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CHINA

IODINE DEFICIENCY DISORDERS CONTROL PROJECT

JUNE 6, 1995

**Poverty, Population and Human Resources Division
China and Mongolia Department
East Asia and Pacific Regional Office**

CURRENCY EQUIVALENTS

(As of May 1995)

Currency Name	=	Renminbi
Currency Unit	=	Yuan (Y)
1 Yuan	=	100 fen
\$1.00	=	Y 8.45
Y 1.00	=	\$0.12

FISCAL YEAR

January 1 - December 31

WEIGHTS AND MEASURES

Metric System

ABBREVIATIONS AND ACRONYMS

BCEL	-	Beijing Consulting and Engineering Limited
CAS	-	Country Assistance Strategy
CICB	-	China Industrial & Commercial Bank
CIF	-	Cost Insurance and Freight
CITC	-	China International Tendering Company
CLIFETC	-	China Light Industry Corporation for Foreign Economic and Technical Cooperation
CNCLI	-	China National Council of Light Industry
CNSIC	-	China National Salt Industry Corporation
GOC	-	Government of China
ICB	-	International Competitive Bidding
ICCIDD	-	International Council for Control of Iodine Deficiency Disorders
ISP	-	International Shopping
IDA	-	International Development Association
IDD	-	Iodine Deficiency Disorders
IDDC	-	Iodine Deficiency Disorders Control
MCH	-	Maternal and Child Health
MMC	-	Multisectoral Management Committee
MOF	-	Ministry of Finance
MOH	-	Ministry of Health
NBF	-	Non-Bank Group financing
NCB	-	National Competitive Bidding
NGO	-	Nongovernmental Organization
NHEI	-	National Health Education Institute
NIDDEP	-	National IDD Elimination Program
NLCG	-	National Leading and Coordination Group
NTTST	-	National Training and Technical Support Team
PAMM	-	Program Against Micronutrient Malnutrition
PIU	-	Project Implementation Unit
PP	-	Project Province
PSLA	-	Provincial Salt Industry Administration
SIDF	-	Salt Industry Development Fund
SOE	-	Statement of Expenditure
SPC	-	State Planning Commission
UNDP	-	United Nations Development Program
UNICEF	-	United Nations Children's Fund
UNIDO	-	United Nations Industrial Development Organization
WHO	-	World Health Organization

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This report is based on the findings of an Appraisal Mission that visited China February 6-25, 1995, comprising Messrs./Mme. N.C. Krishnamurthy (mission leader), Lalit Raina, and Janet Hohnen, assisted by Hou Dingyong of the Resident Mission. Mmes. Judith McGuire (PHN), N. DeWitt (LEGEA) and D. Dorkin (EA2HR) provided additional assistance. Messrs. Neil Hughes and Jagadish Upadhyay were the peer reviewers. Mr. Vinay Bhargava is the Division Chief and Mr. Nicholas C. Hope is the Department Director.

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SELECTED DOCUMENTS IN THE PROJECT FILE

1. National Program for IDD Elimination.
2. Master Chart of Salt Flows under the Project.
3. Legal and Regulatory Framework.
4. Feasibility studies (April 1994, and December 1994) issues.

MAP

IBRD No. 26853

CHINA

IODINE DEFICIENCY DISORDERS CONTROL (IDDC) PROJECT

LOAN/CREDIT AND PROJECT SUMMARY

Borrower:	People's Republic of China
Implementing Agency:	China National Salt Industry Corporation (CNSIC)
Beneficiaries:	China National Salt Industry Corporation (CNSIC), and enterprises engaged in iodizing and packaging of salt
Poverty:	Not applicable
Amount:	Loan: \$7.0 million equivalent Credit: SDR 12.7 million (\$20 million equivalent)
Terms:	Loan: 20 years, including 5 years of grace, at the Bank's standard variable interest rate Credit: IDA standard terms with 35 years' maturity
Commitment Fee:	Loan: 0.75 percent on undisbursed loan balances, beginning 60 days after signing, less any waiver. Credit: 0.50 percent on undisbursed credit balances, beginning 60 days after signing, less any waiver.
Financing Plan:	See Table 2.2.
Economic Rate of Return:	Not applicable
Project ID Number:	CN-PA-37156

1. BACKGROUND

A. INTRODUCTION

1.1 The Government of the People's Republic of China (the Government, GOC) has requested an IDA Credit of SDR 12.7 million (\$20.0 million equivalent) and an IBRD Loan of \$7.0 million equivalent to finance the Iodine Deficiency Disorders Control (IDDC) Project. GOC's National IDD Elimination Program (NIDDEP, the Program), which has been accorded priority status, aims at virtual elimination of IDD by the year 2000. The central strategy for achieving this objective is iodization of all salt for human and animal consumption, with internationally accepted levels of iodine, and packaging in suitable forms for distribution to consumers. Implementation of the Program requires coordination of several sectors including industry, public health, transport and commercial, at the State, provincial and county levels. GOC has established a special high-level group under the State Council to guide, coordinate and monitor Program implementation. Implementation of the industry part of the Program has been vested with China National Salt Industry Corporation (CNSIC) under the administrative control of China National Council for Light Industry (CNCLI). The health-related aspects of the Program would be carried out by Ministry of Health (MOH).

1.2 The Project would support the production, iodization, packaging and distribution of iodized salt as part of the NIDDEP. The Project would finance the foreign exchange costs for installing raw salt quality upgrading, iodizing and packaging facilities, as well as a part of the technical assistance (TA) required for project implementation. The Government intends to carry out other components of the NIDDEP (education, advocacy, surveillance and monitoring) as well as additional TA for related activities with its own resources and with assistance from the United Nations Children's Fund (UNICEF), the United Nations Development Program (UNDP), the United Nations Industrial Development Organization (UNIDO) and the World Health Organization (WHO). These arrangements are described in Sections C and D of this chapter; they are not part of the Bank Group-financed project.

B. IODINE DEFICIENCY DISORDERS (IDD) IN CHINA

1.3 Insufficient intake of iodine, an essential micronutrient in human and animal diet, causes a variety of physical and mental disabilities, collectively known as iodine deficiency disorders (IDD). Among humans, the best known effects of iodine deficiency are goiter, an enlargement of the thyroid gland, and cretinism, a severe form of mental retardation that may be associated with deaf-mutism, dwarfism, and spastic palsy of lower limbs. It is now increasingly recognized that iodine deficiency also causes less severe but more

widespread intellectual impairment, as well as spontaneous abortion, still births and newborn deaths. In fact, IDD is the leading known preventable cause of intellectual handicap. While mothers and young children are particularly at risk of IDD, the combined effects cause loss of productivity and dynamism in whole communities. Therefore, IDD is now regarded not only as a public health issue but as an impediment to human and economic development.

1.4 It is estimated that more than 1.5 billion people worldwide, including over 400 million in China, live in areas that put them at risk of IDD. Large tracts of land and freshwater bodies in China are seriously deficient in iodine, and consequently, dietary iodine intake through agricultural and animal foodstuffs is insufficient. Until recently, it was believed that IDD, as measured by the prevalence of goiter and cretinism, was restricted to defined endemic areas, located in specific counties in all provinces and municipalities of China except Shanghai. However, recent biochemical evidence from communities in areas hitherto considered nonendemic, and better understanding of the spectrum of disorders, indicate that a much higher proportion of the total population is at risk, and that the delineation between endemic and nonendemic areas is inappropriate. The Government of China, with the active support of other UN agencies and the Bank Group, wants to achieve universal iodization of salt by end 1996 on an emergency basis.

1.5 Since 1990, global awareness of the prevalence, causes and effects of IDD has been raised through a series of international summits and conventions including: the World Summit for Children (September 1990); the World Declaration and Plan of Action for Survival, Protection and Development of Children (March 1991); Ending Hidden Hunger (Montreal, October 1991); and World Declaration and Plan of Action for Nutrition (December 1991). As a result, over 160 countries, including China, are committed to the objective of virtual elimination of IDD by the year 2000.

C. GOVERNMENT OBJECTIVES AND IMPLEMENTATION OF THE NATIONAL IDD ELIMINATION PROGRAM (NIDDEP)

1.6 Since the 1950s the Government of China has conducted programs for protection against goiter (di-jia disease). Manufacture and distribution of iodized salt was initiated under the Temporary Method for Protection and Cure of Goiter, promulgated by the State Council in 1979. In 1984, the Program for Regional Disease Protection and Cure in 13 southern provinces, autonomous regions and cities aimed to bring di-jia disease under control by 1990. This program achieved good progress but was limited by: lack of mechanisms to prevent noniodized salt from being sold; inadequate control of iodized salt quality; and low community awareness of IDD and the benefits of iodized salt. In 1992 a three-year project for intensified IDD control in nine provinces was started in cooperation with three UN agencies, UNICEF, UNDP and WHO.

1.7 The current National IDD Elimination Program (NIDDEP) began with a National Advocacy Meeting in Beijing in September 1993, convened by the State Council with UN support, and attended by national representatives of all relevant sectors and of all provinces. The meeting affirmed the Government's strong commitment to the goal of

elimination of IDD by year 2000 and considered drafts of two key documents that have since been formally issued as the framework of the Program: (a) the 'National Outline for the Plan to Eliminate IDD in China by the year 2000'; and (b) the 'Plan of Action' for implementing the Outline.

1.8 The main strategies of the Program, as stated in the above-mentioned documents are: to adopt iodization of salt as the principal intervention to reduce IDD; to mobilize society in support of the Program through multisectoral coordination and management at different levels; to educate the population on the impact of IDD and methods of prevention; and to strengthen the legal framework to prevent production and sale of noniodized salt.

1.9 The key activities of the Program and responsible agencies at national level are as follows:

- (a) **Establishment of an organizational and management framework**, consisting of leading groups and intersectoral working arrangements at various levels, with defined responsibilities for planning, implementing and monitoring the program.
- (b) **Revision, promulgation and implementation of relevant legislation** to specify standards of iodization, packaging and distribution and to prevent marketing of noniodized salt, except in special cases. The Regulations were jointly drafted by MOH and CNSIC, approved by the Bureau of Legislative Affairs and promulgated by the State Council as Decree 163, on August 23, 1994, which became effective from October 1, 1994.
- (c) **Iodization and distribution of all edible salt** consumed in the country. CNSIC has oversight responsibility for this.
- (d) **Supplementary provision of iodine**, chiefly through iodized oil, to communities beyond the easy reach of iodized salt, or where salt is collected locally from natural deposits. This would be coordinated by MOH and the China Disabled Persons' Federation.
- (e) **Advocacy, information, education and communication**, for the purpose of social mobilization, enlisting all levels and sectors of society from political leaders to the general public, and to increase consumer demand for iodized salt. MOH will coordinate this work through the National Health Education Institute (NHEI), while involving the salt industry, the media and participating NGOs.
- (f) **Monitoring and surveillance** covering two main aspects: (a) population iodine status and prevalence of IDD, managed by MOH through the provincial health bureaus; and (b) salt iodine levels. The salt industry will have its own quality monitoring systems, including testing laboratories;

surveillance of salt iodine content at retail and household level will be the responsibility of the food inspection service of county health bureaus, reporting through provincial level to MOH.

- (g) **Training** of government staff, salt industry employees and community representatives in skills required for these activities. Coordination of training is the responsibility of the National Training and Technical Support Team (NTTST), a unit of the Program's management structure.
- (h) **Research and development** related to the Program's overall goal and strategies. Coordination of this activity would be jointly done by the IDD Advisory Committees and NTTST.

1.10 The National Leading and Coordination Group (NLCG) of NIDDEP, reporting directly to the State Council, was formed in March 1993, with 27 high-level representatives of relevant ministries, departments and organizations. It is responsible for policy advice and decisions, and for coordinating the two main activities of the program: (a) the production, distribution and monitoring of iodized salt with CNSIC as the responsible agency; and (b) health aspects of the program, including community education, training, monitoring and IDD surveillance, under the responsibility of MOH. The Group also provides the forum for coordination with other involved ministries (Finance, Trade and Commerce, Transport, Science and Technology, Education, Culture and Broadcasting), as well as with NGOs (the All-China Women's Federation, the China Disabled Persons' Federation and the China Association for Science and Technology). A smaller multisectoral management committee (MMC) is responsible to the NLCG for Program implementation, and in turn the MMC supervises the full time working group—the NTTST.

1.11 At the provincial level, a multisectoral leading group for NIDDEP has been formed and action plans prepared for implementation of the program in each province, along with budget estimates. Again, the key agencies are the Bureau of Health and Bureau of Light Industry, with other sectors and agencies represented as at the national level. The Management Structure for NIDDEP is presented in ANNEX 1.

1.12 Although, at the Government's request, the Bank Group's support for the National Program is confined to the salt iodization component of NIDDEP, the success of the Project depends on the effective implementation of the Program as a whole. To this end the Government has furnished to the Bank Group a letter dated May 5, 1995 (ANNEX 2), describing the Program and the action plan for its implementation. The letter indicates that the Government would:

- (a) maintain through the year 2000 the organizational structure for NIDDEP, including the NLCG, the MMC and NTTST;

- (b) make available the operating budget for the NTTST, the IDD work of the National Office of Endemic Disease Control of MOH and for the advocacy campaign throughout this period;
- (c) continue to ensure availability of iodine in sufficient quantities to enable accomplishment of the project objectives;
- (d) carry out a program of monitoring the quality and availability of iodized salt, and compliance with the regulations;
- (e) carry out awareness creation and advocacy campaigns through mass media and other channels to educate the public about IDD and the benefit of iodized salt; and
- (f) carry out surveillance and monitoring of IDD status in the country.

1.13 The principal assurances obtained from the Borrower are that it would: (a) carry out the NIDDEP described in the Government Letter of May 5, 1995; (b) prepare and furnish to the Bank Group, on an annual basis starting with the first report by March 15, 1996, a monitoring and evaluation report on the progress in implementing the NIDDEP; and (c) exchange views annually, starting from June 30, 1996, with the Bank Group on progress and key actions for the forthcoming year, to ensure achievement of NIDDEP objectives.

D. ROLE OF INTERNATIONAL AGENCIES

1.14 Three UN agencies, UNICEF, UNDP and WHO, are supporting the National Program, particularly through the current joint project in nine provinces and the national-level activities associated with this work. Their efforts have been oriented towards capacity building in advocacy, community education, legal aspects, laboratory systems, surveillance, program management and research, through provision of technical assistance, experience exchange, equipment, training courses at the national level and in the provinces, and support to the Government in developing the structures and procedures for implementation of the National Program. The joint UN/GOC 1995 Plan of Action includes commitments of \$998,000 for this work, and UNICEF expects to increase this amount. For the years 1996-2000, UNICEF has prepared a work program, with an estimated contribution of \$2.7 million to help achieve the national goal of IDD elimination. Support of UN Agencies for the National IDD Elimination Program is detailed in ANNEX 3.

1.15 In addition UNDP, UNICEF and the UN Industrial Development Organization (UNIDO) have financed consultancies to help define the physical parameters of the Project. UNIDO and UNICEF are currently finalizing a program for technical assistance (TA) to the salt industry. This TA program would provide expert consultancy services to CNSIC for improving technologies for refining, iodizing and packaging; quality control and laboratory analytical methods together with equipment; development of salt industry

education centers; equipment for R&D centers engaged in salt research; and training of production, quality control, and information systems personnel. The TA program has been developed by UNIDO in consultation with UNICEF, UNDP and the Bank Group, and would be implemented separately from but concurrently with the Project implementation. This would complement the Project's technical assistance component through parallel activities.

1.16 Apart from the UN agencies, GOC has links with other international programs and organizations working toward the global goal of IDD elimination. These include: the International Council for Control of Iodine Deficiency Disorders (ICCIDD), the Micronutrient Initiative (to both of which the World Bank contributes financial support) and the Program Against Micronutrient Malnutrition (PAMM). Experts from these organizations participate in China's International Working Group on IDD, which provides technical advice to MOH and the UN agencies.

E. THE SALT INDUSTRY IN CHINA

1.17 **Overview.** The Chinese salt industry produces and markets about 30 million tons per year (Mtpy) of salt for human, animal and industrial consumption. Output at current prices increased from Y 3.9 billion in 1991 to about Y 5.7 billion in 1993. It represents a very small proportion of GDP. Added value in manufacturing in 1993 has been Y 2.8 billion. In 1993 the industry generated net profits of Y 130 million, and contributed Y 776 million as salt tax, and Y 630 million as other taxes. Over 3,000 enterprises are engaged in mining, processing and packaging of salt. About 410 of these are considered as major units, of which 57 enterprises of large and medium size account for about 70 percent of the total industry output. The industry employs about 370,000 personnel including about 50,000 in marketing and sales activities. There is negligible foreign trade in salt. Exports in 1993 amounted to about 200,000 tons, with peak exports of 1.3 million tons in one of the previous years. Imports have been insignificant, consisting mainly of specialty salts, and exports were banned starting 1994.

1.18 **Production.** Edible and industrial salt are produced by: (a) solar evaporation of sea water; (b) solar evaporation of lake brines; and (c) solar/vacuum evaporation of rock salt/well brines. Besides the long coastline along which there are 50 large and medium fields from which salt is produced by solar evaporation of sea water, China has reserves of about 100 million tons of salt in inland lakes, and about 46 billion tons of rock salt. Production of salt is scattered in 23 of the 30 provinces and autonomous regions of the country. Salt production by source is shown in Table 1.1 below. Population and production/consumption of salt in 1993 by province and salt production and distribution, 1991-93, are shown in ANNEX 4.

Table 1.1: CHINA—PRODUCTION OF SALT, BY SOURCE (1991-93)

	1991		1992		1993	
	Mtpy	%	Mtpy	%	Mtpy	%
Sea salt	15.12	64.4	19.79	70.6	21.15	73.5
Well salt	4.65	19.8	4.89	17.5	5.08	8.9
Lake salt	3.70	15.8	3.34	11.9	2.57	8.9
Total	23.47	100.0	28.02	100.0	28.80	100.0

1.19 Crude salt production in 1993 totaled 28.8 million tons (Mt), consisting of about 21.2 Mt (73.3 percent) of sea salt, 5.1 Mt (17.7 percent) of well/rock salt, and 2.6 Mt (9.0 percent) of lake salt. Of the total salt production, about 8 Mt is edible variety for human and animal consumption and the rest is used in the chemical industry. Crude salt produced by solar evaporation is in the form of large crystals, about 90 to 95 percent pure, and contains occlusions of impurities and moisture. Crude salt is refined by recrystallization, in which it is dissolved in water, the brine purified, evaporated, and the small crystals separated by centrifuging, resulting in salt purity of up to 98 percent; or hydromilling, in which the crude salt is size-reduced, washed in several stages, centrifuged, and dried to obtain purity of up to 98 percent. About 70 percent of the edible salt is refined at the production end and the rest is marketed as crude salt, because of consumer preference in certain areas of the country.

1.20 **Technology Status.** Sea and lake salt production is generally restricted to the dry months of the year. However, to reduce the dilution effects due to rains, sea salterns increasingly use plastic film to cover evaporation ponds during wet months, increasing the yield by about 10 percent. This technology is better than those used elsewhere. Technologies used for well and mine salt are relatively old, with about 1 Mtpy capacity upgraded to late 1980s technology levels. Crude salt refining technologies are generally modern. Cost of production and refining of well/mine salt is comparable to other neighboring countries, the higher energy consumption (100 to 120 kg coal per ton salt), and poor labor productivity (at 400 to 500 tons per employee per year, about 10 percent that at other producers in the neighboring countries), are compensated by very low energy costs and wages. The technology base for salt iodizing is generally primitive, consisting for the most part of the total production of manual dozing and control. Retail packaging of iodized salt is mostly done manually. Under the project, a large part of the iodizing and packaging would be modernized to current international technology levels. Only about 0.9 Mtpy of existing iodizing capacity in remote areas would be retained, and about 7.3 Mtpy capacity would be achieved by modernizing existing plant and new capacities. About 2.2 Mtpy of existing packaging capacity would be retained, and the rest would be modernized.

1.21 Currently about 3.2 Mtpy (40 percent) of edible salt is iodized in about 1,450 production units spread over 27 provinces, of which about 2.5 to 3.0 Mtpy are iodized by mechanical (drip) methods, and the balance by manual mixing of salt and iodate solution. The larger iodizing units package iodized salt in 50 kg bags, which are transported to distribution areas for repackaging into small (0.5 to 1.0 kg) retail packs. Some of the enterprises at the distribution level also carry out iodization of salt transported from primary salt producers, before retail packaging.

1.22 There are major deficiencies in the present iodization and distribution of iodized salt. *Firstly*, inadequate dosage levels of iodate at the factory-level, and loss of iodine from salt during transport and storage, due to both the differences in quality of feedstock salt from different sources, and to excessive travel and storage time before consumption, especially in remote areas, result in inadequate iodine content at the consumer level. *Secondly*, the process technology used, being predominantly manual and dependent upon operator skills, does not assure uniform iodine content. *Thirdly*, due to the very large numbers of iodizing and repackaging centers spread throughout the country, external monitoring of iodized salt quality from plant to retail levels is difficult and generally deficient. While national regulations forbid sale of noniodized salt in identified IDD endemic areas, institutional arrangements and staffing have been inadequate to prevent transport and sale of noniodized salt. *Fourthly*, because of low public awareness of the health risks of iodine deficiency and the benefits of iodized salt, as well as ready access to cheaper noniodized salt, large sections of population do not “demand” iodized salt.

1.23 **Legal Framework of the Salt Industry.** Under Decree 51 of March 2, 1990, Regulations for Salt Industry Administration, issued by the State Council, all salt resources are owned by the State and unified planning, location of production facilities, market allocation and distribution of salt are carried out by the State. CNCLI is the nominated competent authority to administer the salt industry under the State Council. CNSIC, which is under the supervisory authority of CNCLI, is responsible for overall administration of the salt industry, including drafting and enforcement of regulations governing the industry, planning for salt industry development, and supervising quality control. Provincial governments designate corresponding agencies to administer the industry under their respective jurisdictions. Development of salt resources and establishment of salt manufacturing enterprises must be reviewed by the provincial salt administration agencies. Based on a satisfactory review, and on the recommendation of the provincial salt industry administrations (PSIAs), the local Industry and Commerce Administration, as competent authority for business licenses, includes salt manufacturing activities as part of the enterprises’ business license.

1.24 Decree 163 of August 23, 1994 (para. 1.9) provides, among others, that all alimentary salt sold in IDD-endemic areas must be iodized; entry of noniodized salt into the markets of such areas is prohibited; provincial or municipal-level salt industry responsible organizations may take punitive actions against enterprises that violate the Decree; and the provisions of the Decree also apply in nonendemic areas designated by the provincial-level health and salt administrations.

1.25 The provincial industry and commerce administration issues business licenses to commercial enterprises in each province. Including salt manufacture in business licenses is done in consultation with provincial salt administration bureaus and approval by CNSIC, which could be revoked on recommendation of CNSIC exercising its authority in ensuring conformance with salt industry regulations and rules. Under the centralized planning and control of the salt industry, permits are issued to individual salt manufacturing and processing units by CNSIC in respect of production volumes, transport, and sale of salt, through provincial salt industry corporations. The business licenses of individual enterprises are reviewed annually by provincial industry and commerce administration, in consultation with salt industry corporations, for business license renewal. In enforcing conformance to applicable regulations, CNSIC would, in consultation with the provincial industry and commerce administration, take steps to revoke that part of the business license of enterprises that permits them to manufacture edible salt, or convert them to manufacture of nonedible salt only, in case any enterprise violates the provision of the regulation by manufacture of noniodized edible salt. The above-mentioned legal provision and systems permit monopoly control of the salt industry. All enterprises with business licenses are entitled to borrow (usually up to a debt:equity ratio of 3:1), and to lend.

F. INSTITUTIONAL ARRANGEMENTS FOR SALT INDUSTRY AND FOR THE PROJECT

1.26 Subsequent to the reorganization of Ministry of Light Industry into CNCLI in 1987-88, the administrative functions of the former Administration Bureau of Salt Industry were added to the corporate production and distribution functions of CNSIC. This reorganization also led to the decentralization of a number of salt producing and distributing enterprises. However CNSIC continues to control the enterprise production and distribution plans, and to coordinate general salt industry policy and planning. As a result, CNSIC now has a dual role: (a) commercial activities through direct responsibility for five organizations, including two salt enterprises in Beijing; one production and one distribution enterprise in Shanghai; the salt research institute at Tianjin; a trading enterprise Yuanda; and (b) administrative functions consisting of overall coordination and supervision responsibility of all provincial and city salt industry administration.

1.27 The executive functions of CNCLI for administering the salt industry are vested with CNSIC, which in turn directly controls the regional and provincial salt administrative agencies. CNSIC's functions include planning and ensuring execution of production capacities, production volumes, marketing and distribution arrangements, and administering central R&D facilities, all under the administrative control of CNCLI and in accordance with State plans for the industry as a whole. CNCLI, under approval of the State Council, regulates the price of salt ex-factory and at retail levels in consultation and agreement with provincial governments. Individual salt manufacturing enterprises operating under regulated production and price levels, are expected to be financially autonomous.

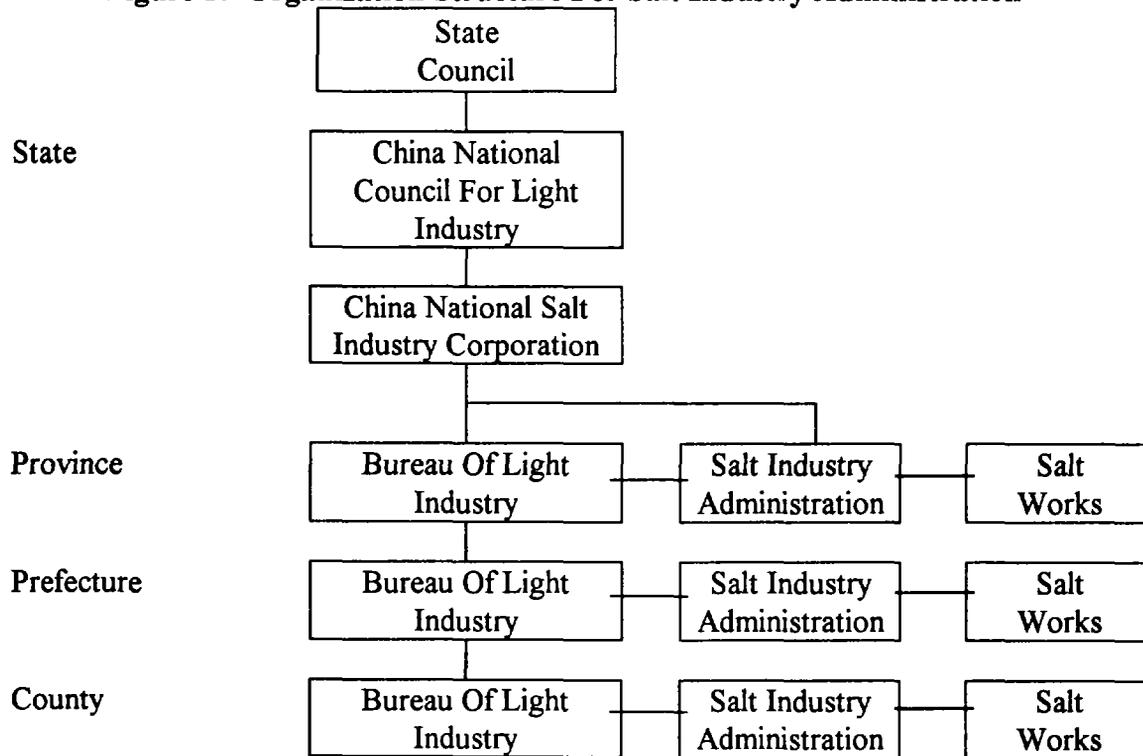
1.28 Individual salt plants and provincial authorities develop annual production, transport and sales plans that are reviewed by CNSIC to ensure consistency with demand/supply balances, and submitted to the State Council through CNCLI. Upon approval by

the State Council in consultation with State Planning Commission (SPC), the plans are adopted as operational targets for production and distribution. Implementation of production targets are carried out at plant level, and the transport and sales are executed at the county level through the county's commercial departments.

1.29 The proposed IDDC Project would be implemented by the China National Salt Industry Corporation (CNSIC). The broad structure for administration and control of the salt industry and CNSIC's role are shown in Figure 1 below.

1.30 CNSIC was formed in 1980 as a state enterprise with legal personality to carry out the executive functions of administering the salt industry in the country, under the control of CNCLI and to engage in commercial activities within the salt industry. Its business license includes: exploration and development of salt resources; production of crude, refined and other types of salt, salt chemicals; production of equipment for manufacture of salt and additives for salt; storage and transport of salt products; marketing of all above products and rendering technical assistance to affiliates.

Figure 1: Organization Structure For Salt Industry Administration



1.31 Besides its main functions of administering the salt industry, CNSIC's business activities include: marketing of salt through its two subsidiaries—Beijing Municipal Salt Corporation and its five distribution stations, and Shanghai Municipal Salt Corporation and its three distribution stations—and trading in construction materials, chemicals, joint-venture development, and real estate business through its fully owned subsidiary Yuanda.

Besides the above, CNSIC exercises administrative control over a geological exploration team for salt mines, as well the Salt Research Institute at Tianjin.

1.32 CNSIC is headed by a President, nominated by CNCLI and approved by State Council, for an extendible five-year term. Reporting to the president are three vice presidents, nominated by the President and approved by CNCLI, for an extendible three-year term. The President's office includes an assistant president. The organization chart of CNSIC headquarters is presented in ANNEX 5.

1.33 CNSIC's capital base (equity reserves and fixed investments) totaled about Y 90 million at its headquarters and its wholly owned subsidiary, Yuanda, and Y 46 million at its other subsidiaries. CNSIC's income derives from two sources: (a) a service fee of Y 0.6 per ton of salt sold, payable by individual salt enterprises; and (b) profits from its commercial operations through Yuanda as well as some contributions out of the profits from its other subsidiaries. Net profit after taxes were: Y 10.31 million in 1991, Y 11.68 million in 1992, Y 7.21 million in 1993, and estimated Y 12.45 million in 1994.

G. SALT INDUSTRY DEVELOPMENT FUND

1.34 The Salt Industry Development Fund (SIDF) was established in 1989 to provide financial assistance for salt industry development. The State's share of SIDF is managed by CNSIC, under the overall direction of a steering committee consisting of representatives from SPC, MOF and CNCLI. Contributions to the SIDF consist of a cess levied on the salt enterprises, part of it accruing to the state and part to the provinces. Accruals to the State's share of the SIDF total approximately Y 900 million up to the end of 1994. Actual collection has been much lower, at Y 143 million, due to a variety of reasons including liquidity situation at the salt enterprises arising from interenterprise arrears. The impending price determination for iodized salt should significantly improve the liquidity situation, and enable them to pay into the SIDF in a timely manner, as well as payment of arrears. Through adopting several measures, CNSIC expects to recover the bulk of the arrears during 1995, and ensure timely payments into the SIDF by the enterprises in the future. Future annual contributions to the State's share of the SIDF would total about Y 200 million, based on the proposed increased share accruing to the State from the enterprises' contribution. At the level of accruals and collections (including arrears), it should be feasible for the SIDF to make available its estimated share of counterpart financing of Y 190.4 million for the Project, and also any significant overruns due to increases in project costs. The Salt Industry Development Fund (SIDF) is described in ANNEX 6.

H. SALT PRICING AND THE IDDC PROJECT

1.35 **Salt Pricing Policy.** The production and distribution of salt is considered a state monopoly activity. Because of its monopoly nature, the price of edible salt/ton is regulated at the producer level, wholesale level and at the retail level. The selling prices at the producer or ex-works level and the wholesale level are regulated by State government agencies. Any price increase request at the producer level is processed by the CNSIC

product pricing department and presented through their branch ministry, CNCLI, to the Salt Management Price Bureau of the State Council. This Bureau is actually located as a part of SPC. The price levels are determined in a joint discussion between the representatives of CNCLI, SPC and MOF and after SPC Price Bureau's approval, presented to the State Council for final approval.

1.36 The prices at the retail level are determined by adding various cost elements to the ex-factory salt price fixed by the State. These include contribution to the SIDF, salt tax, transport costs, wholesalers' margin, retailers' margin, etc. Accordingly, the retail price of edible salt in the different jurisdictions is regulated by the local government authorities. Any escalation in the retail selling price is therefore processed by the local PSIA's affiliated to CNSIC, channeled through the local Bureaus of Light Industry, and approved by the local government.

1.37 The salt prices also vary depending upon the type and source of salt. The average ex-works salt price ranges between Y 155 and Y 358/ton, depending on whether the salt is raw salt, crushed/washed salt, fine salt, vacuum salt from lake water, or vacuum fine salt produced from sea water. The average wholesale or the distributors' price similarly ranges between Y 615 and Y 786/ton. The average retail sales price to the consumer in bulk, ranges from Y 720 to Y 920/ton. While the range of prices are averages depending upon the type of salt, prices in individual provinces vary around the averages, with a ceiling price set for each province, agreed between CNCLI and the provincial/local governments. The ceiling price for nonretail packed salt ranges from Y 576 to Y 978/ton, with one or two exceptions falling outside the range. The prices of retail packaged salt, depending upon the type of salt, range from Y 840 to Y 1,040/ton. The current consumer price of iodized salt is subsidized to the extent of providing potassium iodate (KIO_3) free of cost to iodizing units, and the cost of iodizing being absorbed by the iodizing units.

1.38 **Price of Iodized Salt.** Currently, there is no difference in price between iodized and noniodized salt. The additional costs of iodizing are subsidized through supply of potassium iodate free of cost to iodizing units, other costs being borne by iodizing enterprises. The extent of such subsidy, provided by MOH, is estimated at about \$1.9 million equivalent (at 35 ppm iodine dosage, at Y 95,000 per ton of KIO_3 and at about 3.0 Mt/yr of edible salt currently iodized). In addition another Y 23-25,000/ton is subsidized by the provincial health bureau. The State Council is currently considering a proposal from CNCLI to set a new price regime for iodized salt, and remove the current consumer subsidies. When approved, the consumer price of retail packed salt would increase by about Y 180/ton including Y 70/ton for iodizing alone.

1.39 **Salt Iodization Costs in Relation to Household Expenditure.** Annual per capita salt consumption is estimated at about 7 kg, including salt consumption by farm animals. Of this, about 2.2 kg is indirectly consumed through industrial processed foods, and the rest through direct purchase of salt for human and animal consumption. Based upon the Chinese Statistical Board statistics, that Chinese usually eat about 8 to 11 gm of salt per day per person in the northern parts, and about 6 gm per day per person in the southern parts of the country, the annual per capita direct retail consumption of salt is

about 3.3 kg. Assuming an average of four members per household, the average annual household consumption of salt in China would be around 28 kg.

1.40 Assuming an average current retail price of Y 1.2/kg, the current annual household expenditure on salt would be around Y 31.92. The increase of Y 70/ton for iodization would add Y 0.07/kg to the cost of salt. Including the incremental cost of retail packaging, the incremental salt expenditure per household would be of the order of Y 5.00 per year or about 15.7 percent over the current expenditure. The nationwide annual per capita household living expenditures are around Y 2,111 in the urban areas and around Y 660 in the rural areas (1993). The increase in salt prices would then represent about 0.24 to 0.76 percent of the current household budget.

L. BANK GROUP ASSISTANCE STRATEGY AND RATIONALE FOR BANK GROUP INVOLVEMENT IN THE PROJECT

1.41 Within its overall objective of supporting the Government's poverty alleviation and human resources development programs, the Bank Group currently pursues two central strategies in assisting China's health sector, as expressed in the Country Assistance Strategy (CAS) presented to the Board in June 1995. These are: improved provision of basic health services in rural areas, with particular emphasis on maternal and child health; and the prevention of endemic and infectious disease. Bank Group support of the National IDD Elimination Program, a high-priority preventive program that particularly benefits women and children, is consistent with the CAS.

1.42 After the National Advocacy Meeting for NIDDEP in September 1993 (para. 1.7), GOC requested that Bank Group support for NIDDEP, specifically in salt iodization, be included as a component of the Comprehensive Maternal and Child Health (MCH) project that was then being prepared. The Bank Group accepted the Government's request. However, at appraisal of the MCH project, the state of readiness of the IDDC component did not meet either GOC or Bank Group requirements. Both parties, therefore, agreed that the MCH and IDDC components would be processed as two separate projects. The MCH project was presented to the Board in October 1994. The State Council approved the IDDC project concept in September 1994 and requested CNSIC to prepare a detailed feasibility study, which was completed in December 1994.

1.43 The proposed Project is the vehicle for support requested by China to eliminate one of the nation's major preventable causes of mental retardation and deformity in children, i.e., iodine deficiency. The Project is an important adjunct to the Comprehensive MCH Project, from which it was separated only for logistical reasons. Sector work and policy analysis by the Bank Group in many countries have demonstrated the efficacy and cost-effectiveness of specifically targeting micronutrient malnutrition to improve health status, including salt iodization to prevent IDD. The Bank Group now supports such projects in 30 countries, as well as providing funds to international organizations for advocacy and support of global IDD elimination. As it has been estimated that up to 40 percent of the world's burden of IDD is in China, this project in itself makes a major contribution to global reduction of this preventable health problem. The Project's

objective of preventing IDD in children and mothers is in line with the CAS. In China, the involvement of the Bank Group, with its capability for cross-sectoral and policy dialogue with MOF and SPC, has lent valuable weight to the support of other UN agencies, and provided useful leverage in the establishment of intersectoral arrangements and procedures that are needed for NIDDEP success. The Bank Group's role, through this project, will complement the leadership role being played by other UN organizations in assisting China to achieve the goal of IDD elimination.

J. BANK GROUP EXPERIENCE IN THE HEALTH SECTOR AND LESSONS LEARNED

1.44 The Bank Group has supported five health sector projects in China since the early 1980s. The first two projects—the Rural Health and Medical Education Project (Cr. 1472-CHA) and the Rural Health and Preventive Medicine Project (Cr. 2723-CHA)—have been completed except for the vaccine production component of the second project. Three health projects are currently being implemented. The Integrated Regional Health Development Project (Cr. 2009-CHA) focuses on improved planning of health services, including disease prevention and maternal and child health components. The Infectious and Endemic Disease Control Project (Cr. 2137-CHA) supports the national programs for control of tuberculosis and schistosomiasis control. The Rural Health Workers Development Project (Cr. 2539-CHA) focuses on improved planning and training of the rural health workforce. Finally, the Comprehensive Maternal and Child Health Project (Cr. 2655-CHA), approved by the Board in October 1994, will help to improve basic MCH services, training and management in eight provinces. Two additional projects, the Medium-Sized Cities Development Project (Ln. 3286-CHA, Cr. 2201-CHA) and the Second Rural Water Supply Project (Cr. 2336-CHA), also include health service and health education components. The Bank Group has also completed two sector studies in health (1984 and 1992) and one in poverty (1992).

1.45 Lessons learned from earlier Bank Group projects include the need to: ensure well-organized and adequately staffed project management offices at all levels; provide clear guidelines for implementation supervision; and ensure adequate quantity and quality of equipment for the intended project activities. The project design also reflects lessons learned from industrial projects in China, including: avoiding overambitious project scope; ensuring adequate implementation management arrangements; reducing delays in ICB procurement through attention to the learning needs of the borrower; and carefully estimating the capital requirements and adequacy of local cost financing arrangements.

1.46 In the current Project, these lessons have been addressed as follows: (a) the estimates for total financing requirements have been built up by making adequate allowances for physical and price contingencies, and working capital; (b) in addition, sources of counterpart financing have been identified, and agreements have been reached that the funds would be available in a timely manner, including any cost overruns; (c) selection of a procurement agency who is familiar with Bank Group guidelines for procurement of goods and of consultants; and (d) providing CNSIC with consultants and advisors for project management, financial control systems, and information systems. The Bank Group's analysis of salt iodization programs in other countries has identified the

following critical success factors: (a) iodization of *all* salt for human and animal consumption, (b) multisectoral involvement in planning and administration of the program; (c) strong advocacy with salt manufacturing and trading agencies; (d) supporting legislation and enforcement; (e) monitoring of iodine levels in salt at plant and retail level; (f) consumer education on benefits of iodized salt, product recognition, etc.; (g) strong links to and support from the global initiative; (h) external technical and financial support in key aspects of the program; and (i) efficient program monitoring and dissemination of progress data. The Project addresses these needs through the design of the project components for salt iodization and by obtaining assurances from the Borrower for regular dialogue on progress of NIDDEP.

2. THE PROJECT

A. PROJECT OBJECTIVES

2.1 The Project's objective is to reduce the incidence of Iodine Deficiency Disorders in China by supporting the Government's National Iodine Deficiency Disorders Elimination Program (NIDDEP) through financing investments in production, iodization, and packaging and distribution of iodized salt. The project design and implementation arrangements respond to the Government's request for the Bank Group's support, to help achieve universal salt iodization by end-1996, and thereby virtually eliminate IDD in China by the year 2000. The Bank Group's support to the Project is thus seen as an emergency measure to enable the Government to address a major public health problem in the country. The Government has undertaken (para. 1.13) to carry out other components of the NIDDEP with its own resources as well as with assistance from other UN agencies (paras. 1.14-1.16). Within this framework of shared responsibilities for international assistance the Bank Group has agreed to support the salt iodization activities. The Bank Group and other UN agencies plan to exchange information and coordinate the agencies' individual assistance areas.

2.2 To achieve its objective, the Project would consist of creating incremental facilities for raw salt upgrading, iodization and packaging of iodized salt in suitable form and materials for distribution to consumers. The incremental facilities would include raw salt upgrading (1.53 Mtpy), iodizing (8.16 Mtpy), wholesale packaging (2.93 Mtpy), and retail packaging (3.16 Mtpy). Technical assistance under the Project would be provided to strengthen CNSIC's Project Implementation Unit (PIU) in general project management, project accounting and financial management, information systems, and market promotion and quality control.

B. GOVERNMENT OWNERSHIP, PROJECT DESIGN, AND STATUS OF PREPARATION

2.3 GOC requested Bank Group assistance for implementing the physical facilities required for achieving the IDDC objective in January 1994. The project idea arose from the Government's own initiatives to eliminate iodine deficiency disorders. The Government is fully committed to the Program and the Project. The Project has been prepared by CNSIC in consultation with provincial governments and the beneficiary enterprises. Bank Group missions were undertaken in February, April, and September 1994 to review the status of project preparation and assist CNSIC with the project preparation. The feasibility study prepared by CNSIC with the help of their consulting engineers, Beijing Consulting and Engineering Limited (BCEL), was reviewed, and recommendations were made for further revisions of the project definition, procurement

plans, cost estimates, and implementation arrangements and time schedule. In particular, the Bank Group suggested enlarging unit capacities, to take advantage of economies of scale and location of iodizing facilities as far as possible at raw salt production centers. International consultants were provided to assist CNSIC, one each for packaging and iodization, financed by UNIDO/UNICEF to review and recommend further changes in the definition of physical parameters, cost estimates, deliverability of iodization and packaging machineries, equipment and materials; and implementation time schedules.

2.4 The State Council's approval of the IDDC project, as proposed by CNSIC in its feasibility report of April 1994, was conveyed on September 5, 1994. A revision of the feasibility study was necessary to address GOC and Bank Group comments. The feasibility study was revised, and submitted to GOC and the Bank Group in December 1994. Individual enterprise feasibility studies have been coordinated by the PSIAs and submitted to CNSIC. The revised CNSIC feasibility study along with the provincial feasibility studies were submitted to SPC for GOC's final approval. SPC has approved the revised feasibility study on February 25, 1995. The State Council has nominated SPC as being responsible for overall coordination of the project, while the responsibility for actual implementation of the physical facilities required has been vested with CNCLI through CNSIC.

2.5 The UN organizations UNICEF and UNIDO have supported project preparation through financing of packaging and iodization consultants. Such assistance is expected to continue during the project implementation stage, through provision of TA that would be delivered concurrently with the Project implementation, but outside the Project.

C. PROJECT DESCRIPTION

2.6 The IDDC Project would primarily consist of establishing raw salt upgrading, iodizing and packaging facilities in 182 locations (enterprises) all across China, supported by the technical assistance required to strengthen project implementation capabilities of CNSIC and associated organizations. The physical facilities consist of upgrading of producing plants and equipment, material-handling equipment and warehousing facilities; at 107 producing and 75 distribution locations. These include:

- (a) upgrading of 1.53 Mtpy of sea and well raw salt production facilities existing currently, in order to improve the quality of crude salt to that required for iodization at 25 locations;
- (b) installing a total of 8.16 Mtpy iodization capacity in 107 locations;
- (c) installing about 2.93 Mtpy new bulk (50 kg per bag) packaging capacity, as well as 1.42 Mtpy new retail (0.5 to 1 kg per pouch) packaging capacities at the producer level; and
- (d) installing about 1.74 Mtpy new retail packaging capacity at the distributor level, which will repack the bulk-packaged salt from the producer level,

including installing 0.3 Mtpy paper carton packaging capacity to supply Beijing and Guangzhou city markets.

2.7 Raw Salt Quality Upgrading. Facilities consist of pretreatment of salt, by adding and/or upgrading crushing, washing and centrifuging facilities, in order to improve the purity and grain size of the salt and to reduce the moisture content required for iodization. These will require new design and reconstruction of some of the production facilities, as well as civil construction to accommodate and service new equipment. The total number of the enterprises requiring such reconstruction is 25 (1.53 Mt/yr), comprising mainly of the sea-salt plants in the north and south, as well as some lake salt plant in the northwest, included among the 107 producer-level iodizing units.

2.8 Iodizing. Four types of iodization plants are envisaged: Types I (fully automatic) and II (semiautomatic) suitable for higher-volume production (50 to 80,000 t/yr capacity), mostly for well rock salt with lower moisture content and finer grain size; and Types III (fully automatic) and IV (semiautomatic) for lower-volume production (up to 50,000 t/yr) suitable for salt with higher moisture content. Local manufacturers of iodizing equipment would be eligible for bidding for such equipment.

2.9 Packaging: Bulk Packaging (50 kg bags). Two types of bulk packaging equipment are envisaged. Type I packaging machines (11 units of capacity 11 to 12 bags/min) would be imported. Type II packaging machines (35 units of capacity 6 to 7 bags/min) would be locally manufactured based on designs already developed by domestic manufacturers. Procurement of Type II would not require Bank Group financing.

2.10 Retail Packaging (0.5 to 1 kg bags). Four types of retail packaging machines have been proposed in this project. Type I (fully automatic, 135 units) would be imported. The suppliers of Type I machines would also provide the full technology transfer package for those machines, to enable domestic manufacture of Type II machines. The Type II (fully automatic, 122 units) would be procured based on the technology transfer procured under Type I machines supply, from one or more local manufacturers, selected by CNSIC using procedures acceptable to the Bank Group. The procurement of such locally manufactured machines will not be financed by the Bank loan/credit. All the technology transfers would be absorbed by the selected company, which would then subcontract some of the manufacturing to other companies as and when necessary, under its full responsibility for quality and delivery. The domestic supply of Type II would require import of critical components financed by the loan/credit. This arrangement is acceptable to the Bank Group. Type III packaging machinery (semiautomatic 15 to 30 bags/min) would be procured locally. Type III machines would not require Bank Group financing. The General Salt Iodization and Packaging Plan for the project is at ANNEX 7. The capacities for iodization and packaging of salt, by province, is at ANNEX 8.

2.11 Project Implementation Schedule. The project implementation schedule is at ANNEX 9. The project is estimated to be completed by the end of December 1997. Some of the retail packaging installations and payments to suppliers would extend into

1998. Based on the present status of project implementation preparedness, it should be possible to substantially complete installation of all iodization and bulk packaging equipment, and part of the retail packaging facilities by the end of 1996. The Bank Group's estimate of completion schedule is one year longer than CNSIC's estimate of December 1996, because of the time required for technology transfer arrangements to be completed for the manufacture of retail packaging machines locally, based on such technology transfer.

2.12 Technical Assistance. Technical assistance would be provided to CNSIC to: support the PIU in project implementation through provision of short-term specialist consultants in the areas of general project management, project accounting and finance management systems, information systems, and market promotion and quality control. The TA to be financed under the Project would complement a much larger TA program for CNSIC, which would be undertaken in parallel with the Bank Group-financed project (para. 1.15).

2.13 The TA under the Project would finance, in part, the services of experts in the areas mentioned above, and the Bank Group would be fully involved in developing terms of reference for the consultants, selection, and monitoring the outputs.

2.14 Supply of Potassium Iodate. The usual carrier of iodine for salt iodization is potassium iodide (KI) or potassium iodate. Losses of iodine during transport, storage, and under adverse weather conditions is relatively less when using iodate. In China, the iodate manufacturing capacity totals about 1,300 to 1,600 tons per year (tpy) in five plants: (a) Chongqing-Jianxin Pharmaceuticals in Sichuan province (250 to 300 tpy); (b) Anshan Pharmaceuticals Factory No. 5 in Liaoning province (250 to 300 tpy); (c) Xiangfen Pharmaceuticals in Hubei (350 to 400 tpy); (d) Xian Pharmaceutical Co. in Jiangxi province (300 to 400 tpy); and (e) Zigong Pharmaceuticals Factory No. 2 in Sichuan province (150 to 200 tpy). For the dosage level of 50 parts per million (ppm) iodine in salt, about 650 to 700 tpy of iodate would be required, to achieve full iodization of around 8.0 million tons of edible salt, involving about 440 tpy iodine element supply.

2.15 Locally within China, about 230 tons of iodine is produced annually, leaving a shortfall of about 210 tons of iodine to be imported every year to meet the projected demand. All imports of iodine required in the past has been provided by MOH. The full cost of iodine/iodate supplied to the iodized salt producers is being subsidized by the Government, with MOH subsidizing the major portion of about 95 percent, and the balance being subsidized by the provincial endemic diseases departments' budgets. The cost of iodizing is absorbed by the producers themselves, so that currently there is no difference in price between iodized and noniodized salt to the consumer.

2.16 The Government's letter on NIDDEP (para. 1.12) indicates that MOH would continue to ensure adequate supplies of iodine/iodate required for iodization of all edible salt through the year 2000.

D. CAPITAL COSTS AND FINANCING PLAN

2.17 **Capital Costs.** The total financing required is estimated at Y 1,286.87 million or \$152.29 million equivalent. This includes \$27 million equivalent in foreign exchange (or approximately 18 percent of the project cost). The capital cost estimates and the financing plan are presented in Table 2.1.

2.18 Since the detailed local engineering designs have not yet been developed at the enterprise levels, the base costs have been estimated by BCEL on the basis of their standard plant designs. The estimates for bulk and retail packaging machines have been derived from budget quotations for imported machinery from several international suppliers, and estimates by domestic manufacturers, who would fabricate such machines based on know-how transfer from foreign suppliers of packaging machines, for those types and numbers of machines expected to be supplied by them. The estimates for iodizing units have been derived by BCEL from the bill of materials for each typical class of iodizing units and applying unit costs from its internal cost estimating data base.

2.19 Physical contingencies have been provided at 8 percent to allow for changes and additions during engineering phase. The base cost estimate is based on January 1995 costs. No physical contingencies for the foreign exchange portion of the equipment cost have been provided, as the quantity of machinery and equipment is not going to be exceeded because of the fixed amount of Bank Group loan/credit. Price contingencies for the foreign exchange portion have been calculated at a 4.63 percent annual inflation rate. Since all the procurement contracts are expected to be negotiated all at one time during calendar year 1995 at fixed prices, even though the actual delivery and disbursements would stretch out most likely until calendar year 1997, one year of inflation contingency has been provided. Contracts would specify options for partial orders and deliveries within the total. The price contingencies for the local currency portion have been calculated at Bank Group's projections for domestic inflation (14 percent in 1995, 11 percent in 1996, and 9 percent in 1997). Import duties at 15 percent and VAT at 17 percent (a total of 32 percent) have been estimated on the imported equipment. These duties and taxes are being levied on World Bank-financed imports for the first time from 1995. Interest during construction has been calculated at 6 percent per year on the outstanding Bank Group loan, and at 10 percent per year, on average, on the domestic currency loans. The capital cost estimates are based on the Bank Group's estimate for project completion, namely December 31, 1997 (para. 2.11).

Table 2.1: CAPITAL COST ESTIMATES

Exchange rate \$1 = Y 8.45	Local	Foreign	Total	Local	Foreign	Total
	-----(\$'000)-----			----- (Y'000)-----		
Engineering, & other services	3,678	-	3,678	31,079	-	31,079
Civil construction	27,898	-	27,898	235,739	-	235,739
Equipment & spares	18,227	24,285	42,512	154,018	205,208	359,226
Duties and taxes	7,771	-	7,771	65,665	-	65,665
Commissioning & installation	1,612	670	2,282	13,621	5,662	19,283
Inspection	1,273	-	1,273	10,757	-	10,757
Plant & equip. insurance	1,325	-	1,325	11,196	-	11,196
Training	1,239	700	1,939	10,470	5,915	16,385
Project management	2,312	-	2,312	19,536	-	19,536
Tech. assistance (PIU)	337	150	487	2,848	1,267	4,115
Subtotal, Base Cost Estimates	<u>65,672</u>	<u>25,805</u>	<u>91,477</u>	<u>554,929</u>	<u>218,052</u>	<u>772,981</u>
Physical Contingencies	4,530	-	4,530	38,278	-	38,278
Price Contingencies	11,749	1,195	12,944	99,279	10,098	109,377
Subtotal, Installed Cost	<u>81,951</u>	<u>27,000</u>	<u>108,951</u>	<u>692,486</u>	<u>228,150</u>	<u>920,636</u>
Interest during construction	14,533	-	14,533	122,804	-	122,804
Incremental working capital	28,808	-	28,808	243,427	-	243,427
TOTAL CAPITAL COSTS	<u>125,292</u>	<u>27,000</u>	<u>152,292</u>	<u>1,058,717</u>	<u>228,150</u>	<u>1,286,867</u>

2.20 Financing Plan. The Loan and Credit totaling \$27 million equivalent would finance 100 percent of the foreign exchange requirements of the Project, and 18 percent of the total Project cost. Of the \$125.29 million equivalent of local counterpart costs, 18 percent would be lent by the State Development Bank; 18 percent would be provided by the Salt Industry Development Fund (SIDF); and the balance, 64 percent, would be raised through local provincial salt industry funds, enterprises and local banks (Table 2.2). The financing plan is consistent with the Bank Group's estimate of project cost estimates (para. 2.17), in turn based on the Bank Group's estimate of the implementation schedule. Under the Project Implementation Agreements (PIAs), the project provinces (PPs) would undertake to ensure adequate provision of funds for the project. Receipt of PIAs entered into between CNSIC and all PPs is a condition of loan/credit effectiveness. Statements from the State Development Bank and SIDF conveying their intent to provide their respective financing shares have been received by the Bank Group.

2.21 The Borrower would onlend to CNSIC the IDA Credit (\$20 million) and the Bank Loan (\$7 million) proceeds at an onlending interest rate set at 5 percent per year, with a maturity of 15 years, including a 5-year grace period. Foreign exchange risks would be

borne by CNSIC. Signing of the subsidiary loan agreement between the Borrower and CNSIC would be a condition of effectiveness.

Table 2.2: FINANCING PLAN

	Local	Foreign	Total	Local	Foreign	Total
	-----(\$'000)-----			-----('Y'000)-----		
<u>Bank</u>						
IDA Credit	-	20,000	20,000	-	169,000	169,000
IBRD Loan	-	7,000	7,000	-	59,150	59,150
<u>GOC</u>						
State Dev. Bank	22,536	-	22,536	190,429	-	190,429
Salt Ind. Dev. Fund	22,536	-	22,536	190,429	-	190,429
Prov. Government	51,412	-	51,412	434,432	-	434,432
Enterprises	28,808	-	28,808	243,427	-	243,427
<u>TOTAL FINANCING</u>	<u>125,292</u>	<u>27,000</u>	<u>152,292</u>	<u>1,058,717</u>	<u>228,150</u>	<u>1,286,867</u>

2.22 CNSIC would provide the equipment and services financed under the loan/credit to the PPs, which would in turn make this equipment and services available to the 182 enterprises that will be implementing project investments, all under terms and conditions acceptable to the Bank Group (para. 3.13). CNSIC plans to appoint the China Industrial and Commercial Bank (CICB) as the agent bank responsible for transactions and maintenance of accounts of CNSIC's supplies to beneficiary enterprises. The credit terms for goods and services supplied to PPs, using the Bank Group loan/credit proceeds, would include: payment period of 10 years, including 4 years of grace, and an interest rate of 6.8 percent per year. The PPs would make these goods and services available to the enterprises on the same terms. The exchange risk will be passed on by CNSIC to the PPs and on to the enterprises.

2.23 **Retroactive Financing.** In order to facilitate efficient and prompt startup of the project, retroactive financing is recommended for eligible expenditures for which payment was made after February 25, 1995, subject to a maximum of SDR 1.7 million equivalent. Procurement of eligible items financed would follow respective Bank Group guidelines.

3. PROJECT IMPLEMENTATION ARRANGEMENTS

A. PROJECT IMPLEMENTATION PLAN

3.1 For project implementation, the State Council has assigned responsibilities for the execution of the Project among government departments and implementation agencies. *SPC* is vested with responsibility for approval of the detailed feasibility report (Master Plan), arrangement of financing sources, and overall implementation supervision and coordination in close consultation with MOF, MOH, CNCLI, State Development Bank (SDB), as well as provincial and county governments/agencies responsible for the project. *MOF* is responsible for arranging and approval of foreign loan funds and supervision of fund flows to and from CNSIC. *CNCLI*, through CNSIC, is responsible for preparation of the feasibility report (Master Plan), review of enterprise/provincial feasibility studies for conformance with the Master Plan, organizing the execution and management setups at the provincial and lower levels, and overall monitoring of project execution. *CNSIC*, besides assisting CNCLI in its functions, is directly responsible for arrangements for basic engineering, procurement and supply of equipment and services financed by the Bank Group, review of detailed engineering carried out by enterprises through provincial design bureaus, construction supervision, provision of technical assistance, as required, to provincial and enterprise authorities, establishing project implementation monitoring and reporting systems, and ensuring that the project is implemented in a coordinated manner and in accordance with applicable laws and regulations. *CNSIC* is also responsible for enforcing applicable regulations prohibiting production and sale of noniodized salt, and further that the iodized salt quality is in accordance with prescribed standards. *CNSIC* is also responsible for drawing up and reaching agreements on allocation of budgets and sources of financing for project execution with each provincial government, which in turn is responsible for project expenditure control within agreed budgets. *The PPs through their PSIAs* are responsible for overall control of project implementation at the enterprises in the respective provinces, arranging and provision of the province's or enterprise's share of counterpart financing, providing guarantees for repayments of loans given to enterprises, carrying out training of industry and health personnel at the provincial level and lower levels, and ensuring that project execution and subsequent product operations are carried out in accordance with applicable laws and regulations, in terms of preventing production and sale of noniodized salt, and of product quality. *The individual enterprises* are responsible for carrying out site engineering work on the basis of detailed engineering carried out by provincial design bureaus, and construction through local contracting.

3.2 At each *enterprise level* a project implementation office would be established, headed by a project manager. The project office would consist of about 10 to 15 people in the areas of: procurement, transport and delivery; construction management and quality

control; off-site facilities construction; finance and accounting; and information and progress reporting. For smaller projects, additional personnel for detailed engineering coordination would be provided, and for larger projects a representative from the provincial design bureau responsible for detailed engineering functions would be seconded to the enterprise site for engineering coordination. Project managers for each of the 182 enterprises under the project have been appointed. Support personnel will be deployed upon commencement of project implementation.

3.3 At the *provincial level*, project implementation would be managed by a steering group consisting of provincial governor (chairman) and representatives from provincial planning, light industry, salt and health bureaus. Day-to-day management would be carried out by four to seven project task staff to coordinate: detailed engineering and construction works; monitoring and supervision of construction; information and reporting; and carry out training of staff from the enterprises. The provincial steering group and the project task staff are already in place in most of the provinces. All the 29 provinces covered by the project have established provincial IDDC project offices and agent banks. Each project office would function under the PSIA, headed by the vice-director of the PSIA and including typically four to seven staff in the areas of finance, production, sales and quality control, construction works and monitoring of implementation and regulation. The executive function of the project office would be guided by a provincial steering group for the IDDC project consisting of vice-governor and representative from provincial Planning, Finance, and Health Departments, and PSIA's.

3.4 At the *CNSIC level* the project implementation unit (PIU) is headed by a project manager, under overall supervision of the president and an assigned vice-president of CNSIC, and supported by three deputy project managers. At present the PIU includes seven additional full time members. This core team, already in place, would be supported by 16 selected personnel from various departments in CNSIC, working part-time as required. The PIU staffing is at ANNEX 10. CNSIC has also nominated and positioned all the part-time staff of PIU.

3.5 **Engineering Arrangements.** CNSIC's engineering consultant during the preparation phase was the Beijing Consulting and Engineering Corporation (BCEL). BCEL has about 40 years of experience in providing comprehensive engineering, consulting and project contracting services to diverse types of industrial plants including paper and pulp, chemicals, salt, food, small power plants, and commercial buildings, both in China and in a number of developing countries. CNSIC would also retain BCEL's services during project implementation.

3.6 Besides the preparation of the Revised Feasibility Study (Master Plan) already completed, BCEL would be responsible for: (a) preparing typical process and engineering designs for six salt iodization and packaging plants; (b) preparing documents and drawings for such typical designs, including process technology, equipment specifications, plant layout, utilities requirements and staffing; (c) providing technical assistance through supervision of detailed engineering, and construction works carried out by other agencies; and (d) providing technical assistance to CNSIC for tendering and bid evaluation as

required. CNSIC entered into contractual arrangements with BCEL covering the above scope in March 1995.

3.7 Detailed engineering would be carried out by provincial design bureaus under contract with provincial salt bureaus in consultation with individual enterprises, and based on the basic engineering package prepared by BCEL. The design bureaus would check and modify as required the technical specifications of equipment and materials to be procured by CNSIC under the central procurement system. For other small items and construction materials specifications would be prepared to enable individual enterprises to procure directly.

3.8 **Procurement Arrangements.** Equipment and components financed by the Bank Group would be procured by CNSIC, based on BCEL's basic engineering specifications. CNSIC would appoint the China International Tendering Company (CITC), who is conversant with the Bank Group's procurement procedures, for providing procurement services including preparation of bid documents, evaluation of bids and recommendations, and after CNSIC enters into contract with approved bidders, expediting and inspection services. CNSIC entered into contractual arrangements with CITC to carry out the above functions in April 1995.

3.9 Procurement of *locally sourced* major equipment for iodizing and packaging equipment would be centralized by CNSIC. Procurement services for such domestic procurement would be carried out by China Light Industry Corporation for Foreign Economic and Technical Cooperation (CLIFETC). Functional responsibilities would be similar to that of CITC's described above.

3.10 **Construction Arrangements.** Individual enterprises under the project would carry out the civil works and construction under subcontracting to local construction enterprises and/or using their own personnel and facilities, based on the basic engineering by BCEL, detailed engineering by provincial design bureaus, and equipment and components procured and supplied through central procurement system by CNSIC. Construction works by local subcontractors would be supervised selectively by the provincial design institutes or by the enterprises' own personnel, and by BCEL, as appropriate, to ensure conformance with engineering parameters.

3.11 The enterprises selected for participation in the Project meet the following criteria: (a) demonstrated past experience in operating salt manufacturing and packaging facilities; (b) past good operational performance; (c) capacity of not less than 50,000 tpy in case of production enterprises; and (d) geographical location in iodine-deficient areas. Some exceptions from the above criteria in terms of production capacity, could be made for enterprises located in remote, not easily accessible areas. CNSIC has identified 182 enterprises using these criteria. The list of Project enterprises is at ANNEX 11. The appraisal mission has spot-checked four enterprises and is satisfied that they meet the eligibility criteria. Any changes to the final list will be made after ensuring consistency with the above criteria.

3.12 Project Implementation Agreements. The project implementation plan and the division of responsibilities described in paras. 3.1 to 3.11 above, as well as the sharing of counterpart financing, have been discussed by CNSIC and confirmed with all the participating provinces, and the enterprises in each province involved in the project. Two sets of Project Implementation Agreements would be concluded to ensure smooth project implementation: one between CNSIC and the PPs, and the other between the PPs and the enterprises. Signing of PIAs between CNSIC and all 29 participating provinces, satisfactory to the Bank Group, would be a condition for loan/credit effectiveness. The PPs will be required to sign implementation agreements with each enterprise, before the enterprise receives financing under the project

3.13 Assurances have been obtained from CNSIC that it would:

- (a) carry out an acceptable program of actions, designed to achieve the objective of ensuring that all edible salt meets agreed iodization standards by end-1997;
- (b) maintain the PIU with terms of reference, staff and budget acceptable to the Bank Group;
- (c) strengthen its PIU's capabilities in the areas of project management, accounting and finance, quality control, project information systems and marketing according to a time-bound action plan satisfactory to the Bank Group;
- (d) provide quarterly and annual progress reports and a mid-term report to the Bank Group;
- (e) make available to each PP the goods and services procured by CNSIC for the salt enterprises in the PP and financed under the loan/credit under a PIA with the PP pursuant to which the PP will:
 - (i) pay CNSIC for these goods and services on the terms referred to in para. 2.22;
 - (ii) each make these goods and services to salt enterprises in its jurisdiction meeting agreed eligibility criteria (para. 3.11) under agreements pursuant to which each eligible salt enterprise will:
 - (A) pay the PP for these goods and services on the terms referred to in para. 2.22;
 - (B) carry out its investments under the project in accordance with appropriate engineering standards (i.e., CNSIC's master plan), provide the funds required for the purpose and maintain adequate records;
 - (C) maintain policies and procedures to ensure that iodized salt produced/distributed by its plants comply with the agreed iodization standards [para. 3.13(e)(iv) below] and adequate laboratory equipment and staffing are maintained to

monitor such compliance; and (D) monitor and report semiannually on the carrying out of its investments under the project and compliance with iodization standards;

- (iii) ensure the availability of funds required for the investments under the project of the salt enterprises under its jurisdiction;
- (iv) carry out an action plan (extension of the prohibition imposed by Decree No. 163 of distribution of noniodized salt to all areas of the province) to facilitate achievement of the objective of ensuring that by December 31, 1997 all edible salt produced or distributed within its jurisdiction meets the following iodization standards:

50 ppm of iodine at iodization point
40 ppm of iodine ex-factory
30 ppm of iodine at retail level
20 ppm of iodine at consumer level; and

- (v) monitor and report quarterly and annually on the implementation of the project investments by the salt enterprises within its jurisdiction and on progress in carrying out the iodization action plan in para. 3.13(e)(iv) above.

B. PROCUREMENT

3.14 Equipment and materials financed by the Bank Group would be procured following the Bank Group's procedures. The Bank Group loan/credit would finance imported equipment, materials, and spares, as well as components required for manufacture and supply of packaging machinery by domestic equipment fabricators. Technology transfer supplied by the selected vendor as a part of retail packaging equipment supply contract would be made available to domestic equipment manufacturers selected on the basis of manufacturing capacity, capability, and delivery within the time schedule, and approved by the Bank Group.

3.15 CITC, who would be responsible for procurement services for imported goods and services, is fully familiar with the Bank Group's procurement procedures. It would issue procurement bid documents based on BCEL and CNSIC's technical specifications, evaluate bids together with them, and administer contracts after selection and award. The procurement plans along with preliminary procurement packages would be prepared by CNSIC with the help of BCEL and CITC for the procurement of iodizing and packaging equipment.

3.16 CNSIC and CITC would use International Competitive Bidding (ICB) for all equipment and materials procured under packages costing more than \$200,000, and international shopping procedures (ISP) for items procured under contracts costing \$50,000 or less, with the exception of iodizing equipment, which would be procured using

ISP for contracts costing \$200,000 or less. Aggregate amount of ISP contracts would not exceed \$1.5 million. It is anticipated that the procurement would essentially consist of three ICB and several ISP procurement packages, as follows: (a) first package for bulk packaging machines and retail carton packaging machines, under ICB, would consist of two subpackages; (b) second package of retail packaging machines (Type I) would consist of two subpackages, one each for retail packaging of iodized salt with different grain sizes and moisture content, and would include technology transfer contracts for both subpackages; (c) third package for import of essential components required for local manufacture of retail packaging machines under the technology transfer agreements, for Type II packaging machines; and (d) ISP packages for iodizing equipment and a 1-ton bulk packaging machine. Domestic preference would be allowed for procurement under ICB procedures.

3.17 It is envisaged that suppliers would be allowed to bid independently for subpackages, and contracts would be awarded separately for each subpackage. Under package (c) above (para. 3.16), it is envisaged that a portion of the requirements may have to be purchased under direct contracting from imported equipment supply contractors, for proprietary parts, subject to the Bank Group's prior agreement. There would also be a need for some procurement of small items and components estimated to cost \$50,000 or less per contract, especially for unforeseen requirements under the technology transfer. These would be procured through international shopping.

3.18 Procurement of non-Bank Group-financed domestically-sourced supplies would be carried out using the practices and procedures normally adopted in China. CNSIC would entrust procurement of the local equipment to the China Light Industry Corporation for Foreign Economic and Technological Cooperation (CLIFETC). The procurement packages for domestic procurement are being currently prepared by CNSIC and would be issued for bidding in July 1995. Auxiliary equipment for material handling for the salt production and packaging lines would be fabricated by the salt-producing enterprises themselves. The materials necessary for such fabrication would be procured by the enterprises using their usual local shopping procedures. The overall procurement plan is given in Table 2.4.

3.19 All Bank Group-financed consultancy services would be hired using the Bank Group's Guidelines for Use of Consultants.

3.20 All Bank Group-financed contracts for goods costing \$200,000 or more each, as well as all consultancy services costing above \$100,000 for firms and \$50,000 for individuals, will be reviewed on a prior review basis by the Bank Group. This would represent over 90 percent of the Bank Group financing.

Table 2.4: PROCUREMENT ARRANGEMENT
(\$'000 equivalent)

Project component	Procurement method			Total
	ICB	Other/a	NBGF/b	
Engineering and Other Services	-	-	4,708	4,708
Goods				
Equipment and materials /c				
1. Iodization equipment	-	1,500 (712)	2,182	3,682 (712)
2. Packaging machines	37,506 (24,646)	81 (52)	12,198	49,785 (24,698)
3. Salt quality upgrading equipment	-	-	4,737	4,737
Installation and commissioning	701/d (701)	-	2,064	2,765 (701)
Training on new equipment	732/d (732)	-	1,586	2,318 (732)
Works				
Iodizing	-	-	12,163	12,163
Packaging	-	-	19,889	19,889
Salt quality upgrading	-	-	3,660	3,660
Plant and Equipment Insurance	-	-	1,696	1,696
Project Management	-	-	2,960	2,960
Technical Assistance (PIU)	-	157 (157)	431	588 (157)
Subtotal	<u>38,939</u> <u>(26,079)</u>	<u>1,738</u> <u>(921)</u>	<u>68,274</u>	<u>108,951</u> <u>(27,000)</u>
Interest During Construction	-	-	14,533	14,533
Incremental Working Capital	-	-	28,808	28,808
Total	<u>38,939</u> <u>(26,079)</u>	<u>1,738</u> <u>(921)</u>	<u>111,615</u> -	<u>152,292</u> <u>(27,000)</u>

/a Other procurement methods include ISP, direct contracting, and consultant services (recruited in accordance with the Bank Group's Guidelines). Aggregate amount for ISP procurement: \$1,500,000.

/b NBGF denotes non- Bank Group financing.

/c The cost estimate for Equipment & Materials includes 32 percent duties and taxes, 5 percent inspection charges on imports, 1 percent spares cost, 6 percent international freight cost and 8 percent domestic freight cost, and all the applicable contingencies, which are not financed by the Bank Group.

/d This cost of \$701,000 for installation and commissioning and \$732,000 for training on new equipment are included in the ICB package for Type I retail packaging machines, and will form part of that supply contract.

Notes: 1. Figures in parentheses are the respective amounts financed by the Bank Group.
2. All amounts include contingencies.

C. DISBURSEMENT

3.21 Bank Group funds would be used to finance 100 percent of the foreign expenditures, 100 percent of local expenditures ex-factory for goods, and 75 percent of expenditures on other items procured locally, and 100 percent of the total expenditures on any consultant services required for implementation of the project.

3.22 The disbursement estimates are based on the financial expenditure profile consistent with implementation time schedule, schedule of payments to foreign vendors, as well as for imports of components presented under ANNEX 9. The Bank Group's loan/credit is estimated to be disbursed at an accelerated pace. During FY96, about 35.5 percent is estimated to be disbursed; about 40.4 percent during FY97, and the balance in FY98 (Table 2.5). This schedule is considerably faster than the standard disbursement profiles for China overall average, and for China health sector projects, since: (a) the Project is viewed by GOC as an emergency health operation, to be completed as quickly as possible in order to achieve the NIDDEP objective of IDD elimination by the year 2000, and has its full commitment and support to achieve it; (b) the bulk of the Bank Group-financed items are intended to be procured under large procurement contracts with about 10 to 15 percent down payment upon contract award; and (c) procurement activities including preparation of bidding documents for iodizing and packaging equipment have been initiated since March 1995, well ahead of the anticipated Board date of June 1995, and loan effectiveness date of September 1995. The estimated disbursement schedule, by semester, and comparison with the Bank Group's standard disbursement profiles are shown in ANNEX 12. The closing date for the loan/credit is December 31, 1998.

Table 2.5: ESTIMATED DISBURSEMENTS
(\$ million)

Bank/IDA Fiscal Year	1996	1997	1998	1999
Annual	9.59	10.89	6.52	-
Cumulative	9.59	20.48	27.00	27.00

3.23 **Special Account.** To facilitate the disbursement of funds, for smaller contracts and for partial payments on larger contracts, a special account would be opened with a bank acceptable to the Bank Group, with an initial deposit in US dollars of \$3 million, the estimated average expenditure for a four-month period. The account would be managed by MOF. Applications for replenishment of the Special Account would be submitted monthly or whenever the Special Account is drawn down to 50 percent of its initial deposit, whichever comes first. For contracts relating to goods valued less than \$200,000 per contract; consultant services at less than \$100,000 for firms and \$50,000 for individuals per contract, reimbursement would be made on the basis of Statements of Expenditure (SOEs). Documentation supporting SOEs would be retained by the implementing agencies and made available for review by the Bank Group supervision missions.

D. SUPERVISION PLAN, AND PERFORMANCE INDICATORS

3.24 **Supervision Plan.** The project supervision plan is shown in ANNEX 13. The plan includes the schedule for Bank Group supervision mission, the focus of each

supervision mission, and the skill mix required. A mid-term review is planned for October 1996.

3.25 In addition to the project supervision, the Bank Group would participate in program reviews as a member of the International Working Group and as a member of a suitable UN/donor forum, to be established.

3.26 **Performance Indicators.** The Performance Indicators would consist of two sets: The first set would consist of **Project Performance Indicators**, whereby the performance of the CNSIC's iodization and packaging project implementation would be measured directly in terms of (a) industrial iodizing and packaging capacity indicators, expressing the progress made in installation program of iodizing and packaging capacities; and indirectly in terms of (b) quality surveillance indicators, expressing the quality results actually achieved at the production output level and at the retail level.

3.27 The second set of Performance Indicators would consist of **Program Performance Indicators**, and would be derived from the health sector activities and overall plan of action for the implementation of the GOC's National Program for IDD Elimination and Control (NIDDEP). These would include: (a) input indicators, reported annually for measuring resource allocation; (b) process/output indicators reported annually, for measuring actual program activity; and (c) output/impact indicators (baseline, mid-term and end of project), to measure the health impact of the program on the general population. The Performance Indicators are presented in ANNEX 14.

E. REPORTS, ACCOUNTS AND AUDITS

3.28 **Reports.** CNSIC would submit quarterly reports on the progress of the project implementation, including details on (a) civil engineering and upgrading of existing plant and equipment; (b) procurement, supply and installation of iodizing equipment; (c) procurement, supply and installation of packaging equipment; and (d) disbursements. In addition, CNSIC would establish a project development and implementation monitoring system using the Project Performance Indicators described in para. 3.26 and ANNEX 14, and will submit six-monthly progress reports in a format satisfactory to the Bank Group. CNSIC would also undertake a mid-term review of the project implementation no later than December 1996, and submit the mid-term review report to the Bank Group.

3.29 CNSIC will organize a spot-inspection system to check the conformity of iodized salt being produced with the iodine level standards and as stated in the Quality Surveillance Indicators under para. 3.26 and ANNEX 14. This spot-inspection would be organized and carried out by the salt administrations under the control of CNSIC at the provincial and county levels. On basis of the reports of these inspection units, CNSIC and PPs will take measures to achieve conformity of the iodine levels with the promulgated standards [para. 3.13(e)(ii)].

3.30 NTTST would establish a program performance monitoring system, based on the Program Performance Indicators referred to in para. 3.27 and mentioned in ANNEX 14,

and submit to the Bank Group periodic reports annually in the case of Input and Process Indicators and, at mid-term and at end of the project in the case of Impact Indicators (para. 1.13).

3.31 **Accounts.** GOC would be responsible for ensuring the audits of SOEs and Special Accounts.

3.32 CNSIC would keep project accounts and have them audited annually by external auditors acceptable to the Bank Group.

F. ENVIRONMENTAL ASPECTS

3.33 The project would have no significant impact on the environment. The salt iodization and packaging physical facilities under the project would be established mostly in existing enterprises. Creation of such facilities would involve relatively small areas and would not involve displacement of land use for agriculture, aquaculture or human resettlement. There would be very little, incremental liquid effluents from the industrial work, none of them considered toxic or hazardous. There are no recognized serious occupational hazards or negative health impacts from salt processing.

4. PROJECT JUSTIFICATION

A. PROJECT BENEFITS

4.1 Successful implementation of the salt iodization project will assist China to achieve the national program's objective of IDD elimination and sustained control. Salt iodization is a cost effective means to provide the small amount of iodine required for human health and development. Universal salt iodization in China will provide direct social and economic benefits by: (a) reducing infant mortality; (b) improving work capacity/work output; and (c) improving intellectual capacity.

4.2 Iodine deficiency in China represents a substantial problem. Based on available data, 37 percent or 425 million persons in China live in endemic areas and are thus at risk of iodine deficiency. Each year, 6 million children are born to mothers in these endemic areas. Recent data on newborn babies in nonendemic areas, however, show that iodine deficiency is a problem throughout the country. Although no group is immune to iodine deficiency, women, the fetus and children are the most vulnerable to serious and irreversible consequences of deficiency. Severe iodine deficiency is associated with increased neonatal deaths and still births. Based on the number of births in the endemic areas of China alone, more than 15,000 neonatal deaths could be averted annually by preventing iodine deficiency. This figure does not capture those deaths that occur in the nonendemic areas.

4.3 Several studies have confirmed the relationship between iodine deficiency and productivity. In addition to the higher lifetime earnings associated with improved intellectual capacity in newborns and small children, the productivity loss for the 190,000 cretins in China is also substantial, even using a very moderate assumption that they are able to work at half the rate of a normal person. Finally, there is evidence of lower productivity among workers with moderate deficiency. Conservative estimates suggest that China could gain more than 1.1 billion productive work-days annually as a direct result of the successful implementation of this project and the parallel components.

4.4 Iodine deficiency is the leading preventable cause of intellectual impairment worldwide. Severe iodine deficiency during pregnancy leads to severe mental retardation of the newborn, the most severe outcome being cretinism. The social and economic cost of this outcome is significant as noted above. Moreover, in endemic areas even noncretinous children are mentally impaired. Though often undetectable in the community, this milder form of iodine deficiency can limit the social and economic growth of these communities. Recent studies estimate a loss on average of 13.5 IQ points from mild iodine deficiency. Each year 6 million children are born in China in endemic areas.

At a national level, this downward shift in IQ of the whole population means Chinese children will do worse in school and lack the creativity and mental capacity to deal with the challenges of the future. At this rate, China could gain 480 million IQ points if iodine deficiency were eliminated by the year 2000 in the endemic areas alone.

4.5 Indirect benefits of the project will include: (a) reduction of the cost to society of handicapped and completely dependent people, resulting in a cost savings for the health care and welfare systems; (b) reduced expenditures in education system from fewer learning disabilities and grade repetition; (c) the strengthening of coordination between the industry and health sectors; (d) improved planning, execution, and management capabilities; and (e) modernization of the salt industry.

B. GOVERNMENT COMMITMENT

4.6 The Government of China has accorded priority status for the implementation of the national program for virtual elimination of IDD by the year 2000. The National Leading Group and Coordination Group (NIDDEP), with members representing all the major involved sectors, and chaired by a member of the State Council, has been created for coordinated direction of program implementation. The NIDDEP organizational structure provides for involvement, interaction, and coordination of agencies that would contribute to the implementation at the State, province, county and enterprise levels. Several meetings and seminars among the State, province and county-level agencies have been held already to reach understanding about the scope and implementation of the industrial part of the program covered by the Project as well as their respective roles and responsibilities. There is thus full support and commitment in the part of Government for the implementation of the program and the Project.

C. PROJECT RISKS

4.7 The Project's major risk is that the population will continue to consume noniodized salt because of: (a) lack of awareness of the risks of IDD; (b) availability of raw, noniodized salt in markets near production areas; and (c) affordability of higher-cost, iodized, packaged salt. The Government, already aware of the risks, is taking steps to strengthen the legal regime that would prevent production and sale of noniodized salt, initially in the endemic areas, and to be extended over time throughout the country; would be mounting an advocacy and public education campaigns to bring about awareness of IDD risks, with assistance of UN agencies; and has so far maintained a uniform price for both iodized and noniodized salt through subsidies. The public education advocacy campaigns, under NIDDEP, to be carried out by MOH would, over time, create a "demand-driven" market for iodized salt. At present, there is no price differential between iodized and noniodized salt. The Government's objective is to increase the price of noniodized salt to fully cover the costs. This would mean that, eventually, the price of iodized salt would be higher than that of noniodized salt. The incidence of such a higher price on household expenditures is estimated to be small, at 0.24 percent (urban) to 0.76 percent (rural), or in absolute terms, Y 5 per year per household. However, there is always a risk, at the margin, that some sections of the population may prefer lower-priced,

noniodized salt, notwithstanding any legal prohibitions on production and sale of noniodized salt. Complete elimination of such a risk would require continuation of current subsidies until such time as the public awareness creation campaigns are well under way, and it is judged that the population would be prepared to pay the higher price, for the benefits of iodized salt consumption. The Government is aware of this view.

4.8 Other potential relatively lesser risks lie in the areas of: manufacturing technology; equipment delivery in timely manner; and project management. The technologies to be used for raw salt quality improvement and iodization are relatively simple and proven. The technology for packaging, incorporated in the machines is so chosen as to be compatible with the characteristics of the iodized salt that would be produced. Packaging machinery manufacturing technology would be secured as a part of machines import from chosen vendors, and utilized in production of such machines by domestic fabricators assessed a priori as competent. The foreign vendors of packaging machinery would also provide continued technical assistance until domestically manufactured prototypes are proven. CNSIC would have a well-staffed, full-time project management and coordination team. Corresponding teams at provincial and county levels would be established, besides those at individual enterprises. CNSIC's task force would be strengthened by provision of external consultants and adviser who would establish project management systems, especially costs and finance control, and information systems, as well as train CNSIC and selected provincial and county personnel in use of such systems. The above-mentioned potential risk areas have been adequately addressed in the project design and implementation arrangements. The Project is estimated to be completed by December 31, 1997, one year longer than CNSIC's estimate of December 1996, because of the time required for technology transfer arrangements to be completed for the manufacture of retail packaging machines locally, based on such technology transfer. There is a risk that such arrangements may take even longer, with consequent extension of the estimated Project completion date. Should this occur, it is estimated that less than 10 percent of the retail packaging capacity creation would extend beyond 1997, into the first half of 1998. This risk is considered acceptable.

D. SUSTAINABILITY

4.9 Universal iodization of salt is the most sustainable method to prevent IDD. The project directly supports this key intervention, through creation of physical facilities for iodizing and packaging salt, and ensuring appropriate quality of the iodized salt. The Government's National IDD Elimination Program and the associated action program contain appropriate measures for education and surveillance activities. Under the Program's assigned responsibilities, MOH would independently: (a) carry out awareness creation and advocacy campaigns through mass media and NGOs; (b) establish baseline IDD status and track improvements periodically; (c) equip health stations with appropriate equipment, and establish testing methods and standards; and (d) train health workers at all levels in IDD control and monitoring. Successful salt iodization under the project, combined with the enhanced public awareness of the advantages of iodized salt consumption, would contribute to a gradual and significant reduction in the incidence of Iodine Deficiency Disorders in China.

4.10 The Project's support for creation of physical facilities for salt pretreatment, iodization, and packaging through introduction of modern technologies and equipment, together with quality control systems, would assist in ensuring a constant supply of iodized salt of require quality.

4.11 The organizational structure for implementing the National IDD Elimination Program (NIDDEP), as well as its staffing, is expected to be maintained for several years beyond the year 2000, the target year for achieving the objective of virtual elimination of IDD.

4.12 The Project is thus sustainable in supporting the IDD control objective.

5. AGREEMENTS AND RECOMMENDATION

5.1 Assurances have been obtained from the Borrower that it will: carry out the action plan described in the Government letter on NIDDEP, provide to the Bank Group annual reports on progress, and exchange views annually with the Bank Group (para. 1.13).

5.2 Assurances have been obtained from CNSIC that it would:

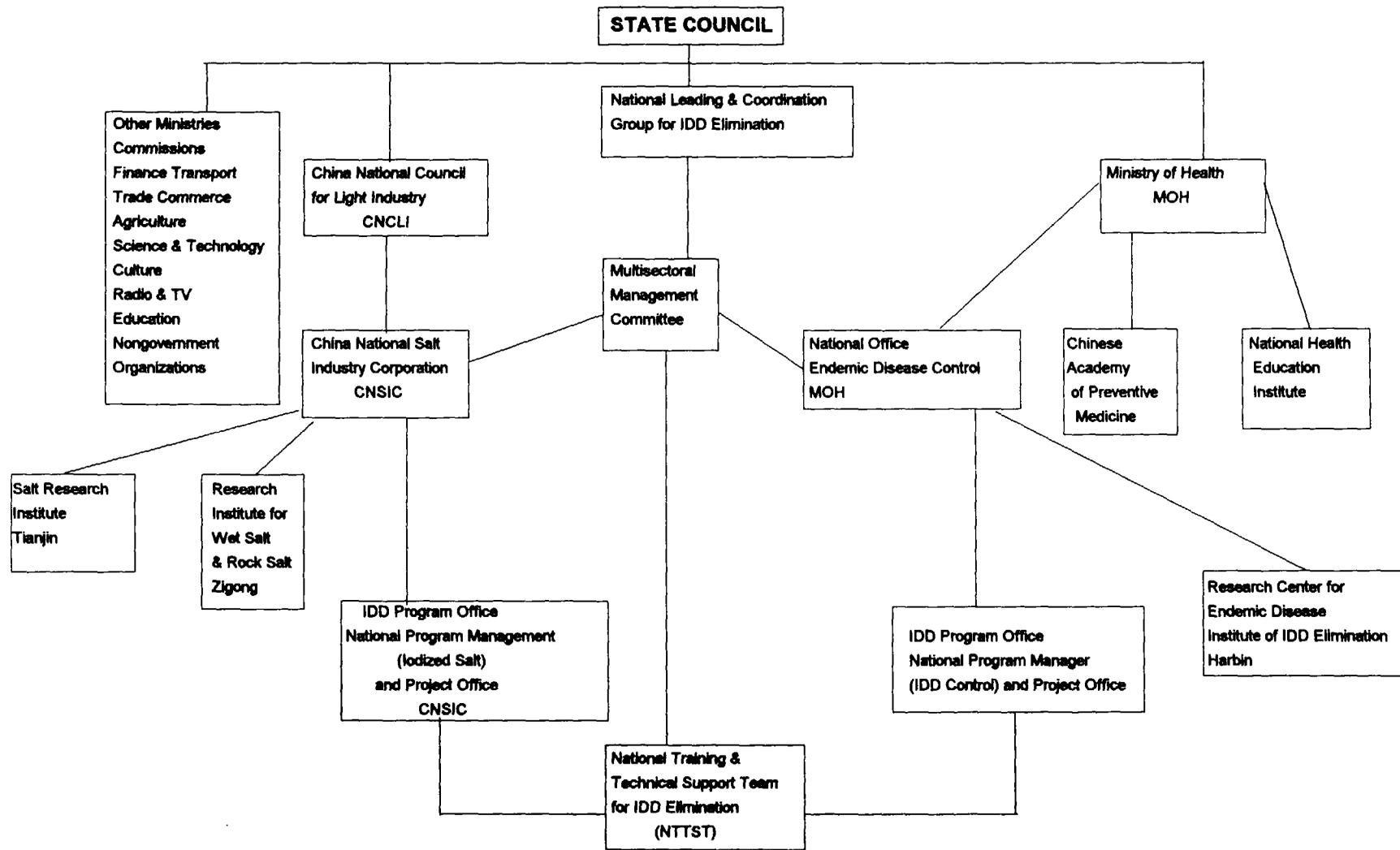
- (a) carry out the actions described in para. 3.13;**
- (b) follow the procurement procedures acceptable to the Bank Group (paras. 3.14 to 3.20); and**
- (c) carry out annual audit of project accounts by independent auditors acceptable to the Bank Group and monitor and report on the Project in accordance with para. 3.28, and furnish audit reports no later than 6 months after the end of the financial year (para. 3.32).**

5.3 The following would be conditions of effectiveness:

- (a) Signing of the subsidiary loan agreement between the Borrower and CNSIC (para. 2.21); and**
- (b) Signing of the Project Implementation Agreements, satisfactory to the Bank Group, between CNSIC and all participating project provinces (paras. 3.12-3.13).**

5.4 Based on the foregoing, the proposed project is suitable for a Bank loan of \$7 million and an IDA credit of SDR 12.7 million to the People's Republic of China. The loan would be for a term of 20 years, including a grace period of 5 years, at the Bank's standard variable interest rate. The credit would be on IDA standard terms with 35 years' maturity.

Management Structure for National IDD Elimination Program (NIDDEP)





中华人民共和国卫生部
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U.S.A.

5 May, 1995

Dear Mr. Bhargava:

Re: CHINA - IDDC Project

I would like to take this opportunity to thank the World Bank mission on the IDDC Project for their excellent work in China during September 1994.

From the copy of your letter of November 7, 1994 to Mr. Jin Liqun I got to know and understand that a description of China's National Iodine Deficiency Disorders Elimination Program (NIDDEP) and the establishment of IDD Advisory Committee (IDDAC) and the National Training and Technical Support Team for IDD Elimination (NTTST) is needed to complete the project appraisal. I am herewith enclosing a summary of the National IDD Elimination Program in China which outlines the contents and implementation arrangements for each component of the Program.

As you know that the NIDDEP takes comprehensive strategies, and amongst which salt iodization is the most fundamental and most effective intervention for eliminating IDD in China. The support from the World Bank will fit well into the whole Program, since other components of the NIDDEP are being or planned to be carried out with the assistance from UN Agencies such as UNDP, UNICEF and WHO, or with our own resources.

The Government is committed to maintain the organizational and management framework outlined in the attached summary for the multi-sectoral effort required for the NIDDEP, until at least the year 2000, this being the essential framework in which the salt iodization will be carried out. The Government is also committed to provide adequate support for the other activities of NIDDEP - Organization and Advocacy; Community Education; Legislation; Monitoring of Iodization and IDD status; Technical Support; and Scientific Research throughout the life of the Bank supported project, in order to ensure maximum health impact from the Bank's investment.



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MINISTRY OF HEALTH PEOPLE'S REPUBLIC OF CHINA

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The Government will review the plans and progress of NIDDEP on a regular basis and will be pleased to hold a periodic exchange of views with the Bank on the overall progress of NIDDEP.

I trust that our request for the Bank's assistance in this area will meet with your favorable consideration and assure you of my cordial thanks.

Best regards.

Sincerely yours,

Chen Minzhang
Minister of Health
People's Republic of China

Encl. : Summary of National IDD Elimination Program In China

ATTACHMENT TO GOVERNMENT LETTER ON NIDDEP

SUMMARY OF NATIONAL IDD ELIMINATION PROGRAM IN CHINA

The prevention and control of iodine deficiency disorder (IDD) is a world public health endeavor. IDD is a serious problem in China, the epidemic areas exist in 29 provinces, autonomous regions and municipalities, including 425 million people, covering 40 percent of the population of world epidemic areas. In the recent years, people have come to realize that children intelligence damage caused by insufficient iodine complement or slight iodine deficiency is widespread, regions and population threatened by iodine deficiency are not confined to epidemic areas, about 6 million babies were born in serious iodine deficiency areas every year in China. If this problem cannot be solved, there will be a large number of children with mental deficiency in China by the year 2000. Since the cause of IDD is clear and preventive measures are efficient, as long as we earnestly implement the comprehensive control strategy in which provision of iodized salt is the key intervention, great social and economic benefit will be obtained with a small cost.

In order to eliminate IDD, Chinese government has made National IDD Elimination Program, which requires IDD should be eliminated throughout the Country by the year 2000. The primary strategies taken to reach the goal are:

1. Put the prevention first, devote major efforts to carry out the comprehensive interventions in which iodization of salt is the main measure and iodized oil is auxiliary.
2. Stick to the principle of socialization. Develop administrative system and work mechanism coordinated by governments of different levels, with the general instruction of health departments, and all the sectors concerned will take concerted action and each has its duty and responsibility.
3. Promote health education to raise the levels of awareness of health care among people so that they will participate spontaneously to prevent and control IDD. In this program comprehensive measures are taken, involving the organization and management, iodization of salt, public education, law and regulation, supervising and monitoring the iodine level of iodized salt, monitoring population IDD status, establishing national technical support organization and so on.

To ensure the effective implementation of National IDD Elimination Program, what Chinese government has fulfilled or plan to do include mainly:

I. Organization and Advocacy

The prevention and control of IDD require multi-sectors to coordinate and take concerted actions. In order to make it known to all relevant aspects and win support in policy and measures from leaders of different levels so that the IDD elimination program can obtain organization insurance, we have done follows:

1. Had the National Advocacy Meeting for the Elimination of IDD by the year 2000.
2. Established the National Leading and Coordination Group for IDD control. This NLCG is to be supported by a Multisectoral Management Committee, and a National Training and Technical Training and Support Team (see section V. below)
3. Established the Leading and Coordination Groups for IDD control in all the Provinces.
4. Local IDD elimination program and working steps have been made according to the concrete situation in different regions.
5. According to the IDD elimination program and working steps, central and local authorities periodically convene management and coordination meetings for IDD elimination to discuss the progress of work and solve existing problems.

The government is committed to sustaining these organizational arrangements, with adequate funding and operational support, up to the year 2000.

II. Strengthen Propaganda and Health Education

In the National IDD Elimination Program, the first priority is to build capacity in national health education to raise the level of awareness, among people, of significance and method of IDD elimination so that the whole population can demand iodized salt or accept other prevention measures on their own initiative, and ensure the intervention measures to be put into effect efficiently, what have been done and are to be done are as follows:

1. Both central and local authorities brought health education into line with their work plans, preparing IDD communication materials and making use of mass media to improve people's self-protecting consciousness of taking iodized salt.
 - To implement IDD communication through mass media such as radio, TV and print, for example, a soiree specific for IDD elimination will be held in Chinese Central TV Station in 1995.

- The activities of the national IDD Elimination Propagating Day were developed on May 5, 1994, and we plan to develop similar communication activities throughout the country every year.
 - Relevant knowledge will be taught in the health courses of primary and secondary school, commencing in 1996 and continuing on an ongoing basis thereafter.
 - Combined with other activities such as women's learning to read and write, family planning and "well birth well raising", we will develop and implement IDD communication regularly, commencing in 1996.
 - The proportion of popularization of knowledge of IDD, among leaders of health sectors at all levels, managers and staff of relevant departments and focus groups of people such as students and housewives, is required to reach 90%.
 - MOH and CNSIC and the provincial health and salt bureau will coordinate their campaigns for promotion of iodized salt, including use of the approved logo to identify iodized salt.
2. To provide technical training on an ongoing basis commencing 1995 to health education personnel at provincial, county, township and village levels, ensuring technically the implementation of national health education program.
 3. To carry out during 1995 scientific research on knowledge, attitudes and practices of people so that we can develop health education with focus to aim at.
 4. During 1995, to review the health education experience so far and to prepare a comprehensive communication strategy for NIDDEP, identifying the main target groups and messages, that would be implemented commencing 1996.
 5. To continue to prepare annual plans for communication support of IDD elimination.

III. Strengthen Legislation

Since the elimination of IDD is a long-term task, to ensure the effective implementation of prevention and control, it is necessary to strengthen legislation, so:

1. In August 1994, the State Council promulgated Decree No. 163, the Regulations on Edible Salt Iodization as a Means to Eliminate Iodine Deficiency Disorders.
2. In September 1994, the Office of the State Council transmitted The General Program for the Elimination of Iodine Deficiency Disorders in China by 2000,

worked out by the Ministry of Public Health and the Ministry of Light Industry.

The Government of China has adopted the international minimum standards for adequate iodine levels in salt, viz. 50 ppm at iodization point; 40 ppm at ex-factory, 30 ppm at retail level and 20 ppm at household level.

The Government will carry out continuing surveillance activities to ensure that salt producers comply with the regulations.

The Government will ensure that the applicability of Decree 163 will be extended to cover the entire country, and that all salt produced and distributed in the country would conform to the quality standards, both by end of 1997.

3. We organized and provided training courses for provincial IDD program personnel in the country in order to implement and execute above two legal documents well.
4. These two documents also contain clear guidelines on the management and regular examination mechanisms to be adopted to oversee the implementation and execution of these regulations and plans.

IV. Salt Iodine and Population IDD Status Monitoring

In order to ensure adequately iodized salt to be consumed after edible salt is basically iodized all over the country in 1995 and prevent non-iodized and low quality salt from disrupting the market, and on the other hand, to carry out exact and effective evaluation of population IDD status and the effectiveness of interventions, the following are to be done, during 1995:

1. To work out the national program of monitoring salt iodine and population IDD status.
2. To establish iodized salt monitoring system on the basis of county; to monitor the quality of iodized salt at processing factory, wholesale and retail, and customer levels respectively, and develop periodical report and feedback system.
3. To provide training on monitoring iodized salt and IDD to provincial IDD program personnel, training to personnel at county, township and village levels are conducting.
4. In order to obtain the population IDD base line data and evaluate the effectiveness of the intervention of iodizing salt, we plan to conduct province based sample survey on population IDD status in the country in 1995, 1996

and 1999, in all provinces. Now the plan for 1995 has been drawn out and work of organization has been finished.

V. Establish the Technical Support Organization of National IDD Elimination Program

In order to technically ensure advocacy, IDD communication, iodized salt and IDD monitoring, and provision of training to be done as scheduled, in organization aspects we have done as follows:

1. Formed the National IDD Consultants Group, which have done a lot of work on the technical standard of national IDD elimination.
2. Established the Multisectoral IDD Management Committee.
3. Established the National Training and Technical Support Team (NTTST).
 - NTTST has set about developing the program of different levels IDD personnel training, the making of training materials, the organization of technical forces, and the implementation of training.
 - Supply technical support and supervision to the training that will be carried out at county, township and village levels.
 - Strengthen contacts with a wide range of international organizations, national government and nongovernment agencies and institutions, to seek and coordinate advocacy, technical and financial support for the program.
 - Coordinated the work of relevant technical institutions on iodized salt, health education, monitoring and advocacy.

The Government is committed to ensure that these groups will be maintained with adequate staffing and terms of reference and operational budget throughout the life of the NIDDEP.

VI. Scientific Research and International Cooperation

1. In order to manage, control, propagate and monitor scientifically, economically and effectively, widespread applied scientific research has been conducted aiming at concrete problems existing in IDD prevention and control.
2. To achieve the goal of IDD elimination rapidly, we tried hard to win the support and cooperation of international society, to import technology and train personnel.
3. All the activities above have obtained or will obtain financial and technical support from international organization such as UNDP, UNICEF, WHO, and have made a remarkable achievement.

4. On the other hand, we also realized the most basic and effective intervention for achieving the goal of IDD elimination is universal iodization of salt, which is very definite in the national strategy of IDD elimination. Therefore, the objective of our government program is to realize basically universal iodization of salt throughout the county by the end of 1995, with the proportion of salt adequately iodized at consumer level being 75%, to realize universal iodization of all edible salt (including salt for livestock) by the year 2000, with the proportion of salt adequately iodized at consumer level being 95%. However, as current equipment for iodizing salt in China is concerned, it is very difficult to process the iodization of salt of such great amount and high quality. If this problem cannot be solved, it will directly interfere with the achievement of the goal of IDD elimination in China by the year 2000. So it is essential for World Bank to loan Chinese salt industry to improve equipment so that the iodization of salt can be effectively carried out and the goal of IDD elimination can be achieved. The iodization of salt is the most important link in the health chain of IDD elimination, it can protect people from IDD and raise the intelligence level of children. The direct objective of the loan is to ensure people to consume adequately iodized salt and achieve the ultimate goal of IDD elimination, the global public health problem, which will produce great social benefit.

5. In order to achieve the goal of iodization of all edible salt, the government will ensure the availability at all times of sufficient quantities iodine from which iodate will be produced for adding to the salt.

VII. Program Planning, Monitoring and Review Mechanisms

1. At National level NIDDEP and the Ministry of Health prepare annual workplans and the Ministry of Health convenes an annual conference of all Provinces to discuss progress and plan for the next year. The workplans would inter alia include: allocation of funds and technical assistance; activities covering advocacy, education, training, salt monitoring, IDD surveillance; staffing in NTTST and MOH; number of MMC meetings; training courses to be conducted; and assessment of monitoring systems at county level, all of the above to be used as discrete indicators for measuring achievements with reference to the plans.

2. The Government has adopted a system of monitoring progress with salt iodization, based on annual assessments organized by the county health bureau in October each year. Results are forwarded to Provincial level and then National level for collation and review.

3. The IDD status of the population is being surveyed in 1995, and this will be repeated 1997 and 1999, using the internationally recommended indicators, methods and standards. The measures of IDD status are urinary iodine excretion and goiter prevalence. Findings of the 1995 survey will be reported to the National Leading and Coordinating Group and to the provinces.

SUPPORT OF UN AGENCIES FOR THE NATIONAL IDD ELIMINATION PROGRAM

1. Four UN agencies are assisting GOC in the National IDD Elimination Program. Three of these agencies, United Nations Development Program (UNDP), United Nations Children's Fund (UNICEF) and World Health Organization (WHO), have supported a joint MOH/UN project in nine severely affected provinces, dates since 1992. The National Advocacy Meeting held under this joint initiative in September 1993 provided the launch of the nationwide Program aimed at elimination of IDD by the year 2000. This joint agreement, now in its third year, is still the main vehicle for UN agency support of NIDDEP, although adjustments have been made to strengthen national-level support and disseminate activities beyond the nine provinces, in line with the scope of NIDDEP. The fourth UN agency, United Nations Industrial Development Organization (UNIDO) is organizing a technical assistance (TA) package for the NIDDEP, in cooperation with UNICEF and Bank financing, which started in 1994.

2. **Fund Allocations for NIDDEP.** The total commitment of UNDP, UNICEF and WHO to NIDDEP in calendar 1995 is \$3.5 million, including UNICEF's \$1 million contribution to TA for the salt industry. Of the UNIDO allocation of \$1.69 million for the TA support, \$1.34 million is budgeted for 1995. This gives a total 1995 allocation of \$4.84 million. Indicative allocations for the ensuing years are: UNICEF—\$2.7 million for 1996-2000; UNIDO—\$836,000 for 1996/97 and WHO \$75,000 for 1996/97. UNDP's allocation will be determined later in 1995.

NIDDEP Activities Supported by UN Agencies in 1995

3. The activities supported have aimed at capacity building in advocacy, community education, legal aspects, surveillance and program management through provision of technical assistance, study tours and experience exchange, equipment, training courses and support for developing the structures and procedures for implementation of the National Program. The specific activities are summarized below for each agency.

4. UNICEF.

(a) Advocacy for Universal Salt Iodization and IDD Elimination

- (i) international meeting on salt iodization in China;
- (ii) communication and product marketing in the salt industry;

- (iii) a survey of thyroid-stimulating hormone (TSH, a hormonal marker of iodine deficiency) levels in newborns in provincial capital cities (by Harbin research center). Data to be used in advocacy;
 - (iv) supply of large quantity of rapid test kits for salt iodine levels.
- (b) **Social Marketing/Communications**
- (i) materials development for radio, TV and print media to educate public about IDD and the need to use iodized salt, with TA from a local advertising company;
 - (ii) provincial training workshops in social marketing;
 - (iii) qualitative research in rural and urban areas on beliefs and behaviors related to IDD and purchase and use of iodized salt;
 - (iv) international TA to guide analysis of the research, revise communication materials and develop communication strategy for NIDDEP;
 - (v) for IDD day, May 5, 1995, mass media broadcasts in urban and rural areas;
 - (vi) qualitative research for revision of communication materials, with international technical assistance.
- (c) **Laboratory and Monitoring Systems for Iodized Salt and IDD Prevalence**
- (i) meetings with MOH, salt industry and others to clarify reporting and coordination of all salt monitoring activities, including action when problems identified;
 - (ii) provincial surveys of salt iodine content at consumer level and of IDD prevalence; materials preparation and training for this activity;
 - (iii) international TA for establishment and training for laboratory, information management system for monitoring iodine in salt by the health sector (integrated with system to be developed for the salt industry) at national and provincial levels.
- (d) **Program Management Support and Training**
- (i) supervisory visits;
 - (ii) participation in national and international review meetings;

- (iii) county-level training in salt monitoring, community education and program management;
- (iv) training in computer skills.
- (e) **Support to the Salt Industry.** In coordination with UNIDO, UNICEF will support a chief technical advisor (CTA) and technical assistant for the salt industry and additional short consultancies in salt iodization chemistry, social marketing and information management.

5. **UNDP.**

(a) **Advocacy/Program Management**

- (i) Experience exchange:
 - . Study tours for national and provincial government, health and salt personnel.
 - . Study tour for Government officials from Ministry of Finance/ Bureau of Economics and Trade.
 - . World Summit in Canada, September 1995.
- (ii) Cost benefit analysis for subnational advocacy.
- (iii) International meeting on salt iodization (confirm)
- (iv) Technical assistance to Government; support to NTTST including:
 - . Technical advice on program coordination and management including tracking progress on implementation of program activities.
 - . Preparation of program reports, budgets and program work plans.
 - . Planning and coordination of provincial-level training courses and preparation of training materials in all areas of the program: program management, laboratory methods, IDD monitoring and social marketing/communications.
 - . Training methodology (TOT training).
 - . County-level training materials development and training courses.
- (v) Provincial training in IDD program management.
- (vi) Equipment for NTTST

- (vii) Workshop for multisectoral program management (held January 1995)
 - (b) **Social Marketing/IDD Communications**
 - (i) Preparation of materials for provincial training in social marketing.
 - (ii) National workshop on school educational materials on IDD.
 - (iii) Support for mass media for IDD Day (to be confirmed)
 - (c) **IDD Surveillance**
 - (i) Provincial surveys on IDD prevalence and salt iodine content at consumer level. Support for training for implementation of surveys in five provinces.
 - (ii) Training materials for county-level training in IDD monitoring.
 - (d) **Laboratory Methods**
 - (i) Technical assistance to review and make recommendations for national quality-control laboratory for IDD laboratory testing at National Research Center for Endemic Disease Control, Harbin.
 - (ii) Training materials for provincial training in laboratory methods.
 - (e) **Salt Iodization.** Technical assistance to salt industry (supporting UNIDO/WB)
 - (f) **Research and Development.** Survey of subclinical cretinism
6. **WHO.** WHO will fund local workshops and one international fellowship.
7. **UNIDO.** UNIDO is not at present a partner in the Joint GOC/UN Program for IDD control, but has developed a comprehensive TA program in which UNICEF would also participate [para. 4(e) above] extending till the end of 1996, covering: expertise and equipment for the salt production and packaging; support of research and teaching institutions; training; quality control; as well as financing consultants for IDDC Project implementation management to supplement the Bank's TA component. Both UNIDO and UNICEF have already financed visits abroad for familiarization with the international salt industry and packaging equipment manufacturers.

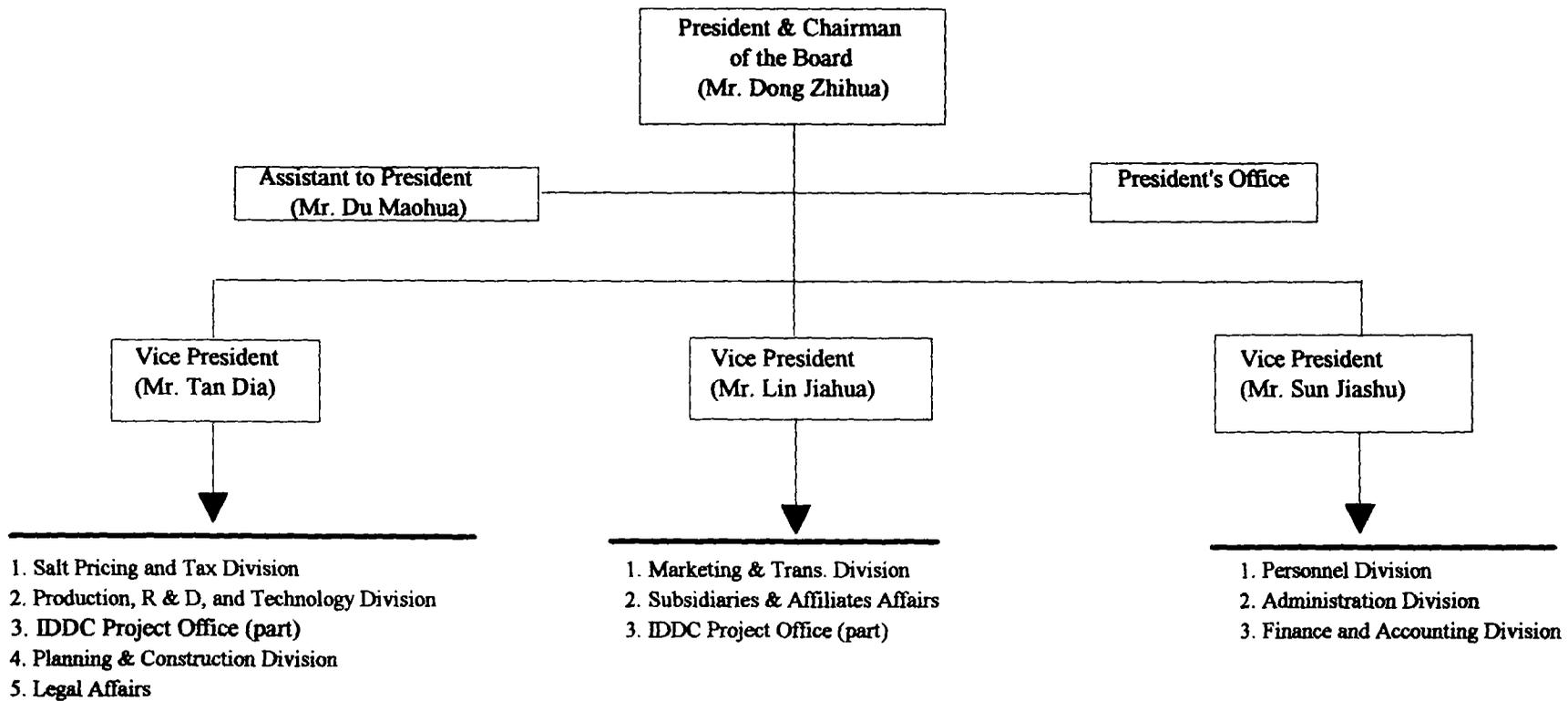
**POPULATION, AND SUPPLY/CONSUMPTION OF SALT
BY PROVINCE, 1993;
AND SALT PRODUCTION AND DISTRIBUTION, 1991-93**

Province	Population		Production			Consumption	
	Total (million)	In IDD Endemic Areas (million)	Total Salt ('000 tons)	Edible Salt ('000 tons)	Iodized Salt ('000 tons)	Total Edible Salt ('000 tons)	Iodized Salt ('000 tons)
Beijing	10.86	5.00	-	-	-	157	50
Tianjin	8.84	1.35	2,302	180	8	83	8
Hebei	61.59	23.00	4,181	615	106	410	140
Shanxi	28.99	7.90	-	-	38	240	53
Inner Mongolia	21.63	12.38	1,103	508	120	185	95
Liaoning	39.67	16.43	3,000	640	235	370	170
Jilin	24.83	17.00	-	-	201	206	201
Heilongjiang	35.43	32.00	-	-	213	279	230
Shanghai	13.37	-	-	-	-	142	-
Jiangsu	67.67	6.50	2,532	559	95	531	50
Zhejiang	41.68	12.38	451	404	120	402	100
Anhui	56.75	8.75	106	95	92	326	96
Fujian	30.37	12.00	844	384	106	185	85
Jiangxi	38.10	15.77	157	191	134	211	92
Shandong	84.93	13.36	7,020	477	122	401	90
Henan	86.49	31.00	-	95	85	605	140
Hubei	54.39	39.00	1,653	692	342	252	215
Hunan	61.28	18.27	578	458	247	423	171
Guangdong	63.46	13.00	361	271	92	400	65
Guangxi	42.61	24.95	115	111	75	269	158
Hainan	6.63	0.40	340	70	2	32	2
Sichuan	108.13	51.87	2,178	1,154	335	806	282
Guizhou	32.68	17.30	-	-	-	201	185
Yunnan	37.31	33.00	407	319	255	295	253
Tibet	2.22	1.35	-	20	-	-	-
Shaanxi	33.16	14.01	85	80	180	246	195
Gansu	22.55	15.18	18	23	60	145	90
Qinghai	4.48	3.50	682	368	21	24	20
Ningxia	4.70	1.43	-	-	8	35	10
Xinjiang	15.29	9.50	680	254	120	102	8
Total	1,148.89	457.5	28,793	7,978	3,412	7,963	3,254

SALT PRODUCTION AND DISTRIBUTION, 1991-93
(‘000 TONS)

Item	Total	Sea Salt	Well-brine Salt	Lake Salt
<u>Output</u>				
1991	23,468	15,118	4,646	3,704
1992	28,022	19,786	4,893	3,343
1993	28,793	21,146	5,079	2,569
<u>Distribution</u>				
1991	21,950	14,240	3,910	3,800
1992	23,150	15,380	4,490	3,280
1993	24,402	16,502	5,230	2,670
<u>Food Salt Distribution</u>				
1991	8,210	3,966	2,539	1,705
1992	8,340	3,923	2,806	1,611
1993	8,429	3,911	3,083	1,435
<u>Industrial Salt Distribution</u>				
1991	13,740	10,274	1,371	2,095
1992	14,810	11,457	1,684	1,669
1993	15,973	12,591	2,147	1,235

Organization Chart of CNSIC Headquarter



SALT INDUSTRY DEVELOPMENT FUND (SIDF)

1. SIDF was established in November 1989, to provide financial assistance to the development of the salt industry. Eligible areas of financial assistance include: (a) long-term industry development planning; (b) investments for modernization and capacity creation; and (c) support for auxiliary industries or facilities that provide inputs to the salt industry.
2. The Fund is managed by a Steering Committee, established in 1990, composed of representatives from SPC, MOF and CNCLI, which reviews and approves applications for financial assistance for eligible expenditures. Assistance from the fund is in the form of loans to approved applicants repayable typically in three to five years, with interest rate of 6 percent per year.
3. Contributions to SIDF consist of a cess levied on primary salt producers and processors at the rate of Y 40 per ton of industrial/edible salt sold, of which Y 13.5 per ton accrues to SIDF at the State level and Y 26.5 per ton to the government of the province in which the respective salt works are situated. The Steering Committee has no direct control over the disposition of the provinces' share of the cess, although it is understood that the provinces would use the proceeds for development of the salt industry. The cess is collected by the county- and city-level salt bureaus and remitted to the provincial salt bureaus. Every quarter, the provincial salt bureau's agent bank remits the State SIDF's share to a separate account at the agent bank of CNSIC. As of December 1994, industrial salt has been exempt from paying contributions to SIDF. A proposal from CNCLI/CNSIC is under consideration by Government for increasing the accruals to State-level SIDF to Y 25 per ton of edible salt, retroactively from January 1995. However, the accruals to provinces would be only at Y 6 per ton of edible salt.
4. Accruals to SIDF from November 1989 to December 1994 total Y 902.54 million. Actual collections remitted to SIDF up to end-1994 total Y 143 million, of which Y 109 million has been loaned to SIDF eligible expenditures.
5. Actual SIDF collections have been poor for the following reasons: (a) an enforcement mechanism at the center for payment by enterprises as well as by city/county and provincial-level salt bureaus is still not fully in place, as well as by the perception that the demand for use of SIDF is low; (b) enterprises are not able to fully collect bills from their customers in timely manner, and part of SIDF accruals are being used to finance their working capital and some investment requirements, which are normally expected to be provided by provincial authorities; and (c) the above-mentioned cash squeeze worsened in

1994 due to changes in the taxation structure, as well as delays in adjusting industrial salt prices.

6. The following remedial measures have been proposed to ensure collection of SIDF arrears and timely payments into SIDF in future: (a) the State Council proposes to issue a resolution on mechanism and time schedule for clearance of interenterprise debts; (b) action has been initiated to tighten CNSIC's methods to inspect the accounts of enterprises to ensure timely remittance to SIDF; (c) a draft regulation on salt industry monopolization is under consideration by State Council, which when issued (expected latest by June 1995) would provide, along with Regulation 163 (effective October 1, 1994), legal and administrative powers to CNCLI/CNSIC, to enforce timely payments through punitive measures such as cancellation of manufacturers' permits or business licenses if required; (d) entrusting CNSIC's agent bank the responsibility for collecting SIDF dues in a timely manner; (e) CNSIC to hold annual industry meetings, commencing 1995, specifically to discuss SIDF situation, at which representatives from all levels of salt administration and individual enterprises would participate; and (f) the proposed increase in the price of iodized salt, which when effected (expected by April 1995) would improve the financial situation of the enterprises and enable timely payment of SIDF dues.

7. The major part of the arrears is expected to be collected in 1995 (about Y 50 million) and the rest over the years 1996-99. Regular annual dues and collections into SIDF would be about Y 108 million, at edible salt production rate of 8 million tons per year, at the current contribution level of Y 13.5 per ton. If the contribution rate is increased to Y 25 per ton (under Government consideration), SIDF accruals would increase to Y 200 million per year. At these levels of accruals and collections, it would be possible to provide SIDF's Government-approved share of counterpart financing of Y 190 million, as well as any increase in its share arising from increase in total project costs.

GENERAL SALT IODIZING AND PACKAGING PLAN

IODIZING PLAN

(Number of machines/lines, and capacities in million tons per year)

	Sea Salt	Lake Salt	Rock Salt	Total
Type I	4 (0.40 MT)	1 (0.090 MT)	14 (2.09 MT)	19 (2.58 MT)
Type II	22 (1.0 MT)	12 (0.275 MT)	18 (0.945 MT)	52 (2.22 MT)
Type III	22 (1.32 MT)	4 (0.400 MT)	- -	26 (1.72 MT)
Type IV	12 (0.49 MT)	10 (0.235 MT)	1 (0.020 MT)	23 (0.745 MT)
New	60 (3.21 MT)	27 (1.0 MT)	33 (3.055 MT)	120 (7.265 MT)
Existing	4 (0.44 MT)	- -	4 (0.455 MT)	8 (0.895 MT)
TOTAL	64 (3.65 MT)	27 (1.0 MT)	37 (3.51 MT)	128 (8.16 MT)

Total No. of Iodizing and Packaging Locations

1. At producer level: 107

2. At Distributor level: 75

Total 182

PACKAGING PLAN

(Number of machines/lines, and capacities in million tons per year)

PRODUCTION				DISTRIBUTION			
<u>Retail</u>		<u>Bulk Packaging</u>					
Type I	11	(1.07 MT)	-	9 locations			
Type II	35	(1.895 MT)	-	31 locations			
	46	(2.929 MT)					
Existing capacity		(2.551 MT)					
Total		5.48 MT					
			2.84 MT	2.64 MT (for industrial use)			
<u>Production</u> (72 locations) (1.418 MT/YR) (New)				<u>Distribution</u> (75 locations) (1.743 MT/YR)			
Type I	86	(0.860 MT)	+	49	(0.540 MT)	=	135
Type II	44	(0.264 MT)	+	78	(0.468 MT)	=	122
Type III	98	(0.294 MT)	+	245	(0.735 MT)	=	343
Type IV	-		+	2		=	2
Total	228	(1.410 MT)		374	(1.743 MT)		602 (3.161 MT)
Existing capacity		(1.082 MT)			(1.097 MT)		(2.179 MT)
Total		2.500 MT/yr			2.840 MT/yr		5.340 MT/yr
TOTAL IODIZED:		BULK:		2.64 (Industrial use)			
and PACKAGED:		RETAIL:		5.34 (Consumer use)			
		TOTAL		7.98			

Numbers of Project Enterprises, by Province, by Type of Enterprise

S. N.	Province/Autonomous Region	Produce-Level Enterprise		Distribution-Level Enterprise	
		Nos. included in Project	Enterprise /a Ref. No.	Nos. included in Project	Enterprise /b Ref. No.
1.	Tianjin	2	1-2	1	2
2.	Hebei	7	3-9	3	3-5
3.	Liaoning	2	10-11	4	9-12
4.	Dalian	3	12-14	-	-
5.	Jiangsu	8	15-22	5	24-28
6.	Shandong	7	23-29	3	40-42
7.	Zhejiang	4	30-33	2	29-30
8.	Fujian	12	34-39	-	-
9.	Guandong	6	40-45	3	53-55
10.	Guanxi	3	46-48	3	56-58
11.	Hainan	3	49-51	-	-
12.	Neimeng	4	52-55	-	-
13.	Xinjiang	6	56-67	-	-
14.	Qinghai	3	68-70	1	74
15.	Gansu	2	71-72	3	71-73
16.	Shanxi	1	73	3+3	6-8 + 68-70
17.	Sichuan	11	74-84	5	59-63
18.	Hubei	8	85-92	1	48
19.	Hunan	2	93-94	4	49-52
20.	Jianxi	3	95-97	3	37-39
21.	Yunnan	6	98-103	1	67
22.	Henan	4	104-107	5	43-47
23.	Beijing	-	-	1	1
24.	Jilin	-	-	3	13-15
25.	Heilong Jiang	-	-	7	16-22
26.	Shanghai	-	-	1	23
27.	Anhui	-	-	6	31-36
28.	Guizhou	-	-	3	64-66
29.	Ningxia	-	-	1	75
Total		107	1-107	75	1-75

/a Enterprise reference numbers correspond to those in Annex 13, page 1, of SAR.

/b Enterprise reference numbers correspond to those in Annex 13, page 2, of SAR.

Note: Salt upgrading facilities would be established at 25 locations in the producer-level enterprise as below.

	Province	Nos. Included in Project	Enterprise Reference No.
1.	Zhejiang	4	30-33
2.	Fujian	6	34-39
3.	Guangdong	6	40-45
4.	Guangxi	3	46-48
5.	Hainan	3	49-51
6.	Qinghai	2	68-69
7.	Jiangxi	1	96
Total		25	

PROJECT IMPLEMENTATION UNIT (PIU) STAFFING

Function	Full-time Task Force	Support from other departments of CNSIC (part-time)
Project Management	2	-
Financial and Project Accounting	1	1
Procurement	3	-
Contracts Management & Legal Affairs	0	2
Engineering Coordination Time Scheduling	2	2
Personnel Training	1	1
Quality Control	-	2
Transport & Sale Arrangement	-	5
Progress Reporting	2	1
Interpretation/Translation		2
Total	11	16

LIST OF PROJECT ENTERPRISES

A. Producer-Level Enterprises

Ref No.	Name of Enterprise	Province	Ref No.	Name of Enterprise	Province	Ref No.	Name of Enterprise	Province
1	Tianjin Hang Gu Saltworks	Tianjin	37	DongShan Transfer Station	Fujian	73	Dingbian Slatworks	Shanxi
2	Saltwork In S.R.I	Tianjin	38	ZhangZhou Transfer Station	Fujian	74	DaAn Salt Plant	Sichuan
3	NanPU Saltworks	Hebei	39	PuTian Transfer Staion	Fujian	75	DengGuan Salt Plant	Sichuan
4	DaQingHe Saltworks	Hebei	40	DianBai Saltworks	Guangdong	76	ZhangJiaBa Slat Plant	Sichuan
5	JianHe Saltworks	Hebei	41	HaiKang Saltworks	Guangdong	77	Special Type Sit Plant	Sichuan
6	Shengjunqu Saulworks	Hebei	42	XuWen Saltworks	Guangdong	78	ChuanDong Salt Plant	Sichuan
7	LuanNan Saltworks	Hebei	43	GuangZhou Refined Salt Plant	Guangdong	79	PengLai Salt Plant	Sichuan
8	HuangHua Saltworks	Hebei	44	ShanWei Saltworks	Guangdong	80	NanChong Salt Plant	Sichuan
9	ZhongJie Saltworks	Hebei	45	QingZhou Saltworks	Guangdong	81	QuXian Salt Plant	Sichuan
10	YingKou Saltworks	Liaoning	46	HePu Saltworks	Guangxi	82	LiangShanZhou Salt Mine	Sichuan
11	JinZhou Saltworks	Liaoning	47	FangCheng Transfer Station	Guangxi	83	EMei Salt Chemistry Crop.	Sichuan
12	FuZhouWan Saltworks	Dalian	48	BuoBai Saltworks	Guangxi	84	YuYang Salt Plant	Sichuan
13	JiangZhou Saltworks	Dalian	49	YingGeHai Saltworks	Hainan	85	YingCheng Salt Mine	Hubei
14	PiHua Plant	Dalian	50	DongFang Saltworkds	Hainan	86	9045 Salt Plant	Hubei
15	HuaiHai Salt Plant	Jiangsu	51	HaiKou Salt Company	Hainan	87	9047 Salt Plant	Hubei
16	YunTai Transferand Sell Station	Jiangsu	52	JiLanTai Saltworks	Neimeng	88	9510 Salt Plant	Hubei
17	XinTan Saltworks	Jiangsu	53	YaBuLai Saltworks	Neimeng	89	XiaoGan Salt Plant	Hubei
18	QiDong Saltworks	Jiangsu	54	EJIZhuoEr Saltworks	Neimeng	90	LIChuan Salt Plant	Hubei
19	GuanDong Saltworks	Jiangsu	55	ChaHanChi Saltworks	Neimeng	91	YingChen City Salt Plant	Hubei
20	HuaiAn Saltworks	Jiangsu	56	YanHu Chemical Plant	Xinjiang	92	JiangHan Salt Chemical Plant	Hubei
21	HuaiYin Salt Chemical Company	Jiangsu	57	QiQuanHu Chemical Plant	Xinjiang	93	XiangLi Salt Mine	Hunan
22	XuZhou Sit Plant	Jiangsu	58	QiJiaoJing Salt Chemical Plant	Xinjiang	94	XiangHeng Salt Mine	Hunan
23	YangKou Saltworks	Shandong	59	HeFeng Saltworks	Xinjiang	95	JiangXi Slat Mine	Jiangxi
24	CaiYangZi Saltworks	Shandong	60	YiLiZhou Transfer Station	Xinjiang	96	JiuEr Salt Plant	Jiangxi
25	QingDao JianXing Salt Plant	Shandong	61	ATuShi Saltworks	Xinjiang	97	XinGan Salt Plant	Jiangxi
26	TaiAn Saltworks	Shandong	62	WunSu Saltworks	Xinjiang	98	YiPingLang Salt Mine	Yunnan
27	Wuli Salt Plant	Shandong	63	YuTain Saltworks	Xinjiang	99	KunMing Salt Mine	Yunnan
28	GuanYao Refined Salt Plant	Shandong	64	BaZhou Salt Company	Xinjiang	100	MOHei Salt Mine	Yunnan
29	LaiZhou Saltworks	Shandong	65	LunTai Saltworks	Xinjiang	101	QiaoHou Salt Mine	Yunnan
30	NingBo Transfer Station	Zhejiang	66	BaiChen Saltworks	Xinjiang	102	FengGang Sit Mine	Yunnan
31	SanMen Saltworks	Zhejiang	67	ShaChe Saltworks	Xinjiang	103	LanPing Salt Mine	Yunnan
32	DaiShan Saltwoks	Zhejiang	68	ChKa Saltworks	Qinghai	104	PingDingShan Salt Mine	Henan
33	XiangShan Saltworks	Zhejiang	69	KeKe Saltworks	Qinghai	105	YeXian Salt Mine	Henan
34	FuZhou Transfer Station	Fujian	70	GeErMu Saltworks	Qinghai	106	WuYang Salt Mine	Henan
35	ShanYao Saltworks	Fujian	71	ZhangXian Saltworks	Gansu	107	DingYuan Salt Mine	Henan
36	QuanZhou Transfer Station	Fujian	72	GaoTai Saltworks	Gansu			

B. Distribution-Level Enterprises

Reference No.	Name of Enterprise	Province	Ref. No.	Name of Enterprise	Province	Ref. No.	Name of Enterprise	Province
1	Beijing Salt Company	Beijing	26	Nan Jiang Ka Zi Men Branch Co.	Jiangsu	51	Shao Yang Salt Company	Hu Nan
2	Tianjin Transfer Sale Company	Tianjin	27	Chang Zhou Branch Co.	Jiangsu	52	Chen Zhou Salt Company	Hu Nan
3	TangShan Salt Company	Hebei	28	Xu Zhou Branch Co.	Jiangsu	53	Mei Zhou Salt Company	Guangdong
4	Zhang Jia Kou Salt Company	Hebei	29	Hang Zhou Salt Company	Zhejiang	45	Shao Guan Salt Company	Guangdong
5	Shi Jia Zhuang Salt Company	Hebei	30	Xiao Shan Salt Company	Zhejiang	55	Zhong Shan Salt Company	Guangdong
6	Tai Yan Salt Company	Shanxi	31	He Fei Salt Company	Anhui	56	Nan Ning Salt Company	Guangxi
7	Da Tong Salt Company	Shanxi	32	An Qing Salt Company	Anhui	57	Liu Zhou Salt Company	Guangxi
8	Lin Fen Salt Company	Shanxi	33	Fu Yang Salt Company	Anhui	58	Yu Lin Salt Company	Guangxi
9	Chao Yang Salt Company	Liaoning	34	Huai Nan Salt Company	Anhui	59	Cheng Du Salt Company	Sichuan
10	Dan Dong Salt Company	Liaoning	35	Su Xian Salt Company	Anhui	60	Chong Qing Salt Company	Sichuan
11	Shen Yang Salt Company	Liaoning	36	Wu Hu Salt Company	Anhui	61	Mian Yang Salt Company	Sichuan
12	Da Lian Salt Company	Liaoning	37	Nan Chang Branch Co.	Jiangxi	62	Fu Ling Salt Company	Sichuan
13	Chang Chun Salt Company	Jilin	38	Gan Zhou Branch Co.	Jiangxi	63	Yi Bin Salt Company	Sichuan
14	Ji Lin Salt Company	Jilin	39	Ji An Salt Company	Jiangxi	64	Kai Li Branch Co.	Guizhou
15	Yu Shu Salt Company	Jilin	40	Ji Nan Branch Co.	Shandong	65	GuiYang Branch Co.	Guizhou
16	Ha Er Bin Salt Company	Heilongjiang	41	He Ze Branch Co.	Shandong	66	Zun Yi Branch Co.	Guizhou
17	Da Lian Salt Company	Heilongjiang	42	Ji Ning Branch Co.	Shandong	67	Qu Jing Salt company	Yunnan
18	Jia Mu Si	Heilongjiang	43	An Yang Branch Co.	Henan	68	Bao ji Salt Company	Shanxi
19	Mu Dan Jiang	Heilongjiang	44	Shang Qiu Branch Co.	Henan	69	Xi An Salt Company	Shanxi
20	Qi Qi Ha Er	Heilongjiang	45	Zhou Kou Branch Co.	Henan	70	An Kang Salt Company	Shanxi
21	Ji Xi	Heilongjiang	46	San Men Xia Branch Co.	Henan	71	Lan Zhou Salt Distribution Co.	Gansu
22	He Gang	Heilongjiang	47	Nan Yang Branch Co.	Henan	72	He Xi Pu Salt Distribution Co.	Gansu
23	Shang Hai Salt Company	Shanghai	48	Hu Bei Salt Packing Factory	Hubei	73	Tain Shui Salt Distribution Co.	Gansu
24	Su Zhou Branch Co.	Jiangsu	49	Chang Sha Salt Company	Hu Nan	74	Xi Ning Branch Co.	Qinghai
25	Wu Xi Branch Co.	Jiangsu	50	Yue Yang Salt Company	Hu Nan	75	Yin Chuan Branch Co.	Ningxia

**ESTIMATED DISBURSEMENT SCHEDULE FOR
THE BANK GROUP CREDIT/LOAN**

Bank FY	Semester ending	China		Annual -----(\$'000)-----	Cumulative	Annual -----(% of total)-----	Cumulative
		Overall -----(% of total)----	Health sector				
1996	July-Dec 1995	0	0	2,680	2,680	9.93%	9.93%
	Jan-June 1996	3	3	6,905	9,585	25.57%	35.50%
1997	July-Dec 1996	6	6	6,904	16,489	25.57%	61.07%
	Jan-June 1997	14	10	3,984	20,473	14.76%	75.83%
1998	July-Dec 1997	26	14	3,916	24,389	14.50%	90.33%
	Jan-June 1998	38	18	2,611	27,000	9.67%	100.00%
1999	July-Dec 1998	50	22				
	Jan-June 1999	62	30				
2000	July-Dec 1999	70	38				
	Jan-June 2000	78	50				
2001	July-Dec 2000	86	58				
	Jan-June 2001	90	66				
2002	July-Dec 2001	94	74				
	Jan-June 2002	96	82				
2003	July-Dec 2002	98	90				
	Jan-June 2003	100	94				
2004	July-Dec 2003	-	98				
	Jan-June 2004	-	100				

Note: The Bank Group's Health and Overall profiles are according to WB 1994's standard disbursement profiles.

SUPERVISION PLAN

BANK SUPERVISION INPUT INTO KEY ACTIVITIES

Approximate Dates	Activity	Expected Skill Requirements	Staff Inputs (Staff-weeks)
09/95	Startup Mission	Industrial Engineering Procurement Health	3 3 3 3
01/96	Supervision Mission Status Of The Project	Industrial Engineering Health	3 3 3
05/96	Supervision Mission Status Of The Project	Industrial Engineering Health	3 3 3
10/96	Supervision Mission Mid-Term Review	Industrial Engineer Procurement Health	3 3 3 3
03/97	Supervision Mission Status Of The Project	Industrial Engineer Health	3 3 3
08/97	Supervision Mission Status Of The Project	Industrial Engineer Health	3 3 3
01/98	Supervision Mission Status Of The Project	Industrial Engineer Health	3 3 3
07/98	Supervision Mission Project Completion Report	Industrial Engineer Health Accounting	3 3 3 3

PERFORMANCE INDICATORS

A. PROJECT PERFORMANCE INDICATORS

1. **Industrial Iodizing and Packaging Capacity Indicators.** These would be measured and expressed as follows:

- (a) Iodizing Capacity installed: 100 percent by December 31, 1996;
- (b) Bulk packaging capacity installed: 100 percent by December 31, 1996;
- (c) Retail packaging capacity installed: 60 percent by December 31, 1996 and 100 percent by December 31, 1997;
- (d) Iodizing salt production indicator: total tonnage of iodized salt produced / total tonnage of iodized salt capacity installed, 75 percent by end-1997, 100 percent by mid-1998;
- (e) Bulk packaging production indicator: total tonnage of bulk iodized salt packaged / total tonnage of bulk packaging installed, 75 percent by end-1997, 100 percent by mid-1998;
- (f) Retail packaging production indicator: total tonnage of retail iodized salt packaged / total tonnage of retail packaging installed, 75 percent by end-1997, 100 percent by mid-1998.

2. **Quality Surveillance Indicators.** Decree No. 163 "Management Regulation Of Adding Iodine to Table Salt to Eliminate the Harm of Iodine Deficiency," which became effective October 1, 1994, provides suitable legal framework for preventing shipping ex-works, transportation, and sale of noniodized alimentary salt. It identifies responsible agencies at all levels to enforce compliance and provides for penalty regimes for contravention. However the issue of institutional mechanisms and inspection systems required to ensure compliance needs to be clarified.

3. So far as the actual iodine level is concerned, the World Health Organization (WHO) recommends a minimum of 50 ppm iodine at production end in order to reduce the risks of lower-than-required levels at consumer level. Agreements have been reached that the following criteria for dosage would be adopted as binding national standards and promulgated:

50 ppm at iodization point	(minimum)
40 ppm at ex-factory	(minimum)
30 ppm at wholesale and retail levels	(minimum)
20 ppm at consumer level	(minimum)

The above quality standards would apply for each control sample.

4. CNSIC would require individual iodization units to maintain records of iodine content at iodization point and at ex-factory level on samples gathered on daily basis. The salt administration units under CNSIC at provincial and county levels would carry out spot inspection of iodine levels at distribution and consumer levels, in periodicity as required. MOPH would carry out similar inspections independently. Remedial measures for addressing deviations from prescribed quality standards would be instituted by CNSIC. The Quality Surveillance Indicator (QSI) could be defined as follows:

$$\text{QSI} = \frac{\text{Number of Samples found satisfactory for iodine content}}{\text{Total number of samples checked.}}$$

B. PROGRAM PERFORMANCE INDICATORS

5. The indicators below are based on our current understanding of the health-related program, and on UN-recommended global monitoring of progress toward the goals of universal salt iodization and elimination of IDD.

6. **Input indicators** (reported annually). These would include:

- (a) Fund allocation for IDD activities at state and provincial level compared with budget estimate (by MOH, provincial health bureaus, collated by MOH).
- (b) Technical assistance use, compared with plan (person-weeks) (by MOH or NTTST).

7. **Process/Output Indicators** (reported annually). These would include:

- (a) Annual IDDC plans prepared covering specified activities (advocacy, community education, training, IDD surveillance, salt monitoring; research; progress review, experience exchange, etc.), by county, province and national level.
- (b) Number of staff positions in IDDC in MOH and NTTST filled with appropriately trained personnel, compared with plan.
- (c) Number of MMC meetings held compared with plan.
- (d) Number of training courses conducted (people trained) compared with plan.

- (e) Number of county health bureaus (by province) with salt iodization monitoring units operating in a satisfactory manner, according to agreed criteria, compared with plan.
- (f) Proportion of leaders and householders with adequate knowledge of IDD and salt iodization.

8. Outcome/Impact Indicators (baseline, mid-term and end of project) (methods of measurement and target levels as set down in National Plan of Action and UN guidelines). These would include:

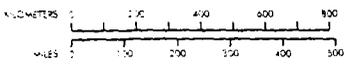
- (a) Proportion of households consuming effectively iodized salt.
- (b) Proportion of school children 8-10 years with enlarged thyroid (by ultrasound or palpation)
- (c) Proportion of population with low levels of urinary iodine.



The boundaries, colors, denominations and any other information shown on this map do not imply, on the part of The World Bank Group, any judgment on the legal status of any territory, or any endorsement or acceptance of such boundaries.

CHINA
IODINE DEFICIENCY DISORDERS CONTROL (IDDC) PROJECT
LOCATION OF PROJECT ENTERPRISES

- ▲ 28 PRODUCER - LEVEL ENTERPRISES
- 61 DISTRIBUTION - LEVEL ENTERPRISES
- PROVINCE CAPITALS
- ⊙ NATIONAL CAPITAL
- PROVINCE BOUNDARIES
- INTERNATIONAL BOUNDARIES



IMAGING

Report No: 14031 CHA
Type: SAR