

- ④ Master Plan of the project of the Mongolian Ministry of Health and Social Welfare and Japan International Cooperation Agency for the IDD Elimination Program (Draft)

**Master Plan** of the project of the Mongolian Ministry  
of Health and Social Welfare and Japan International  
Cooperation Agency for the IDD Elimination Program.

***Period: 1<sup>st</sup> of October, 1997 – 30<sup>th</sup> of September, 2002***

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## Contents

### Summary

1. Background
2. National Program on IDD and legislation
3. Situation statement of IDD and needs for improvement
  - 3.1 Morbidity
  - 3.2 Situation of salt production
  - 3.3 Needs of salt for human use
  - 3.3 Iodized salt coverage
  - 3.4 Availability of iodized salt in Ulaanbaatar
  - 3.5 Results of the study of IDD status in Ulaanbaatar (1996-1997)
  - 3.6 Training
  - 3.7 Supervision, monitoring, evaluation
  - 3.8 Community mobilization and education
4. Overview of five-years activities of the MOHSW/JICA Project
5. Recommended programs
  - 5.1 Goal and objectives
  - 5.2 Target population and pilot areas for the Project
  - 5.3 Strategy
  - 5.4 Plan of action
    - 5.4.1 Organization and management
    - 5.4.2 Surveillance and monitoring system
    - 5.4.3 Training/Seminar/Workshop
    - 5.4.4 Community mobilization and education
    - 5.4.5 Evaluation of the MOHSW/JICA Project
    - 5.4.6 Roles of international agencies
    - 5.4.7 Implementation schedule (1997-2002)
    - 5.4.8 Action plan for 1998-1999
6. Sustainability of activities
7. Budget
  - 7.1 Budget for activities in 1998 and for five years
  - 7.2 Anticipated funding for IDD by donors and anticipated shortfalls
8. Project Design Matrix

Annexes:

1. The National IDD Program, 1996.
2. National Goiter Survey in 1993-1995, the Ministry of Health and Social Welfare.
3. Results of the study about iodine content in water, .
4. Report of The Statistic Bureau, 1997.
5. Report of salt production and import, 1997
6. Report of retailers in Ulaanbaatar in 1997.
7. Information of salt retail prices and iodine content at the factory level
8. Training report, 1996.
9. Quality control procedures
10. Maps
11. Action plan 1998-1999.
12. Action plan 1999-2000.
13. Project Design Matrix

## *Summary*

### **1. National Program on IDD**

The purpose of the National IDD Program is to set up a system to provide people of Mongolia with iodized salt regularly, to identify ways to eliminate IDD by the year 2000, and to improve community participation in this activity.

The Program will be implemented up to the year 2001 in the following three phases:

1. Initial phase of overall iodization in accordance with IDD prevalence: 1995-1996.
2. Overall iodization activities: 1997-1998.
3. IDD elimination phase: 1999-2001.

The government pledged the salt iodization in 1995.

### **2. IDD prevalence**

The government of Mongolia conducted a nationwide goiter study in 14 Aimags and three cities between 1993 and 1995 in collaboration with UNICEF.

Table 1. Results of the goiter survey in 1993-1995.

	Children (7-14 Yr.)	Women
Goiter rate (average)	28.0 %	31.2 %
Range	6.0 – 55.6 %	3.6 – 56.8 %
Number of participants	36,836	10,900

### **3. Iodized salt coverage**

According to data collected from the salt industry and the custom office in 1996, 2,620 tons (51%) of salt out of 5,161 tons were identified as iodized. The majority of iodized salt has been sold in the capital city. There are no data about the amount of salt from local salt deposits. From results of a salt intake study in Ulaanbaatar in 1997, it is roughly estimated that the annual national human consumption of salt is 8,000 to 9,000 tons.

### **4. Results of the study of IDD status in Ulaanbaatar**

The government of Mongolia, JICA, The University of Tokyo, and UNICEF Mongolia Office conducted the studies regarding IDD status in Ulaanbaatar within one year after introducing iodized salt. The results suggested: 1) IDD was being reduced by salt iodization because the median value of urinary iodine of the school children was more than 100 µg/L, and over 70% of their home salt was adequately iodized; and 2) the people were well aware of IDD and iodized salt and they obtained the information mainly by television and radio.

## **5. Overview of five-years activities of the MOHSW/JICA Project**

Since Ulaanbaatar has been eliminating IDD by salt iodization, the Project has to expand and focus on the rest of the country. Therefore, the Project will:

- **assess the progress of the National IDD Program in Aimags in its first phase (1997-1999).**
- **make an operational research plan for identifying ways to iodize salt produced locally or alternatives, and the results will be applied to rural areas from 1998 to 1999.**
- **improve the IDD status of Aimags through community mobilization from 1999 through 2000.**

During the second phase (1999-2001), the Project will continue its efforts to achieve the National Goal by year 2001 and to maintain the elimination level beyond year 2001. In addition to the IDD program, other micro-nutrients malnutrition problems will be the second target of the MOHSW/JICA Project.

- **The national surveillance system needs to be affordable and practical in this country. Collecting only urinary specimens and salt samples from Aimags and examining these at the central laboratory is one of the possible choices.**

The third and last phase (2001-2002) of the Project will concentrate on strengthening the sustainability of the nutrition programs. By September, 2002, the overall evaluation of the Project will be done and the Project will be ended.

## **6 Recommended programs (1998)**

### **6.1 Goal and objectives**

#### *6.1.1 Goal of the project*

To promote mother and child health in Mongolia by elimination of IDD.

#### *6.1.2 Project objectives*

To eliminate IDD in all of Mongolia by the year 2000.

To maintain the IDD elimination program beyond the year 2000.

## **7. Target population and pilot areas for the Project**

The project targets the entire population of Mongolia for IDD elimination; however, women of reproductive age and children under 15 years of age are the first priority. The Project has its two pilot areas according to severity of IDD and accessibility: Ulaanbaatar and Uvurkhangai Aimag.

## **8. Activities of 1998**

The two objectives during the first year of the MOHSW/JICA Project are to : (1) establish an IDD surveillance system and (2) work with local community groups to eliminate IDD outside of the

capital city. The first objective will include enhancing the capacity of the Mongolian counterparts by offering additional training on establishing, conducting and maintaining surveillance systems. The second objective is to enhance peoples active participation in IDD elimination.

This year, a total of 14 programs were proposed, and by June 1998, five programs had been carried out. The National Seminar/Workshop on IDD is planned to be held in July. The details are attached in Annex 11.

#### **9. Surveillance and monitoring system**

Establishment and maintenance of a surveillance system are essential for monitoring and evaluation of the IDD program. The surveillance system must have : 1) reliable laboratories at the central level; 2) well trained manpower to conduct surveys and trained local personnel; and 3) an accurate reporting system from regions to the central government, in order to follow the progress of the IDD program.

#### **10. Training/Seminar/Workshop**

Several training are needed for successful implementation of the program. Training for multi-disciplinary activities include t following:

- Training for the central surveillance team by the JICA experts: trainers training for program planning and implementation, technical training for the laboratory technicians.
- Training for local surveillance teams by the central team.
- Training for community participation with target groups such as medical personnel, health volunteers, community leaders, teachers, and so forth
- Seminar for the politicians, local authorities, the lay public, and medical personnel including the Medical University faculty.

#### **11. Community mobilization**

The Project will assist the current activities of the MOHSW and UNICEF Mongolia Office for information dissemination, such as publication of the IDD Newsletter. The Project will also develop some educational materials such as booklets, leaflets, flip charts, video programs and utilize those materials to enhance community participation activities.

#### **12. Monitoring system**

With regard to the monitoring of the program, the program must include mandatory periodic assessment of results and public reporting. In order to establish successful monitoring system, the MOHSW/JICA project will contribute to staff training, establishment of a laboratory, and reporting system support. Indicators for monitoring are: 1) iodized salt distribution, 2) levels of iodine content

in salt at the production and household levels, 3) urinary iodine level, 4) goiter rate, determined either by palpation or by echogram, and 5) TSH. All of these indicators are used to monitor elimination of IDD and it may be used singly or in combination. At the post-elimination phase, a cost effective monitoring program should be designed with appropriate advice and resources.

### **13. Evaluation of the MOHSW/JICA Project**

In order to evaluate the success of the MOHSW/JICA Project, we have set five goals that should be obtained or exceeded by the end of 2001. They are the following:

1. A goiter rate among children under 15 years of less than 10 %.
2. Median values of urinary iodine among children under 15 years and women of reproductive age of more than 100 µg / l.
3. Laboratory: a) Results of biochemical tests done in Mongolia should correlate with tests conducted in a referral laboratory in Japan (> 95 % correlation).  
b) Completing examinations of all collected specimens.
4. Iodized salt: More than 95 % of iodized salt at the household level containing 20-50 PPM of iodine.
5. KAP: More than 90 % of the population knowledgeable about IDD and iodized salt.

### **14. Budget for the Project implementation (five-years)**

The estimated budget for the activity for five-years is attached.

Table 4. Estimated budget for the IDD program (1998-2002) of the Mongolian Government and JICA (USD)

Exchange rate: US\$ 1.00 = 820 Tugricks. (June, 1998)

Item		1998		1999		2000		2001		2002	
		Mong.	JICA	Mong.	JICA	Mong.	JICA	Mong.	JICA	Mong.	JICA
Personnel (salary)	Cash	4,823	0	5,200	0	5,200	0	5,500	0	4,500	0
	Supply	0	0	0	0	0	0	0	0	0	0
Personnel (TA/DA)	Cash	1,220	8,500	2,500	6,000	2,500	4,000	2,500	10,000	2,000	3,000
	Supply	0	0	0	0	0	0	0	0	0	0
Surveillance (lab.)	Cash	366	3,140	300	3,000	200	2,000	300	3,500	200	2,000
	Supply	0	99,650	100	23,000	100	23,000	150	13,000	100	3,000
Training	Cash	0	7,440	200	5,000	200	4,000	200	3,000	100	2,000
	Supply	350	0	350	0	350	0	350	0	350	0
Education & Communication	Cash	0	6,940	500	7,000	500	7,000	500	7,000	300	5,000
	Supply	0	0	0	0	0	0	0	0	0	0
Monitoring & Evaluation	Cash	0	550	500	500	500	500	1,000	1,000	300	300
	Supply	0	0	0	0	0	0	0	0	0	0
Transportation	Cash	0	1,300	300	1,500	300	1,500	300	2,000	200	1,000
	Supply	0	0	0	0	0	0	0	0	0	0
Total	Cash	6,409	27,870	9,500	23,000	9,400	22,000	10,000	24,800	7,600	13,300
	Supply	350	99,650	450	23,000	450	23,000	450	13,000	400	3,000
	Grand Total	<b>6,759</b>	<b>127,520</b>	<b>9,950</b>	<b>46,000</b>	<b>9,850</b>	<b>45,000</b>	<b>10,450</b>	<b>37,800</b>	<b>8,000</b>	<b>16,300</b>

\* This is estimation only. Actual budget will be confirmed according to availability.



## **1. Background**

Mongolia is a country situated on the Central Asia mainland continent. It is 1,580 meters above sea level and covers an area of 1,565,000 square kilometers. This area consists of mountainous and hilly plains covered with highland plants, marshy coniferous forests, as well as grasslands, deserts and semi-deserts. Mongolia is a landlocked and sparsely populated country with a population of 2.4 million. These geographic conditions make the country vulnerable to iodine deficiency.

In Mongolia, the prevalence of iodine deficiency disorders (hereinafter referred to as "IDD") has been calculated by identifying persons, primarily children, with enlarged thyroid glands. These studies have been carried out since the end of 1960s.

## **2. National Program on IDD and legislation**

In 1996, the Mongolian Government pledged to eliminate IDD by the year 2000, based upon worldwide targets set at the mid term program on implementation of the "Declaration of the World Summit on child protection" and at the "Declaration of the World Food" in early 1990s. The Government announced the resolution by establishing the National IDD Program.

The purpose of this Program is to set up a system to provide people of Mongolia with iodized salt regularly, to identify ways to eliminate IDD by the year 2001, and to improve community participation in this activity.

The Program will be implemented up to the year 2001 in the following three phases:

14. Initial phase of overall iodization in accordance with IDD prevalence: 1995-1996.
15. Overall iodization activities: 1997-1998.
16. IDD elimination phase: 1999-2001.

The details of the National IDD Program are attached (Annex 1).

In 1998, the Food Law, including the universal salt iodization was introduced to the Parliament. Government Officials have said that the Food Law has an excellent chance of being passed in July.

## **3. Situation statement of IDD and needs for improvement**

### **3.1 Morbidity**

In Mongolia, IDD has been studied by identifying people, especially children, with enlarged thyroid glands, starting from the end of 1960s. In several studies, results showed that among the children involved, endemic goiter symptoms was 32-45 %.

The government of Mongolia conducted a nationwide goiter study involving a total of 448,642 persons in 14 Aimags and 3 cities between 1993 and 1995, in collaboration with UNICEF. They found a prevalence of 28.0 % of goiter among children, and a prevalence of 31.2 % among women (Table 1, and Annex 2). In the survey, 10 cases of mental retardation were observed.

Table 1. Results of the goiter survey in 1993-1995.

	Children (7-14 Yr.)	Women
Goiter rate (average)	28.0 %	31.2 %
Range	6.0 – 55.6 %	3.6 – 56.8 %
Number of participants	36,836	10,900

The Institute of Public Health mapped Aimags according to iodine content in water in 1997 (Annex 3). The map indicates that eastern and southern regions, located mainly in desert areas have sufficient iodine. In central, northern, and western regions of mountainous zones, there are low level of iodine content.

The Statistics Bureau of the Ministry of Health and Social Welfare (hereinafter referred as to MOHSW) collects clinical IDD incidence data every year. In 1997 there were 11.74 persons per 10,000 population who were diagnosed at medical facilities as having IDD with clinical symptoms (Annex 4).

### **3.2 Situation of salt production**

There are 26 salt deposits in Mongolia with 20 of them in 11 Aimags producing salt for human use as well as for fodder. Reserved level in seven deposits have not been calculated, and no exploration has been made at four of 26 deposits. Also there is evidence that around 90 pools and salt-marshes have been broadly used by local inhabitants.

The functioning of salt producing deposits very much depends on climatic circumstances. During the dry season the deposits normally do not produce any salt, and other periods the production of salt is done by hand. Up to 1990 Mongolia had been producing on annual average of 18,000 tons of salt from seven deposits. They were also importing 3,000 tons. This salt was used for food consumption and for industrial purposes. In the latter years, salt production has been decreasing and currently there are no statistical data on how much is being produced. However, professionals believe, that economic entities, dealing with salt production, are capable of meeting domestic salt needs provided they have skilled management and financial support (the National Program on IDD).

### **3.3 Iodized salt coverage**

UNICEF reported in 1994 that 43 % of consumed salt for human was iodized in Mongolia. Moreover, according to data collected from the salt industry and the customs office in 1997, 2,620 tons of salt out of 5,161 tons that were domestically produced and imported were iodized in 1996 (Annex 5). There are no data about the amount of salt from local salt deposits.

The study in 1996 and 1997 about IDD conditions in Ulaanbaatar found that more than 90 per cent of the respondents had used iodized salt by the time of the study. Among those, regular iodized salt users made up 60-70 per cent of the studied population, and the others using iodized salt with common salt or using iodized salt occasionally. The WHO/UNICEF/ICCIDD committee recommended that “more than 90% of usage of iodized salt” be used as an indicator for IDD elimination. Thus, further efforts to increase exclusive usage of iodized salt should take place by increasing peoples knowledge, attitudes, and practices (KAP).

### **3.4 Needs of salt for human use**

The amount of iodized salt needed for human consumption the whole population of Mongolia is estimated to be 8,000-9,000 tons annually. These figures come from results of a study estimating salt intake among residents in Ulaanbaatar in 1998, which was conducted by the MOHSW and JICA. The study showed that average daily salt intake was 11 grams for women and 13 grams for men. Children may intake less salt. Therefore, if it is assumed that every person consumes 10 grams a day, need for the total population would be 8,750 tons per year: 10 grams times 365 days times 2,400,000 persons.

Since the amount of the imported salt, and the locally produced iodized salt, was reported as 5,161 tons, we may assume rural domestic salt deposits provide the remaining 3,000 tons consumed in the country.

### **3.5 Availability of iodized salt in Ulaanbaatar**

Random sampling of retailers in Ulaanbaatar in 1997 showed that 51 (89%) of 57 shops sold iodized salt; the remaining 6 shops sold only common salt. Of the 51 selling iodized salt, 11 shops (11%) also sold common salt (Annex 6). The majority of the price was 300 Tugricks (Tg.) per kilogram for iodized salt and 180 Tg. per kilogram for common salt (Table 2). The difference of cost, when common salt is switched to iodized salt, is estimated to be 438 Tg. (US\$ 0.53) per person per year.

**Table 2. Availability and price of iodized salt in Ulaanbaatar (1997)**

	Iodized salt	Common salt
Most frequent price	300 Tg. / kilo	180 Tg./kilo
Range	250-350 Tg. /kilo	110-280 Tg./kilo
Number of shops	51*	6

\* Of 51 shops, 11 sold both kinds of salt.

The salt companies reported that they distributed iodized salt to different areas in the nation and their wholesale prices as 100 Tg. to 200 Tg. Informal interviews of local retailers in outlying districts in Ulaanbaatar and Uvurkhangai Aimag indicated iodized salt was sold for 300 to 400 Tg. per kilogram compared with 100 Tg. for common salt. In addition, list of salt companies with range of retail prices and iodine content in salt at the factory level is attached in Annex 7.

### ***3.6 Results of the study of IDD status in Ulaanbaatar***

From the study that was carried out in December 1996 to May 1997 in Ulaanbaatar with the collaboration of the MOHSW, JICA, and UNICEF, targeting school children and their mothers, pregnant women, and postpartum women, the following data were obtained.

- a) Prior to 1997:
  - goiter rate by the palpation method was 49%, and
  - by ultrasonographic examination, 79% of the children had enlarged thyroid.
- b) IDD has reduced because:
  - more than 70 % of a sample of households used iodized salt that contained more than 20 PPM of iodine,
  - the median value of urinary excretion of iodine was normal ( $> 100 \mu\text{g} / \text{l}$ ), and
  - the median value of blood TSH level was also normal.
  - women were highly aware of IDD and iodized salt and more than 90% of them used iodized salt exclusively or occasionally.
- c) More education needs to be provided since:
  - some women misunderstood that they should had used more amount of iodized salt to prevent IDD.
  - many of the women said iodized salt was less salty than common salt; however, they could not distinguish two kinds of salt in a small double-blind study.

### ***3.7 Training***

By 1997, the MOHSW had conducted several training and workshop for pediatricians, endocrinologists, iodized salt producers, and local government officers (Annex 8). However, according to the results of the study regarding public's KAP in 1996, they received information mainly from mass media, such as television and radio, and much less from medical personnel. Therefore, training for promoting interpersonal communication targeting family doctors, obstetricians, and/or community health volunteers should be planned.

### ***3.8 Supervision, monitoring, evaluation***

The Coordinating Council of the National Program on IDD has ultimate responsibility for

monitoring IDD program process, conducting surveys, and controlling quality of iodized products. The organization for regular monitoring of quality assurance of salt iodization is the Ministry of Agriculture and Industry. The MOHSW is responsible for the supervision and evaluation of the Program. Also, the Ministry of Agriculture and Industry and the Hygiene and Epidemiology Control Agency (MOHSW) are the agencies for monitoring salt iodization.

There are two types of monitoring, that should take place:

- (1) Internal Monitoring
- (2) External Monitoring

The internal monitoring of iodized salt is supposed to be conducted every day at the salt factories and companies are requested to submit the report of the results to the Hygiene Epidemiology Control Agency. On the other hand, the external monitoring of iodized salt the responsibility of the Strategy and Policy Planning Division in the Ministry of Agriculture and Industry. Regular external monitoring to each of salt factories should be carried out; however, due to budget constraints the monitoring activities have not been done regularly (Annex 9).

### ***3.9 Community mobilization and education***

Mass media campaigns have been the main strategy for information dissemination on IDD and iodized salt since 1996. In 1996, two 30-minute TV programs were telecast twice each, and each of nine 20-minutes radio programs were broadcast once a week. In addition, two educational items were published in newspapers.

The National Day for IDD, on the first Sunday in September, was launched in 1996 and since then the city of Ulaanbaatar and each Aimag has celebrated the day with active community participation.

## **4 Overview of five-years activities of the MOHSW/JICA Project**

The MOHSW/JICA Project has a clear-cut objective: to eliminate IDD from Mongolia by year of 2001. The Project accepted the universal salt iodization and is eager to promote this approach. At the present time, Ulaanbaatar is eliminating IDD by salt iodization. Therefore, the MOHSW/JICA project has to expand and focus on the IDD elimination program in the rest of the country. At the moment, the progress of the IDD program in areas other than Ulaanbaatar is still sketchy.

- ⇒ **The Project needs to assess the progress of the National IDD Program in Aimags during its first phase (1997-1999). Then,**
- ⇒ **The Project staff will devote itself to improve the IDD status in Aimags, with community mobilization, from 1999 through 2000.**

Moreover, the Food Law on the universal salt iodization will be legislated in the near future. Then, domestic salt industries will produce only iodized salt and all imported salt will be iodized salt. We, however, have to consider that approximately 3,000 tons of non iodized salt will still be produced and sold in many small-scale local markets throughout rural Mongolia.

**⇒ The Project will make an operational research plan for identifying ways to iodize salt produced locally or alternatives, and the results will be applied to areas from 1998 to 1999.**

During the second phase (1999-2001), the Project will continue its efforts to achieve the National Goal by year 2001 and to maintain the elimination level beyond year 2001. In addition to the IDD program, other micro-nutrients malnutrition problems will be the second target of the MOHSW/JICA Project.

**⇒The national surveillance system needs to be affordable and practical in this country. Collecting only urinary specimens and salt samples from Aimags and examining these at the central laboratory is one of the possible choices.**

The third and last phase (2001-2002) of the Project will concentrate on strengthening the sustainability of the nutrition programs. In September in 2002, the overall evaluation of the Project will be done and the Project will be ended.

## **5 Recommended programs (June, 1998)**

### **5.1 Goal and objectives**

#### *5.1.1 Goal of the project*

To promote mother and child health in Mongolia by elimination of IDD.

#### *5.1.2 Project objectives*

To eliminate IDD in all of Mongolia by the year 2000.

To maintain the IDD elimination program beyond the year 2000.

### **5.2 Target population and pilot areas for the Project**

The project targets the entire population of Mongolia for IDD elimination; however, women of reproductive age and children under 15 years of age are the first priority.

The Project chose its two pilot areas according to severity of IDD and accessibility: Ulaanbaatar and Uvurkhangai Aimag. The map of these areas is attached (Annex 10).

### **5.3 Strategies**

As already mentioned above, the project has several components in its goal to eliminate IDD by the year 2001 and to maintain the elimination level after 2001. They are:

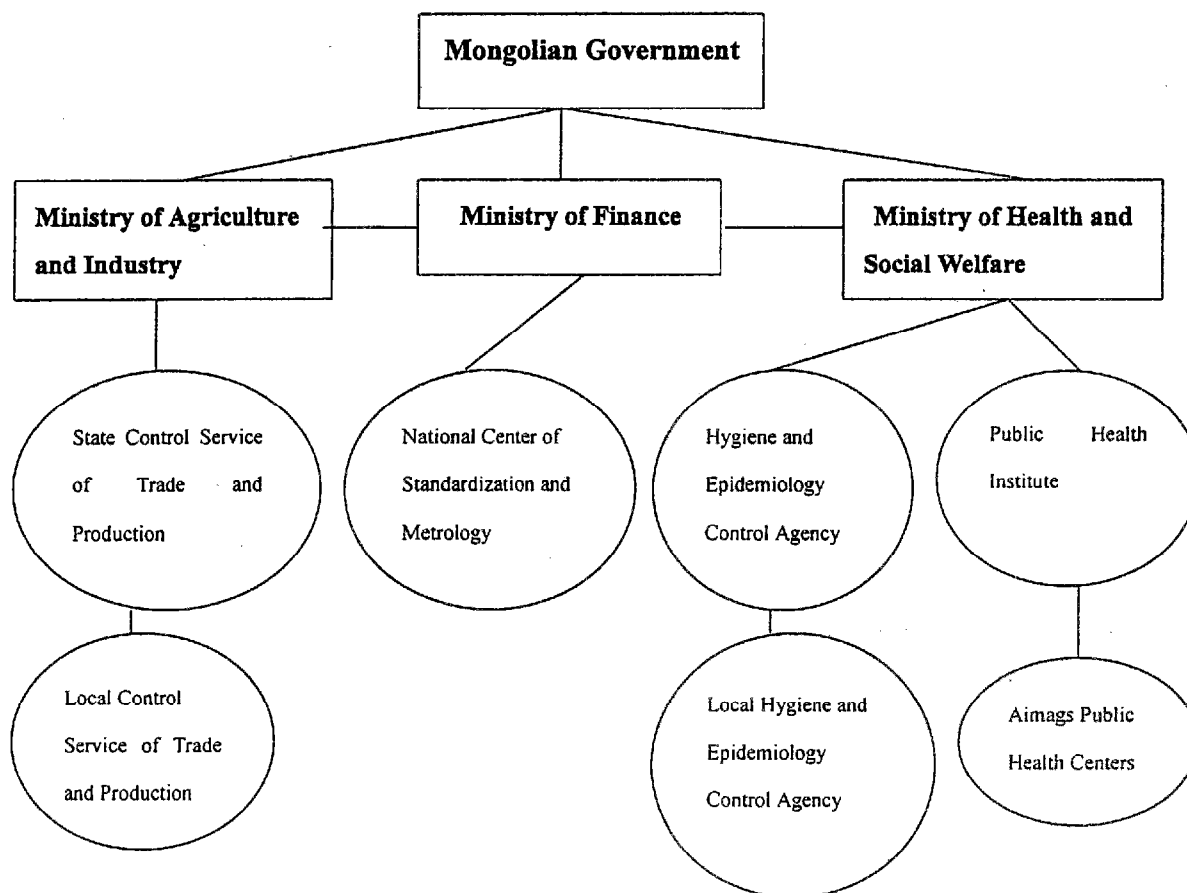
- a) To establish and maintain an efficient surveillance system for continuing assessment of IDD throughout the country.
- b) To monitor the process of salt iodization, .To monitor the progress of the National IDD Program based on a) and b) every year until the end of the year 2001, with recommendation for change as needed.
- c) To provide technical support for quality assurance to the iodize salt industry.
- d) To donate equipment and material for the industry, including iodine, in cooperation with Chiba Prefecture, Japan.
- e) To provide continuing education to improve the people's knowledge, attitudes, and practices of the danger of IDD and the necessity of using iodized salt in their diet.
- f) To operate some interventions other than salt iodization for areas that have some difficulties in adopting salt iodization.

### **5.4 Plan of action**

#### **5.4.1 Organization and management**

The Ministry of Health and Social Welfare, Mongolia, is the responsible agency for the program. They receive technical support from the Maternal and Child Health Project of JICA. Within the MOHSW, the Department of International Cooperation is responsible for success of the project. The Nutrition Division in the Department of International Cooperation is responsible for managing the program, with the IDD Unit, housed in the Institute of Public Health, providing the entire activities of the program planning and implementation. The Ministry of Agriculture and Industry has responsibility for salt production and quality assurance.

Chart 1. Organizational chart



#### 5.4.2 Surveillance and monitoring system

Establishment and maintenance of a surveillance system are essential for monitoring and evaluation of the IDD program. The surveillance system must have: 1) reliable laboratories at the central level; 2) well trained manpower to conduct surveys and trained local personnel; and 3) an accurate reporting system from regions to the central government, in order to follow the progress of the IDD program.

With regard to the monitoring of the program, the program must include mandatory periodic assessment of results and public reporting. In order to establish successful monitoring system, the MOHSW/JICA Project will contribute to staff training, establishment of laboratory, and reporting system support. Indicators for the monitoring are: 1) iodized salt distribution, 2) levels of iodine content in salt at the production and household levels, 3) urinary iodine level, 4) goiter rate determined either by palpation or by echogram, and 5) TSH. All of these indicators are used to monitor elimination of IDD and it may be used singly or in combination. At the post-elimination



phase, a cost effective monitoring program should be designed with appropriate advice and resources.

#### **5.4.3 Training/Seminar/Workshop**

Several training are needed for successful implementation of the program. Training for multi-disciplinary activities include the following:

- Training for the central surveillance team by the JICA experts: trainers training for program planning and implementation, technical training for the laboratory technicians.
- Training for local surveillance teams by the central team.
- Training for community participation with target groups such as medical personnel, health volunteers, community leaders, teachers, and so forth
- Seminar for the politicians, local authorities, the lay public, and medical personnel including Medical University faculty.

#### **5.4.4 Community mobilization**

The Project will assist in the current activities of the MOHSW and UNICEF Mongolia Office for information dissemination, such as publication of the IDD Newsletter. The Project will also develop some educational materials such as booklets, leaflets, flip charts, video programs and will utilize those materials to enhance community participation activities.

#### **5.4.5 Evaluation of the MOHSW/JICA Project**

In order to evaluate the success of the MOHSW/JICA Project, we have set five goals that should be obtained or exceeded by the end of 2001. They are the following:

4. A goiter rate among children under 15 years of less than 10 %.
5. Median values of urinary iodine among children under 15 years and women of reproductive age of more than 100 µg / l.
6. Laboratory: a) Results of biochemical tests done in Mongolia should correlate with tests conducted in a referral laboratory in Japan (> 95 % correlation).  
b) Completing examinations of all collected specimens.
4. Iodized salt: More than 95 % of iodized salt at the household level containing 20-50 PPM of iodine.
5. KAP: More than 90 % of the population knowledgeable about IDD and iodized salt.

#### **5.4.6 Roles of international agencies**

The international organizations, both of government and non governmental, have important roles in the National IDD Program in collaboration with the Government of Mongolia. Currently,

WHO, UNICEF, JICA, and World Vision International (NGO) are participating in the Program. The MOHSW/JICA Project has implemented its activities in cooperation with those agencies and should continue this partnership. Regular meetings among those agencies are needed in order to share information to achieve the National goals of the IDD Program.

#### **5.4.7 Implementation schedule**

*The MOHSW/JICA Project presents its activity schedule as follows;*

##### **The First Phase (October, 1997 – September, 1999)**

- *Establishing and maintaining a surveillance system in order to obtain accurate data on IDD status and to monitor the program.*
- *Conducting epidemiological surveys to assess IDD status in Aimags.*
- *Enhancing universal salt iodization.*
- *Operating some interventions to correct iodine deficiency in areas where the present salt iodization program can not be implemented.*

##### **The Second Phase (1999. October- 2001. September)**

- *Monitoring and evaluating IDD elimination.*
- *Providing technical support for program sustainability.*
- *Providing technical support for other nutritional and MCH problems.*

##### **The Third Phase (2001. October – 2002. September)**

- *Providing technical support for program sustainability.*
- *Evaluation of the MOHSW/JICA project.*

#### **5.4.8 Action plan for 1998-1999**

The MOHSW and JICA/MCH Project have agreed upon the annual plan of the activities in 1998, and the detailed action plan for each activity is attached (Annex 11). Tentative plan of the activities in 1999 is also attached (Annex 12).

## **6 Sustainability of activities**

A plan for sustainability of IDD elimination must be developed.

- a. A National IDD Committee should be in operation with responsibility for the continuous monitoring of the status of iodine deficiency and of the iodine content in salt, according to the established criteria, including annual mandatory official and public reporting of IDD

- status by the IDD unit in the MOHSW. This must be adequately financed.
- b. The Government, the private sector, and consumers should be highly aware of iodine deficiency disorders and be committed to their sustained elimination.
  - c. The salt industry should have the commitment, technical resources, and responsibility to sustain effective iodization of salt, including its production, distribution, and financing.
  - d. The supply of iodine for salt iodization should be assured either through private purchase by the salt manufacturers or through the government after termination of the donation of iodine (KIO<sub>3</sub>) from the Chiba Prefecture in Japan.
  - e. The availability, relative cost, and perceived health benefits of iodized salt should make consumers prefer it to the uniodized salt.
  - f. The National IDD Program should maintain the central laboratory competent to measure urinary iodine and/or neonatal blood TSH concentrations, at affordable rates, and have access to local or regional facilities to measure iodine levels in salt.

## 7 Budget

### 7.1 Total cost

#### 7.1.1 Budget of activities in 1998 and of five-years

The surveillance activities are concentrated in the first phase of the Project (1998-1999). Due to necessity of obtaining more information for baseline assessment, these activities have to be more detailed than ordinary monitoring requirements. The cost has been shared by the MOHSW and JICA. The details of the budget for each proposed activity of 1998 are shown in Annex 11 and the summary is shown in table 3. If we agree to add some more activities in 1998, the budget for those should be also added to the original budget. Table 4 shows the budget for five years.

**Table 3. Summary of 1998 Estimated Budget for the IDD program in Tugricks.**

Currency: Tugricks (1,000). Exchange rate: US\$ 1.00 = 820 Tugricks. (June, 1998)

Item		Mon. Gov.	JICA	Total
Personnel (salary)	Cash	3,955	0	3,955
Personnel (TA/DA)	Cash	999	6,970	7,969
Surveillance (lab.)	Cash	300	2,576	2,876
	Supply	0	81,714	81,714
Training	Cash	0	6,095	6,095
	Supply	290	0	290
Education & Communication	Cash	0	5,690	5,690
	Supply	0	0	0
Monitoring & Evaluation	Cash	0	450	450
	Supply	0	0	0
Transportation	Cash	0	1,066	1,066
Total		5,546	104,561	110,107
	USD	(\$ 6,763)	(\$ 127,512)	(\$ 134,277)

\* This is estimation only. Actual budget will be confirmed according to availability.

Table 4. Estimated budget for the IDD program (1998-2002) of the Mongolian Government and JICA (USD)

Exchange rate: US\$ 1.00 = 820 Tugricks. (June, 1998)

Item		1998		1999		2000		2001		2002	
		Mong.	JICA	Mong.	JICA	Mong.	JICA	Mong.	JICA	Mong.	JICA
Personnel (salary)	Cash	4,823	0	5,200	0	5,200	0	5,500	0	4,500	0
	Supply	0	0	0	0	0	0	0	0	0	0
Personnel (TA/DA)	Cash	1,220	8,500	2,500	6,000	2,500	4,000	2,500	10,000	2,000	3,000
	Supply	0	0	0	0	0	0	0	0	0	0
Surveillance (lab.)	Cash	366	3,140	300	3,000	200	2,000	300	3,500	200	2,000
	Supply	0	99,650	100	23,000	100	23,000	150	13,000	100	3,000
Training	Cash	0	7,440	200	5,000	200	4,000	200	3,000	100	2,000
	Supply	350	0	350	0	350	0	350	0	350	0
Education & Communication	Cash	0	6,940	500	7,000	500	7,000	500	7,000	300	5,000
	Supply	0	0	0	0	0	0	0	0	0	0
Monitoring & Evaluation	Cash	0	550	500	500	500	500	1,000	1,000	300	300
	Supply	0	0	0	0	0	0	0	0	0	0
Transportation	Cash	0	1,300	300	1,500	300	1,500	300	2,000	200	1,000
	Supply	0	0	0	0	0	0	0	0	0	0
Total	Cash	6,409	27,870	9,500	23,000	9,400	22,000	10,000	24,800	7,600	13,300
	Supply	350	99,650	450	23,000	450	23,000	450	13,000	400	3,000
	Grand Total	<b>6,759</b>	<b>127,520</b>	<b>9,950</b>	<b>46,000</b>	<b>9,850</b>	<b>45,000</b>	<b>10,450</b>	<b>37,800</b>	<b>8,000</b>	<b>16,300</b>

\* This is estimation only. Actual budget will be confirmed according to availability.

### **7.2 *Anticipated funding for IDD by donors and anticipated shortfalls***

Anticipate budget for the IDD Program, other than those mentioned above, are funds from UNICEF and WHO (WPRO). The UNICEF Mongolia Office will appropriate about US\$ 45,000 for the activities in 1998, and the WHO Office will spend US\$ 13,948 to assist in surveillance and other activities. The MOHSW/JICA Project may have shortfalls on personnel expenses for surveillance implementation conducted outside of Ulaanbaatar, and transportation costs in rural areas.

## **8 Project Design Matrix**

The Project Design Matrix (PDM) was discussed and agreed upon by the two Governments in 1997 (Annex 13). A table of activities of the Project, through of June, 1998, is also attached (Annex 13).

GOVERNMENT OF MONGOLIA

RESOLUTION

JANUARY 13, 1996

# 6

ULAANBAATAR

SOME MEASURES ON IODINE DEFICIENCY DISORDER

Considering to prevent population, particularly children and adolescent, from iodine deficiency disorder, that adversely affects on physical and mental well-being of them, to reveal IDD symptoms, and to cure as well as taking into account targets raised at " World Summit on child survival, protection, and development", and "World Summit Food" the Government of Mongolia concludes the following:

1. Approve "National Program on IDD" as stipulated in the annex 1, and members of the Coordinating Council to control implementation process of the Program as stated in the annex 2.

2. Entrust the National Development Board (Ch.Ulaan), Ministry of Health (P.Nymadawa), and Ministry of Food and Agriculture (Ts.Uuld) to keep control on the implementation of "National Program on IDD".

3. Celebrate each year the Sunday of the first week of September as the "National day on IDD".

4. Entrust the Ministry of Trade and Industry ( Ts.Tsogt), and General Customs Office (B.Sharavsambuu) and other relevant institutions for importing world standard iodized salt for food consumption of the population.

The Prime Minister of Mongolia  
The Minister of health

P.Jasrai  
P.Nymadawa

## National Program on IDD

The worldwide targets to eliminate IDD by the year 2000 were raised at the mid term program on implementation of "Declaration of the World Summit on child protection" and at the "Declaration of the World Food", Rome, 1992.

Once Mongolia has adopted the approaches of the above documents and has joined to them, the issues of conducting scientific surveys to determine the IDD prevalence in our respective country, and to prevent people from potential IDD have been considered to be very critical.

### 1. Current IDD prevalence status in Mongolia

In Mongolia, IDD has been studied by revealing in people, especially in children, enlargement of thyroid gland, starting from the end of 1960s. In several studies, results showed that among the children involved, endemic goitre symptom was 32-45%.

A countrywide study of 48869 people, carried out by Ministry of Health in collaboration with UNICEF during the period of 1993-1995, demonstrated a 29,2% of enlargement of thyroid gland. Thyroid gland function of the people, involved in the study, showed that 98,5% have no complaints, 0,5- increased risk and 1,0- decreased.

In a previous study of 448642 people from 14 aimaks and 3 cities, conducted by Mother and Child Research Center, 10 cases of mental tardialis per 1000 men were observed, and the investigation suggested that in the whole country, approximately 21,0 people are suffering from mental tardialis.

The number of people, suffering from mental tardialis, was put against the prevalence status of IDD, and .....  
This is the clear example, that mental tardialis caused by iodine deficiency has a significant percentage among the whole population.

Compared to the indicators of the world standard, in Mongolia, the iodine deficiency disorder prevalence has been very smooth and mild.

especially occurring in mountainous areas and basins of larger rivers, and showing endemic feature of IDD.

IDD directly affects on fetus, infants' central nervous system development, causes mental disorders and abnormalities in physical development, slows growth, and prevents movement velocity.

We have been spending five times higher on treatment of IDD, psychopath and thyroid gland function abnormalities than on preventive measures.

Many countries in the world have been enriching food-stuff and food salt with iodine and as a result of it they have succeeded in preventing their people from IDD. This method to prevent from IDD is considered to be simple, economically cost-effective, accessible to all people, and finally, results are very high.

## 2. Current status of salt production

In Mongolia, there are 26 salt deposits and 20 of them in 11 aimaks have been producing salt with purpose of food consumption as well as fodder. Reserve level in seven deposits have not been calculated, and no exploration has been made at four of 26 deposits. Also there is an evidence that around 90 pools and salt-marshes have been broadly used by locals.

Functions of salt producing deposits very much depend on weather circumstances. During the dry season period they normally do not produce any salt and all processes have to be done by hand.

Up to 1990 Mongolia had been producing with annual average of 18,0 thousand tons of salt from 7 deposits as well as importing 3000 tons. and had been using them as food consumption and with technical purposes.

Latter years salt producing level have been decreasing and there is no statistical data on how much is being produced. However, professionals believe, that economic entities, dealing with salt production, are capable to meet domestic salt needs in case they are provided with skilled management and financially supported.

Needs of iodized salt for the whole population of Mongolia is estimated to be 4800-5500 per year. ( See annex 1A, 1B, 1C).



### 3. Program objectives, pathways to implement and duration

The purpose of this program is to set up a system to provide people of Mongolia with iodized salt regularly, to find out ways to eliminate IDD by the year 2000, and to improve community participation in this activity. ( See annex 2)

#### *A. Pathways to implement, activity objectives*

1. To reveal IDD at early stages, prevent, cure, and set up a national system for control.

2. To organize iodination process covering the community in order to prevent from IDD.

3. To produce iodized salt for food consumption and fodder domestically and encourage import of iodized salt.

4. To produce high quality iodized salt and to improve its accessibility.

5. To train national professionals in IDD field with specific policy.

6. To broaden IDD studies and investigations as well as early detection, to cure, and to seek possibilities to use iodine preparation at different levels at each region.

7. To improve linkage between governmental and non-governmental organizations as well as information system, to organize national meeting, consultation, workshop and training activities continuously.

8. To educate the community on IDD via mass media and the existing education system.

9. To co-operate with international organizations, donor countries and other volunteer organizations on IDD, to exchange views, and to support their activities.

#### *B. Program duration: 1995-2001*

The Program will be implemented up to the year 2001 with the following 3 phases:

1. Initial phase of overall iodization in accordance with IDD prevalence: 1995-1996.

2. Overall iodization activities: 1997-1998.

3. IDD elimination phase: 1999-2001.

## 4. Program management and organizational structure

### *A. Roles of aimak, capital city, som and district Governors*

They will organize and coordinate the implementation activities of "National Program of IDD", and will work out sub-programs corresponding to the specific local features. The towards to the sub-program are:

1. Will make the related organizations to detect IDD amongst the population, to prevent from IDD according to the respective guidelines and methodologies, and to keep control on fulfillment.

2. Will include in the annual local budget all expenditure related to the IDD activities.

3. Will make to carry out study on salt deposits, located in their respective areas, make policy to provide all people with iodized salt, and try to keep natural balance of the salt deposit, while using it.

4. Will focus on continuous and regular supply of salt to salt producing plants.

5. Will take measures to provide with iodized salt indigents, people with income below living standard as well as the ones from isolated som and bags,

6. Will assist to educate community on IDD at the local level.

### *B. Roles of Central Governmental organizations*

#### National Development Board (NDB)

- Coordinating policies and directions on IDD at the national level.
- Making the assistance and support of international organizations, donor countries, and volunteer organizations to focus on IDD activities.

#### Ministry of finance (MOF)

- Reviewing required cost estimation of the Program, and including the expenditure in the government central budget.

#### Ministry of Health (MOH)

- Investigating the IDD prevalence, and controlling treatment and preventive measures.

- Defining the basis of the activities, that shall be executed by medical and other related organizations, and providing with necessary information.

- Keeping regular control on production, transportation, distribution and utilization of iodized salt, educating health workers, producers, and the community how to determine iodine contents.

#### Ministry of Science and Education (MSE)

- Helping children and adolescents to get primary knowledge on IDD prevention through the education system in collaboration with Ministry of Health.

- Financing projects on investigation of IDD and on achieved iodization results via tendering process.

#### Ministry of Food and Agriculture (MFA)

- Producing and supplying the country with high standard and iodized at required level salt.

- Training staff of the salt producing economic entities.

- Rendering professional assistance to technological renovation, supplying with essential techniques and raw materials.

- Collecting and processing data on production, transportation, distribution and selling of iodized salt quarterly.

- Seeking the ways to iodize course feed.

#### Ministry of Energy, Mining, and Ministry of environment

- Authorizing permission to explore the deposit, and keeping technological control on utilization and exploration of deposits.

#### *B. Roles of Non-Governmental organizations*

- Explaining the adverse effects of IDD to their member organizations and individuals.

- Organizing training related activities on utilization of iodized salt, and preparing volunteers.

- Involving their member institutions and individuals to transportation, distribution, storage, selling, and utilization of iodized salt, and informing the inaccuracies to the relevant bodies.

- Holding community involved meetings, discussions on adverse effects of IDD and importance of iodized salt.

### *C. Roles of the community*

- Learning the preventive methods from IDD, rational use and storage of iodized salt, and helping children and elders to get to use iodized salt.
- Checking the quality assertion each time they buy iodized salt, and informing to controlling organizations the wrong activities of producers and sellers.

## 5. Basic trends of health institutions on IDD

### A. Preventive measures of IDD

- The essential preventive method from IDD is utilization of iodized salt in food.
- Iodine oil preparation will be used additionally at areas, where it is necessary.

### B. IDD detection

- Local health institutions, family doctors shall carry out medical examination amongst the people, particularly children and women of birth age, and determine the level and prevalence of endemic goiter.
- Pupils of secondary schools, aged 7-12 ( as for the number-not more than 300), should be re-examined every year, and prevention process and results will be determined,
- Detection of keratin and hypothyrosis amongst the infants and young children by clinical examination should be very crucial.
- Hyperthyroid caused by iodine deficiency must be diagnosed differentially.
- Blood testing, urinalysis should be done at laboratories with high capacities.

### B. Treatment of IDD.

- Regular and constant utilization of iodized salt is the most essential method to prevent oneself from any illness caused by IDD.
- Goiter extra enlargement and nodule formulation must be cured by operation.
- In case of thyroid defect, patients should be treated under regular control of professional doctors.

- Laboratory testing and diagnostic examination are essential for IDD treatment, prevention, differential diagnosis, and final results.

- Starting from 1996, the following examinations are to be done at city, aimak and district hospitals in order to improve laboratory capacity and to utilize existing testing equipment.

Examinations, that to be done at city , aimak, and district clinical and joint hospitals.

	Hospital type	Thyroid hormone in infant umbilicus blood	urine iodine	T3,T4 thyroid hormone in blood	echosono graphic diagnosis of thyroid gland
1	Clinical hospital	+	+	+	+
2	Joint hospital	-	+	-	+

- Laboratory examination to define environmental and food iodine content will be widened.

- Laboratory method and express testing should be used to determine the iodine content at production, transportation, storage, and utilization of iodized salt.

#### 6. Functions of institutions and economic entities dealing with salt iodination

- They will get special permission for deposit utilization from the relevant authorities.

- They should explore the salt deposit according to the specific rules and regulations, and will run the production ensuring that nature will not loose the balance.

- They will produce and iodize salt in accordance with orders, guidelines, methodologies, and standards issued by NDB, MOH, State center of Standardization and Meteorology.

- Salt producing plants should have regular salt reserves suitable for iodination.

- The industrial technology for salt exploration, iodination, transportation, storage and packaging should meet standard requirements.

- Iodized salt producing economic entities should have their own quality control laboratories, which keeps regular control on the production process.

## 7. Financial resources for implementation of the Program

Financial resources required for implementation of the Program is consisted of the following:

- Studies and surveys on IDD and preventive measures will be chosen by tendering process and will be financed from the government budget.

- Economic entities ,dealing with salt iodination, will be granted some loan, and subsequently will be supported to become financially independent.

- Training and retraining cost of salt producing plant staff will be covered by government budget as well as from the entity itself, also it will be supported by international organizations and donor countries.

Financial sources for the program will be estimated every year, and will be disguised by concerned bodies ( Annex 3).

## 8. The Program monitoring, evaluation and assessment

The main purpose of the Coordinating Council of the "National Program on IDD" is to monitor the IDD process, to conduct survey on IDD, to evaluate, to keep control on quality of iodized products, to train manpower, retrain , to allocate financial sources, to coordinate the collaboration between international organizations, donor countries and other interested institutions, and to focus on cost-effectiveness of the financial sources.

Evaluation of the Program implementation will be done and reported to the Government by the Coordinating Council each year. Also the Program implementation and results will be informed to the community, and at the international level.

Some amendments can be done to the Program in accordance with social and economic developments of the country.

Schedule of distribution of iodized salt to city and aimaks

	Plant or company	Salt to be distributed ( tons)	Total
1	Salt plant of plant and agriculture research institute in Uvs aimak	Uvs- 205 Bayanulgii 205 Khovd 186 Khuvsgul 150	746
2	"Bayalag" Co.Ltd in Zavkhan aimak	Zavkhan 215 Gobi-Altai 160 Bayankhongor 195 Arkhangai 205 Khuvsgul 100	875
3	Food factory in Umnu Gobi	Uvurkhangai 235 Dundgobi 125 Dornogobi 110 Unmugobi 105	575
4	"Huns-Mash" Co.Ltd in Ulaanbaatar	Ulaanbaatar 1280 Tuv 250	1530
5	Food factory in Darkhan-Uul	Bulgan 140 Orkhon 120 Selenge 205 Darkhan-Uul 190	655
6	"Dornod huns" Co.Ltd in Dornod aimak	Dornod 180 Sukhbaatar 125 Khentii 170	475
			4856

Table 2.

## Outputs of the "National Programme on IDD"

	Indicators	1995	1997	2000
1.	Detection of goitre ( 7-14 years olds)	28%	15%	0,5%
2	Providing people with iodized salt	10%	70%	95%

Table 3.

## Cost estimation of the Program (\$US)

	Sources	Required funding				Total
		1996	1997	1998	1999	
1	State budget	20 000	10 000	10 000	10 000	50 000
2	Loan	20 000	10 000	10 000	10 000	50 000
3	Producers	10 000	10 000	10 000	10 000	40 000
4	International organizations, donor countries	255 000	185 000	60 000	60 000	560 000
	Total	305 000	215 000	90 000	90 000	700 000



Training curriculum for manpower, within the framework of  
"National Program on IDD"

	Fields of training	1996	1997	1998	1999	2000	Duration
1	Technology for salt iodination	20					2 days
2	Management, and organization of salt plant	10					14 days
3	Quality control of iodized salt	25	25	10			14 days
4	Laboratory control	20	20				1 month
5	Specialization course for doctors on IDD	35					2 months
6	Information	25	25	25	25		2 weeks
7	Program management and organization	1		1			2 months
8	Monitoring and evaluation of IDD	1	1				3 months
9	Methodology of iodized salt quality	2	2	2	2		3 weeks
10	Laboratory control, evaluation and assessment	2	2	1			2 months
11	Industrial technology for iodized salt	3	3				2 weeks
12	Training on prevention of IDD	2	2	2			2 weeks

Annex 2 of the Government  
Resolution # 6, 1996

Composition of the National Coordinating Council  
of the "National Program on IDD"

Chairman of The Council:

Vice Chairman of NDB

Vice chairman:

Vice Minister of MOH

Secretary :

Officer responsible for Nutrition, MOH

*Battunur*

Members:

Director for Natural resources, Ministry of  
Environment

Director for Transportation, NDB

Vice chairman for budget planning and  
financing, MOF

Director for International Trade and

Cooperation, Ministry of trade and Industry(MTI)

Chairman for State trade control, MTI

Director for population policy, Ministry of Labor  
and Population Policy

Director for Food, MFA

Chairman for science and technological policy,  
Ministry of science and education

Director for Public health, MOH

*Sotonopil*

Director for mining, Ministry of Geology and  
Mining

Director for tariffs and Cooperation, General  
Customs Office

Director for Policy and Methodology, General  
Taxation Office

Vice director for Press

Director of the Medical University

Head of the Consumer's rights Association  
( to be advocated)

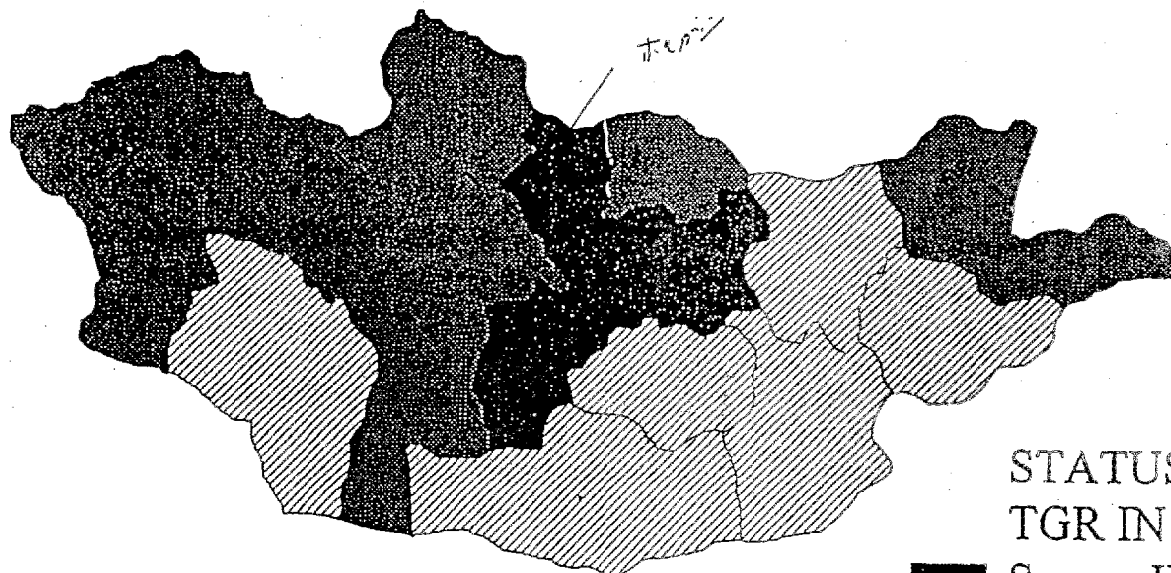
Director for Veterinary Office

Director of the State Standardization and  
Meteorological Center

Director of Nutrition Research Center

Director of the National Center for Hygiene,  
Epidemiology and Microbiology

# PREVALENCE OF IODINE DEFICIENCY DISORDERS MONGOLIA



## STATUS OF IDD

TGR IN School-Age Children

- Severe IDD (TGR > 30%)
- Moderate IDD (TGR 20-29.9%)
- ▨ Mild IDD (TGR 5.0 to 19.9%)

92 WHO/UNICEF epi. Study

# AGE GROUP<sup>1)</sup>/ SEX OF PEOPLE COVERED

(by city, aimag)

	aimak, som	AGE GROUP/SEX OF CHILDREN											FEMALE (18-40)	TOTAL	
		"7-8"		"9-10"		"11-12"		"13-14"		"15-16"		TOTAL			
		MALE	FEM	MALE	FEM	MALE	FEM	MALE	FEM	MALE	FEM	MALE			FEM
1	ARHANGAI	151	158	138	170	116	150	110	155	26	30	541	663	407	1611
2	BAYAN-ULGI	200	200	251	335	240	306	135	248	84	146	910	1235	225	2370
3	BAYANHONGOR	120	169	105	174	114	189	127	229			466	761	739	1966
4	BULGAN	202	225	160	262	273	361	158	323	2	5	795	1176	385	2356
5	GOBI-ALTAI	74	88	169	235	191	196	263	415	74	117	771	1051	756	2578
6	GOBI-SUMBER	35	41	20	23	16	26	14	29	1	3	86	122	65	273
7	DARHAN-UUL	140	251	145	262	156	254	110	191			551	958	657	2166
8	DORNOGOBI	194	207	104	120	109	134	117	121	7	24	531	606	284	1421
9	DORNOD	182	225	129	199	131	203	154	248			596	875	666	2137
10	DUNDGOBI	188	255	156	178	120	143	105	84	6	6	575	666	400	1641
11	ZAVHAN	63	76	63	115	93	133	55	82	67	71	341	477	91	909
12	SUHBAATAR	130	186	162	299	113	239	158	309	30	50	593	1083	694	2370
13	SELENGE	157	255	128	227	114	198	110	190			509	870	664	2043
14	TUV	41	78	56	108	44	81	42	84			183	351	95	629
15	UVS	145	281	131	204	93	200	203	427	92	198	664	1310	644	2818
16	ULAANBAATAR	609	1338	975	1650	653	1217	640	1221			2877	5426	1090	9393
17	HOVD	208	240	127	162	91	153	87	127	81	98	594	780	438	1812
18	HENTII	149	268	141	246	136	259	135	254			561	1027	428	2016
19	HUVSGUL	169	278	118	219	106	188	152	276			545	961	504	2010
20	ORHON	150	294	135	265	125	249	99	193			509	1001	511	2021
21	UVERHANGAI	95	329	199	329	103	235	147	359	1	5	545	1257	638	2440
22	UMNEGOBI	201	214	160	252	165	242	142	194			668	902	519	2089
	<b>TOTAL</b>	3603	5656	3772	6034	3302	5356	3263	5759	471	753	14411	23558	10900	48869

# GOITRE GRADE AMONG CHILDREN 7-14 YEARS OLD

	AIMAK	COVERED PEOPLE	1A	1B	II	III	Average
1	ARHANGAI	1148	16.9	8.6	0.2	0.0	25.7
2	BAYAN-ULGI	1915	25.7	3.5	0.1	0.0	29.3
3	BAYANHONGOR	1227	18.1	3.6	0.4	0.0	22.1
4	BULGAN	1964	30.2	13.4	5.5	1.2	50.3
5	GOBI-ALTAI	1631	10.1	4.3	1.0	0.0	15.4
6	GOBISUMBER	204	17.7	3.9	0.0	0.0	21.6
7	DARHAN-UUL	1509	27.8	24.0	3.3	0.5	55.6
8	DORNOGOBI	1106	10.2	1.1	0.0	0.0	11.3
9	DORNOD	1471	12.3	7.0	1.5	0.0	20.8
10	DUNDGOBI	1229	6.4	0.7	0.1	0.0	7.2
11	ZAVHAN	680	18.1	6.1	0.6	0.0	24.8
12	SUHBAATAR	1596	11.7	4.2	0.3	0.0	16.2
13	SELENGE	1379	18.0	5.4	2.4	0.6	26.4
14	TUV	535	25.7	9.9	2.6	0.5	38.7
15	UVS	1684	18.0	6.3	0.9	0.0	25.2
16	ULAANBAATAR	8393	26.8	11.2	3.1	0.7	41.8
17	HOVD	1195	24.6	4.9	0.1	0.0	29.5
18	HENTII	1588	11.6	4.8	0.4	0.0	16.8
19	HUVSGUL	1506	23.7	3.2	0.2	0.0	27.1
20	ORHON	1510	32.8	13.7	4.0	0.5	51.0
21	UVERHANGAI	1796	36.0	12.3	4.1	0.3	52.7
22	UMNEGOBI	1570	5.2	0.7	0.1	0.0	6.0
	<b>TOTAL</b>	<b>36836</b>	<b>19.4</b>	<b>6.9</b>	<b>1.4</b>	<b>0.2</b>	<b>28.0</b>

DARHAN-UUL	55.6
UVERHANGAI	52.7
ORHON	51
BULGAN	50.3
ULAANBAATAR	41.8
TUV	38.7
HOVD	29.5
BAYAN-ULGI	29.3
HUVSGUL	27.1
SELENGE	26.4
ARHANGAI	25.7
UVS	25.2
ZAVHAN	24.8
BAYANHONGOR	22.1
GOBISUMBER	21.6
DORNOD	20.8
HENTII	16.8
SUHBAATAR	16.2
GOBI-ALTAI	15.4
DORNOGOBI	11.3
DUNDGOBI	7.2
UMNEGOBI	6

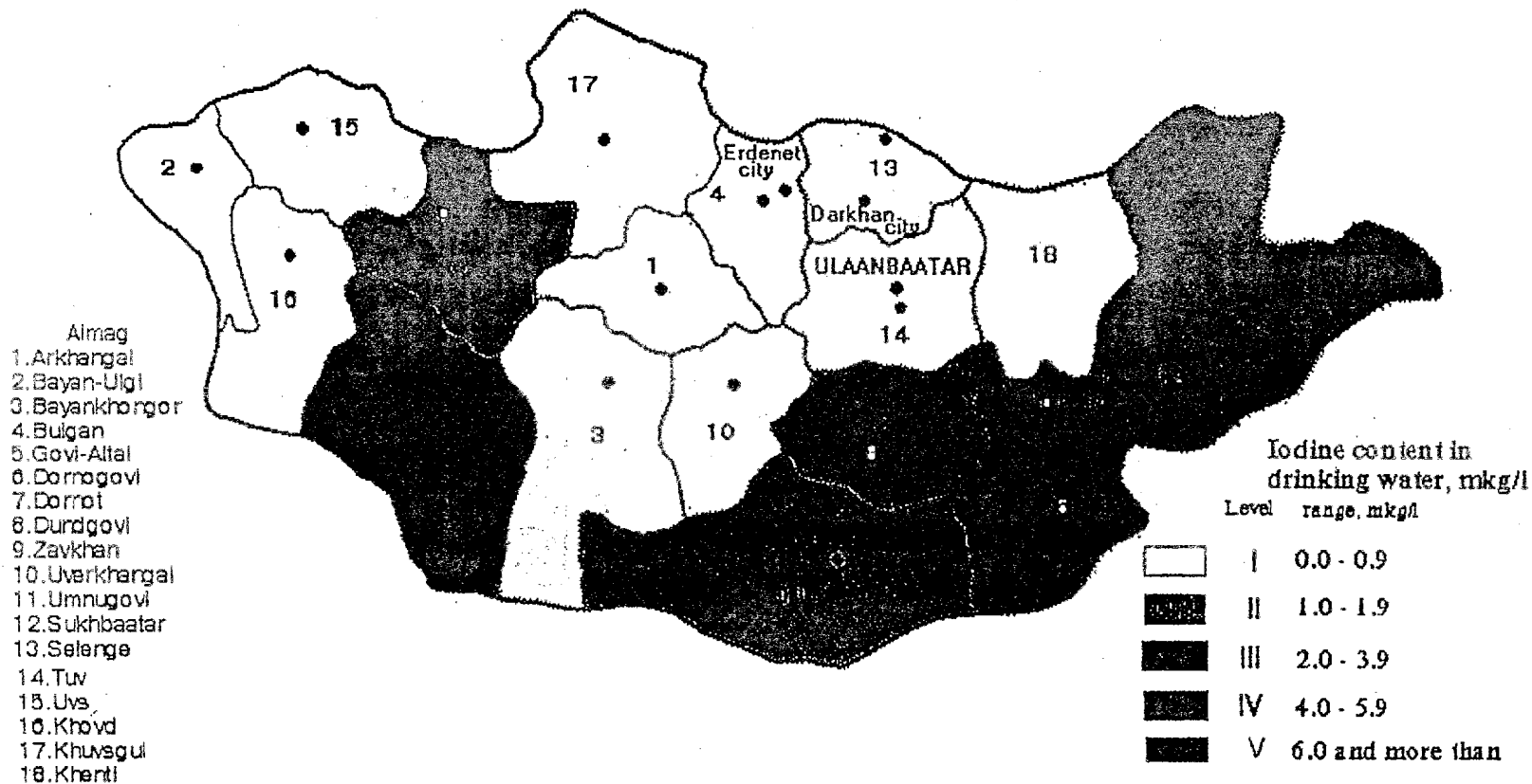
# WOMEN WITH GOITRE

	AIMAK	COVERED PEOPLE	I	II	Average
1	HOVD	438	53.2	3.6	56.8
2	UVERHANGAI	638	52.7	1.4	54.1
3	BULGAN	385	45.3	7.0	52.3
4	ORHON	511	38.8	6.6	45.4
5	DARHAN-UUL	657	35.4	9.2	44.6
6	ULAANBAATAR	1090	38.4	4.6	43.0
7	TUV	95	38.8	2.9	41.7
8	ARHANGAI	407	36.4	2.2	38.6
9	SELENGE	664	28.6	4.2	32.8
10	HUVSGUL	504	30.6	1.4	32.0
11	DORNOGOBI	284	26.0	1.1	27.1
12	ZAVHAN	91	26.2	0.4	26.6
13	BAYAN-ULGI	225	24.8	1.3	26.1
14	UVS	644	22.5	2.8	25.3
15	BAYANHONGOR	739	23.8	0.2	24.0
16	HENTII	428	20.0	3.9	23.9
17	DORNOD	666	20.7	2.3	23.0
18	GOBI-ALTAI	756	17.7	2.0	19.7
19	GOBISUMBER	65	13.9	3.0	16.9
20	SUHBAATAR	694	15.1	1.2	16.3
21	DUNDGOBI	400	11.5	0.5	12.0
22	UMNEGOBI	519	3.5	0.1	3.6
	TOTAL	10900	28.4	2.8	31.2

MONGOLIA

AVERAGE LEVEL IODINE CONTENT IN THE DRINKING WATER (mkg/l)

Map 2.



Амбулаторт бүртгэгдсэн хүн амын өвчлөл (10000 хүн амд)

№	Аймаг хотын нэр	4. Дотоод шүүрэл, гажээлийн ба бодисын солилцооны өвчнүүд	Үүнээс			5. Сэтгэлийн ба аялал эмгэг	6. Мэдрэлийн тогтолцооны өвчин	7. Нүүд ба гүүний дайварын өвчин	Үүнээс		9. Цусны эргэлийн тогтолцооны өвчин	Үүнээс				
			Иод хомсдол хамаарал байх өвчнүүд	Бамбайхайн хордлого	Цусжарт шээрэн				Глаукома	8. Чих ба хөхөдрийн өвчин		Дунд чих, хөхөнд өвчин	Зүрхний цочмог гэрх өвчин	Зүрхний архаг гэрх өвчин	Анхлагч даралт ихсэлт	Тархинд цус харвах
	А	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	Архангай	26.59	0.67	2.41	0.19	22.06	103.07	10.69	1.35	60.40	31.98	270.40	17.63	50.09	42.38	8.48
2	Баян-Өлгий	70.23	4.20	4.95	0.22	37.37	56.55	104.15	16.69	111.59	85.20	279.18	28.97	36.84	79.70	4.52
3	Баянхонгор	35.61	1.76	1.87	0.22	10.81	54.58	14.66	0.22	27.23	17.97	213.69	2.32	32.53	6.62	2.87
4	Булган	66.23	0.00	20.89	0.62	44.72	104.91	78.14	10.37	58.18	40.08	459.41	20.43	143.90	63.13	5.57
5	Говь-Алтай	25.33	0.67	4.80	0.40	19.47	61.47	27.20	3.07	66.40	53.60	270.81	42.54	21.33	68.94	13.87
6	Говьсүмбэр	153.07	1.55	4.64	45.61	24.74	93.54	140.70	15.46	81.95	61.85	520.29	32.47	75.76	168.53	1.55
7	Дархан-Уул	63.13	15.37	8.18	1.20	121.25	125.06	103.58	2.94	109.69	64.98	263.21	14.28	29.11	62.91	10.79
8	Дорноговь	134.72	51.16	2.04	6.52	83.97	193.62	70.72	3.06	96.20	76.63	602.06	54.01	101.91	107.41	17.53
9	Дорнод	81.92	21.04	2.96	0.24	172.35	132.75	181.45	12.29	249.90	154.38	196.94	25.30	17.14	62.18	2.36
10	Дундговь	33.73	0.75	0.75	0.00	33.17	76.04	43.24	3.17	46.59	17.15	203.71	20.50	50.88	21.25	2.98
11	Завхан	13.24	1.22	1.69	0.75	15.12	64.80	22.54	1.88	27.14	22.63	128.95	4.32	8.64	21.69	4.32
12	Орхон	50.79	20.69	8.10	1.59	43.41	64.98	14.62	0.58	47.32	36.76	106.51	4.05	15.48	32.85	0.43
13	Өвөрхангай	95.75	59.91	4.10	0.61	40.55	92.79	43.95	1.74	70.46	50.49	235.19	13.78	19.45	61.83	12.38
14	Өмнөговь	80.97	40.60	4.83	2.19	93.26	142.85	66.27	1.32	73.95	57.71	354.16	38.62	86.46	59.03	12.29
15	Сүхбаатар	55.33	2.85	0.50	0.00	93.06	192.99	31.35	2.52	80.65	58.01	197.01	7.55	23.47	14.92	4.69
16	Сэлэнгэ	56.72	14.68	6.10	1.72	25.26	66.35	88.56	1.43	115.92	55.10	463.03	38.70	43.85	51.00	10.87
17	Төв	23.09	0.53	1.15	0.35	20.25	115.25	88.71	3.80	49.71	38.48	187.60	4.86	15.92	44.40	9.64
18	Увс	109.38	25.80	1.95	0.88	89.63	54.93	30.79	4.79	65.78	49.75	209.67	11.24	35.09	49.95	5.38
19	Ховд	61.36	8.87	12.77	1.19	34.41	103.24	56.81	4.00	64.06	46.21	300.40	23.59	33.44	42.96	16.77
20	Хөвсгөл	166.41	24.10	53.37	0.00	43.28	153.95	53.78	2.30	241.91	71.81	548.67	47.96	29.84	156.41	9.67
21	Хэнтий	37.88	0.91	1.56	0.52	36.06	239.63	110.90	4.95	82.26	71.85	351.05	15.36	23.43	101.92	76.28
	Аймгийн дун	65.66	14.46	8.13	1.44	50.65	105.55	62.46	7.18	90.39	94.04	289.83	31.57	51.49	94.40	16.73
22	Улаанбаатар	74.33	4.38	4.30	5.22	66.86	159.95	95.85	8.55	89.20	56.92	317.38	10.86	18.45	86.93	13.79



## Current salt production in Mongolia.

N	Name of salt factory.	Location.	Annual production, (Tons/year)			
			Iodized.		Uniodized.	
			1996	1997	1996	1997
1.	Huns-Mash.	Ulaanbaatar	140,0	36,7	36,4	22,0
2.	Dornod-Huns.	Dornod.	225,0	60,0	174,0	74,0
3.	Baylag.	Zavhan.	210,0	65,0	-	-
4.	Govlin-Undur.	Umnugobi.	24,7	8,7	-	-
5.	Tulga-Altai.	Gobi-Altai.	13,0	5,0	-	-
6.	Chendmen.	Uvs.	6,0	60,0	13,0	15,0
7.	Mergen-Uul.	Darhan.	0,5	5,8	-	-
8.	Tulga.	Hovd.	0,5	4,5	-	-
	Totally.		619,7	245,7	223,4	111,0
9.	Mon-davs. / Imported /	Ulaanbaatar	2000,0	1152,0	-	-
	Total.		2619,7	1397,7*	223,4	111,0

\* end of June 1997y.

## SALT AVAILABILITY SURVEY

1) Number of shops	Total	57	SHOP/MARKET	KIOSK
(Including food markets, kiosks)	only iodized salt		26	14
	only ordinary salt		6	-
	Both		11	-
<b>2) Price</b>				
<b>a) Iodized salt</b>	<b>0.5 kg</b>	Tg - 140	5	1
		-145	4	-
		-150	17	3
		-160	7	2
		-170	1	-
		-175	-	1
		-180	-	1
		-185	-	2
		-200	1	-
	<b>1.0 kg</b>	Tg - 250	2	1
		-270	1	-
		-290	1	-
		-300	7	1
		-310	-	2
		-320	1	-
		-350	* 3	-
<b>b) Ordinary salt</b>	<b>1.0 kg</b>	Tg - 110	1	-
		-120	1	-
		-150	2	-
		-160	3	-
		-180	1	-
		-250	* 5	-
		-270	1	-
		280	1	-

\* : imported

1996 онд импортолсон давсны  
 тоо хэмжээ, улсаар  
 CUSTOMS IMPORT RECORD FOR SALT FOR 1996

QTY Тоо (т) (TONS)	COUNTRY Импортолсон улс
1392.8	ОХУ RUSSIA (Mon Davs, included)
880.16	БНХАУ CHINA
15.3	Чех CZECHOSLOVAKIA
0.01 → 0.1	АНУ U.S.A (for Embassy)
2.73	Польш POLAND
17.45	Герман GERMANY
9.0	Япон JAPAN
<b>Нийт 2317.46</b>	

TOTAL

2317.58

GENERAL CUSTOMS OFFICE