGROUND

Iodine deficiency is the world's single most significant cause of preventable brain damage and mental retardation. The clinical and sub-clinical manifestations of iodine deficiency are collectively included in the term Iodine Deficiency Disorders (IDD).[1] Recent estimates made in 1993 by WHO suggested that approximately 1.5 billion people are at-risk of IDD, i.e. living in iodine deficient areas where the goitre rate in the general population is over 5%.[2] It was also estimated at that time that over 550 million people worldwide had goitre. While goitre is the most obvious manifestation of IDD, iodine deficiency may lead to irreversible brain damage in the developing fetus of pregnant women with poor iodine status. Furthermore, infants and young children without an adequate exogenous source of iodine may suffer from psychomotor retardation and intellectual impairment. The more severe consequences of iodine deficiency include cretinism and profound mental retardation.

Iodine Deficiency Disorders (IDD) are a significant public health problem in certain areas of Pakistan. While the mountainous terrain of the Northern Areas (NA), Azad Jammu and Kashmir (AJK) and the northern Districts of the Northwest Frontier Province (NWFP) have been long considered to be among the worlds most severely affected areas for IDD, recent evidence suggests that other areas, including the Punjab have an important sub-clinical IDD problem. It has been estimated that some 10 million people in the northern provinces of Pakistan are affected by some degree of IDD, including 300,000 handicapped with moderate to severe cretinism.

The Government of Pakistan (GOP) has recognized the need to address the IDD problem. Government programs were in place in the 1970's and 1980's, including the establishment of salt iodination plants in Skardu (1971) and Peshawar (1980). In 1986, the GOP undertook an iodized oil injection program in regions where IDD was highly prevalent. However, the impact of these activities has been unclear given the lack of any systematic program monitoring or evaluation.

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1 Hetzel, B.S. and Pandav, C.S. S.O.S. For a Billion: The Conquest of Iodine Deficiency Disorders. Oxford, Oxford University Press, 1994.

2 Micronutrient Deficiency Information System, World Health Organization. **Global Prevalence of Iodine Deficiency Disorders. MDIS Working Paper # 1.** Geneva: WHO, 1993.

The GOP, in collaboration with the World Bank (WB) and the United Nations Children's Fund (UNICEF), have proposed an expanded effort to address the IDD problem in Pakistan through promotion of universal salt iodization. The fortification of edible salt with potassium iodate may provide the amount of iodine necessary to fulfill daily dietary requirements and prevent IDD. A recent review of the salt sector suggests that the capacity of salt production is more than adequate to satisfy the total national requirement for iodized salt, and that the provision of equipment for iodization may be realized by the end of 1997. Administrative orders, including Section 144 which stipulates that the importation, production, sale and purchase of uniodized salt is prohibited, may be imposed on salt processors and retailers to ensure that all salt is iodized. Indeed, the success of the iodized salt program will necessitate that there is rigorous promotion of universal salt iodization among producers, retailers and consumers.

With this background, USAID and the GOP Nutrition Section have recommended that a comprehensive monitoring and evaluation system be developed to provide an ongoing assessment of the iodized salt programme. The system should be designed for application to both the current and proposed future activities of the program. A consultancy was arranged by USAID to support the Nutrition Section of the Division of Planning and Development to establish a prototype model of a IDD monitoring and evaluation system in the Northwest Frontier Province (NWFP). It is anticipated that this model could be pilot tested through technical and financial assistance of the World Bank and UNICEF. Once fine-tuned, the model could be extended to other provinces, and modified where necessary, to adapt to the changing characteristics and information needs of the IDD control program.

CONSULTANCY REPORT

The consultant visited Pakistan between 6 May and 24 May. A series of practical guidelines were recommended for the implementation of a IDD control program monitoring and evaluation system in a pilot phase in the Northwest Frontier Province (NWFP) based on discussions with Federal, Provincial and District level officials of the Government of Pakistan (GOP) and different multilateral agencies. It is anticipated that through the availability and disbursement of World Bank pilot project funding, the initial implementation of the system may be undertaken in the next 3-6 months.

The Consultant has provided a framework through which in may be possible to establish ongoing monitoring of the iodized salt program. It is important to recognize that the recommendations for the monitoring activities involve government workers from several sectors, including industry, food, education (schoolteachers) and health (DHO's and District nutrition officers). Thus, before the system may actually be implemented, it will be critical to convene a collaborative consultative workshop at the Province level in which the objectives and operation of the IDD control program monitoring will be discussed.

It is proposed that this workshop take place to engage the different groups, and to consider the possible mechanisms through which to implement the system most effectively. The workshop should be practical in its orientation, under the coordination of the Planning of Development Division (PDD) with three primary outcome expected. First, each sector should understand that IDD is a joint problem which needs to be addressed multi-sectorally. Second, the different sectors should be motivated to be involved and recognize their unique and integral contribution to the program. Finally, the workshop would lead to the formulation of a workable set of guidelines for the implementation of monitoring activities with formal policy set forth by the education and health sectors to engage their workers.

To facilitate the monitoring, it is recommended that a "Salt Commissioner" be appointed at the Province level under the authority of the Ministry of Food, to better coordinate the functions of the various sectors, and to oversee all aspects of the salt iodization program at the Province level. Alternatively, a Micronutrient Support Team may be developed at the Provincial level to strengthen micronutrient control program activities, initially focusing on IDD control. Such a Micronutrient Support Team (MCT) could be made up of representatives of the health, food and education sectors and could be an extension of the Iodized Salt Support Facility (ISSF) presently operating through UNICEF. In either case, a single coordinating function for micronutrient control activities needs to be well defined, and the Provincial workshop could be the forum through which such a designation may occur.

Following the workshop at the Province level, it is proposed that the recommendations be sanctioned by the Provincial Syndicate Committee for Nutrition, (managed by the PDD) which can then assist in the implementation of the system. Deputy Commissioners of each District can advocate the monitoring and help to facilitate the flow of information and that corrective actions determined to be necessary as a result of the monitoring process are taken rapidly. Indeed, these Deputy Commissioners have already moved the process of salt iodization along

in several areas through the imposition of absolute bans on uniodized salt, and the monitoring system could provide the quantitative basis to ensure that the ban has been effective.

It is important that a single focal point be designated at the District level for monitoring of IDD, a position which should be determined on the basis of commitment and motivation. In some Districts, the District Health officer could play this role, while in others, the Medical Superintendent may be designated. The decision as to who will serve this function could be an outcome of a District coordinating workshop, and should be made for at least a two year time horizon.

During the visit, it became clear that the Consultant could only develop the tools and methodologies necessary to carry out monitoring and evaluation of the iodized salt activity, but that the sensitive issues of enforcement of legislation were beyond the mandate set forth. Indeed, for any monitoring system to be effective, it is imperative that mechanisms are in place to take corrective action where program constraints are identified. Emphasis has been placed on responses which will facilitate the success of the iodized salt program during its current phase, as well as in the future. For example, if a salt processor is found to have low levels of iodine in their salt, the health department should be notified to provide further training and support to the facility on different aspects of iodization methods to improve the activity. This may be done by communicating with industry to help support the program, assuming a strong functional link can exist between industry and health. The monitoring should motivate workers, rather than be critical and imposing. No recommendations are made concerning the legal enforcement and responses which may be necessary in cases where salt processors are found to have consistently inadequate iodized salt production, and retailers found to be selling uniodized salt after the legislation of USI has been passed.

It was possible to meet with a number of District Health Officers from and two Medical Superintendents from Malakand Division, NWFP during a visit to Swat. This provided the opportunity to discuss the proposed monitoring and evaluation system, and more importantly to ascertain the feasibility of collecting iodized salt consumption data through Nutrition workers and schoolteachers. It was made clear that through coordination at the District level and efforts to sensitize the different sectors (as with a workshop mentioned above), it will be possible to involve these workers.

What follows is an overview of the components of the monitoring and evaluation system. It has intentionally been developed as a series of modules, so that different components may be implemented, while others may not be required depending upon resources available and capabilities of GOP personnel. The monitoring system also calls for the use of several indicators and target goals, which will change as the program evolves. In this way, areas may be identified which require support in specific aspects of the salt iodization program, rather than undertaking a universal program which progresses at a constant rate throughout each province. Ultimately, the program will be most successful if implemented at the District level, with support from Provinces and the Federal Government. With this in mind, the monitoring system will provide simple, accessible information on key indicators which pertain the program performance at the District level, and within each District, to identify where support may be required at the Tehsil and Union Council levels.

It will be important to ascertain the present GOP infrastructure for the Food and Health sectors at the periphery before the recommendations may be carried out. It is possible that these sectors may be strengthened as part of the World Bank/GOP Nutrition Project's capacity building activities. Thus, it is proposed that the salt monitoring functions be clearly articulated as part of these training protocol and to familiarize the Health workers, particularly District Nutrition Officers, and Food workers, e.g., Food Supervisors and Inspectors, of the role that they will play in executing the National Salt Iodization Program.

SUMMARY OVERVIEW OF STEPS TO BE TAKEN IN IDD CONTROL PROGRAM MONITORING AT POINT OF RETAIL AND OF CONSUMPTION

	Processors/ Wholesalers	Retail	Consumption
Administrative level	District	Tehsil	Union Council
Data collection	District Food Inspectors - check internal monitoring (processor logbook) and responsible for external monitoring	District Food Inspectors, reporting information to DNO's	DNO, BHU health technician & schoolteachers
Data flow	District Food Supervisor to summarize and provide to District Health Officer. Summary data sent to Micronutrient Support Team (MST) at Province	District Food Supervisor to summarize and provide to District Health Officer to take action. Summary data sent to MST	BHU Physician- to summarize data for local Tehsil, sent to DHO for action and to further summarize data for all Tehsils in District for the MST
Frequency	Monthly	Quarterly *	Quarterly *
Indicators	1) Total salt processed available for human consumption, 2) Percent salt processed claimed iodized, 3) Percent salt claimed iodized which is adequately iodized (data from internal and external monitoring)	1) Total salt sold which is refined, 2) Percent salt sold which is claimed iodized, 3) Percent salt sold adequately iodized	1) Total salt consumed which is refined, 2) Total salt consumed which is adequately iodized (or % of households consuming salt adequately iodized)
Cut-off points	1) N/A, 2) 100%, 3) 90%	Varies by indicator (see below)	Varies by indicator (see below)

Retail Salt Monitoring

Tehsil level (There are approximately 3-4 Tehsils in each District)

1. All villages in each Tehsil should be stratified into two groups;
   Group I - ***urban***, large population, good access to roads, and
   Group II - ***rural***, more remote villages with small populations

These groupings should be made at the Tehsil level by the Tehsil Food supervisor in collaboration with health officials. Once the characteristics of the groups are determined, divide all villages into one of the two groups. Construct lists with population size, and the cumulative population.

2. For each group, select 2 villages (by PPS technique if population data is available or by SRS - see main text for description of these techniques).

3. Tehsil Food Supervisor should visit the selected villages in conjunction with local health authorities (BHU staff, VHW or CHV). For each village, identify the *market most often used for primary shopping* and visit that market (likely to be within a few kilometers for Group II villages, and located in Group I selected villages). At the marketplace (associated with the village), select one half of the sample stalls required (please see the sample size requirements for retail salt monitoring). The stalls considered should be selling at least 50-100 kg of salt per month.

4. At each stall, the monitoring team should get the response to the indicator which is being considered and record the information.

5. Repeat the process for the marketplace of the second selected village for the first group.

6. The number of all samples with positive responses and negative responses should be summarized for each group. It should be determined if the 'threshold' has been reached for the first group.

7. The process should be repeated for the two selected villages for group II.

8. Data should be summarized for the Tehsil and forwarded to the District Food Supervisor who could then calculate the proportion of all Tehsils in which the threshold has been reached, and the proportion where the threshold has yet to be attained. A sample of the summary report prepared by the DFS to be sent to the DHO and the Province MST:

Name of District _____

Quarter (Months) _____

Name of Tehsil		**Indicator**	**Indicator target reached (Y/N)**
_____	Urban	See below	__
	Rural	"	__
_____	Urban	"	__
	Rural	"	__
_____	Urban	"	__
	Rural	"	__

etc.

Total number of Tehsils where indicator target has been attained - urban areas ___

Total number of Tehsils where indicator target has been attained - rural areas ___

Percentage of all Tehsils where indicator target has been attained - urban ___ %

Percentage of all Tehsils where indicator target has been attained - rural ___ %

The data should be provided directly to the District Health Officer who could then assess the progress of the iodized salt program, and take corrective action in those areas where performance has not yet reached expected goals. Over time, the indicators and cut-off points used to monitor program performance will change, and specific actions may be considered as a function of the indicators being measured. Below are a series of indicators, targets and proposed threshold levels to take action. These are in no way intended to serve as the definitive list, and indeed may evolve as the program proceeds. Please refer to the chart of sample size requirements in Annex 1 of the monitoring and evaluation system description.

Indicators	Proposed Target	Threshold for Action
1) Is all salt sold in refined form	95	80
2) Is more than 75% of salt sold claimed iodized	95	80
3) Is more all salt sold claimed iodized	95	80
4) Is more than 75% of iodized salt sold adequate by rapid test kits	95	80
5) Is all iodized salt sold adequate by rapid test kits	75	50
6) "	95	80

Frequency of Data Collection

It is proposed that once the fourth indicator has been reached, and the monitoring is focusing on the fifth and sixth indicator, e.g., the adequacy of iodine concentration levels in salt (once all salt has been claimed iodized), the frequency of the monitoring may change. While it is anticipated that in the early stages of the program, the achievement of targets for the first 3 indicators may occur rapidly, and thus monitoring on a quarterly basis is important, the last indicators will be achieved somewhat more slowly. However, once the target for the sixth indicator is reached, it need only be confirmed by bi-annual or even annual monitoring to ensure that the program is sustained and retains it's optimal performance.

Monitoring of Salt Consumption

Union Council level (There are 5-6 U.C. in each Tehsils, 20 U.C.'s in each District)

1. All primary schools in each Union Council (U.C.) should be listed with enrollment size (if available, and if so, the cumulative enrollment) . This should be done at the District level by the District Health Officer and the District Nutrition Officer. It only needs to be done once and the list may be retained for subsequent monitoring rounds, perhaps entered into computer database files if such facilities exist.

2. For each U.C., the Doctor of the BHU (perhaps in collaboration with the DHO or DNO) should select 2 schools, either by simple random sampling or PPS (if enrollment info available). For each round of monitoring, e.g., every three months, it will be important to select different schools to retain an unbiased, representative sample of salt consumption patterns.

3. The Health Technician of the BHU should arrange to visit the selected schools in the U.C., and, in collaboration with the schoolteachers should construct a list of all primary schoolchildren, preferably from an existing roster, if one exists. For each school, select systematically one half of the sample schoolchildren required (see the sample sizes for the monitoring of salt consumption). *Note that it is critical to determine if the BHU Technician will do this work. Alternatively, a Tehsil Education Supervisor may be used, or a NGO operating in the area. In either case, the costs for DA/TA and capabilities will need to be considered when finalizing the system.*

4. Ask the children to bring a sample of the salt most commonly used in the household to the school the next day in a plastic bag. If testing the adequacy of the iodine levels in the salt, the schoolteacher should be given a rapid test kit and told how to use it. The following day, the teacher should test the salt samples brought in, and record the number 'turning blue' (positive) and the number not turning blue (negative). These results should be sent to the BHU, from where they can be sent to the DHO with the monthly HMIS report. The BHU should note whether the target for the indicator had been reached or not, and take action where necessary. Educational campaigns and social mobilization to increase consumer awareness may be possible at the U.C. level. It may also be important to determine if the problem is one

of supply, rather than demand and to then discuss with salt processors supplying the area whether iodized salt is being provided.

5. At the DHO office, the number of all samples with positive responses and negative responses should be summarized and for each District, the proportion of all U.C.'s in which the threshold has been reached, and the proportion where the threshold has yet to be attained should be computed. Please see the list of indicators below and the sample size requirements for LQAS. A sample of the summary report for from the DHO:

Indicators	Proposed Target	Threshold for Action
1) Is all salt consumed in refined form	95	80
2) Is all iodized salt consumed adequate	75	50
3) "	95	80

Frequency of Data Collection

In the same way as the market level monitoring, the frequency of data collection should vary at the point of consumption depending upon the status of the program performance. It is proposed that once the first indicator has been surpassed, and the monitoring is focusing on adequacy of universally available iodized salt, the frequency of monitoring may change from a quarterly interval to a bi-annual, and subsequently, and annual basis. From the third indicator, it may be possible to estimate the proportion of all households which are consuming salt which is adequately iodized. This should be confirmed by household level salt consumption survey information which may be collected as part of infrequent IDD control program evaluations (every two years), or by including a salt consumption module with other sample surveys which provide representative information of all households in each District. Examples of these surveys would be household expenditure surveys, EPI-coverage cluster surveys, etc.

LISTING OF PERSONS MET

Islamabad

Mr. Mohamad Ayub, Ass. Director, Health and Nutrition - Planning and Development Division

Ms. Zeba Bokhari, Chief, Planning and Monitoring Section, UNICEF

Dr. Tony Drexler, Project Preparation Coordinator - World Bank Proposed Nutrition Project

Dr. Mushtaque Khan, Chief, Health and Nutrition - Planning and Development Division

Mr. Wajid Ali Khan, Consultant - Iodized Salt Support Facility, UNICEF

Dr. Birthe Pedersen, Health and Nutrition Program Officer, UNICEF

Dr. Theo Lippeveldt, Chief of Party - Pakistan Child Survival Project

Peshawar (NWFP)

Dr. Hoi Hozumi, Asst. Project Officer - UNICEF

Dr. Abdul Jamil, Deputy Director, Health and Nutrition Education - Directorate of Health

Dr. Mulk, Director General - Directorate of Health

Mr. Shafi Ulah, Assistant Chief, Health and Nutrition - Planning and Development Division

Swat District, Malakand Division

Dr. Mohammad Rafiq, IDD Coordinator, Swat District

Dr. Ghulam Yousaf, Divisional Health Director, Malakand Division

Dr. Sirajud Din, District Health Officer, Swat District

Dr. Shaiber Mian, District Health Officer, Malakand District

Dr. Mohammad Usman, District Health Officer, Chitral District

Dr. Azam Khan, Medical Superintendent, Chitral District

Dr. Sardar Ali, Medical Superintendent, Temergara District