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Ice Production Survey. Cont'd.

b. Repairs in process of production machinery.

c. Inadequate storage space.

d. Periodic allotments of materials received through official procurement channels were insufficient to permit full scale production and had to be supplemented from other sources.

e. Expressed a preference to produce on a demand basis only and share available space for cold storage facility.

f. Lack of knowledge concerning, or indifference toward proper channels of appeal where adjusted requests for allocations of power and materials procurement had been denied or unduly belated.

g. Several producers were hesitant to consume additional power pending receipt of approved applications for increased power allocations because of a threatened (15 yen per K.W.H.) penalty attached for consumption in excess of that authorized. (These fears were for the most part unfounded because several facilities which did consume excesses for ice manufacturing were not penalized).

The following table records potential, actual, and scheduled production totals with attendant percentages for 1947. Materials shortages and restricted power allotments especially during the latter part of August and through September had a marked effect on production totals and resultant ice shortages in 1947.

Okayama Prefecture
Production totals (Tons) June and September 1947

Month	June	July	August	September
Estimated Production Schedule	3000	3000	3000	3000
Actual Production	1868	2433	2594	1731
Maximum Potential	3760	4000	4000	4000
% of Potential Produced	49	60	64	43
% of Schedule Produced	62	83	86	57

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Ice Production Survey, Cont'd.

Corresponding table 1 January through April 1948 records actual production totals with tentative schedule for remainder of year.

Ice Production Schedule 1948 (Tons)

Month	Jan	Feb	Mar	April	May	June	July	Aug	Sept	Oct	Nov	Dec
Actual Production	275	369	567	1319	1680							
Estimated Production	No Est			3000	3000	4000	4000	4000	3000	1500	1000	500
Maximum Potential	4000	4000	4000	4000	4000	4000	4000	4000	4000	4000	4000	4000
% of Sched				43	56							
% of Max				32	42							

Tentative production schedules June through September 1948 calls for a 43% increase over corresponding period during 1947.

An estimated 15,000 tons production by the Okayama Ken Freezing Industry and Commerce Cooperative Association of No. 10 Kamashu, Okayama City during said period and apportioned through the following distribution channels is planned as follows: 5,000 tons for perishables (fish, etc.); 4,000 tons for hospitals; and 6,000 tons for general use. Occupation Forces demand from Japanese producing sources approximates 12 tons per month. However, it is the personal opinion of the investigator that said totals will not be forthcoming and that realization of 75% of planned schedule is a generous estimate. Accrued manufacturing variables, plus materials and power shortages render such an optomistic estimate impractical.

On the spot discussion and suggestions for accelerating present production totals was offered within the limitations of said survey. Assuming that it was possible to produce a maximum of 15,000 tons (during June - Sept) said total would satisfy about 85% of expectant demand, however, it is assumed that a large percentage of peak ice demand will be from general and luxury (Confectionery) consumer groups, since Inland Sea fishing will have diminished by end of June. This particular demand group will have enacted sufficient totals of ice production during July and August so as to leave minimum reserves for Inland Sea fishing which begins to accelerate again in September.

Even though, existing potential can theoretically supply between 85% to 95% of peak consumer demand it will not be able to do so because of

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strategic location. Ice shortages will prevail in some localities while others will not tax producing facilities.

This factor should of itself effect equitable distribution of fish, etc., (if not quantity, at least quality) to cities remote from distribution centers.

A total estimated 350,000 K.W. or an additional 90,000 KW to supplement 1 June 1948 allocations will be necessary to support planned schedule June - September. The 8% increase of refrigerant ammonia (NH_3) over 1947 supply is now available for distribution. However, supply is considerably short of demand and additional 500 Kg's per month for June and July will be required. A total of 1200 liters of ice machine oil or an average of 300 liters per month plus 1000 liters of regular machine oil is badly needed.

Producers have found it practically impossible to replace worn out freezing cans through authroized procurement channels. Repairs in most instances are impossible due to advanced state of corrosion. Plants using the can system for freezing the normal 300 lb (actual 315 lb) ice block use a standard can of 11" x 22" x 44" dimensions.

In order to satisfy manufacturers' request for 500 cans (assuming that 14 to 16 cans per ton of machine ice making capacity are required) an estimated 25% replacement will be necessary. This would require about 1000 (3' x 6') 16 gage sheet iron.

A mean average of plants surveyed are 15 to 20 years old, and employ an ammonia compression-direct expansion system. The principle advantage of plants using a brine circulating system as found in some storage facilities is that refrigerant can be stored and the plant shut down for part of the time. Another advantage is that the overall length of refrigerant piping and joints is reduced to a minimum. The system, however, is more expensive to operate as a lower back pressure must be carried by the machine at all times since at least 10° difference in temperature must be maintained between outgoing brine from the tank and evaporating coils relative to obtaining the required heat transfer from brine to the refrigerant. However, in those plants where the brine tank is located in one of the storage rooms to be refrigerated, the heat transmission of the tank produces useful refrigeration and does not place additional burden on the machine. The additional compressor capacity plus increased power consumption, exclusive of extra power required to operate brine circulating pump also makes this a more expensive system to operate.

For continuous operation about 60 cu. ft. of brine per ton of refrigeration is required, and for non-continuous operation the weight of brine required is: $W = 12{,}000\ R\ (24-H) \div s_b\ (t_1-t_2)$ where R = refrigeration, tons per 24 hours; h = number of hours per 24 that machine operates; s_b = specific heat of brine solution; t_1 = initial temperature of brine when machine is starting;

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t_2 = final temperature of brine when machine is shut down.

Calcium chloride ($Ca\ Cl_2$) desirable from the 25% saving in weight factor and also because it has no corrosive or insulating action on pipes, is not easily procurable so it is claimed. This shortage has not been justified in the mind of the investigator since the time limitations of said survey would not permit checking Japanese sources of supply. One fact, however, is certain in the mind of the writer, that more of the salt $Ca\ Cl_2$ is produced commercially in the U.S. than is needed. As a matter of fact the calcium chloride ($Ca\ Cl_2$) by product of the Solvay ammonia - process has such a very poor market that it is the only thing to bar perfection in the production economy of Solvay soda. Most of the Japanese supply of $Ca\ Cl_2$ (no investigation) may come from salt brines and removed from the bitter liquors. Possibly in producing sodium chloride from sea water probably accounts for ice manufacturer's statement that they use magnesium chloride ($Mg\ Cl_2$) in lieu of calcium chloride ($Ca\ Cl_2$). Brine containing magnesium chloride and bromide in too great a concentration begins to crystallize from the "bitter liquor". As a general rule, this bitter water is electrolyzed so as to release only the bromine.

In brief, it is a poor substitute for $Ca\ Cl_2$ or even $Na\ Cl$ for reasons previously listed and plus the fact that on sufficient heating the crystallized salt $Mg\ Cl_2.6H_2O$ is hydrolyzed by its own water of crystallization forming hydrochloric acid which in turn attacks metal pipes of brine circulating system. However, this substitute is in amply supply according to all reports.

As for ammonia (NH_3) which is definitely short of demand no attempt was made in this survey to account for or justify existing shortages, however, it is assumed that a curtailed production formerly channeled into nitric acid manufacturing for munitions has been properly diverted to agricultural purposes. The prevalent ammonia shortage probably accounts for the existing disparity of wholesale and retail prices of ice. Most operators have quoted a flat 550, 825, or 870 yen per ton wholesale price; while others admittedly distribute all ice on a retail (1377 yen per ton) basis only. Many fishing men contacted have paid as high as 2000 yen per ton wholesale at several coastal towns when reicing. The ice is just not available so they are told, at existing government prices. The prohibitive cost of ice in said cases, plus any price control on certain fish, would prompt fishermen to expend a minimum in preservation effort in order to increase marginal profits.

Ice producers, on the other hand, cannot profitably manufacture and sell ice at official prices when supplementing critically rationed production materials with that obtained through blackmarket channels. Ammonia, for example, can be obtained on the Osaka blackmarket for about 30,000 to 40,000 yen per 50 Kg's. (50 Kg's would normally cost 3,000 yen through authorized sources).

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Ice Production Survey, Cont'd

No investigation has yet been made relative to quantities or sources of supply for ammonia used plus electric power consumed in the manufacturing of ices and ice cream by confectionerys, tea rooms, etc. This market is probably well supplied for all production by blackmarket sources, since the profit in said frozen delights is much greater than ice production. Many ice manufacturers either engage in ice candy production, or profess an eagerness to produce same.

The investigator, in company of Mr Kobiyashi of Marine Products Board, Agriculture and Forestry Section, on 8th June 1948, inspected boat and carload arrivals of perishables (fish) in order to determine the charges against local ice production and distribution responsibility as imposed by other prefectures. Consignments were inspected relative to condition, method of packing, proper icing and delays in transit. One rail consignment from Shimonoseki area consisting of 10 tons was approximately 60% spoiled with remainder in a semi state of decomposition.

Delay in transit from point of dispatch was estimated at about 12 hours. The manner of packing fish in containers betrayed any premise of proper icing at dispatch source. This, plus a delay factor and no evidence of reicing effort, merely accelerated decomposition. Several days later, on subsequent inspections of ice plants, other kindred consignments, which were so rotten they could not be disposed of at fish distribution centers, were found in several cold storage plants awaiting processing into fish cakes. The deplorable conditions as found in noted plants were referred to Public Health Section for investigation. It is the opinion of the writer that if salt water fish being held on short carry refrigeration upon receipt in A-1 condition, the temperature should be around 15°F, and to freeze at 5°F. It was noted that semi-spoiled or spoiled fish were held on short carry cold storage.

Two additional plants are in process of construction and are scheduled for operation by mid August or early September. One plant is at Fukudacho and is called the Mizushima Cold Storage Co. The other is located at Wake and both are 5-ton per day capacities.

Conclusions:

The purpose, intent, and findings of this survey was limited in scope, so as to reveal and accelerate production potential in support of existing need for same, as previously reported on by Economic and Surveillance officers of Military Government.

Determination of effective ice production totals channeled in to perishables' preservation effort are negated in lieu of any organized production and distribution control now in force. Since Okayama is primarily a consuming and forwarding area any accrued losses sustained to date on perishables (fish, etc.) after arrival, resultant of or attributed to ice production shortages January through May 1948 are not justifiable in any sense on the basis of inadequate producing facilities, materials, shortages or

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Ice Production Survey, Cont'd.

or other kindred variables as revealed by this survey.

Evidence, to the contrary is in support of contentions that a combined lack of (1) inertia in many instances plus the failure of certain responsible Japanese governmental agencies to coordinate on a regional level and (2) prompt measures designed to exact maximum utility from existing production and transportation facilities, and materials inventories are much to blame.

The apparent unpreparedness or the inability of said authorities to cope efficiently as yet with the overall problems of perishables expediting prompts immediate concern for the current summer season, with attendant and proportional increase of losses sustained to perishables, however, until such time as production surveys are completed in other prefectures and some effective followup action taken relative to establishment of fundamental policies and plans for coordinating regional traffic loads, etc., on perishables with local production and distribution problems, no overall recommendations for remedial action may be made.

GEO. H. KINNAMAN

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SURVEY OF ICE MANUFACTURE AND DISTRIBUTION
YAMAGUCHI PREFECTURE
JULY - 1948

Summary technical data contained herein with attendant conclusions are the resultant of a completed survey of ice production potential in Yamaguchi Prefecture conducted during July 1948 by S/Sgt E. B. Broadstreet of Yamaguchi Military Government Team and the writer.

Since particular emphasis was directed upon that segment of production channeled into fish preservation effort, cognizance of the charges against total ice rproduction as imposed by relevant variables of perishables expediting was considered rather than determined as the result of this survey. Said data having been purposely omitted from this report the introduction of same has been made in only those instances whereby it will best lend support in determination and final analysis of effective ice production tonnages.

Basic production and manufacture variables confronting producers in Yamaguchi Prefecture approximate those singled out for elaboration and submitted on previous report of survey as found in Okayama Prefecture and are thus deleted from this summary.

Attendance in Shimonoseki on 1 July 1948 at a conference called by the investigator included a representative group of plant managers and engineers from the major ice producing facilities in the area. Discussion was directed toward prompting and effecting remedial measures designed to stimulate ice production activity and swell reserve tonnages against the impending demands to be made by acceleration of the fall fishing season. Sincere response was evidenced as conferes entered into the discussions of manufacturing problems and production bottlenecks.

The existing shortages of certain critical materials plus a confused expectancy regarding future procurements highlighted in general the topics for discussion. However, the entire group was visably distracted when pressed for results of action taken to date in order to step up ice production tempo by concerted effort as a manufacturing group. The assembly failed to evidence any qualified spokesman who could authoritatively speak for the industry as a producing group. Individual aggressiveness on the part of producers in general was not lacking as the subsequent inspections and survey of plants revealed. Requests for data and production statistics was supplied with the cooperation of all concerned. However, criticism of serious proportions was directed at the Ice Manufacturers Association of Yamaguchi Prefecture for lack of coordinating effort and apparent indifference toward compiling and maintaining reliable statistical data on production activity of member plants.

Since the finality on recommendations for the dispensing of critical materials made available for allocation is vested with this agency it was felt that a strict administrative and accountability be exercised in order to justify said distributing authority. Also, the policy of making equitable distribution available to association members on the basis of plant capacity index rating should be discouraged. Recommendations were made for the establishment of definite priorities within the industry to be given those facilities who on the basis of productive effort are contributing most to the ice economy of said prefecture.

Furthermore, it was revealed that this conference was an occasion for the first collective group meeting of ice manufacturers, engineers, and interested personnel held in Shimonoseki area.

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The statistical section of this report contains relevant tables for comparative analysis on past, current, and tentative production schedules in addition to applied materials and power consumptions.

Class "A" ports of Shimonoseki, Hagi, and Senzaki were singled out for special emphasis with regard to analysis of production potential.

The advisability for exercising the provisions of Agriculture and Forestry Ministerial Ordinance No. 5 in accordance with Cabinet Instruction No. 3 for 1947 has been considered relative to the Materials Demand and Supply Adjustment Law, and the Ice Demand and Supply Adjustment regulations contained therein.

The personal opinion of the investigator thus concluded upon completion of survey is as follows:

Opposed to enactment of any regulatory control measures being placed on the production and distribution of ice.

Review of the articles for proposed enforcement as contained in the regulation indicates that administration within that sector of the industry devoted exclusively to the expediting of marine products are complying therewith.

Since 80% of the total ice producing activity in Yamaguchi Prefecture is concentrated in the Shimonoseki area, and the majority thereof being owned and operated as an integral part of said fishing interests tends to stimulate ice production effort, and at the same time diminishing the necessity for regulatory controls.

Producing facilities thus mentioned require a definite flexibility, readily adjusted to the peculiar demands of the industry. Cognizance for the gyrations of conventional ice production and demand as influenced by seasonal variations are not strictly applicable in said instance.

The months of July and August are normally peak demand and consumption periods on commercial ice production. However, a reversed order of process is effected whereby the temporary recess in fishing activity allows time for depleted ice reserves to be replenished for accelerated September-December demand.

Regulatory control measures would of themselves tend to discourage the individual aggressiveness of those producers who have managed to maintain production schedules by augmenting critical materials allocations from other sources of suppiy.

Accrued shortages and belated receipt of allocated production materials continues to be the chief source of registered complaints, and established alibis for retarded activity.

Determination of total effective ice production against applied materials and power consumption in Yamaguchi Prefecture was negated in lieu of adequate bookeeping and accounting, reliable statistical data, and competent technical information encountered during the course of this survey.

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Total ice making capacity of the 36 ice plants and cold storage facilities in Yamaguchi Prefecture is estimated at 1,143 tons per 24 hours.

Average daily production as of 1 July 1948 approximated 843 tons or 73% of rated potential. Actual tonnage produced January through June 1948 totaled 111,320 tons, with an estimated schedule of 166,400 tons for the remainder of year July through December 1948. This aggregate tonnage of 277,720 for 1948 represents a gain of 88,100 tons over the 189,620 tons for 1947 or an increase of 31%.

Scheduled production of 29,466 tons for July 1948 was to be channeled into the following sources of distribution.

a.	Occupation Forces use	494 tons
b.	Medical benefits	645 "
c.	Fishing and perishables	20,842 "
d.	General use	3,922 "
e.	Transferred to Other Prefs.	865 "
f.	To be Reserved	2,698 "
	TOTAL	29,466 tons

Ice reserve totals as of 1 July 1948 were estimated at 2,143 tons and if tentative July schedule was realized stored ice would approximate 4,841 tons. However, unless production activity was accelerated, failure to realize scheduled output to the extent of 5,000 tons for July is probable.

August production schedules approximate July estimates for production and distribution percentages.

Continued emphasis on building up depleted reserves will highlight August production activity in the large Shimonoseki facilities.

Inspection of the Nihon Kayaku, Asa Kasei plant revealed that the ice making plant was installed as part of a war supporting industry in the processing of Butyl alcohal, but was never actually used as such. The plant is now engaged in the production of glycerine and ice is not essential in support of same.

The ice producing unit has a rated 5-ton daily capacity with a limit of four tons production, as a result of mechanical efficiency losses. Maximum daily production never exceeds one ton per day during peak demand because said tonnage is sufficient for this locality.

The plant has sufficient ice cans (32) for 2½ tons per day production based on the 14 to 16-can requirement per ton of machine rating.

Subsequent inspection of air conditioning units in the No. 2 chemical plant also located in Asa-gun, and never an ice producing facility.revealed a total of 68 ice cans in non-productive status.

The accumulation being the result of war time shipments of ice received for industrial processing purposes.

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Since an estimated 16% or 1,800 ice cans of an aggregate 11,000 are needed for replacements it was suggested that effort be made to dispose of them to a producing activity in need of cans.

The findings and opinions of the investigator thus concluded upon completion of this survey are as follows:

Ice production capacity throughout Yamaguchi Prefecture is considered adequate in support of the accustomed and existing economy.

Exceptions to this conclusion are as noted in the summary statistics for Senzaki and Hagi.

However, it is felt that a combined lack of foresight and planning by producers continues to be a proportionate evil, equal to that of materials shortages.

Poor utility from existing potential, storage space, and available materials accounts for a large percentage of continued ice shortages in some localities.

Increased production schedules for 1948 have been encouraged by the promised receipt of supplementary allocations of critical production materials.

The availability of electric power has for the most part been adequate in support of ice production January through July 1948.

A total of three ice producing facilities in Hagi is not considered adequate in support of the local economy. The regular importation of ice to augment local production is necessary during peak demand periods.

Combined potentials with a rated capacity of 40 tons per day produced a total of 4,854 tons of ice during the period January 1948 through June 1948.

Monthly production of 809 tons against a potential 1,200 tons for an average of 67% per month was produced during this period.

Storage space for 730 tons of ice was available but only 182 tons was in reserve as of 1 July 1948.

Plans are now effected whereby ice totaling approximately 1000 tons will be imported into the Hagi area during the period September-December 1948 to augment local production. The aggregate tonnage by producing source is as follows:

TONS	NAME OF PLANT	LOCATION
100	Suyo I.M. Plant	81 Mitajira, Bofu
100	Asahi I.M. Plant	Mitajiro, Bofu
250	Bofu plant of Kyowa Industry Co.	1835 Mitajiro-mura, Bofu
200	Kawai I.M. Co.	Kamishinchi-machi, Shimonoseki
100	Ohata I.M. and Cold Storage Co Ltd	Ohata Kojiro-mura Kuka-gun
50	Onoda Provision Industry Co Ltd	Nishimohama, Minato-machi, Onoda
100	Kawashita Ice Co Ltd	85 Mukaizu, Iwakuni
100	Sanwa I.M. Co Ltd	2553 Yanai, Yanai-machi, Kuka-gun
1000		

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On the 16 July 1948 the plant of Hagi Reito and I. M. was visited. According to available records the following 1948 production tonnage with attendant tables for power and materials consumption were recorded

	NH3 (Kgs)		Ice Machine Oil (Litres)		CAC/2 (Kgs)	
MONTH	Requested	Allocated	Requested	Allocated	Requested	Allocated
Jan	100	50	36	27	700	700
Feb	100	50	36	21	400	350
Mar	100	50	36	14	0	0
April	100	50	42	60	0	0
May	100	50	42	50	1100	1050
June	150	100	42	36	0	0
July	150	75	54	86	0	0
TOTAL	800	425	288	294	2200	2100

MONTH	JAN	FEB	MAR	APR	MAY	JUN
Tons Produced	131	304	317	295	302	260
KWH Used	8100	14800	26300	18900	24400	21000
KWH Allocated	16772	11028	19693	22058	23008	23008

Ice making capacity (per 24 hrs) - 10 tons
Ice storage space (refrigerated) - 20 cubic tsubo
Ice storage (measurement tons) - 80 tons
Ice in reserve - 0 tons
Cold storage space - 58 cubic tsubo
Plant receiving capacity in K.W. - 85 K.W.

During the period January-June 1948 the plant produced a total of 1,609 tons or 89% of rated capacity. During April and May a total of 300 tons of ice was brought in from Kawai I.M. plant in Shimonoseki to augment plant production which approimated full capacity for said period. Departures of fishing boats was delayed for lack of ice oftentimes during this period.

Cold storage facility has been inactive for over one year but was recently activated in order to store 300,000 yen worth of fish. Ice production is reduced to 3½ tons per day as a result of joint operation of both ice and cold storage facility on reduced ammonia volume. Receipt of scheduled ammonia allocations will again allow plant to resume normal production activity.

The Hagi-shi I.M. plant is 20-ton per 24 hour facility and at the time of this survey was producing about 16 tons per day and during period from August 1947 to August 1948 produced the following tonnages.

	1947						1948					
MONTH	8	9	10	11	12	1	2	3	4	5	6	7Est
Tons Produced	309	426	490	518	345	261	378	299	485	570	519	480
KWH Used	33,610	33,180	32,300	29,170	10,210	15,870	12,040	25,680	30,740	35,600	37,590	37,000
KWH Allocated	36,955				14,168	15,870	30,740			28,000		

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Ice storage capacity 180.3 cubic tsubos
Ice in reserve 15 July 1948 - 182 tons
Ice storage space for - 650 tons
Cold storage space - 21.7 cubic tsubos
Plant receiving capacity in K.W. - 70
Can capacity - 286
Percent production going for fish preservation - 92%
" " " General Use - 8%

TABLE OF REQUESTED & ALLOCATED MATERIALS
For Hagi-shi I.M. Plant Jan-Jul, 1948

MONTH	NH3 Kgs Requested	NH3 Kgs Allocated	Ice Machine Oil (Litres) Requested	Ice Machine Oil (Litres) Allocated	CACL, KG's Requested	CACL, KG's Allocated
Jan	150	25	18	23	3000	700
Feb	150	25	18	23	3000	0
Mar	150	50	18	16	4000	0
April	150	60	36	56	660	0
May	100	60	36	50	660	1050
June	100	110	36	54	680	700
July	150	50	36	117	0	0
TOTAL	950	380	198	339	12,000	2,450

The Hagi plant of Nippon Cold Storage Co produced a total of 734 tons of ice during period of Jan-June 1948. Rated producing capacity per 24 hours of plant is 10 tons. This total production for said period represents 40% of rated potential. This facility has produced on a demand basis as a result of inadequate storage space. A refrigerated storage room to store about 12 tons of ice was nearing completion at the time of this survey. A former 300-ton sawdust storage building had been abandoned as impractical due to building deterioration. No ice was in storage during the inspection of this facility.

MONTH	JAN	FEB	MAR	APR	MAY	JUNE
Total Produced	17	75	117	169	202	154
Tonnage Sold	17	75	117	169	202	154
Tons in Reserve	0	0	0	0	0	0

NIPPON COLD STORAGE COMPANY
Table of Requested & Allocated Materials
January-June 1948

MONTH	NH3 (Kgs) Requested	NH3 (Kgs) Allocated	ICE MACH OIL (Litres) Requested	ICE MACH OIL (Litres) Allocated	CAC/2 (Kgs) Requested	CAC/2 (Kgs) Allocated
Jan	100	25	20	9	2000	0
Feb	100	25	20	13	2000	0
Mar	100	25	20	6	3000	1750

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Nippon Cold Storage Co., Table Requested & Allocated Materials, Jan-June, 1948 (cont'd)

April	500	25	26	16	0	0
May	500	50	27	25	0	700
June	600	50	27	18	0	0
July	300	50	18	71	0	0
Total	2200	250	158	158	7000	2450

A total of two ice producing facilities in Senzaki with a combined production total of 19 tons per 24 hours is not considered adequate to meet peak demand tonnage in this Class A fishing port.

The plant of Nippon Cold Storage Co. was producing maximum tonnage of 16 tons per day on 14 July 1948 and were reserving approximately 8 tons of said production daily. Plans are in the offing to add another 10-ton machine to augment existing producing equipment and step up production total. The proposals for same are feasible since the present facility has a brine tank capacity for 540 cans and is using only 420 in production now. Total production tonnages were curtailed during June 1948 resultant of power cutoffs since plant has not completed arrangements for direct power hookup.

The only other plant in Senzuki owned and operated by the Senquki-machi Fishery Association with a 3-ton per 24 hour capacity had been down 10 days prior to date of survey due to loss of system ammonia supply attributed to leak in expansion. pipes. Resumption of activity is dependent upon procurement of replacement pipe and replenishment of system ammonia.

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NIPPON COLD STORAGE PLANT (SENZAKI)
1948 PRODUCTION AND DISTRIBUTION (Jan-June)

MONTH	TONS PRODUCED	TONS FOR FISH	HOSPITALS & GENERAL USE	TOTAL TONNAGE SOLD
1	381.99	281.835	15.884	297.719
2	99.332	304.902	22.541	327.443
3	348.	272.904	20.380	293.284
4	539.998	538.032	45.621	583.653
5	626.001	543.373	81.078	624.451
6	497.333	357.405	90.180	447.585
7				
	2,492.663	2,298.451	275.684	2,574.135

TYPE OF PLANT - AMMONIA COMPRESSION - DIRECT EXPANSION

Ice making capacity per 24 hours - 16 tons
420 can capacity - 78 hour freeze
Ice storage space - 125 cubic tsubo
Tons of ice storage space - 250 tons
Tons in storage - 13 July - 86 tons
Tons in storage - 29 January - 210 tons
Present total going into reserve daily - 8 tons
Receiving capacity in K.W. - 70

Cold Storage Space

Total 57 cubic tsubo

A	B
-10° C	-3° C

Started using 5-ton compressor in April, 1948

REQUESTED AND ALLOCATED MATERIALS
NIPPON COLD STORAGE CO - SENZAKI PLANT
JUNE*JULY 1948

MONTH	NH3 Kgs REQUESTED	ALLOCATED	Ice Mach Oil (Litres) REQUESTED	ALLOCATED	CACL2 Kgs REQUESTED	ALLOCATED
Jan	580	25	24	23	0	0
Feb	500	25	24	25	2000	1750
Mar	500	25	24	24	5300	5250
April	800	50	72	19	0	0
May	800	50	72	48	1700	1500
June	800	50	72	36	0	0
July	400	0	24	0	670	0
Total	4380	225	312	175	9670	8500

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The plant of Senzaki Tishery Association has refrigerated storage space for 8 ton of ice, with a maximum 90 tons per month production. The plant is a 64-can freeze with a 14 K.W. receiving capacity. Ice cans are in good condition and power allocations have been adequate. The following tables for materials requested and allocated from January-July 1948:

MONTH	NH3 Kgs REQUESTED	NH3 Kgs ALLOCATED	Ice Mach Oil (Litres) REQUESTED	Ice Mach Oil (Litres) ALLOCATED	CAC/2 Kgs REQUESTED	CAC/2 Kgs ALLOCATED
1	75	0	12	0	1000	700
2	75	0	12	0	1000	700
3	100	25	12	2	1000	0
4	75	0	18	10	0	0
5	75	25	18	12	0	350
6	100	25	18	9	0	350
7	100	25	18	18	0	0
Total	600	100	108	51	3000	2100

DECLASSIFIED E.O. 12065 SECTION 3-402/NNDC NO.

NIPPON COLD STORAGE PLANT (SENZAKI)-1948 PRODUCTION & DISTRIBUTION (JANUARY-JUNE)

MONTH	TONS PRODUCED	TONS FOR FISH	HOSPITALS & GENERAL USE	TOTAL TONNAGE SOLD
1	381.99	281.835	15.884	297.719
2	99.332	304.902	22.541	327.443
3	348.	272.904	20.380	293.284
4	539.998	538.032	45.621	583.653
5	626.001	543.373	81.078	624.451
6	497.333	357.405	90.180	447.585
7	?	?	?	?
	2,492.663	2,298.451	275.684	2,574.135

TYPE OF PLANT - AMMONIA COMPRESSION - DIRECT EXPANSION

Ice making capacity per 24 hrs - 16 tons
420 can capacity - 78 hr freeze
Ice storage space - 125 cubic tsubo
Tons of ice storage space - 250 tons
Tons in storage 13 July - 86 tons
Tons in storage 29 January - 210 tons
Present total going into reserve daily - 8 tons
Receiving capacity in K.W. - 70

Cold Storage Space

Total 57 cubic tsubo

A	B
-10°C	- 3° C

Started using 5-ton compressor in April 1948

REQUESTED & ALLOCATED MATERIALS - NIPPON COLD STORAGE CO, Senzaki Plant
June-July 1948

Month	NH3 Kgs Requested	Allocated	Ice Mach Oil (Litres) Requested	Allocated	CaCl2 Kgs Requested	Allocated
Jan	580	25	24	23	0	0
Feb	500	25	24	25	2000	1750
Mar	500	25	24	24	5300	5250
April	800	50	72	19	0	0
May	800	50	72	48	1700	1500
June	800	50	72	36	0	0
July	400	0	24	0	670	0
Total	4380	225	3.2	175	9670	8500

DECLASSIFIED E.O. 12065 SECTION 3-402/NNDS NO.

DECLASSIFIED E.O. 12065 SECTION 3-402/NNDG NO. 77801

The port of Shimonoseki has adequate ice storage and sufficient producing capacity to satisfy imposed peak demand on ice provided materials are made available and power allocations necessary to support tentative production schedules are as indicated in statistical section of this report.

Sharp contrasts for comparative analysis exist between the concentrated potential in the Shimonoseki area and the wide dispersals of residual plants. This fact is magnified when consideration is made for an aggregate daily potential tonnage approximating 1,143 tons in Yamaguchi Prefecture against the 915 ton daily capacity in Shimonoseki, which represents 80% of total.

Deductible from the aggregate 217,520 tons produced in Yamaguchi Prefecture July 1947-June 1948 are the 183,841 tons or 84% produced by six facilities in Shimonoseki.

Since January 1948 the additional facilities, including both the 200-ton unit at Taiyo No. 2 I. M. Plant and the increase from 7 1/3 tons to 50 tons at Kanmon I.M. Plant has boosted total tonnage 243 tons per 24 hours.

Additional storage space is badly needed at the last mentioned plant, where existing ice storage room of 108 cubic feet with accommodations for a maximum 270 tons of ice is inadequate. Available storage facility for 1000 tons of ice, pending materials approval for minor repairs will alleviate this problem in the near future.

The plant of Kawai with a producing potential of 17 tons is using only 10 tons, as per statistics section of this report.

In conclusion it is believed that a reduced demand for ice accruing from sources outside Shimonoseki during 1948 plus the additional potential of enlarged facilities will suffice for the economy of this area.

The following reports are the results of surveys conducted at the six major producing facilities in Shimonoseki.

DECLASSIFIED E.O. 12065 SECTION 3-402/NNDG NO. [illegible]

1. Name of Plant : Shimonoseki No. I Refrigerating Plant of Taiyo Fishing Co., Ltd.

2. Location : I-4198 Oimachi, Hikoshima, Shimonoseki

3. Capacity :

(1) Type of Plant : (a) Vertical Single Acting Closed Type Ammonia Compressor, -----manufactures of York & Co., U.S.A.---------- I

(b) Ditto, manufacture of Hayashikane Shipyard Co., Ltd. 5

(2) Type of System :

Ice Making : Cooler Type.

Refrigeration : Ammonia Direct Expansion Type

Cold Storage : Brine Indirect Type.

(3) Rating of refrigerating machine (tons of refrigeration per 24 hours) With statement of pressure & temperature range.

Type of plant	Tons of refrigeration per 24 hours	Number of plant	Total
(a)	100 ton	I	100 ton
(b)	50 "	5	250 "
TOTAL			350 ton

Pressure & Temperature Range

Kind	Delivery pressure	Suction pressure	Temperature
Ice making	13**16 Kg/cm2	0.7 **I Kg/cm2	-4'c.** 10'c.
Cold Storage			-5'c.**20'c.

4. Ice making capacity per 24 hours : 150 ton

5. Ice storage space (cubic feet or cubic metres) :

a. One-storied warehouse ---------- 2,349 cubic metres

b. New ice storage ---------- 2,520 " "

Total 4,879 cubic metres

DECLASSIFIED E.O. 12065 SECTION 3-402/NNDG NO. 78018

6. Total ice storage space(refrigerated).....3.000 tons

7. Ice reserves in storage as of 1 July 1948 --211 tons
" " " recheck " " 24 " " --262 "
" " " gain " " " " " -- 51 "

8. Total demand exceeded production at this facility up to and including the first part of July, having been alleviated by decreased activity of fishing fleet.

9. This activity is operating at about 58% of its rated potential as of 23 July 1948, due to the fact that routine maintenance on two of the 5 plants are being effected. The obsolesence of production equipment with the aggregate of 25 years, plus the delay in procurement of replacement parts is detracting from the total summation of ice reserve which could nominally be built up during the recess in fishing activity. The replacement of two (2) 50 ton machines is in process and completion dates for same are scheduled for 15 August 1948.

10. Cold storage space totaling 7.146 cubic meters employing a brine circulating system and data as included in items 2 & 3 of this report were considered in materials estimates

11. Brine solution used CaCl2 (Calcium Chloride) per year averages thirty (30) tons.

12. Refrigerant Ammonia (NH3)(Kg's per year) total 18.325 avg. Present allocations of ammonia are not sufficient to support full scale production or the tentative 15.000 ton schedule July/September, which will require an estimated 7.500 Kg's (NH3).

13. A total of 4.500 liters of ice machine oil will be required to augment July / September production segment of an average yearly consumption of 17.826 liters

14. The receiving capacity of facility in kilowatts is 550 KW The accompanying power allocations with attendant applications, and existing shortages from January 1948 to June 1948 are shown as follows in K.W.H.

Month	Jan.	Feb.	Mar.	Apr.	May
Applied for	400,000	400,000	400,000	520,000	520,000
Allocated	298,900	252,900	309,800	348,000	440,000
Shortage	101,100	147,100	90,200	172,000	80,000

The plant estimate of 1,480,000 kwh for said period based on a 550 KW receiving capacity is to high to the extent of 265,600 kwh, considering a maximum production of 16,560 tons instead of the scheduled 15,000 tons to be produced.

DECLASSIFIED E.O. 12065 SECTION 3-402/NNDG NO. 78-0-76

TABLE OF REQUEST & ALLOCATED MATERIALS 1948 JAN - JULY
Taiyo Noi Fishing Co.Lt.
Shimonoseki

Month	NH3 Requested	Kg's Allocated	Ice Machine Oil(Litres) Requested	Allocated	CaCl Requested	Kg's Allocated
Jan	2000	600	2300	252	20,000	5,000
Feb	2000	600	2500	252	20,000	3,000
March	2000	800	2500	254	20,000	0
April	2000	1800	2500	470	20,000	28,000
May	2000	1800	2500	600	20,000	3,000
June	2000	1900	2300	450	20,000	45,000
July	2500	900	2500	1,087	20,000	0
TOTAL	14,500	8400	17,100	3365	140,000	84,000

DECLASSIFIED E.O. 12065 SECTION 3-402/NNDG NO. [illegible]

The ice production of this facility was diverted to the following sources July 1947 - June 1948.

Fish preservation	75%
General Use	25%

The largest single consumer of ice is the Katae Pelagic Fishery Cooperative - 10%. Facility does not have any PD Nos.

DECLASSIFIED E.O. 12065 SECTION 3-402/NNDG NO. 78019

Name of Plant :
Shimonoseki No. 1 Refrigerating plant of Taiyo Fishing Co., Ltd.

Location:
1 - 4198 Oimachi, Hiroshima, Shimonoseki

Output from June to Nov. in 1947:

Month :	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
	ton	ton	ton	ton	ton	ton	ton
Output :	5.590	4.370	2,605	2,559	3.917	3.954	3.632

The scheduled output of the period from Jan. to Dec. 1948 (figures from Jan. to June showing the actual output):

Month :	Jan.	Feb.	Mar.	Apr.	May	June
	ton	ton	ton	ton	ton	ton
Output :	3.315	3.004	3.388	2.502	3.502	3.094

Month :	Jul.	Aug.	Sept.	Oct.	Nov.	Dec.
	ton	ton	ton	ton	ton	ton
Output :	5,000	5,000	5,000	5,000	5,000	5,000

To attain the scheduled output above, shortages of materials as listed below during the period from July to Sept. this year exist:

Month	Freezing Machine Oil	Machine Oil	Liquid Ammonia	Electric Power
July	1,500 litre	150 Litre	2,500 kg	485,000 kw
August	1,500 "	150 "	2,500 "	500,000 "
Sept.	1,500 "	150 "	2,500 "	495,000 "
Total	4,500 litre	450 litre	7,500 kg	1,480,000 kw

DECLASSIFIED E.O. 12065 SECTION 3-402/NNDG NO. 78013

1. Name of Plant: Shimonoseki No. 2 Refrigeration Plant of Taiyo Fishing Co. Ltd.

2. Location. : 19 Yamato- cho, Shimonoseki City

3. Capacity.

(a) Type of Plant: Vertical Single Action Closed Type Ammonia Compression

(b) Type of System:

Ice making: Cooler type

Refrigeration: Ammonia Direct Expansion Type Multiplate (Taubin) type. inactive

Cold Storage : Brine Indirect

(c) Rating of Plant (with accompanying statement
Tons of refrigeration per /24 hours (pressure and temp.) (range)

1. Refrigeration (tons per 24 hrs)

Name	No. of Machines	Tons/24 hrs	Total/per 24 hrs
Hayashikane Ammonia compressor	6	144	864
"	" 2	111	222
"	" 2	144	1288
Total			2374 tons

Pressure and Temperature Range

Plant	Delivery press.	Suction press.	Temperature
Ice Making	8-16Kg/cm2	0-2.4Kg/cm2	-4° C to -11° C
Cold Storage	8-14	0-1.0	-5° C " -30° C

Ice Making Capacity per /24 hours 34 tons

Ice Storage Space (Refrigerated) 146,880 cubic ft.

DECLASSIFIED E.O. 12065 SECTION 3-402/NNDG NO. [illegible]

4. Ice storage space will hold : 3,000 tons

5. Total ice reserves as of 1 July 1948 843 tons
" " " " 24 July " recheck 1500 "
" " " " " " Gain 657 "

6. Can capacity total 3,536 (300 lb type 2,472)
(200 lb type 1,064)

7. Cold storage space (cubic feet) :

Type	No of rooms	Capacity
Freezer	4	65,146.72 cu.ft.
Cold Storage	3 4	957,409.23 " "

8. Type of storage : Brine Indirect

9. Brine solution used :

Ice Making (No 1 : 140 tons) CaCl2 Calcium Chloride
(No 2 : 240 ") Mg Cl2 Magnesium "

Cold Storage : Ca Cl 2

Amount used per year: tons CA Cl2 Calcium chloride
260 tons

MgCl2 Magnesium Chloride
100 tons

10. Ice Machine Oil liters used per year : 35,848
" " " requested allocation : 39,020

DECLASSIFIED E.O. 12065 SECTION 3-402/NNDG NO. 78-0-18

13. Ammonia (NH3) Kg's used per year during the period July 1947 to June 1948

Total k'gs use	20,040
Requested allocation	33,020
Allocation received	9,593

14. Total demand or receiving capacity in K.W. for :

Ice Plant Demand 900 Kw Receiving Cap. 950 kw

Cold Storage " 500 Kw " " 550 "

Power allocations with attendant consumption for period January through June 1948

	Jan.	Feb.	Mar.	April	May	June
Allocation :	728,840	624,450	712,900	689,000	746,000	709,332
Consumed	502,030	363,080	477,840	650,460	739,610	709,020
Shortage	None	None	None	None	None	None

July allocation was 829,000 KWH

15. Materials allocations Jan - July 1948

Month	NH3(Kg's)		Ice Mach Oil (Litres)		Cac/2	
	Requested	Allocated	Requested	Allocated	Requested	Allocated
1.	2500	600	2500	486	150,000	10,000
2.	2500	600	2500	611	15,000	11,000
3.	2500	800	2500	639	10,000	35,000
4.	2000	800	3100	830	15,000	0
5.	2000	800	3300	1000	15,000	19,000
6.	2000	900	3100	798	20,000	25,000
7.	2500	900	2000	2562	15,000	0
Total	16000	5400	19000	6926	105,000	10,000

DECLASSIFIED E.O. 12065 SECTION 3-402/NNDG NO. [illegible]

16. This facility during the first six months of 1948 averaged 61% of its maximum monthly potential of 10,230 tons, and during the months of April and May produced 90% of rated capacity.

Sufficient materials are stockpiled, or in promised procurement to sustain 90% of maximum production through October. However, the quoted percentages are dependent upon continued power availability.

17. The following breakdown of ice production is channeled into the following with 60% of all manufactured ice going to the parent companys fishing interests.

1948 MONTH	FOR FISHING	FOR OCCUPATION HOSPITAL AND GENERAL USE
May	99%	1%
June	98%	2%

See statistical Section of this Report for Further Detail

18. The procurement numbers of ice plant and cold storage facility on demand are as follows:

JPNZ - 5419 - B - Ice Plant
HR3G - 614)
HR3G - 1987)- Cold Storage Rooms
HR3G - 1929)

19. The total potential of this plant has been increased from 140 tons/per 24 hrs to 340 tons/per 24 hrs as of Oct 1947 with an aggreate potential of 6000 tons/per month increase.

20. This facility has not suffered production losses from utility absolescence or replacement procurements, etc., other than routine maintenance variables.

Freezing and Cold Storage -----7 years
No.1(140 ton) Ice Making Plant -1 year
No.2(200 ton) Ice Making Plant -1 year

21. The nominal off peak demand periods of January, February, March, July and August allow this facility to buildup marginal ice reserves and accounts for a balanced demand and supply as revealed on 1 July 1948 survey. However, on a recheck of ice reserve on 23 July 1948 with a total gain of 657 tons over 1 July inventory of 843 tons against a scheduled 7,500 tons, production for July was very disappointing dispite seasonal and enforced restrictions on certain types of fishing. No satisfactory reason was advanced for same.

22. Total and estimated production totals for 1948 with corresponding 1947 schedule and attendant power and materials consumption for said periods are included in statistics section of this report.

DECLASSIFIED E.O. 12065 SECTION 3-402/NNDG NO. 77061

Shimonoseki No. 2 Refrigeratio.
of Taiyo Fishing Co.

Result of Demand & Supply of Ammonia

From July, 1947 to June, 1948.

1. Each month (or each term) applied quantity (Unit KG.):

	July, Aug. & Sept.	Oct., Nov. & Dec.	Jan., Feb. & Mar.	Apr., May & June	Total
Quantity applied for :	6,950	5,500	5,000	6,000	23,450

2. Each month (or each term) allocation total:

	July, Aug. & Sept.	Oct., Nov. & Dec.	Jan., Feb. & Mar.	Apr., May & June	Total
Allocation quantity :	1,600	2,000 *(6,000)	2,000	2,500	21,500

Remark : * ( ) is being requisitioned on special allocation.

3. Each month use quantity :

	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.
Result of use :	1,100	800	1,850	6,500	550	1,500	1,000	1,000	1,000	890

	May	June	Total
Result of use :	850	3,000	20,040

4. Result of each month purchasing besides allocation for shortage :

	July, Aug. & Sept.	Oct., Nov. & Dec.	Jan., Feb. & Mar.	April & May June	Total
Shortage	2,150	550	1,000	Plus 5,160	Plus 1,460

Result of Supply & Demand of Refrigerator Oil

From July 1947 to June, 1948.

1. Each month (or each term) applied quantity : (Unit:Litre)

	July, Aug. & Sept.	Oct., Nov. & Dec.	Jan., Feb. & March	April	May	June	Total
Quantity applied for	8,100	7,920	7,500	3,000	3,000	3,500	33,020
				9,500			

2. Each month (or each term) allocation quantity :

DECLASSIFIED E.O. 12065 SECTION 3-402/NNDG NO. 770812

2. Each month (or each term) allocation quantity : Unit : Litre

	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.
Allocation quantity:	461	925	850	540	461 *1.500	492	492	611	633

	April	May	June	Total
Allocation quantity:	830	1.000	798	9.593

*Special allocation

3. Each month use quantity:

	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.
Quantity of use :	1.699	2.484	4.788	5.231	3.559	3.106	1.796	1.746	1.654

	April	May	June	Total
Quantity of use :	2.545	3.675	3.565	35.848

4. Shortage (use of reproduced oil) :

	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.
Shortage :	1.238	1.559	3.938	4.691	1.598	2.614	1.304	1.135	1.021

	April	May	June	Total
Shortage :	1.715	2.675	2.767	26.255

POTASSIUM CHLORIDE

from July. 1947 to June. 1948.

1. Each month (or each term) applied quantity : Unit:ton

July. Aug. & Sept.	Oct., Nov. & Dec.	Jan., Feb., & Mar.	Apr.,May & June	Total
10. 10. 10	130.10.10	10. 10. 10	10. 30. 10	260

3. Each month (or each term) result of use : not designated productive material

July. Aug. Sept.	Oct., Nov. Dec.	Jan., Feb. Mar.	Apr. May June	Total
0 29. 0	130. 50. 24	10. 1. 35	0. 18.2 5.1	252.8

DECLASSIFIED E.O. 12065 SECTION 3-402/NNDG NO. [illegible]

Amount of Transaction of Frozen & Cold-storage Goods

Transaction from June, 1947 to July, 1948

Total output	6,312.7	ton	
Marine products	2,373.7	"	38%
Fruits & Vegetables	858.9	"	14%
Whales	1,725.1	"	27%
Others	1,355.0	"	21%

DECLASSIFIED E.O. 12065 SECTION 3-402/NNDG NO. [illegible]

Name of Plant : Shimonoseki No. 2 Refrigeration Plant of Taiyo Fishing Co., Ltd.

Location: 19 Yamato-cho, Shimonoseki

Out put from June to November 1947:

Month	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Output (ton)	4.095	3.908	3.239	3.613	4.939	6.118	6.534

The scheduled output of the period from Jan. to Dec.1948 (figures from Jan. to June showing the actual output):

Month	Jan.	Feb.	Mar.	Apr.	May	June	July
Output (ton)	6.048	3.427	5.868	9.022	9.142	7.558	7.500

Month	Aug.	Sept.	Oct.	Nov.	Dec.
Output (ton)	7.500	8.500	9.000	9.000	8.500

To attain the scheduled output above, shortages of materials as listed below during period from July to September this year.

Month	Freezing Machine oil	Machine Oil	Liquid ammonia	Electric power
July	1,600 litres	216 litres	1,[illegible] kg.	35,000 KW
August	1,600 "	216 "	1,600 "	42,000 "
Sept.	1,600 "	216 "	1,700 "	28,000 "
TOTAL	4,800 litres	648 Litres	4,500 Kg.	105,000 KW

DECLASSIFIED E.O. 12065 SECTION 3-402/NNDG NO. [illegible]

1. Name of Plant : Nippon Cold Storage Co., Ltd., Mikoshima, Honmura Plant

2. Location : 365 Shimonoda, Mikoshima, Shimonoseki

3. Capacity :

(1) Type of Plant : Horizontal Double Cylinder Double Acting Center Crank Type---------- 2

Vertical Double Cylinder Double Acting Center Crank Type---------- 2

(a) Ice-making : Ammonia Direct Expansion Type.

(b) Cold storage : - Ditto -

(2) Type of System :

(a)	Ice-making :	208 ton	2	416 ton
(b)	Cold storage:	20 ton	1	20 "
	" "	9.44 "	1	9.44 "
	TOTAL ----------			445.44 ton

(3) Rating of refrigerating machines (tons of refrigeration per 24 hours) with statement of pressure & temperature range):

Type of Plant	Tons of Refrigeration per 24 hours	Number of plant	Total
(a)	208	2	416 ton
(b)	20	1	20 "
	9.44	1	9.44 "
TOTAL	237.44		445.44 ton

Pressure and Temperature Range

Kind	Delivery Pressure	Suction Pressure	Temperature
Ice-making :	13 - 15 Kg/cm2	1 - 1.4 Kg/cm2	-5'c to -10'c
Cold storage:	- Do -	0.7 - 1 Kg/cm2	-3'c to -5'c

4. Ice-making capacity per 24 hours : 220 tons

5. Ice storage space cubic feet or cubic metres : 239.314 cft.

6. How many tons of ice will storage space hold : 3.925 ton

7. How much ice is in the storage now (tons) : 150 tons (as of 7 July).
How much ice is in reeheck now (tons) 23 July : 1800 tons

DECLASSIFIED E.O. 12065 SECTION 3-402/NNDG NO. 7803[illegible]

8. Cold storage space cubic feet or cubic metres :

We have no cold storage space

9. Type of storage carried:

Not applicable

10. Brine solution used : CaCl2

11. Average quantity used per year (tons) CaCl2 : 229 ton

12. Ice machine oil. Liters used per year : 2,308 liter.

13. Ammonia (NH3) Kilograms used per year : 12,400 Kg.

14. Total demand or receiving capacity in K.W. of ice-making plant :

Total demand	Receiving Capacity
3,800,000 KWH	4,000,000 KWH

R.C.V. HAP 600 K.W.

15. Total demand or receiving capacity in K.W. of cold storage plant :

Not applicable.

16. Is your present output of ice more than demand for ice:

It has been properly balanced.

17. Are surpluses going into reserve ?

Yes, they are going into reserves.

18. Is ice storage space adequate ?

Yes, it is adequate

19. Is plant operating 24 hours per day (if not why?) :

Yes, it is operating 24 hours per day.

20. Are you forced to supplement official allocations of ammonia, ice machine oil, etc. from other sources? Can it be obtained that way :

We are forced to purchase them at the blackmarket. But, it recently became very hard to get even in the blackmarket.

21. How do you sell ice ? Whole-sale.- Retail.- Both :

Both the wholesale and the retail.

22. Population of town or city in which ice plant is located :

180,000

23. List all other problems regarding manufacturing or obtaining materials, not mentioned before :

DECLASSIFIED E.O. 12065 SECTION 3-402/NNDG NO. 77801

12. The following materials were requested and allocated during period January - July 1948 as per table:

Month	NH3 (Kg's) Requested	NH3 (Kg's) Allocated	Ice Machine Oil(Litres) Requested	Ice Machine Oil(Litres) Allocated	CaCl2 (Kg's) Requested	CaCl2 (Kg's) Allocated
1	750	300	240	252	0	0
2	750	300	240	243	0	0
3	1000	400	240	251	0	0
4	2000	1100	680	460	40,000	35,000
5	2000	1100	680	177	10,000	6,000
6	2000	1100	680	434	20,000	10,000
7	1500	500	400	855	0	0
TOTAL	10,000	4800	3160	2672	70,000	51,000

DECLASSIFIED E.O. 12065 SECTION 3-402/NNDG NO. 79013

Quantity of materials required or applied for and amount received are as follows :-

Material	Period	Quantity Applied or For	Quantity Received
Ammonia (from July, 1947 to June, 1948		27.000 Kg.	655 Kg.
Ice machine oil	- Do-	9.520 liter	2736 liter
CaCl2	- Do-	229 ton	229 ton
Iron & steel	- Do-	43.9 ton	1.5 ton
Cement	- Do-	3.500 Kg.	150 Kg.
Carbite	- Do-	6.500 Kg.	225 Kg.

Other necessary materials, not shown above, are not allocated at all, therefore, this hampering our production desire. Working-dress 160 suit and rubber soled tabi (sock) are required, besides, additional allocation of main food and other materials required for the labor are desired.

24. List all shortages of power & materials are now existing or liable to develop in near future, and what you are about it :

(a) Power :

We are being allocated quarterly a fixed amount of power by applying to Commerce and Industry Dept. by way of Agriculture & Forestry Dept. We are now being allocated by category b. 1 for which we are applying to the authorities concerned to be altered to a. I.

(b) Materials:

(a) Ammonia
(b) Ice machine oil
(c) Iron & steel
(d) Carbide

For the above-mentioned materials, we apply to Transportation Bureau of Agricultural & Forestry Dept. for allocation, besides, we apply for special allocation in case we are short of them. To get materials after given the quarterly allocation is very hard for us at present. We are trying very hard to get these materials by telling them our situation.

(c) CaCl2(Calcium Chloride)

We can get this by free sale from producer. But, as it usually takes a long time for price negotiation, therefore, we are forced to buy it at a higher price.

DECLASSIFIED E.O. 12065 SECTION 3-402/NNDG NO. 78013

5. Are you aware of channels of appeal when shortages, delay in receipt, or refusals, prevent or retard your production effort :

Yes, we know it.

26. How old is your plant equipment ?

27 year and 9 month.

27. Do you lose much time from mechanical break down ?

We are losing much time because it takes a long time to repair the plant due to the shortage of repairing materials.

28. Are present power allocations enough to permit maximum ice production. List by month from Jan. to June with attendant shortages per month.

Not enough, and the shortage of power since Jan. this year are as follows:-

Month	Shortage of power
Jan.	56,800 KWH
Feb.	32,550 "
Mar.	79,800 "
Apr.	37,000 "
May	43,000 "
June	60,400 "

29. Has any disparity existed in distribution of critical materials such as ammonia, ice machine oil etc. Did each plant get its share on schedule :

No disparity has existed, but we have been allocated much less than totals applied for.

30. Do you have sufficient materials on hand, or promised to permit full scale ice production June through October. If power is available.

Not sufficient materials on hand. We can not promise to permit full scale ice production unless we are given the materials for which we have applied.

31. What percent of ice production goes for fish, hospitals, occupation forces use :

Total May Production	For fishery use	Re-ice	General
5,328 ton	3,005 ton 57%	2,230 ton 42%	93 ton 1%

32. Does ice, or cold storage plant have procurement demand number - if so give number :

Not applicable.

DECLASSIFIED E.O. 12065 SECTION 3-402/NNDG NO. 78-018

33. Who is the largest single consumer of ice produced in your plant (give name of company) :

Nichiro Fishing Co., Ltd. ------ 13%

34. Has any expansion or additions to plant been made in the last year, or now being built or planned - if so, give full details:

We did not make any expansion or addition to our plant except some repair works during last year.

DECLASSIFIED E.O. 12065 SECTION 3-402/NNDG NO. 77801

Name of Plant : Nippon Cold Storage Co., Ltd. Honmura Plant.

Location : 365 Shimonoda, Hikoshima, Shimonoseki

Output from June to November in 1947:

Month	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Output(ton)	5.064	4.662	3.906	4.282	5.086	4.713	3.860

The scheduled output of the period from Jan. to Dec. 1948 (figures from Jan. to June showing the actual output):

Month	Jan.	Feb.	Mar.	Apr.	May	June	July
Output(ton)	4.167	3.771	-----	626	5.582	5.340	6.820

Month	Aug.	Sept.	Oct.	Nov.	Dec.
Output(ton)	6.820	6.600	6.820	6.600	6.820

To attain the scheduled output above, shortages of materials as listed below during period from July to September this year exist.

Month	Freezing machine oil	Machine oil	Liquid ammonia	Electric power
July	100 litre	150 litre	-----	28,000 kw
Aug.	100 "	150 "	1,000 kg.	25,000 "
Sept.	100 "	150 "	1,000	19,100 "
TOTAL	300 litre	450 litre	2,000 Kg	72,600 KW

DECLASSIFIED E.O. 12065 SECTION 3-402/NNDG NO. 77801

1. Name of Planti Nippon Reizo Kabushiki Kaishe Shimonoseki Kojyo.

2. Location : 57 Imaura-cho, Shimonoseki City

3. Capacity :

(1) Type of Plant : Horizontal Single Cylinder Double Acting Closed Type - 2

- Ditto - 1

Vertical Double Cylinder Single Acting Closed Type - 1

(2) Type of System : (a) Ice making: Ammonia Direct Expansion Type.

(b) Cold Storage : - Ditto -

(3) Rating of refrigeration machines (tons of refrigeration per 24 hrs.) With statement of pressure and temperature range.

Ice-making : Freezing tons 118.2 x 2 : 236.4 tons

Cold storage : Cold storage 37.7 x 1 : 37.7 "
89.3 X 1 : 89.3 "

Pressure & Temperature Range

Type of Plant	Delivery Pressure	Suction pressure	Temperature
Ice-making	13 - 15 Kg/cm2	1-1.4 Kg/cm2	-5'c to - 10'c
Cold storage	"	0.5-0.8Kg/cm2	-10'c to -15'c
Freezing	"	0.2-0.5 Kg/cm2	-25'c to -30'c

4. Ice making capacity per 24 hours : 115 tons

5. Ice storage space cubic feet : 136,241 cft.

6. How many tons of ice will storage space hold : 2,012 tons.

7. How much ice is in storage now (tons) : 37 tons as at July 1, 1948.

8. Cold storage spaces cubic feet or cubic meters. Freezing spaces cubic feet or cubic meters:

Cold storage : 63,730 cft.

Freezing space : 8,982 cft.

9. Type of storage carried: Ammonia Direct Expansion Type.

10. Brine solution used : CaCl2

11. Average quantity used per year (tons) : Cacl2 : 37 tons (July '47 to June '48)

DECLASSIFIED E.O. 12065 SECTION 3-402/NNDG NO. [illegible]

12. Ice machine oil litre used per year : 2,374 litres.

13. Ammonia (NH3) kilograms used per year : 7,130 Kg.

14. Total demand or receiving capacity in K.W. of ice making plant :

Total demand ---------- 1,949,500 KWH
Receiving Capacity ---- 2,300,000 "

15. Total demand or receiving capacity in K.W. of cold storage plant:

Total demand ---------- 128,800 KWH .
Receiving capacity ---- 200,000 "

16. Is your present output of ice more than demand for ice?

It is being balanced.

17. Are surpluses going in to reserve?

Yes, it is reserved.

18. Is ice storage space adequate?

Yes, it is adequate.

19. Is plant operating 24 hours per day (if not why?) :

Operating 24 hours per day.

20. Are you forced to supplement official allocations of ammonia, ice machine oil etc., from other sources? Can it be obtained that way?

1. Yes, we are forced to.

2. There is no other way than to buy from blackmarket.

21. How do you sell ice?

Wholesale & retail.

22. Population of town or city in which ice plant is located:

Shimonoseki : 180,000.

23. List all other problems regarding manufacturing or obtaining materials, not mentioned before :

It is as follows :-

Products	Term.	Quantity
Manufactured ice	July '47 to June '48	21,741 tons
Cold storage kept (total tons)	"	77,034 " - Fish
Stored ice (total tons)	"	110,884 "

DECLASSIFIED E.O. 12065 SECTION 3-402/NNDG NO. [illegible]

Material	Period	Applied For	Allocation Received
Ammonia	July '47 to June '48	16,000 Kg	4,550 Kg
Ice machine oil	"	7,700 Ltr.	2,080 Ltr.
CaCl2	"	37 Ton	37 Ton
Iron Steel	"	7.6"	4.3 "
Cement	"	4,000 Kg.	700 Kg.
Carbide	"	5,000 Kg.	225 Kg.

Because there is no allocation for personal equipment production is being hampered as a result.

Overall 80
Rubber-soled sock -- 80 pairs
The increased allocation of the staple food etc.

For those things necessary for labour's we are trying to get allocations approved.

24. List of all shortage of power and materials now existing or liable to develop in near future, and what you are about it:

(1) Power:

By applying to the Commerce and Industry Bureau through the Ministry of Agriculture & Forestry every quarter of a year, we are getting a certain limit.

The category of demand is (b) of A at present but we are applying for the alteration of it into (a) of A.
We are petitioning on every application for increased regulated quantity.

(2) Material: Ammonia, ice machine oil, iron steel, carbide.

1. Besides that we applied for increased allocation to the Ministry of Agriculture and Forestry and Ministry of Transportation. We asked for special allocations to make up for materials short on original request.

(3) Lime Chloride : CaC/2

This is obtained on free sale and therefore we buy from every plant of production but we are compelled to buy this at a high price because our receiving is delayed due to the relation of prices.

25. Are you aware of channels of appeal when shortages, delay in receipt, or refusals, prevent or retard your production effort?

1. We apply for the materials by reporting the real circumstances to the allocation governmental authorities.

2. We apply to the Yamaguchi Military Government Team through the Fishery Section of the Yamaguchi Prefectural Government.

DECLASSIFIED E.O. 12065 SECTION 3-402/NNDG NO. [illegible]

26. How old is your plant equipment?

Seventeen years and four months (established in February, 1931):

27. Do you lose much time from mechanical breakdown?

We lose much time from it. (For delay of repair of the breakdown, it is so, too.)

28. Are present power allocations enough to permit maximum ice production? List by month from January to June with attendant shortage per month:

We have no enought power. Shortage per month as follows:-

January	105,702 KW.
February	23,350 "
March	8,200 "
April	53,800 "
May	113,900 "
June	89,600 "

29. Has any disparity existed in distribution of critical materials such as ammonia, ice machine oil, etc.?

1. There is no disparity in allocation.
2. The allocation is less than the application.

30. Do you have sufficient materials on hand, or promised to permit full scale ice production June through October, if power is available?

1. There is not enough material on hand.
2. It is expected to be possible to make ice up to May output if power is available by getting the allocation for which applied.

31. What percent of ice production goes for fish, hospital, occupation forces use?

Output	Total June ice production for fishery use	For general use
1,968 ton	1,627 ton or 83%	341 ton or 17%

32. Does ice, cold storage plant procurement demand unber - if so, give No.:

None.

33. Who is the largest single consumer of ice production in your plant:

Nichiro Fishing Co., Ltd ----------13%

34. Has any expansion of additions to plant been made in the last year, or now being built or planned - if so, give full details:

No

DECLASSIFIED E.O. 12065 SECTION 3-402/NNDG NO. [illegible]

Name of Plant: Nippon Cold Storage Co., Ltd., Shimonoseki Plant.

Location : 57 Imaura-cho, Shimonoseki.

Output from June to November in 1947:

Month	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Output (ton):	2.935	1,892	1,514	1,265	1,571	2,368	2,716

The scheduled output of the period from Jan. to Dec. 1948 (figures from Jan. to June showing the actual output) :

Month	Jan.	Feb.	Mar.	Apr.	May	June	July
Output (ton):	2,850	307	358	2,183	2,725	1,987	3,100

Month	Aug.	Sept.	Oct.	Nov.	Dec.
Output (ton):	3,100	3,000	3,100	3,000	3,100

To attain the scheduled output above, shortages of materials as listed below in the period from July to September this year. exist.

Month	Freezing machine oil	Machine Oil	Liquid ammonia	Electric power
July	160 litre	100 litre	200 Kg.	14,000 KW.
Aug.	160 "	100 "	500 "	11,500 "
Sept.	160 "	100 "	1,000 "	10,900 "
TOTAL	480 Litre	300 Litre	1,700 Kg.	36,400 KW.

DECLASSIFIED E.O. 12065 SECTION 3-402/NNDG NO. 78-3-18

TABLE OF REQUESTED AND ALLOCATED MATERIALS
NIPPON COLD STORAGE CO. - SHIMONOSEKI PLANT
(Jan-July 1948)

MONTH	NH3 Kgs REQUESTED	NH3 Kgs ALLOCATED	Ice Mach Oil (Ltrs) REQUESTED	Ice Mach Oil (Ltrs) ALLOCATED	CaCl2 Kgs REQUESTED	CaCl2 Kgs ALLOCATED
Jan	1000	200	270	166	0	0
Feb	1500	200	270	195	0	0
Mar	1500	300	270	203	15,000	12,000
April	2500	700	600	113	0	0
May	2500	700	600	186	0	0
June	3000	900	600	370	10,500	0
July	1000	300	400	775	0	0
TOTAL	13,000	33,00	3010	2008	25,500	12,000

DECLASSIFIED E.O. 12065 SECTION 3-402/NNDG NO. 77-0[illegible]

1. Name of Plant : Kwanno... Ice Making & Freezing Co., Ltd.

2. Location : I Hikoshima, Shimonoseki.

3. Capacity :

(1) Type of Plant : Vertical Couble Cylinder Single Acting Closed Type Ammonia Compressor ---------- 3

(2) Type of System: Ice-making : Brine Cooler System.
Ammonia Coil System.

Freezer : Direct Expansion Type.

(3) Rating of refrigerating machines (tons of refrigeration per 24 hours) with statement of pressure & temperature range :

Description of Plant	Tons of Refrigeration per 24 hours	Pressure		Temperature
		Delivery	Suction	
10"x10"x30 NH3 Compressor I	64 ton	12½ Kg/Cm2	1.8 Kg/Cm2	-5'c to -15'c
7.5"x7.5"x360 " I	29.8 "	"	"	"
" " I	29.8 "	"	"	"
Total	123.6 ton			

4. Ice-making capacity per 24 hours : 50 ton

5. Ice storage space : 108 cubic feet

6. How many tons of ice will storage space hold : 270 ton

7. How many tons of ice is in storage now : 40 ton as at 1st July, 250 ton as of 23 July

8. Cold storage space : 118 cubic feet

9. Type of storage carried : Fish ---------- 95%
Fruit & Vegetables 5%

10. Brine solution used : CaCl2

11. Average quantity used per year : CACl2 ------ 48 tons

12. Ice machine oil. Liters used per year : 3,240 liters.

13. Ammonia (NH3) kilograms used per year : 2,400 Kg.

14. Total demand or receiving capacity in KW of ice-making plant :

Total demand : 120,000 KWH.
Receiving capacity : 130,000 "

180 KW

15. Total demand or receiving capacity in K.W. of cold storage plant :

Total demand : 20,000 KWH
Receiving capacity: 25,000 " -1-

20

200 KW

DECLASSIFIED E.O. 12065 SECTION 3-402/NNDG NO. [illegible]

16. Is your present output of ice more than demand for ice:

Demand is more than our output.

17. Are surpluses going into reserve ?

Surpluses produced over demand are being store in reserve

18. Is ice storage space adequate ?

No, it is necessary for us to have 1000 tons' capacity.

19. Is plant operating 24 hours per day (if not why) :

Yes.

20. Are you forced to supplement official allocations of ammonia, ice machine oil, etc., from other sources? Can it be obtained that way ?

We are being allocated 70% of ammonia and 30% of ice machine oil required. Therefore, we are forced to get them at the black-marketeers, but it recently became almost impossible to find them out.

21. How do you sell ice ?

Sell it wholesale only

22. Population of town or city in which ice plant is located :

Population of Shimonoseki : 180,000

23. List all other problems regarding manufacturing or obtaining materials, not mentioned before :

We are desirous of having the under-mentioned materials necessary for expanding our ice storage capacity as shown on item No. 8 of this report. Expansion is being planned for using the existing cold storage space by connecting it with the former.

Name of material	Quantity
Ammonia pipe	5 ton
Cement	7 "
Angle	2 "
Cork board	1,000 sheet
Plank	50 Rbm

24. List all shortage of power & materials now existing or liable to develop in near future, and what you are about it :

As for powers, we are trying to do our best to rationalize its consumption, besides, we are applying to the government for the increased distribution. And, as to the materials, we are economizing the use of them as best as we can, besides, we are applying to the authorities concerned for the increase of its allocation.

DECLASSIFIED E.O. 12065 SECTION 3-402/NNDG NO. [illegible]

25. Are you aware of channels of appeal when shortages, delay in receipt, or refusals, prevent or retard your production effort :

24. We are not aware of it.

26. How old is your plant equipment :

12 years

27. Do you loose muchttime from mechanical break down ?

We do not loose much time, because we usually have minor mechanical break down only once or twice a month.

28. Are present power allocation enough to permit maximum ice production. List by month from Jan. to June with attendant shortage per month. :

As our plant has been under repair-work during June this year, we have not been short of power.

29. Has any disparity existed in distribution of critical material such as ammonia, ice machine oil, etc. Did each plant get its share on schedule :

Quantity of ice machine oil and ammonia allocated has been less than the total requested. Besides, it takes along time for us to procure these materials after we are given the coupons.

30. Do you have sufficient materials on hand, or promissed to permit full scale ice production June through October. If power is available.

We are short of materials as stated below:-

Name of Materials	Quantity
a. Freezing machine oil	120 liter per month
b. CaCl2	10 ton
c. Ice-can	100 piece

If above-stated quantity of shortages are fully supplied, and also power is available, we shall be able to promise under-mentioned ice production.

June - Sept. 90% of capacity

Oct. - Dec. 100% " "

31. What persent of ice production goes for fish, hospitals, and occupation forces use :

Comparison of percentage of total ice production in may '48.

99.7% or 580 tons for fishery use
0.3% or 3 tons for general use (including hospital use)
Total 100% or 583 tons

DECLASSIFIED E.O. 12065 SECTION 3-402/NNDG NO. [illegible]

32. Does ice, or cold storage plant have procurement demand number - if so give number :

None.

33. Who is the largest single consumer of ice produced in your plant (give name of consumer):

Junyo Marine Products Co., Ltd.----------30%

34. Has any expansion or additions to plant have been made in the last year, or now being or planned - if so, give full detail :

Our plant suffered damages by tempest and flood occured Sept. 1940. Since then the plant has been under repair work, and it recently has resumed the former condition. However, some expansion or reformation are required for the ice storage space, and equipment for crushing and loading ice, etc.

May reached 50 ton capacity
May reached 7.33

DECLASSIFIED E.O. 12065 SECTION 3-402/NNDG NO. [illegible]

Name of Plant : Kwanmon Ice Making & Cold Storage Co., Ltd

Location : 1 Hikoshima-machi, Shimonoseki

Output from June to November in 1947:

Month	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Output (ton)	124	147	128	114	441	582	363

The scheduled output of the period from Jan. to Dec. 1948 (figures from Jan. to June showing the actual output):

Month	Jan.	Feb.	Mar.	Apr.	May	June	July
Output (ton)	305	268	243	200	521	665	1.350

Month	Aug.	Sept.	Oct.	Nov.	Dec.
Output (ton)	1.350	1.350	1.500	1.500	1.500

To attain the scheduled output above shortages of things stated below during period from July to September this year exist.

Month	Freezing machine Oil	Machine Oil	Liquid ammonia	Electric power
July	270 litre	60 litre	200 Kg.	8,000 KW.
Aug.	270 "	60 "	200 "	12,000 "
Sept.	270 "	60 "	200 "	7,000 "
TOTAL	810 Litre	180 Litre	600 Kg.	27,000 KW.

DECLASSIFIED E.O. 12065 SECTION 3-402/NNDG NO. 770012

REQUESTED AND ALLOCATED MATERIALS
KANNON I. M. PLANT JAN-JULY '48

Month	NH_3 (Kg's) Requested	NH_3 (Kg's) Allocated	Ice Machine Oil (Litres) Requested	Ice Machine Oil (Litres) Allocated	$CaCl_2$ (Kg's) Requested	$CaCl_2$ (Kg's) Allocated
Jan	500	60	396-	36	3000	0
Feb	500	60	414	31	3000	0
Mar	500	80	432	31	4000	0
April	650	100	42	74	6600	10000
May	650	100	42	90	6600	0
June	700	100	42	54	6800	0
July	700	100	360	173	3330	0
TOTAL	4,200	600	1,728	489	33,330	10,000

DECLASSIFIED E.O. 12065 SECTION 3-402/NNDG NO. 77-0-18

1. Name of Plant : Kawai Ice Manufacturing Co. Shimonoseki Factory.

2. Location : 2333 Kamishinchi-machi, Shimonoseki City

3. Capacity :

(a) Type of Plant : Vertical Single Acting Double Cylinder
Closed Type ---------- 4

Horizontal Double Acting Single Cylinder
Closed Type ---------- 1

(b) Type of System : Ice-making & Brine Cooler.

Cold storage - Ammonia Direct Expansion Type.

(c) Rating of refrigerating machines (tons of refrigeration per 24 hours) with statement of temperature & pressure range:

Type of plant	Tons of refrigeration per 24 hours	Number of plant	Remarks
8" x 16" X 1	20 ton	I	Being tied up owing to disorder.
7½" x 7½" x 2	20 "	I	"
6½" x 6½" x 2	12 "	I	
6" x 6" x 2	12 "	I	
5" x 5" x 2	10"	1	
Total	74 ton	5	
	- 40 ton	2	Being tied up owing to disorder.
	34 ton	3	Actual operation.

Pressure & Temperature Range

Kind	Delivery pressure	Suction pressure	Temperature
Ice-making	150-200 lbs /inch 2	10-25 lbs/inch2	15'F - 18'F
Cold storage	150-180 "/ "	5-10 " / "	25'F - 30'F

4. Ice-making capacity per 24 hours.

10 tons (at work)
7 " (now stop)
17 tons (total)

DECLASSIFIED E.O. 12065 SECTION 3-402/NNDG NO. [illegible]

5. Ice storage space cubic feet : 47,800 cfit.

6. How many tons of ice will storage space hold:

600 tons (use)
400 " (not use at present)
1000 tons

7. How much ice is in storage now (tons) : 7 tons

8. Cold storage space cubic feet or cubic metres : No space.

9. Type of storage carried : We have no cold storage space.

10. Brine solution used: CaCl2

11. Brine solution average quantity used per year (tons) : 5 tons (in solid)

12. Ice machine oil litres used per year : 1,080 litres

13. Ammonia (NH3) kilograms used per year : 1,800 Kg.

14. Total demand or receiving capacity in K.W. of ice-making plant:

Demand----------50 K.W. Used
Receiving capacity----------80 K.W. Total

15. Total demand or receiving capacity in K.W. of cold storage plant:

Demand---------- 10 K.W.H.
Receiving capacity------- 10 K.W.H.

16. Is your present output of ice more than demand for ice?

No, present output is 60% of demand.

17. Are surpluses going in to reserve?

There are no surpluses.

18. Is ice storage space adequate?

60% of ice storage is adequate.

19. Is plant operating 24 hours per day?

No, because supply of power is not sufficient.

20. Are you forced to supplement official allocations of ammonia, ice machine oil, etc. from other sources? Can it be obtained that way?

Can't get these materials except through official allocations and it is not sufficient to support full-scale production.

21. How do you sell ice?

Wholesale----------80% - 1220 yen per ton
Retail----------20% - 11 yen ken.

DECLASSIFIED E.O. 12065 SECTION 3-402/NNDG NO. [illegible]

22. Population of town or city in which ice plant is located :

Shimonoseki City - 176,666 (as of Oct 1947)

23. List of all other problems regarding manufacturing or obtaining materials not mentioned before :

Steel pipe ---------- 5 tons
We need these metal materials. Owing to shortage of water (for cool), machine cannot give full ability.

25. Are you aware of channels of appeal when shortages, delay in receipt, or refusals, prevent or retard your production effort?

We don't know.

26. How old is your plant equipment : 27 years old (established 1920).

27. Do you lose much time from mechanical breakdown?

Difficulty in procurement of replacement parts and shortage of power, it takes from 30 to 60 days to repair.

28. Are present power allocations enough to permit maximum ice production?

Not enough.

LIST BY MONTH FROM JAN TO JUNE WITH ATTENDANT SHORTAGE PER MONTH

The damage of machines followed from Jan. and precision not clear.

29. Has any disparity existed in distribution of critical materials such as ammonia, ice machine oil, etc.?

No disparity has existed.

Did each plant get its share on schedule :

No and this is the cause of decreased production with attendant shortages of power.

30. Do you have sufficient materials on hand, or promised to permit full scale ice production June through October, if power is available?

No, materials on hand will not permit full scale production.

31. What percent of ice production goes for fish, hospital, occupation forces use?

May : 45% for fishing boat
16% for vessels other than fishing boat.
39% for general use

June : 4% for fishing boat
31% for vessels other than fishing boat.
65% for general use.

32. Does ice, or cold storage plant procurement demand number, if so give number:

None.

DECLASSIFIED E.O. 12065 SECTION 3-402/NNDG NO. [illegible]

33. Who is the largest single consumer of ice production in your plant (give name of Co.) ?

Kanmon Shipping Co.

34. Has any expansion or additions to plant been made in the last year, or now being built or planned - if so, give full details

As one of the ammonia-compressors was old, we replaced it with new one at the beginning of this year (1948), but the machine has been broken down owing to the shortage of ice machine oil and is being repaired.

The existing electric line was not a special one. Therefore, power has stopped sometimes with the general line shutdowns.

We are applying to the authorities concerned for installations of special line for our plant.

DECLASSIFIED E.O. 12065 SECTION 3-402/NNDG NO. [illegible]

Name of Plant: Kawai Ice Manufacturing Co., Shimonoseki Factory

Location: 2333 Kamishinchi-machi Shimonoseki

Output of Ice
(From June 1947 to Nov 1947)

Month	June	July	Aug.	Sept.	Oct.	Nov.	Dec
Output (ton)	200	160	162	174	226	122	12

Estimated Production
From Jan 1948 to Dec 1948

Month	Jan	Feb	Mar	Apr	May	June
Output (ton)	99	111	242	340	171	36

Month	July	Aug	Sept	Oct	Nov	Dec
Output (ton)	280	300	300	300	200	100

Estimated Shortage of Materials to Carry Out Production
Schedule - July-Sept 1948

Month	Ice Machine Oil	Machine Oil	Ammonia	Power
July	60 litre	36 litre	100 kg	5,000 kw
Aug	60 "	36 "	100 "	5,000 "
Sept	60 "	36 "	100 "	5,000 "
TOTAL	180 litre	108 litre	300 kg	15,000 kw

DECLASSIFIED E.O. 12065 SECTION 3-402/NNDG NO. [illegible]

Report concerning Restoration Works for our 7-ton Ice Making Plant

Name of Plant : Kawai Ice Mamufacturing Co., Shimonoseki Plant.
Location : 2333-3 Kemishinchi-machi, Shimonoseki City.

1. Necessary Materials :

Name of Materials	Quantity	Amount (Yen)
Steel pipe 1¼"	2,000 feet (2,500 Kg.)	¥75,000.
Ice can (300 lbs)	130 cans	390,000.
Calcium Chloride	5 tons	100,000.
Ammonia	500 Kg.	35,000.
Electric motor 25 H.P.	I	50,000.
General expenses required for construction		200,000.
	TOTAL--------	¥850,000.

2. The reason why operation has been stopped :

Formerly, there were many pools near about our factory, and we could get much water to cool ammonia, but later, owing to the change of the condition of the ground, it has become very hard for us to get enough water to cool. With a view to make use of the underground water, we sank some wells, but we couldn't get sufficient water as we expected because of the ground proved to be the alluvial formation.

Therefore, we gave up the idea of operation of it, and few years later, the equipment of the plant were decayed. Since then, owing to the shortage of repairing materials to be used in this plant, we applied the materials of our No. 2 plant in Fukuoka to it. Even at this time, operation was 3 months during the summer season only.

And, as our plant was located so far from the fishing port, we had to pay extra transportation expense for that, thus resulting in a blow to our finance.

3. The wish about removement of factory :

For the reason mentioned above, we can't operate the machines at present, we wish to remove the plant anywhere near fishing port so as to be able to execute our duty and also to carry on the complete undertaking. Now, we are seeking suitable place to remove.

DECLASSIFIED E.O. 12065 SECTION 3-402/NNDG NO. [illegible]

MATERIALS, ALLOCATIONS & REQUESTS
KAWAI I.M. PLANT - JAN-JULY 1948

MONTH	NH3 Kgs REQUESTED	NH3 Kgs ALLOCATED	Ice Mach Oil (Ltrs) REQUESTED	Ice Mach Oil (Ltrs) ALLOCATED	CaCl2 Kgs REQUESTED	CaCl2 Kgs ALLOCATED
Jan	250	200	54	10		
Feb	250	200	54	23	4900	4900
Mar	250	300	54	19		
April	250	90	66	39		
May	300	90	66	50		
June	300	95	66	54	3000	2450
July	150	95	90	135		
TOTAL	1750	1070	450	330	7900	7350

DECLASSIFIED E.O. 12065 SECTION 3-402/NNDG NO.

YAMAGUCHI PREFECTURE
Materials and Power Consumption Tables

Month	NH3 (Kg's)	1947 Ice Machine Oil(Litres)	CaCl2 (Kg's)
Jan.	3.560	1.150	19.790
Feb.	2,480	920	15.800
Mar.	3,010	970	16.730
Apr.	10,000	1,921	2,000
May	10,000	2,342	62,000
June	12,550	3,980	50,000
July	4.000	4.105	50,000
Aug.	3,500	6,180	83,800
Sept.	3,500	6,037	40,880
Oct.	3,300	1,360	0
Nov.	3,300	1,275	0
Dec.	3,300	1,440	7,000
TOTAL	62,860	31,680	348,000

Power Used 1947 (KWH)

Jan.	628,200	May	1,596,000	Sept.	1,650,000
Feb.	501,600	June	1,560,000	Oct.	2,064,000
Mar.	531,000	July	1,644,000	Nov.	1,998,000
Apr.	1,542,000	Aug.	1,668,000	Dec.	2,064,000

TOTAL 17,446,800

Month	NH3 (Kg's)	1948 Ice Machine Oil (Litres)	CaCl2 (Kg's)	
Jan.	2,645	1,520	22,000	Actual
Feb.	2,920	1,580	26,600	
Mar.	3,840	1,590	47,000	
Apr.	5,040	2,692	59,300	
May	5,435	2,560	86,600	
June	6,300			
July	3,845	5,460	56,800	
Aug.	8,100	5,470	58,400	
Sept.	8,500	4,960	56,400	Estimated
Oct.	7,200	4,710	54,400	
Nov.	6,900	4,420	52,400	
Dec.	6,200	3,640	48,400	
TOTAL	66,925	40,932	635,300	

Power Used 1948 (KWH)

Jan.	974,100	July	2,091,700	)
Feb.	1,156,000	Aug.	2,095,800	)
Mar.	1,227,600	Sept.	2,072,600	)-Estimated
Apr.	1,766,300	Oct.	2,048,800	)
May	2,170,000	Nov.	2,048,800	)
June	2,118,200	Dec.	1,988,500	)

TOTAL 21,758,400

DECLASSIFIED E.O. 12065 SECTION 3-402/NNDS No. 1

ICE PRODUCTION TOTALS FOR YAMAGUCHI PREFECTURE

MONTH	1947 PRODUCTION (TONS)	MONTH	1948 PRODUCTION (TONS)	
January	9,390	January	11,460)	
February	7,170	February	13,600)	
March	12,150	March	15,090)	--Actual
April	16,550	April	20,780)	
May	18,940	May	25,530)	
June	19,280	June	24,920)	
			Total	111,320
July	16,160	July	29,000)	
August	16,570	August	28,800)	
September	17,350	September	27,600)	
				--Estimated
October	20,220	October	27,600)	
November	20,000	November	27,300)	
December	15,900	December	26,100)	
			Total	166,400
TOTAL	189,620	TOTAL	277,720	

DECLASSIFIED E.O. 12065 SECTION 3-402/NNDG NO.

COMPARATIVE TABLE FOR ESTIMATED, REQUESTED AND ALLOCATED MATERIALS APRIL-JUNE 1948 FOR YAMAGUCHI PREFECTURE

Month	Scheduled Production	Actually Produced	Estimated NH3(Kg's)	NH3(Kg's) Requested	Allocated NH3 for Use (Kg's)	Estimated Ice Machine Oil (Litres)
April	24,850	20,780	6,640	132.15	5.040	4.560
May	27,300	25,530	6,645	132.65	5.435	4.510
June	27,540	27,540	7,010	143.70	6,300	4,850
TOTAL	79,690	71,230	20,295	41,850	16,775	13,920

Month	Ice Machine Oil Requested (Litres)	Ice Machine Oil Received (Litres)	Estimated CaCl2 (Kg's)	Requested CaCl2 (Kg's)	Received CaCl2 (Kg's)
April	8192	2400	59,300	92,820	76,000
May	8416	2692	53,400	65,470	50,300
June	7998	2560	53,900	91,710	86,600
TOTAL	24,606	7,652	166,600	250,000	212,900

DECLASSIFIED E.O. 12065 SECTION 3-402/NNDG NO.

STATISTICS OF DEMAND & SUPPLY OF ICE
(From July 1, 1947 to June 30, 1948)

Name of Plant : Shimonoseki No. I Refrigerating Plant of Taiyo Fishing Co., Ltd.
Location : I-4198 Oimachi, Hikoshima, Shimonoseki.

Month	Output	For Fishery Use	DESCRIPTION: Re-ice	General Use	Total	Stocks on hand	
July '47	4,370 ton	3,597 ton	239.5ton	0	3,836.5 ton	1,167 ton	(633.5 tons being carried forward from June)
Aug.	2,605 "	2,232 "	255 "	276 ton	2,763 "	1,009 "	
Sept.	2,559.5"	2,737 "	602 "	116.2 "	3,455.2 "	113.3"	
Oct.	3,917 "	4,013.3"	13 "	0	4,026.3	4 "	
Nov.	3,954.5"	3,458 "	105 "	188 "	3,751 "	207.5"	
Dec.	3,632.5"	2,889 "	87 "	99 "	3,075 "	765 "	
TOTAL	21,038.5"	18,926.3"	1,301.5"	679.2 "	20,907 "	131.5"	
Jan. '48	3,315.5ton	2,803 ton	0	27 ton	2,830 ton	1,250.5 ton	
Feb.	3,004 "	2,008 "	100.5ton	29 "	2,137.5 "	2,117 "	
Mar.	3,388 "	3,513.5"	82.5 "	47 "	3,643 "	1,862 "	
Apr.	2,502 "	3,166.5"	156.5 "	122 "	3,445 "	919 "	
May	3,502 "	3,859 "	6.5 "	56 "	3,921.5 "	499.5 "	
June	3,094.5"	3,410.5"	0.5 "	51.3"	3,462.3	131.7"	30th June
TOTAL	18,806 "	18,760.5"	346.5 "	332.3"	19,439.3 "		
Grand Total	39,844.5"	37,686.8"	1,648 "	1,011.5"	40,346.3 "		

DECLASSIFIED E.O. 12065 SECTION 3-402/NNDG NO.

STATISTICS OF DEMAND & SUPPLY OF ICE
(From July 1, 1947 to June 30, 1948)

Name of Plant : No. 2 Refrigeration Plant of Taiyo -Fishing Co., Ltd.
Location : 19 Yamato-cho, Shimonoseki City

Month	Output	For fishery use	Re-ice	General Use	Total	Stocks on hand
July '47.	3,947.8 ton	3,504 ton	441 ton	42.5 ton	3,987.5ton	197 ton (276.7 tons being carried forwarded from June).
Aug. "	3,239.4 "	2,709.2 "	263.6 "	187.5 "	3,160.3	276.1 ton
Sept. "	3,612.9	3,494.3	150.8	16.9	3,862	27
Oct. "	4,939	4,860.5	92	3.5	4,956	10
Nov. "	6,118	5,148	975	5.	6,128	0
Dec. "	6,594	5,074	408	2	5,484	1,050
Total	21,351.1 ton	24,790 ton	2,530.4 ton	257.4 ton	27,577.8 ton	
Jan. '48	6,048	3,091	542	3	3,636	3,462
Feb. "	3,427	3,912.5	588	10.5	4,511	2,378
Mar. "	5,867.5	4,908	877.5	20	5,805.5	2,440
Apr. "	9,022.5	8,500	990.5	8 (5)	9,498.5	1,964
May "	9,142	8,681.5	1,715.5	127 (77)	10,524	582
June "	7,557.5	5,893	1,376.3	128.2(64.5)	7,397.5	742
Total	41,064.5 ton	34,986 ton	6,089.8 ton	296.7 ton	41,372.5 ton	
Grand Total	69,415.6 ton	59,776 ton	8,620.2 ton	554.1 ton	68,950.3 ton	

NOTE: Figures in () show the quantity of ice for Occupation Forces

DECLASSIFIED E.O. 12065 SECTION 3-402/NNDG NO. 77893

STATISTICS OF DEMAND & SUPPLY OF ICE
(From July 1, 1947 to June 30, 1948)

Name of Plant : Kwanmon Ice Making & Cold Storage Co., Ltd.
Location : Hikoshima-machi, Shimonoseki

Month	Output	For Fishery Use	Re-ice	General Use	Total	Stocks on Hand
July '47	147 ton	123.7 ton		12.3 ton	136 ton	0 (1st July)
Aug. "	128 "	111 "		28 "	139 "	11 ton
Sept. "	114 "	58 "		35 "	93 "	21 "
Oct. "	441 "	323.7 "		6.3 "	330 "	132 "
Nov. "	582 "	618 "		2 "	620 "	94 "
Dec. "	363 "	454.5 "		2.5 "	457 "	0 "
Total	1,775 "	1,688.9 "		86.1 "	1,775 "	
Jan. '48	305 "	230 "		1 "	291 "	74 "
Feb. "	268 "	322.5 "		0.5 "	323 "	19 "
Mar. "	243 "	233.5		0.5	234 "	28 "
Apr. "	200 "	206. "		2 "	208 "	20 "
May "	521 "	508.5 "		2.5 "	511 "	30 "
June "	665 "	650 "		5 "	655 "	40
Total	2,202 "	2,150.5 "		11.5 "	2,162 "	
GRAND TOTAL	3,977 ton	3,839.4 ton		97.6 ton	3,937 ton	

DECLASSIFIED E.O. 12065 SECTION 3-402/NNDG NO. 178012

STATISTICS OF DEMAND & SUPPLY OF ICE
(From July 1, 1947 to June 30, 1948)

Name of Plant : Kawai Ice Making Shimonoseki Plant

Location: Kamishinchi-machi, Shimonoseki

Month	Produced	Occupation Force Use	Hospital	For Fishery Use	General Use	Total
					Reserve 570	
July '47	180	None	49 ton	247 ton	84 ton	380 ton
Aug. "	162	"	79 "	286 "	75 "	440 "
Sept. "	174	"	26 "	130 "	64	220 "
Oct. "	226	"	4 "	24	62	90 "
Nov. "	122	"	9	49	23	81 "
Dec. "	12	"	8	41	30	79 "
Jan. '48	99	None	5	26	19	50 "
Feb. "	111	"	7	32	33	72 "
Mar. "	242	"	8	45	27	80 "
Apr. "	340	"	16	56	53	125 "
May "	171	"	30	87	183	300 "
June "	36	"	51	144	105	300 "
TOTAL	1,875		292 ton	1,167 ton	758 ton	2,217 ton

Loss - melting, etc. 93 tons
Total in reserve 1 July 1948 - 7 tons

DECLASSIFIED E.O. 12065 SECTION 3-402/NNDG NO.

INDEX OF ICE PLANTS LOCATED IN YAMAGUCHI PREFECTURE

Shimonoseki Area Name of Plant	Name of Representative	Location
1. Nippon Cold Storage Co.,Chimonoseki Plant	Hideo Oshio	57 Imaura - cho, Shimonoseki
2. Nippon Cold Storage Co.,Hiekoshima,Honmura Pl	Yurio Murata	365 Shimonota-Hiekoshima, Shimonoseki
3. #1 Refrigerating Pl of Taiyo Fishing Co. Ltd.	Katsumi Oguna	1-4198 Hiekoshima machi, Shimonoseki
4. Shimonoseki #2 Refrigerating Pl of Taiyo Fishing Co., Ltd.	Harumi Soyima	19 Yamato-cho, Shimonoseki
5. Kanmon Ice Making & Cold Storage Co.Ltd.	Seii Kusunose	1 Hiekoshima-machi, Shimonoseki
6. Kawai Ice Making Co.,Shimonoseki Pl	Hiroji Kawai	Kamishinchi-machi, Shimonoseki
7. Shimonoseki Marine Product Selling Co.Ltd.	Sadakichi Yoshinaga	7-81 Kannonzaki-cho, Shimonoseki
Hagi Area **Name of Plant**		
8. Hagi Marine Product Refrigerating & Ice Making Plant of Fishery Association of Yamaguchi Prefecture	Seiji Okayama	Hamasaki-cho, Hagi
9. Ice Manufacturing Plant of Hagi City	Shigeo Izundiya	1-137 Hamasaki-machi, Hagi
10. Ice Making Pl of Nako Fishery Association	Kiyoguma Cho	2747 Nako-machi, Obu-gun
11. Nippon Cold Storage Co, Hagi Plant	Fukusuke Sawai	3035 Tsubakito, Hagi
12. Ice Making & Cold Storage Pl of Senzaki-machi Fishery Association	Toraichi Nishimura	2016 Ninomi-machi,Senjaki-machi,Osu-gun
13. Nippon Cold Storage Co Senjaki Pl	Shozo Nakano	1082 Ninomibara Senzaki Otsu-gun
14. Ogushi I.M.Pl of Fishery Association of Yamaguchi Prefecture	Yusuke Hironaga	Nakakoji, Koguchi-machi, Toyoura-gun
15. Suetake Pl of Matsubara, I.M.	Kuranosuke Matsubara	Hirata, Shitamatsu City
16. Ube United I.M. Association	Shigenosuke Yoshimatsu	7-chome, Kaigan-dori, Higashi-ku,Ube
17. Bocho Marine Product Co., Ltd.	Iwao Kametani	Tokonami, Nishikiwaku, Ube
18. Tsunemiya I.M.Pl	Shizuji Tsuneshige	1149 Ozuki-machi, Shimonoseki
19. Ogori I.M.Co.Ltd.	Yasuji Veda	Shimogo Ogori-machi, Yamaguchi
20. Yamaguchi I.M.&Cold Storage Co.	Hikosaburo Ariyoshi	Shinmichi, Yamaguchi
21. Tsunoda I.M.Pl	Yoshiichi Tsunoda	513 Kamiunorei, Yamaguchi
22. Suyo I.M. Pl	Kameichi Sajika	81 Mitajiri, Bofu
23. Tokuyama I.M.Co.Ltd.	Yutaka Motomura	Kaisaku-cho Eguchi, Tokuyama
24. Onoda Provision Industry Co.Ltd.	Hirosuke Shimizu	Nishimohama, Minato-machi Onoda
25. Sanwa I.M.Co.Ltd.	Yoshisuke Somaki	2553 Yanai, Yanai-machi,Kuka-gun
26. Ohata I.M. and Cold Storage Co.Ltd.	Kiyoshi Takao	Ohata Kojiro-mura, Kuka-gun
27. Asahi I.M. Plant	Yutaka motomura	Mitajiri, Bofu
28. Kawashita I.M.Co.Ltd	Tatsu Ryuzaki	85 Nukaizu, Iwakuni
29. Morishige I.M.Pl	Bobukichi Morishige	3278 Nishikimi, Iwakuni

DECLASSIFIED E.O. 12065 SECTION 3-402/NNDG NO.

INDEX OF ICE PLANTS LOCATED IN YAMAGUCHI PREFECTURE CONT'D

Name of Plant	Name of Representative	Location
Cont'd		
30. Nippatsu Industry Co.Ltd.	Torao Kuniyoshi	3-chome, Kaigandori, Higashi-ku, Ube
31. Bofu Plant of Kyowa Industry Co.Ltd.	Hiroshi Watanabe	1835 Mitojiri-mura, Bofu
32. Murai I.M. and Cold Storage	Junro Murai	547 Yokohama, Tokuyama, Tokuyama City
33. Asa Metamorphosis Pl of Nippon Chemical Co.Ltd.	Shotaro Gensho	Asa-machi, Asa-gun
34. Maruachi Marine Industry Co.,Ltd	Fameijiro Harada	2-6036 Aio-machi, Yoshiki-gun
35. Ube Marine Food Co.Ltd.	Motosuke Yanagiya	2-chome Kaigandori, Ube
36. Fish Receiving Association of Nishiichi Area	Toyosuke Kimoto	Nishiichi-machi, Toyoura-gun

DECLASSIFIED E.O. 12065 SECTION 3-402/NND NO.

DEMAND AND SUPPLY OF ICE BY NIPPON COLD STORAGE LTD
HONMURA PLANT (Metric Tons)

1947 MONTH	PRODUCED	SHIPPED	PURCHASED	TOTAL	FOR FISHING	RE-ICING
July	4662			4662	3105	722
August	3906	1		3907	1872	566
September	4282	191	12	4485	4120	195
October	5086	513		5599	4577	1000
November	4713	595		5308	3778	1525
December	4860	40		4900	2626	1011
TOTAL	27509	1340	12		20278	5019
1948						
January	4166			4166	1374	1048
February	3771			3771	2166	1446
March		333	828	828	1890	1787
April	626	60	1025	1984	494	1573
May	5582			5642	3174	2424
June	5340		23	5363	2923	2230
Total	19,485	393	1876		12021	10508
Grand Total	46,994	1733	1888		32299	15527

(Continued)

1947

MONTH	TRANSFERRED (TONS)	TOTAL	LOSS FROM MELTING	BALANCE OF ICE IN RESERVE
July		4254		531
August	72	4167		271
September		4736		20
October		5601		18
November		5321		5
December		3847		1050
TOTAL	72	27,926		

1948

January		2432		2792
February				
February		3623		2910
March		3690		98
April		2079		3
May		5628		17
June		5257		123
TOTAL		22,709	70	
GRAND TOTAL		50,635	70	146 tons

DECLASSIFIED E.O. 12065 SECTION 3-402/NNDS NO.

DECLASSIFIED E.O. 12065 SECTION 3-402/NNDS NO.

DEMAND AND SUPPLY OF ICE BY NIPPON COLD STORAGE PLANT LTD
(SHIMONOSEKI)
Period 1 July 1947 - June 1948 (Metric Tons)

1947 MONTH	OUTPUT	TRANSFERRED FROM) HONMURA PLANT)	purchased	(AVAILABLE FOR (DISTRIBUTION	% ALLOCATED FOR FISHING	% TO OCCUPATION FORCES USE
July	1891		44	1935	847 tons	105 tons
August	1514	72 tons	12	1598	43	101
September	1265		292	1557	724	95
October	1571		1873	3444	2806	61
November	2368		1097	3465	2738	19
December	2716		58	2773	2201	21
	11,325	72	3376	14,772	9359	402
1948						
January	2850			2850	1450	7
February	307			307	1350	
March	358			358	869	
April	2183			2183	1789	
May	2725			2725	2474	
June	1987	5	0	1992	1627	7
Total	10,410	77	0	10,415	9559	
Grand Total	21,735	77	3376	25,187	18,918	409

DECLASSIFIED E.O. 12065 SECTION 3-402/NNDC NO.

Cont'd - 1947

MONTH	GENERAL USE	SHIPPED TO BRANCH PLANT	TOTAL	ICE STORAGE BALANCE ON HAND
July	852		1804	290
August	1583	1	1728	160
September	638	191	1648	69
October	127	513	3507	6
November	86	595	3543	33
December	84	40	2346	460
Total	3370	1340	14576	
January	51		1508	1802
February	62		1412	697
March	101		970	85
April	138	333	2260	8
May	187	60	2742	13
June	341		1968	37
Total	880	393	10860	
GRAND TOTAL	4250	1733	25436	

37 tons reserve as of July 1948

	Ice Making Capacity (tons per 24 hrs)	Ice Storage Space (cubage)	Ice in Storage (tons)	Tons per Day Now Making (Inspection Date)	Cold Storage Space (cubage)
1.	115	136,241 cu ft	37 - 1 Jul	95	Cold Storage 63,730 cu ft Freezing 8,982 "
2.	220	239,314 cu ft	150 - 7 Jul	170	0
3.	180	4,879 cu mtrs	211 - 1 Jul	106	7,146 cu mtrs
4.	340	146,880 cu ft	843 - 1 Jul	300	10,2255.95 cu ft
5.	50	108 cu ft	40 - 1 Jul	40	118 cu ft
6.	10	47,800 cu ft	7 - 1 Jul	6	0
7.	0	0	0 "	0	1,690
8.	10	20 cu tsubo	0 "	3	58 cu tsubo
9.	20	180 cu tsubo	182 "	16	21.7 cu tsubo
10.	3	17.22 cu tsubo	63 "	1	0
11.	8	600 cu ft	0 "	3	0
12.	3	960 cu ft	0 "	0	0
13.	15	125 cu tsubo	86	15 - 1 Jul	57 cu tsubo
14.	5	67 cu tsubo	20	4 "	0
15.	12	4500 cu ft	0	0-X "	0
16.	5	1500 cu ft	50	4 "	0
17.	0	0	0	0 "	38 cu tsubo
18.	5	24 cu mtrs	61	2½ "	0
19.	8	30 cu mtrs	2	5 "	5 cu tsubo

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20.	7.5	15 cu tsubo	100	5	"	0
21.	3	1400 cu ft	10	2	"	0
22.	9½	48 cu tsubo	50	7	"	0
23.	5	400 cu ft	0	3	"	0
24.	0	0	0	0	"	7,280 cu ft
25.	5	36 cu tsubo	0	1½	"	0
26.	8	600 cu ft	15	6	"	0
27.	20	14 cu tsubo	40	15	1 Jul	0
28.	8	66 cu tsubo	120	8	"	0
29.	5	750 cu ft	2	3½	"	0
30.	10	15 cu tsubo	0	4	"	98 cu tsubo
31.	10	300 cu mtrs	100	2½	"	1500 cu mtrs
32.	10	24 cu tsubo	40	8	"	0
33.	5	1200 cu ft	1	1	"	0
34.	3	1800 cu ft	10	2	"	20 cu tsubo
35.	0	0	0	0	"	1000 cu ft
36.	5	67 cu tsubo	160	4	"	0
Total	1,143		2,143	843		

DECLASSIFIED E.O. 12065 SECTION 3-402/NND NO.

DECLASSIFIED E.O. 12065 SECTION 3-402/NNDG NO. [illegible]

1. Name of Plant: Nippon Reizo Kabushiki Kaishe Shimonoseki Kojyo.

2. Location : 57 Imaura-cho, Shimonoseki City

3. Capacity :

(1) Type of Plant : Horizontal Single Cylinder Double Acting
Closed Type - 2

- Ditto - 1

Vertical Double Cylinder Single Acting
Closed Type - 1

(2) Type of System : (a) Ice making: Ammonia Direct Expansion Type.

(b) Cold Storage : - Ditto -

(3) Rating of refrigeration machines (tons of refrigeration per 24 hrs.) With statement of pressure and temperature range.

Ice-making : Freezing tons 118.2 x 2 : 236.4 tons

Cold storage : Cold storage 37.7 x 1 : 37.7 "
89.3 X 1 : 89.3 "

Pressure & Temperature Range

Type of Plant	Delivery Pressure	Suction pressure	Temperature
Ice-making	13 - 15 Kg/cm2	1-1.4 Kg/cm2	-5'c to - 10'c
Cold storage	"	0.5-0.8Kg/cm2	-10'c to -15'c
Freezing	"	0.2-0.5 Kg/cm2	-25'c to -30'c

4. Ice making capacity per 24 hours : 115 tons

5. Ice storage space cubic feet : 136,241 cft.

6. How many tons of ice will storage space hold : 2,012 tons.

7. How much ice is in storage now (tons) : 37 tons as at July 1, 1948.

8. Cold storage spaces cubic feet or cubic meters. Freezing spaces cubic feet or cubic meters:

Cold storage : 63,730 cft.

Freezing space : 8,982 cft.

9. Type of storage carried: Ammonia Direct Expansion Type.

10. Brine solution used : CaCl2

11. Average quantity used per year (tons) : Cacl2 : 37 tons (July '47 to June '48)

DECLASSIFIED E.O. 12065 SECTION 3-402/NNDG NO. [illegible]

12. Ice machine oil litre used per year : 2,374 litres.

13. Ammonia (NH3) kilograms used per year : 7,130 Kg.

14. Total demand or receiving capacity in K.W. of ice making plant :

Total demand ---------- 1,949,500 KWH
Receiving Capacity ---- 2,300,000 "

15. Total demand or receiving capacity in K.W. of cold storage plant:

Total demand ---------- 128,800 KWH .
Receiving capacity ---- 200,000 "

16. Is your present output of ice more than demand for ice?

It is being balanced.

17. Are surpluses going in to reserve?

Yes, it is reserved.

18. Is ice storage space adequate?

Yes, it is adequate.

19. Is plant operating 24 hours per day (if not why?) :

Operating 24 hours per day.

20. Are you forced to supplement official allocations of ammonia, ice machine oil etc., from other sources? Can it be obtained that way?

1. Yes, we are forced to.

2. There is no other way than to buy from blackmarket.

21. How do you sell ice?

Wholesale & retail.

22. Population of town or city in which ice plant is located:

Shimonoseki : 180,000.

23. List all other problems regarding manufacturing or obtaining materials, not mentioned before :

It is as follows :-

Products	Term	Quantity
Manufactured ice	July '47 to June '48	21,741 tons
Cold storage kept (total tons)	"	77,034 " - Fish
Stored ice (total tons)	"	110,884 "

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Material	Period	Applied For	Allocation Received
Ammonia	July '47 to June '48	16,000 Kg	4,550 Kg
Ice machine oil	"	7,700 Ltr.	2,080 Ltr.
CaCl2	"	37 Ton	37 Ton
Iron Steel	"	7.6"	4.3 "
Cement	"	4,000 Kg.	700 Kg.
Carbide	"	8,000 Kg.	225 Kg.

Because there is no allocation for personal equipment production is being hampered as a result.

Overall 80
Rubber-soled sock -- 80 pairs
The increased allocation of the staple food etc.

For those things necessary for labour's we are trying to get allocations approved.

24. List of all shortage of power and materials now existing or liable to develop in near future, and what you are about it:

(1) Power:

By applying to the Commerce and Industry Bureau through the Ministry of Agriculture & Forestry every quarter of a year, we are getting a certain limit.

The category of demand is (b) of A at present but we are applying for the alteration of it into (a) of A.
We are petitioning on every application for increased regulated quantity.

(2) Material: Ammonia, ice machine oil, iron steel, carbide.

1. Besides that we applied for increased allocation to the Ministry of Agriculture and Forestry and Ministry of Transportation. We asked for special allocations to make up for materials short on original request.

(3) Lime Chloride : CaC/2

This is obtained on free sale and therefore we buy from every plant of production but we are compelled to buy this at a high price because our receiving is delayed due to the relation of prices.

25. Are you aware of channels of appeal when shortages, delay in receipt, or refusals, prevent or retard your production effort?

1. We apply for the materials by reporting the real circumstances to the allocation governmental authorities.

2. We apply to the Yamaguchi Military Government Team through the Fishery Section of the Yamaguchi Prefectural Government.

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26. How old is your plant equipment?

Seventeen years and four months (established in February, 1931):

27. Do you lose much time from mechanical breakdown?

We lose much time from it. (For delay of repair of the breakdown, it is so, too.)

28. Are present power allocations enough to permit maximum ice production? List by month from January to June with attendant shortage per month:

We have no enought power. Shortage per month as follows:-

January	105,702	KW.
February	23,350	"
March	8,200	"
April	53,800	"
May	113,900	"
June	89,600	"

29. Has any disparity existed in distribution of critical materials such as ammonia, ice machine oil, etc.?

1. There is no disparity in allocation.
2. The allocation is less than the application.

30. Do you have sufficient materials on hand, or promised to permit full scale ice production June through October, if power is available?

1. There is not enough material on hand.
2. It is expected to be possible to make ice up to May output if power is available by getting the allocation for which applied.

31. What percent of ice production goes for fish, hospital, occupation forces use?

Output	Total June ice production for fishery use	For general use
1,968 ton	1,627 ton or 83%	341 ton or 17%

32. Does ice, cold storage plant procurement demand unber - if so, give No.:

None.

33. Who is the largest single consumer of ice production in your plant:

Nichiro Fishing Co., Ltd ----------13%

34. Has any expansion of additions to plant been made in the last year, or now being built or planned - if so, give full details:

No

DECLASSIFIED E.O. 12065 SECTION 3-402/NNDG NO. 78013

Name of Plant: Nippon Cold Storage Co., Ltd., Shimonoseki Plant.

Location : 57 Imaura-cho, Shimonoseki.

Output from June to November in 1947:

Month :	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Output (ton):	2.935	1,892	1,514	1,265	1,571	2,368	2,716

The scheduled output of the period from Jan. to Dec. 1948 (figures from Jan. to June showing the actual output) :

Month :	Jan.	Feb.	Mar.	Apr.	May	June	July
Output (ton):	2,850	307	358	2,183	2,725	1,987	3,100

Month :	Aug.	Sept.	Oct.	Nov.	Dec.
Output (ton):	3,100	3,000	3,100	3,000	3,100

To attain the scheduled output above, shortages of materials as listed below in the period from July to September this year. exist.

Month	Freezing machine oil	Machine Oil	Liquid ammonia	Electric power
July	160 litre	100 litre	200 Kg.	14,000 KW.
Aug.	160 "	100 "	500 "	11,500 "
Sept.	160 "	100 "	1,000 "	10,900 "
TOTAL	480 Litre	300 Litre	1,700 Kg.	36,400 KW.

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TABLE OF REQUESTED AND ALLOCATED MATERIALS
NIPPON COLD STORAGE CO. - SHIMONOSEKI PLANT
(Jan-July 1948)

MONTH	NH3 Kgs REQUESTED	NH3 Kgs ALLOCATED	Ice Mach Oil (Ltrs) REQUESTED	Ice Mach Oil (Ltrs) ALLOCATED	CaCl2 Kgs REQUESTED	CaCl2 Kgs ALLOCATED
Jan	1000	200	270	166	0	0
Feb	1500	200	270	195	0	0
Mar	1500	300	270	203	15,000	12,000
April	2500	700	600	113	0	0
May	2500	700	600	186	0	0
June	3000	900	600	370	10,500	0
July	1000	300	400	775	0	0
TOTAL	13,000	33,00	3010	2008	25,500	12,000

DECLASSIFIED E.O. 12065 SECTION 3-402/NNDG NO. [illegible]

1. Name of Plant : Kawai Ice Manufacturing Co. Shimonoseki Factory.

2. Location : 2333 Kamishinchi-machi, Shimonoseki City

3. Capacity :

(a) Type of Plant : Vertical Single Acting Double Cylinder Closed Type ---------- 4

Horizontal Double Acting Single Cylimder Closed Type ---------- 1

(b) Type of System : Ice-making & Brine Cooler.

Cold storage - Ammonia Direct Expansion Type.

(c) Rating of refrigerating machines (tons of refrigeration per 24 hours) with statement of temperature & pressure range:

Type of plant	Tons of refrigeration per 24 hours	Number of plant	Remarks
8" x 16" X 1	20 ton	I	Being tied up owing to disorder.
$7\frac{1}{2}$" x $7\frac{1}{2}$" x 2	20 "	I	"
$6\frac{1}{2}$" x $6\frac{1}{2}$" x 2	12 "	I	
6" x 6" x 2	12 "	I	
5" x 5" x 2	10"	1	
Total	74 ton	5	
	- 40 ton	2	Being tied up owing to disorder.
	34 ton	3	Actual operation.

Pressure & Temperature Range

Kind	Delivery pressure	Suction pressure	Temperature
Ice-making	150-200 lbs /inch 2	10-25 lbs/inch2	15'F - 18'F
Cold storage	150-180 "/ "	5-10 " / "	25'F - 30'F

4. Ice-making capacity per 24 hours.

10 tons (at work)
7 " (now stop)
17 tons (total)

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5. Ice storage space cubic feet : 47,800 cfit.

6. How many tons of ice will storage space hold:

600 tons (use)
400 " (not use at present)
1000 tons

7. How much ice is in storage now (tons) : 7 tons

8. Cold storage space cubic feet or cubic metres : No space.

9. Type of storage carried : We have no cold storage space.

10. Brine solution used: CaCl2

11. Brine solution average quantity used per year (tons) : 5 tons (in solid)

12. Ice machine oil litres used per year : 1,080 litres

13. Ammonia (NH3) kilograms used per year : 1,800 Kg.

14. Total demand or receiving capacity in K.W. of ice-making plant:

Demand----------50 K.W. Used
Receiving capacity----------80 K.W. Total

15. Total demand or receiving capacity in K.W. of cold storage plant:

Demand---------- 10 K.W.H.
Receiving capacity------- 10 K.W.H.

16. Is your present output of ice more than demand for ice?

No, present output is 60% of demand.

17. Are surpluses going in to reserve?

There are no surpluses.

18. Is ice storage space adequate?

60% of ice storage is adequate.

19. Is plant operating 24 hours per day?

No, because supply of power is not sufficient.

20. Are you forced to supplement official allocations of ammonia, ice machine oil, etc. from other sources? Can it be obtained that way?

Can't get these materials except through official allocations and it is not sufficient to support full-scale production.

21. How do you sell ice?

Wholesale----------80% - 1220 yeh per ton
Retail----------20% - 11 yen kan.

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22. Pomulation of town or city in which ice plant is located :

Shimonoseki City - 176,666 (as of Oct 1947)

23. List of all other problems regarding mamufacturing or obtaining materials not mentioned before :

Steel pipe ---------- 5 tons
We need these metal materials. Owing to shortage of water (for cool), machine cannot give full ability.

25. Are you aware of channels of appeal when shortages, delay in receipt, or refusals, prevent or retard your production effort?

We don't know.

26. How old is your plant equipment : 27 years old (established 1920).

27. Do you lose much time from mechanical breakdown?

Difficulty in procurement of replacement parts and shortage of power, it takes from 30 to 60 days to repair.

28. Are present power allocations enough to permit maximum ice production?

Not enough.

LIST BY MONTH FROM JAN TO JUNE WITH ATTENDANT SHORTAGE PER MONTH

The damage of machines followed from Jan. and precision not clear.

29. Has any disparity existed in distribution of critical materials such as ammonia, ice machine oil, etc.?

No disparity has existed.

Did each plant get its share on schedule :

No and this is the cause of decreased production with attendant shortages of power.

30. Do you have sufficient materials on hand, or promised to permit full scale ice production June through October, if power is available?

No, materials on hand will not permit full scale production.

31. What percent of ice production goes for fish, hospital, occupation forces use?

May : 45% for fishing boat
16% for vessels other than fishing boat.
39% for general use

June : 4% for fishing boat
31% for vessels other than fishing boat.
65% for general use.

32. Does ice, or cold storage plant procurement demand number, if so give number:

None.

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33. Who is the largest single consumer of ice production in your plant (give name of Co.) :

Kanmon Shipping Co.

34. Has any expansion or additions to plant been made in the last year, or now being built or planned - if so, give full detail:

As one of the ammonia-compressors was old, we replaced it with new one at the beginning of this year (1948), but the machine has been broken down owing to the shortage of ice machine oil and is being repaired.

The existing electric line was not a special one. Therefore, power has stopped sometimes with the general line shutdowns.

We are applying to the authorities concerned for installations of special line for our plant.

DECLASSIFIED E.O. 12065 SECTION 3-402/NNDG NO. 77-0[illegible]

Name of Plant: Kawai Ice Manufacturing Co., Shimonoseki Factory

Location: 2333 Kamishinchi-machi Shimonoseki

Output of Ice
(From June 1947 to Nov 1947)

Month	June	July	Aug.	Sept.	Oct.	Nov.	Dec
Output (ton)	200	180	162	174	226	122	12

Estimated Production
From Jan 1948 to Dec 1948

Month	Jan	Feb	Mar	Apr	May	June
Output (ton)	99	111	242	340	171	36

Month	July	Aug	Sept	Oct	Nov	Dec
Output (ton)	280	300	300	300	200	100

Estimated Shortage of Materials to Carry Out Production
Schedule - July-Sept 1948

Month	Ice Machine Oil	Machine Oil	Ammonia	Power
July	60 litre	36 litre	100 kg	5,000 kw
Aug	60 "	36 "	100 "	5,000 "
Sept	60 "	36 "	100 "	5,000 "
TOTAL	180 litre	108 litre	300 kg	15,000 kw

DECLASSIFIED E.O. 12065 SECTION 3-402/NNDG NO. [illegible]

Report concerning Restoration Works for our 7-ton Ice Making Plant

Name of Plant : Kawai Ice Manufacturing Co., Shimonoseki Plant.
Location : 2333-3 Kemishinchi-machi, Shimonoseki City.

1. Necessary Materials :

Name of Materials	Quantity	Amount (Yen)
Steel pipe 1¼"	2,000 feet (2,500 Kg.)	¥75,000.
Ice can (300 lbs)	130 cans	390,000.
Calcium Chloride	5 tons	100,000.
Ammonia	500 Kg.	35,000.
Electric motor 25 H.P.	I	50,000.
General expenses required for construction		200,000.
	TOTAL--------	¥850,000.

2. The reason why operation has been stopped :

Formerly, there were many pools near about our factory, and we could get much water to cool ammonia, but later, owing to the change of the condition of the ground, it has become very hard for us to get enough water to cool. With a view to make use of the underground water, we sank some wells, but we couldn't get sufficient water as we expected because of the ground proved to be the alluvial formation.

Therefore, we gave up the idea of operation of it, and few years later, the equipment of the plant were decayed. Since then, owing to the shortage of repairing materials to be used in this plant, we applied the materials of our No. 2 plant in Fukuoka to it. Even at this time, operation was 3 months during the summer season only.

And, as our plant was located so far from the fishing port, we had to pay extra transportation expense for that, thus resulting in a blow to our finance.

3. The wish about removement of factory :

For the reason mentioned above, we can't operate the machines at present, we wish to remove the plant anywhere near fishing port so as to be able to execute our duty and also to carry on the complete undertaking. Now, we are seeking suitable place to remove.

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MATERIALS, ALLOCATIONS & REQUESTS
KAWAI I.M. PLANT - JAN-JULY 1948

MONTH	NH3 Kgs REQUESTED	NH3 Kgs ALLOCATED	Ice Mach Oil (Ltrs) REQUESTED	Ice Mach Oil (Ltrs) ALLOCATED	CaCl2 Kgs REQUESTED	CaCl2 Kgs ALLOCATED
Jan	250	200	54	10		
Feb	250	200	54	23	4900	4900
Mar	250	300	54	19		
April	250	90	66	39		
May	300	90	66	50		
June	300	95	66	54	3000	2450
July	150	95	90	135		
TOTAL	1750	1070	450	330	7900	7350

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YAMAGUCHI PREFECTURE
Materials and Power Consumption Tables

Month	NH3 (Kg's)	1947 Ice Machine Oil (Litres)	CaCl2 (Kg's)
Jan.	3.560	1.150	19.790
Feb.	2,480	920	15,800
Mar.	3,010	970	16,730
Apr.	10,000	1,921	2,000
May	10,000	2,342	62,000
June	12,550	3,980	50,000
July	4,000	4,105	50,000
Aug.	3,500	6,180	83,800
Sept.	3,500	6,037	40,880
Oct.	3,300	1,360	0
Nov.	3,300	1,275	0
Dec.	3,300	1,440	7,000
TOTAL	62,860	31,680	348,000

Power Used 1947 (KWH)

Jan.	628,200	May	1,596,000	Sept.	1,650,000
Feb.	501,600	June	1,560,000	Oct.	2,064,000
Mar.	531,000	July	1,644,000	Nov.	1,998,000
Apr.	1,542,000	Aug.	1,668,000	Dec.	2,064,000

TOTAL 17,446,800

Month	NH3 (Kg's)	1948 Ice Machine Oil (Litres)	CaCl2 (Kg's)	
Jan.	2,645	1,520	22,000	Actual
Feb.	2,920	1,580	26,600	
Mar.	3,840	1,530	47,000	
Apr.	5,040	2,692	50,300	
May	5,435	2,560	86,600	
June	6,300			
July	3,845	5,460	56,800	
Aug.	8,100	5,470	58,400	
Sept.	8,500	4,960	56,400	Estimated
Oct.	7,200	4,710	54,400	
Nov.	6,900	4,420	52,400	
Dec.	6,200	3,640	48,400	
TOTAL	66,925	40,992	635,300	

Power Used 1948 (KWH)

Jan.	974,100	July	2,091,700	)
Feb.	1,156,000	Aug.	2,095,800	)
Mar.	1,227,600	Sept.	2,072,600	)-Estimated
Apr.	1,766,300	Oct.	2,048,800	)
May	2,170,000	Nov.	2,048,800	)
June	2,118,200	Dec.	1,988,500	)

TOTAL 21,758,400